

Policies for the Future of Farming and Food in Romania



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Foreword

The OECD Council decided to open accession discussions with Romania on 25 January 2022. On 10 June 2022, the Council adopted the Roadmap for the accession of Romania to the OECD Convention [C/MIN(2022)25/FINAL] (the Roadmap) setting out the terms, conditions and process for accession to the OECD. The Roadmap provides that in order to allow the Council to take an informed decision on the accession of Romania, Romania will undergo in-depth reviews by OECD technical committees listed in the Roadmap, including the Committee for Agriculture (COAG).

This report was prepared to support the accession review discussion of the Committee for Agriculture with Romania. It reflects information provided by Romania in response to an OECD questionnaire and subsequent follow-up, and information collected in the course of the OECD fact-finding mission to Romania on 12-15 September 2023, as well as desk research and data collection by the OECD Secretariat. The report also reflects discussions at the COAG on 30 October 2024 and 24 April 2025.

Romania has made considerable economic and social progress in the last decades, particularly since joining the European Union, with EU policies, in particular the Common Agricultural Policy, playing a central role in shaping its agricultural development. Romania faces challenges common to many countries in reconciling agro-food productivity, sustainability, and resilience, but in a context marked by a dual farm structure and slow structural transformation in the agricultural sector. This report provides evidence and policy recommendations to support Romania in strengthening its agricultural and food policies, with a view to the development of a coherent policy mix to accelerate structural change in agriculture; to create the enabling environment to foster a more competitive and resilient agro-food sector; to strengthen policies aimed at ensuring long-term environmental sustainability, and to reinforce the agricultural knowledge and innovation system.

In accordance with paragraph 28 of the Roadmap and upon the request of Romania, the Committee for Agriculture agreed to declassify this report and publish it in order to allow a wider audience to become acquainted with its content. Publication of this document and the analysis and recommendations contained therein do not prejudice in any way the outcome of evaluations conducted as part of Romania's accession process to the OECD.

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Acronyms and Abbreviations

AAFS	Academy for Agricultural and Forestry Sciences
AKIS	Agricultural Knowledge and Innovation System
AFIR	Agency for Rural Investment Financing
ANC	Areas of Natural Constraints
APIA	Agency for Payments and Intervention in Agriculture
APO	Associations of producer organisations
AWU	Annual Working Unit
BISS	EU Basic Income Support for Sustainability
CAD	County Agricultural Directorate
CAP	Common Agricultural Policy of the European Union
CCEIAN	Consultative Council for the Impact Assessment of Normative Acts
CCT	EU Common Customs Tariff
CIS	EU Coupled Income Support
CIS-YF	EU Complementary Income Support for Young Farmers
CMO	EU Common market organization
CNDP	Complementary national direct payments
CPVO	Community Plant Variety Office
CRISS	EU Complementary redistributive income support for sustainability
CSP	CAP Strategic Plan
DESI	EU Digital Economy and Society Index
DIGIT	Digital, innovative and green technologies project
EAFRD	European Agricultural Fund for Rural Development
EAGF	European Agricultural Guarantee Fund
EC	European Commission
EEA	European Economic Area
EFA	Ecological Focus Areas
EFSA	European Food Safety Agency
EGD	European Green Deal
EIP	European Innovation Partnership
EPO	European Patent Organisation
EQF	European Qualifications Framework
ERDF	European Regional Development Fund
ESF	European Social Fund
ESIF	European Structural and Investment Funds
ETS	Emissions Trading System
EU	European Union
EUFRA	European Forum for Agricultural and Rural Advisory Services
EUR	Euro
FAS	Farm Advisory Service
FCFS	First-come-first-served
FDI	Foreign Direct Investment
FEBA	European Food Banks Federation
FNVA	Farm net value added
FRMP	Flood Risk Management Plan
FSC	Forest Stewardship Council

FTTP	Fibre to the Premises
FVA	Foreign Value Added
GAEC	Good Agricultural and Environmental Condition
GATT	General Agreement on Tariffs and Trade
GBARD	Government Budget Allocation for Research and Development
GDP	Gross Domestic Product
GDPR	EU General Data Protection Regulation
GERD	Gross Domestic Expenditure on Research and Development
GHG	Greenhouse Gas
GII	Global Innovation Index
GM	Genetically modified
GSP	Generalised Scheme of Preferences
GSSE	General Service Support Estimate
GVA	Gross Value Added
GVC	Global value chain
HNV	High Nature Value
HS	Harmonised System
IBO	Inter-branch organisation
ICT	Information and communication technologies
IP	Intellectual property
IPM	Integrated pest management
IPARD	Instrument for Pre-Accession Assistance - Rural Development
IPR	Intellectual property rights
ISPA	Instrument for Structural Policies for Pre-Accession
ISTIS	State Institute for Variety Testing and Registration
LAG	Local Action Group
LDC	Least-developed countries
LEADER	Liaison Entre Actions de Développement de l'Économie Rurale
LGP	Local gastronomic point
LIFE	EU Funding Instrument for the Environment and Climate Action
LTS	Long-term strategy
LUCAS	EU Land Use and Land Cover survey
LULUCF	Land Use, Land-Use Change and Forestry
MARD	Romania's Ministry of Agriculture and Rural Development
MFN	Most-favoured nation
MRID	Ministry of Research, Innovation and Digitisation
N	Nitrogen
NAAC	Agency of Agricultural Consultancy
NATO	North Atlantic Treaty Organisation
NALI	National Agency for Land Improvement
NARW	National Administration "Romanian Waters"
NAV	Non-ad valorem tariffs
NAZ	National Agency for Zootechny
NCES	National Circular Economy Strategy
ND	Nitrates Directive
NDM	New delivery model
NECD	National Emission Reduction Commitments Directive
NGA	Next Generation Agenda
NGO	Non-governmental organisation
NH3	Ammonia
NRDP	National Rural Development Program
NRRP	National Recovery and Resilience Plan
NSDA	National Strategy for Digital Agenda
NSP	National Strategic Plan
NTM	Non-tariff measure
P	Phosphorus
PHARE	Programme of Community Aid to the countries of Central and Eastern Europe

PMR	Product Market Regulation
PO	Producer organisation
POSEI	Programmes d'Options Spécifiques à l'Eloignement et à l'Insularité)
PSE	Producer Support Estimate
RASFF	Rapid Alert System for Food and Feed
RBC	Responsible Business Conduct
RBMP	River Basin Management Plan
RDA	Regional Development Agency
RDP	Rural Development Programme
RIA	Regulatory Impact Assessment
RRF	EU Recovery and Resilience Facility
OG	Operational Groups
SAPARD	Special Accession Programme for Rural Development
SDA	State Domains Agency
SDG	Sustainable Development Goals
SFS	EU Small Farmers Scheme
SME	Small and Medium Enterprise
SMR	Statutory Management Requirement
SNCISI	National Strategy for Research, Innovation and Smart Specialisation
SOC	Soil organic carbon
SPA	Special Protection Area
SPS	Sanitary and phytosanitary measures
SSG	Special agricultural safeguard
SUMAL	Integrated National Information System for Tracking Wood
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TBT	Technical barriers to trade
TFP	Total Factor Productivity
TiVA	Trade in Value Added
TNA	Transitional national aid
TRIPS	Trade-Related Aspects of Intellectual Property Rights
TRQ	Tariff rate quota
TSE	Total support estimate
UAA	Utilised agricultural area
UN	United Nations
UNFSS	UN Food Systems Summit
UPOV	International Union for the Protection of New Varieties of Plants
USD	US Dollar
VAT	Value added tax
VET	Vocational education and training
VCS	EU voluntary coupled support
WFD	Water Framework Directive
WTO	World Trade Organization
YFP	EU Young Farmer Payment

Executive Summary

Key messages

- Romania's agricultural policies and objectives have evolved significantly since its accession to the European Union (EU). EU policies, and in particular the Common Agricultural Policy, have led to the adoption of broader agri-environmental and rural development measures and increased financial support to farmers and rural areas.
- Romanian agricultural policies focus on social, environmental, and economic objectives, with an emphasis on developing the viability and competitiveness of farms and strengthening their market orientation.
- The structural transformation of the Romanian agriculture is underway, but it is slow and key challenges need to be addressed to unlock the full sector's economic potential:
 - The sector is developing on two tracks, with a large number of small (< 5 ha) farms with limited market orientation and very few large farms. Access to credit and to land are key barriers to farm restructuring.
 - Agro-food exports are increasing but remain concentrated in products with low value-added, resulting in limited integration of the agricultural sector into global value chains.
 - Lack of skills, education and training are key barriers for a more productive, resilient, and sustainable sector.
- OECD accession can help Romania improve the effectiveness of its policies for the agriculture sector, encouraging innovation, with a view of improving productivity and competitiveness while promoting environmental sustainability and resilience.

Romania's agricultural policies are shaped by the European Union's objectives and programmes

Romania's policy and legal framework has evolved significantly since its accession to the European Union. Romania was one of the original members of the World Trade Organization when it was created in 1995, yet it was its accession to the European Union in 2007 that prompted many policy reforms in several sectors, including agriculture. EU policies, regulations and, in particular, the Common Agricultural Policy (CAP) have led to not only increasing financial support to farmers and rural areas, but also the adoption of broader agri-environmental and rural development policies. Upon its EU accession, Romania also adopted the common commercial policy of the European Union. Romania has also adhered to the main OECD legal instruments and Declarations. Although it is not yet an Adherent to the Recommendation of the Council on the OECD-FAO Guidance for Responsible Agricultural Supply Chains, Romania has undertaken promotional activity to encourage the use of this instrument and adheres to the

Council Recommendation on the OECD Due Diligence Guidelines for Responsible Business Conduct (RBC) and to other RBC-related instruments. It is an Adherent of both the 2016 *OECD Declaration on Better Policies to Achieve a Productive, Sustainable and Resilient Global Food System* and the 2022 *OECD Declaration on Transformative Solutions for Sustainable Agriculture and Food Systems*.

Romania's main agricultural policy objectives are socio-economic in nature. Over the last two decades, Romania's Ministry of Agriculture and Rural Development (MARD) has released several strategic documents on the future of the country's agricultural policies and on the necessary steps to achieve key objectives dealing with social, environmental and economic issues. The CAP Strategic Plan (CSP) for 2023-27 is currently the main reference and policy tool. It deploys a broad range of policy instruments to increase the viability and competitiveness of farms, to reinforce their market orientation, and to promote the socio-economic development of rural areas. Structural changes could create additional pressures on the environment, and there is room for more ambitious agri-environmental interventions.

The policy and regulatory environments have improved, although significant challenges remain. Despite notable improvements in its regulatory policy since the early 2000s, including a formal requirement to conduct regulatory impact assessment (RIA) when developing primary laws and subordinate regulations, when it comes to negotiating and transposing EU directives and regulations, Romania relies solely on the European Commission's regulatory impact assessments (RIA). Stakeholder engagement has improved, but representation is primarily through organised associations. The CSP has benefitted from broad consultation with national stakeholders, allowing MARD to identify and prioritise the country's needs and necessary policy interventions. However, Romania's allocation of CAP financial resources among the different instruments shows that there is scope for more strategic and bolder use of EU measures to achieve its stated objectives.

Agricultural support in Romania would benefit from a more coherent policy mix to incentivise innovation and accelerate structural change. Further improvements to the system of granting financial support would ensure an effective response to emerging socio-economic, geopolitical and climate challenges. Romania's agricultural policies could also benefit from stronger synergies and co-ordination between EU and national instruments. In view of the importance of these synergies, the impact of changes to CAP rules for income support on structural change will need to be assessed. There is also scope to increase the share of funding to promote knowledge transfer and innovation and for further efforts to improve the competitiveness and entrepreneurship of farmers. Romania needs to adopt a comprehensive strategy to strengthen its agricultural knowledge and innovation system (AKIS) for a more productive, resilient, and sustainable sector.

Although structural change is slow, it has led to increased productivity while keeping environmental pressures relatively low

Structural change is underway, but the sector is developing on two tracks, with a large number of small farms and few very large farms. Romania has around 2.9 million of the EU's 9.1 million farms, and the largest share of the in Gross Domestic Product from agriculture in the European Union. The number of farms has declined by a quarter over the last 20 years, accompanied by a significant increase of average output and farm income per farm. An increasing number of young farmers are entering the sector. At the same time, farmland distribution is highly uneven, with around 90% of farms smaller than 5 ha and less than 1% of the farms owning more than half of agricultural land. Most small farms are not market oriented, have low technology and limited access to credit. While access to land for small and medium market-oriented farms is a key barrier to farm restructuring, permissive legislation on land markets has favoured land acquisition by large foreign investors.

Agricultural productivity is moderate but growing, accompanied by a good sustainability performance. The structural transformation of the Romanian farming sector has resulted in increased

agricultural output, largely driven by agricultural productivity growth. Although this positive trend is mainly the result of labour productivity growth, Romania still has the lowest agricultural labour productivity levels in the European Union and the largest agricultural labour force, with almost one-third of the EU's farms, 8.1% of its Utilised Agricultural Area and 3.3% of the EU's standard output. The environmental performance of the Romanian farming sector is good, but over the last decade GHG emissions from agriculture have increased and challenges remain, particularly concerning the conservation of biodiversity for High Nature Value (HNV) and water management. The volume of water used for agriculture for irrigation purposes is increasing, and obsolete irrigation infrastructure contributes to water losses.

Bolder policies are needed to achieve the country's socio-economic objectives. More than 60% of the total budget of the CSP goes to direct payments, whose main beneficiaries are a small group of large holdings (in 2022, more than half of total EAGF payments accrued to under 2% of beneficiaries). This reflects not only the polarised structure of Romanian agriculture, but the implementation choices made by the government. Efforts should be made to further target support to market-oriented small- and medium-sized farms. Positive trade developments in agro-food exports are not always accompanied by the integration of the Romanian agricultural sector into global value chains, which is relatively low compared to peer countries. The number of farmer associations is low, with less than 1% of farmers engaged. Further efforts are necessary to stimulate entrepreneurship, competitiveness, and co-operation.

Policy efforts do not adequately meet resilience and sustainability challenges. Droughts and floods resulting from extreme weather conditions are among the most serious problems in Romanian agriculture today. Nevertheless, only fewer than 1% of Romanian farmers, mostly from large farms, have adopted EU CAP risk management tools, which are not fully implemented in the CSP. Advisory services are weak and fragmented, particularly with respect to cross-compliance and agri-environmental measures. Further efforts are needed to develop training and advice that is targeted to sustainability and resilience objectives. Romania's capacity to treat food waste is significantly lower than the EU average and is declining compared to the trend in most EU27 countries.

A comprehensive strategy is needed to strengthen the agricultural knowledge and innovation system (AKIS). Romania's AKIS is at an early stage of development. Although there has been steady improvement in recent years, the low level of farmers' education and skills requires the development of an ambitious skills and education agenda, as well as additional training. Advisory services are currently insufficient and do not fully respond to the diverse needs of farmers, and should make better use of CAP funding. In general, the AKIS requires greater investment to foster innovation and the adoption of new technologies, by also making better use of national and EU policies.

Summary of recommendations

Area	Assessment	Recommendations
Adopt a coherent policy mix to accelerate the structural change in agriculture	- The structural change of the farming sector is slow, but the number of farms above 5 hectares is increasing, with an emerging sector of medium-sized professional family farms. - Around 90% of farms are smaller than 5 hectares and the average farm size (4.4 ha) is amongst the lowest in the European Union. - The majority of small farms have low technology endowments, limited access to credit, and no market orientation. - Generational renewal remains a major problem, but recent data show positive developments. - Legislation on land markets has favoured land acquisition by foreign investors while medium-sized farms face barriers.	- Target support to small and medium-sized farms that are commercially viable. - Facilitate an equitable phasing-out of non-competitive small famers and surplus labour. - Strengthen the use of national and EU support to promote entrepreneurship. - Continue to promote young farmers to agriculture by facilitating access to land and making full use of all CAP interventions and national instruments. - Undertake an in-depth assessment of trends in land ownership to monitor farm restructuring as well as to evaluate the effects of large-scale land acquisitions.
Create an enabling policy environment for a more competitive and resilient agro-food sector	- Positive developments in agro-food exports, but limited integration of the agricultural sector into global value chains. - Co-operation among farmers is very limited but slowly expanding, driven by supportive national policies. - Fewer than 1% of Romanian farmers, mostly from large farms, have adopted EU CAP risk management tools. - Romania is not taking full advantage of the implementation options provided by EU policies. - Stakeholder engagement in policy design has improved, but mostly covers organised stakeholders and participation is low at the sub-national level.	- Adopt a comprehensive sectoral strategy to better integrate farmers in the value chain. - Further encourage associations and co-operation within the agricultural and food sector. - Accelerate the adoption of risk management tools through advice and improved policy design. - Invest in administrative capacity to improve policy management and implementation. - Explore alternative deliberative processes to encourage stakeholder engagement. - Consider ways to make better use of the room for manoeuvre in the CAP and take account of relevant recommendations in the OECD review of the European Union
More effective policies are needed to ensure the long-term environmental sustainability of the agro-food sector	- The environmental performance of Romanian agriculture is good overall, but structural changes could create additional pressures on the environment. - It is necessary to encourage farmers to maintain carbon in the soil to maintain a low level of GHG emissions from agriculture. - High Nature Value (HNV) farming is very important in preserving nature by maintaining biodiversity, especially as concerns the species-rich semi-natural grasslands. - One-fourth of all deaths in Romania can be attributed to dietary risks; fruit and vegetable consumption is the lowest in the European Union and has decreased in recent years. - Romania's capacity to treat food waste is significantly lower than the EU average and is decreasing against the trend in most EU27 countries.	- Maintain the farming activities that safeguard traditional biodiversity through targeted interventions. - Promote agricultural practices and investments to maintain low GHG emission intensity. - Gradually raise the level of ambition of agri-environmental interventions. - Strengthen the existing policy mix to encourage healthier food choices and explore synergies with environmental sustainability goals. - Promote an integrated policy package for food waste management.

Area	Assessment	Recommendations
Adopt a comprehensive strategy to strengthen the agricultural knowledge and innovation system	• Most farmers and those working in agriculture have no agricultural education or only a primary level of education. • The offer of professional training in agriculture is limited and existing life-long learning programmes in rural areas have low uptake. • Investment in R&D&I is low and the participation in international projects is limited. • The agricultural advisory system leans heavily on public services that are too often not able to meet the diverse needs of farmers. • The financial resources devoted to innovation through national policies and the CAP remain limited compared to the total support provided to the sector.	• Develop an ambitious skills and education agenda specifically for agriculture. • Improve the capacity of the sector to absorb innovation funding with a view to reorienting government support for agriculture to increase the proportion spent on knowledge and innovation systems. • Improve the skill-level of farmers via training and a lifelong learning approach. • Adopt a strategy to improve the performance of agricultural research. • Use all policy opportunities to strengthen advisory services. • Investigate the low uptake of knowledge and innovation-related measures and improve agricultural policy design accordingly.

Assessment and recommendations

Assessment

Romania has made considerable socio-economic progress, but disparities remain wide

Progress has been unequal between urban and rural areas

Romania's economy has grown at a solid rate in recent decades, closing the gap on living standards with higher-income countries. After the fall of the communist regime in 1989, Romania embarked on a series of social and economic reforms that aimed to transform the country from a highly centralised administration into a democratic and market-oriented economy. Its accession to the European Union in 2007 accelerated reform of the country's economy, including that of the farming sector.

Close to half (47%) of Romania's population lives in rural areas, which is among the highest share in the European Union. The national at-risk-of-poverty rate is much higher in these areas than in cities, and the disparities in living standards between urban and rural areas continue to be significant. Rural areas are poorly interconnected and suffer from a concentration of low-skilled labour and weak labour market opportunities.

Trade and agricultural policies are mainly driven by the European Union

Romania's participation in the multilateral trading system began decades before its transformation into a market economy. The country was an original member of the World Trade Organization (WTO) in 1995. In the years thereafter – following its application for EU membership and the opening of accession negotiations in 2000 – it began to align its trade regime with that of the European Union. Upon EU accession, it adopted the common commercial policy of the European Union.

Like other central and eastern European countries, Romania benefited from pre-accession and post-accession programmes that addressed structural reform in agriculture and other areas related to rural development. At present, Romania's agricultural support is largely based on the European Union's Common Agricultural Policy (CAP), with the recent CAP Strategic Plan (CSP) 2023-27 providing the broader policy direction for its agricultural policies and strategies, with a focus on social and economic issues. Several national programmes are also in place and contribute to the overall agricultural and agro-food policy objectives of the country.

While agriculture and food policies are driven by the European Union, the Romanian Government is responsible for strategic planning and implementation

Most policies and regulations affecting the agro-food sector – in particular the EU's Common Agricultural Policy (CAP) – in Romania are decided at the EU level and implemented at the national level. The new delivery model of the current CAP provides increasing responsibility to Member States on strategic prioritisation and policy choices. This has been reflected in Romania's recent 2023-27 CAP Strategic Plan. The OECD recently reviewed policies for farming and food in the European Union, and made 15 high-level recommendations concerning payments, regulations, innovation, data strategies, and environmental services.

The agricultural sector is of strategic importance for Romania, but its structural transformation remains challenging

Romania has one of most pronounced agricultural profiles in the European Union, but the sector is characterised by a high number of very small non-commercial farms

Romania has the largest share of agriculture in the Gross Domestic Product (4.2%) and the highest number of farms (2.9 million) in the European Union. Agriculture is of strategic importance: it ensures food security and is a major source of employment, income, and economic activity in rural areas. The farming sector, however, faces major challenges. The main challenge is to overcome the dual structure of the agricultural sector, where successful large farms co-exist alongside a majority of uncompetitive farms. Around 90% of farms are smaller than 5 ha and a small group of large farms (less than 1%) currently own more than half the agricultural land. The vast majority of small farms can be considered as subsistence farms with low technology endowments, limited access to credit, and no market orientation.

This dual structure of the farming sector is the result of several factors. In the context of the transition from socialism to a market economy, the 1990s land reform encouraged the return of collectivised farmland to its previous owners, resulting in the proliferation of small farms. In addition, the relatively low price of land, farmland abandonment, and permissive legislation on land markets favoured land acquisition by foreign investors.

The structural transformation of the farming sector is not always accompanied by an enhancement of the value added for agro-food industries

Although the number of farms has declined by a quarter over the last 20 years, the average farm size (4.4 ha) in Romania is still amongst the lowest in the European Union. The structural change of the farming sector has been primarily driven by a steady increase in the number of farms above 5 ha, with an emerging sector of medium-sized professional family farms. This trend results in an increase of the average output per farm and a significant increase in average farm income. Despite these positive signals, however, the agricultural sector continues to be dominated by small family farms and further policy efforts are needed to accelerate the transformation of Romania's agriculture into a modern and market-oriented sector.

Along with the deep structural transformation of the sector over the last 20 years, Romania has been increasing its exports in agro food products. However, agro-food exports remain concentrated in products with low value-added such as grain, oilseeds, and tobacco, and this results in a limited integration of the Romanian agricultural sector into global value chains, which is relatively low compared to peer countries.

Access to credit and to land are key barriers to farm restructuring

Access to credit is a major problem for the agro-food sector. In Romania, the unmet demand for financing from economically viable farms and agro-food small and medium-sized enterprises (SMEs) (the so-called

finance gap) has grown dramatically in recent years and is currently among the highest in the European Union. Access to finance is particularly challenging for young farmers and new entrants, who also have difficulty accessing agricultural land due to fragmented ownership. Large areas of fertile farmland are increasingly managed by large agro-food corporations and foreign investors. While this may increase opportunities for productive investment and land consolidation, this phenomenon and its impact on farm restructuring must be better monitored.

Labour outflows and generational renewal remain major problems, but recent data have shown positive developments

Depopulation due to ageing and emigration has historically undermined the economic development of rural areas in Romania, which has in turn exacerbated labour shortages in the farming sector. This trend has slightly reversed in recent years, with a net migration flow towards rural areas. Similarly, while 59% of farmers are 55 years old or older, recent data point to a promising increase of young farmers entering the sector.

Organic farming is slowly growing, but processing and marketing of organic products do not follow the same positive trends

Although the total area under organic production in Romania ranks seventh in the European Union, the share of organic production in total agricultural land is relatively low (less than 4%) compared to the OECD and EU27 average. Romania has set a national target through the National Plan for the Development of Organic Production to have 6% of total land area under organic agriculture by 2030. Data show growth of both organic areas and producers up to 12 000 organic farmers in 2021, with the average size of organic farms (50 ha) being much higher than the national average farm size. Nevertheless, a more comprehensive strategy for the development of organic sector seems necessary as the growth of processing and the marketing of organic products are not following the same positive trend and the market for consumption of organic products is mostly covered by companies that import processed organic products.

Romania has experienced positive developments in its agricultural productivity, while maintaining relatively low environmental pressures from agriculture

The structural transformation of the Romanian farming sector is leading to increased production, mainly driven by labour productivity

Over the last decade, agricultural output in Romania has seen steady growth, mainly driven by products such as maize and wheat. For these two crops, the country succeeded in narrowing the yield gap compared to the EU average, primarily as a result of the increased use of technical equipment, especially in large farm holdings.

During the 2011-20 decade, agricultural output grew at an average annual growth rate of 1.17%, ending a long trend of negative output growth. Output growth was mainly driven by agricultural productivity – TFP grew at an annual rate of 1.3% – but also by an increase in capital and variable inputs. Most of the gains in TFP came from higher labour productivity. Such improvement is the result of structural changes and gains in efficiency with fewer and larger farms needing less labour. Despite this consistent growth, Romania continues to have the lowest labour productivity levels of the European Union (four times below the EU average) and the largest agricultural labour force, with 1.8 million people employed in the primary sector. The country has significant scope to keep raising labour productivity and TFP.

While agriculture's share of emissions is increasing, the emissions intensity of agriculture is decreasing

GHG emissions from manure storage and land application are still high due to inadequate storage facilities and outdated equipment used for manure land application. The share of agriculture in Romania's total net greenhouse gas (GHG) emissions increased from 17% in 2009 to 19% in 2017. However, over the last decade, agricultural emissions grew at a slower rate than the value of total output and the country successfully reduced its agricultural GHG emission intensity.

The environmental performance of Romanian agriculture is overall relatively good, but structural changes could create additional pressures on the environment

The environmental performance of Romanian agriculture can be considered relatively good: 95% of grassland habitat types have favourable conservation status, nitrogen and phosphorus surpluses are below the EU average and water resources are generally in good condition. However, ongoing and future structural changes in the sector could create additional pressures on the environment, e.g. as regards water quality, soil fertility, biodiversity, and GHG emissions. Efforts are necessary to limit GHG emissions and to manage environmental threats by promoting environment-friendly production technologies, practices and products, and by encouraging investment in green technologies.

High Nature Value (HNV) farming is also important in preserving nature and maintaining biodiversity, especially as concerns the species-rich semi-natural grasslands. The challenge of maintaining rich biological resources in landscapes that are associated with agricultural lands will lie in the successful adoption of agricultural practices that contribute to preserve HNV areas and priority species, as well as the habitats of these species.

The irrigation system continues to be obsolete despite increased investment

In addition to climate change and biodiversity, the poor technical condition of Romania's irrigation infrastructure is an economic and environmental challenge. Irrigation largely relies on pumping from the Danube and other rivers, and obsolete irrigation systems result in low hydraulic efficiency and high cost of electricity. Such high-water costs can be afforded by large commercial farmers, but are prohibitive for small farmers. Although current water withdrawals are below the international benchmark, climate change is increasing the demand for water. The National Strategy for Rehabilitation and Expansion of the irrigation infrastructure aims to increase the irrigated agricultural areas to ensure the necessary conditions for capitalisation of the agricultural potential of productive land that is subject to drought, especially in the south and east of Romania.

Under the 2023-27 CSP, the government has allocated EUR 400 million for the modernisation of existing on-farm irrigation infrastructure and EUR 85 million for the establishment of new, small irrigation systems at the farm level. Investments in irrigation and the adoption of conservation agriculture practices are important adaptation strategies for the Romanian agricultural sector.

The policy and regulatory environment are not fully aligned with the identified priorities

EU policies should be used more strategically to meet the pressing needs of its farming sector

As a result of the pre-accession programmes and its accession to the European Union in 2007, the policy settings affecting the agricultural sector in Romania are strongly shaped by EU policies and regulations. This has led to not only increasing financial support to farmers and rural areas, but also the adoption of more ambitious regulations on the environment and climate change, as well as the adoption of more

integrated rural development policies. However, the country is not taking full advantage of the implementation options provided by EU policies.

Although the Ministry of Agriculture and Rural Development (MARD) has released numerous strategic documents on the future of the country's agricultural policies and on the necessary steps to achieve key objectives, such strategies have not fully guided the country's policy choices. The allocation of CAP financial resources among the different instruments often matches the EU average. For Romania, given the importance of its sector and nature of some of the challenges it faces, there is scope to take advantage of flexible EU policies to implement more strategic and bold approaches. This would strengthen the overall vision for the sector and associated policy choices. For instance, despite the need to promote knowledge transfer and innovation, the share of funding is very low, and the support linked to production, including for non-strategic and emission-intensive sectors, represents a relatively high share of funding.

More can be done to achieve the CAP socio-economic objectives

Increasing the competitiveness and viability of the sector has been a policy priority since the country's accession to the European Union and the adoption of the CAP. This is reflected in the allocation of financial resources for rural development policies: more than 40% of that budget for the period 2007-13 went to the competitiveness axis, and the NRDP 2014-22 devoted significant funding to investments and business development. Increasing the viability of farms and reducing disparities amongst them are key objectives of Romania's CAP Strategic Plan (CSP) 2023-27.

Romania could use more proactively the various interventions and flexibility available in the CAP to better adapt its agricultural policy to the specific socio-economic needs of its agricultural sector. This could be done by reallocating some of the more than 60% of CSP budget for direct payments, whose main beneficiaries are a small number of large holdings. This indicates a mismatch between the stated objectives and the current direction of support and reinforces the duality of the system. Romania also allocated 12.3% of its direct payments envelope to coupled payments.

Even though Romania was among the 11 Member States that used the option of transferring funds from direct payments to rural development in the CSP 2023-27, in practice, it transferred only 3% of the initial budget. Moreover, the choice not to apply capping and degressivity for direct payments can exacerbate the distribution bias of income support towards the larger farms. This uneven distribution may also negatively impact the CSP's objectives for the sector's modernisation efforts and competitiveness. Efforts should be made to further target support to small and medium-sized farms that are commercially viable.

The CAP is complemented by a range of EU and national programmes...

Romania is adopting a broad range of other EU and national programmes of relevance for the farming sector. Transitional national aid (TNA) is a significant additional support to farmers and is structured as supplementary direct payments that are fully financed by the national budget. This type of support is mainly decoupled from production, with a total budget planned for the 2023-27 period of around EUR 900 million.

The EU-funded National Recovery and Resilience Plan (NRRP) is another major programme that shapes the country's reform and priorities in supporting growth, sustainability and resilience, with a large share of the related budget (around 65%) allocated to the green and digital transitions. Key support for the farming sector includes measures on afforestation of agricultural land, infrastructure for agricultural waste management, and investments for the transformation of agricultural high schools into specialised centres for learning.

Romania also uses the allowed margin of the EU legal framework to support the sector with national funds, in particular through the *de minimis* state aid; that is, payments below EUR 300 000 per beneficiary over a three-year period that are exempted from EU's state aid control. This type of support is mainly used to support beekeepers, vegetable production, and the animal breeding sector. The government has also

established several emergency measures for the livestock sector to mitigate the exceptional circumstances created by the COVID-19 pandemic, and state aid to the crops and livestock sector were granted in response to Russia's war of aggression against Ukraine.

...but agro-food policies are often characterised by lack of co-ordination and excessive administrative burden

Romania, like most OECD countries, does not have a co-ordination body or mechanisms that comprehensively cover food systems policies. More co-ordination and information sharing tools could help the authorities to identify and discuss potential synergies and trade-offs across food systems-related policies and proposals.

Excessive administrative burden is a possible reason behind the low effectiveness and uptake of several policy interventions, including some of the CAP measures with potential to promote productivity gains and innovation for sustainability and resilience (e.g. co-operation, voluntary agri-environmental measures, productive and non-productive investments). In Romania the barriers that administrative burdens pose to the implementation of agricultural and rural development policies are particularly challenging also as result of the lack of skills, education and training of farmers.

There is scope for a better use of regulatory management tools and for a stronger stakeholder involvement in the policy process

Romania has significantly enhanced its regulatory policy since the early 2000s, notably by mandating regulatory impact assessments (RIAs) for primary laws and subordinate regulations. Nevertheless, the use and quality of RIA is uneven and there is no requirement for periodic reviews of existing regulations. Stakeholder engagement has improved, but mostly covers organised stakeholders and participation is low at the sub-national level.

For the negotiation of EU directives and regulations, Romania does not conduct its own RIAs or engage stakeholders, relying solely on the European Commission's assessments and engagement processes. In terms of transposing EU directives into national law, Romania is the only EU Member State without a requirement to conduct its own RIA.

A better use of RIA could strengthen the quality of food systems policies in Romania. For instance, regular *ex post* evaluations and investment in capacity-building could provide policy makers with a more robust understanding of the facts. Similarly, providing more opportunities for stakeholders to be heard could help policy makers to better take into account diverging interests and differing values that surround food systems policies in the country. The extensive consultation process carried out to draft Romania's CSP 2023-27 is a positive step in this direction.

The effectiveness of new regulations governing farmland markets and other initiatives to attract younger generations to the agricultural sector needs to be assessed

Romania adopted a new land market regulation in 2020 with the objective of prioritising access to land for young farmers and to allow existing farms to expand their agricultural production. This law is part of a broader strategy to deal with large scale farmland acquisitions and farmland fragmentation. The law established new conditions for the purchase of agricultural land, including an extension of the categories of persons with pre-emption rights. However, the new administrative procedures are demanding and cumbersome, and may negatively impact small sellers and buyers in particular.

Other interesting initiatives that favour generational renewal in agriculture include the 2018-22 national programme to attract young people in the agro-food sector through financial support to employers as well as the *Tieneri Fermieri* programme, by which some of the State Domani Agency's land is assigned to

young people to set up a farm. These initiatives are promising, but their effectiveness in the medium and long term has yet to be assessed.

Co-operation initiatives among farmers are scarce but slowly expanding, driven by supportive national policies

Farmer associations and co-operatives could help small and medium-size farms increase their competitiveness by optimising costs and improving market access and access to funds. Despite the potential advantages of further developing co-operation, the number of farms participating in associations is low with less than 1% of farmers engaged. The economic relevance of recognised producer organisations is also the lowest amongst EU Member States. While a general lack of trust and knowledge about the co-operative system are key barriers to the development of agricultural associations in Romania, a recent increase in the number of registered agricultural co-operatives is a positive sign. A key enabler for this has been an improved legal framework and special tax benefits. Yet, key CAP interventions to encourage co-operation had a very low uptake in the past programming period.

Additional policy efforts are necessary to ensure the long-term resilience and sustainability of the agro-food sector

The structure of the farming sector presents challenges for achieving environmental objectives through cross-compliance

As regards agri-environmental objectives and policies, the CAP 2014-22 sought to achieve agri-environmental policy objectives through the combined and complementary effects of environmental cross-compliance, Green Direct Payment (the so-called greening), and the second pillar voluntary measures. Due to the high number of small farms, the beneficiaries of CAP direct payments who need to comply with the conditionality requirements make up only one-third of all farms. Romania was among the countries with a large area that was exempt from the greening measures (i.e. above 40% of the total agriculture area) under the CAP 2014-22 period.

Risk management strategies do not adequately meet current and expected challenges

Droughts and floods resulting from extreme weather conditions have increasingly affected agricultural production over the last decades and are among the most pressing problems in Romanian agriculture today. While Romania has advanced towards an integrated approach to disaster risk management, it should improve management tools in agriculture by better designing insurance and facilitating the development of other risk management tools including those financed through the CAP. Indeed, less than 1% of Romanian farms, mostly large ones, have adopted EU CAP risk management tools. The most vulnerable producers – the small and medium farms – do not buy insurance either due to a lack of knowledge or because high premiums. With risks increasing due to climate change, the development of risk management products suitable for such farmers is essential. In the medium- and long-term, climate change is expected to further increase the number and depth of extreme events in Romania, and it is therefore crucial to facilitate farmers' access to risk management tools and funding to compensate for losses resulting from natural disasters.

Further efforts are needed on training and advice targeted to sustainability and resilience objectives

EU Member States are required to put in place a Farm Advisory Service (FAS) to provide information to farmers on cross-compliance obligations, greening, and the application of rural development measures.

The FAS put in place in Romania is weak and fragmented, particularly with respect to cross-compliance and agri-environment measures.

Romania has approved a long-term strategy (LTS) to reduce GHG emissions and specific measures have been proposed for agriculture and LULUCF sector emissions. As for agriculture, the LTS acknowledges the key role of the CSP 2023-27 to support the farming sector in its efforts to reduce GHG emissions. To maintain a low level of GHG emissions from agriculture, it is necessary to further encourage farmers to keep the soil covered and to advise them on how to use land management techniques that help maintain carbon in the soil, on how to use precision agriculture, build storage facilities, and use modern equipment for manure application.

Dietary habits and food security require attention

Romania has developed multiple policy measures to encourage healthier diets, but recent trends suggest there is space to strengthen these efforts. One-fourth of all deaths in Romania can be attributed to dietary problems; fruit and vegetable consumption is the lowest in the European Union and has decreased in recent years.

The 2019-21 period represented a setback for Romania in terms of reducing the prevalence of severe food insecurity in its population, which surpassed 2015 levels in 2021. The creation and rapid growth of the Federation of Food Banks of Romania and the introduction of e-vouchers as a food assistance programme for certain low-income households are positive developments.

Efforts to measure and treat food waste appear insufficient

Romania lacks reliable data on food waste levels and is the only EU Member State not reporting data to Eurostat in accordance with EU reporting methodologies. This limits the capacity of public authorities to monitor food waste reduction goals, to evaluate policy actions, and to compare its performance against its peers. Romania's capacity to treat food waste is significantly lower than the EU average and is decreasing, in contrast to most EU27 countries.

The Romanian agriculture knowledge and innovation system (AKIS) is in its early stage of development

Lack of skills, education and training for farmers is a key barrier for a more productive, resilient, and sustainable sector

Romania has started to build its agricultural knowledge and innovation system (AKIS). Despite steady improvements in recent years which reflect the more targeted policy interventions and increased funding, the Romanian AKIS is unable to address the multiple innovation challenges faced by the agro-food sector. While some of these challenges are common to other EU Member States, including the co-ordination and design of increasingly complex policy interventions, the duality of the Romanian farming sector and the low level of education of farmers pose additional challenges.

Romania has recently made efforts to modernise schools with an agricultural profile, but most farmers and those working in agriculture (95%) have no agricultural education or only a primary level of overall education. This is the result of the limited offer of education and professional training in agriculture and the low uptake of existing life-long learning programmes in rural areas. Additional policy efforts are necessary to address the education and skills gap of farmers.

Better use of national and EU policies to foster the adoption of technology and innovation

The modernisation of AKIS has been on Romania's agenda for many years, but the financial resources devoted to innovation through national policies and the CAP remain limited. Innovation policies in agriculture rely heavily on EU funding. Yet planned investments for CAP knowledge and innovation measures in 2023 were the lowest in the European Union (0.7% of support as compared to the 2.7% average for the EU27). To increase innovation and technology adoption, the share of the budget devoted to innovation, information, training, and advice could be increased, and the uptake of these measures by professional and market-oriented farmers improved.

The European innovation partnership for agricultural productivity and sustainability (EIP-AGRI) is the main policy tool to co-ordinate funding and actors for innovation in the European Union, combining CAP measures with other EU research and innovation programmes (e.g. Horizon Europe). This policy tool aims to promote bottom-up multi-actor agricultural partnerships and has a very good potential to foster AKIS development in Romania. However, the number of so-called EIP-AGRI Operational Groups (OGs) is very low: only 1% of the European Union's OGs are located in Romania. Most of these focus on sustainable farming practices and approaches such as precision agriculture and organic farming, in line with the European Union's priorities. Since these projects apply the principles of interactive innovation models bringing together farmers, researchers and innovation brokers, their further development would not only help innovation to reach Romanian farmers, but also foster collaboration amongst AKIS actors.

Investment in research, development, and innovation (R&D&I) is low and participation in international projects is limited

Public agricultural research in Romania faces limited funding and this hampers the upgrading of research facilities and the implementation of research projects. The European Union's research innovation programmes are the main source of funding for R&D&I, but Romania ranked last among EU countries in terms of the funding per inhabitant of the European Union's research and innovation framework Programme 2014-20 (Horizon 2020). National instruments play a secondary role, but in recent years an increased budget has been assigned to the national programme Agriculture and Rural Development (ADER), which finances research that aims to develop a smarter, more resilient and diversified agricultural sector. Despite this positive development, however, Romania continues to allocate one of the lowest research budgets in the European Union for agricultural research, at just EUR 1.1 per capita, compared to EUR 6.4 in the EU27.

In addition to the EU-funded research programmes, Romania participates in various European and global networks on agricultural research and development. The National Strategy for Research, Innovation and Smart Specialisation aims at fostering the integration of the national research system within the international research community. Nevertheless, the level of Romania's agro-food science outputs in the international arena is limited, contributing 0.03% and 0.3% respectively to world agro-food patents and publications, similar to Bulgaria and Lithuania. Romania stands out with a higher share of outstanding publications and a relatively high level of collaboration with foreign partners in agro-food outputs, with 22.9% of total patents and 20.9% of publications involving foreign collaborators, above the OECD and EU27 averages.

Advisory services are insufficient and do not fully respond to the diverse needs of farmers

Over the last three decades, the highly fragmented agricultural advisory system in Romania has experienced frequent and not always consistent reforms. It leans heavily on public services that are too often unable to meet the diverse needs of farmers. The number of public consultants (around 500) is insufficient and they can only focus on assisting farmers to access CAP funding and to provide advice on how to comply with EU requirements and standards. Romania also has a broad range of private advisors,

including consultancy firms, input suppliers, as well as farmer organisations and NGOs. CAP funding that could support advisory services is underutilised and assistance to farmers on the ground continues to be limited (e.g. on novel technologies and sustainable farming practices) due to the high farmer-to-advisor ratio.

Policy recommendations

This *Review* proposes recommendations on how Romania could improve its policies and practices in the sector and to make better use of the CAP for strategic planning and implementation to respond to its stated priorities. The *Review* does not evaluate the policy and regulatory frameworks established by the European Union. Key recommendations are set out below.

Adopt a coherent policy mix to accelerate structural change in agriculture

Reorient policy support to foster structural transformation and entrepreneurship

Target support to small- and medium-sized farms that are commercially viable. Current policies result in high levels of income support to large farms; instead, efforts should be made to support commercially oriented small- and medium-sized farmers. This should be provided through policies that minimise market distortion and help accelerate the structural transformation of the sector, increasing agricultural productivity and improving employment opportunities.

Facilitate an equitable phasing-out of non-competitive small farms and surplus labour. Ensuring an equitable phasing-out of the labour surplus in agriculture could be aided by the provision of training to facilitate the transition to other jobs in the agro-food or other sectors.

Strengthen the use of national and EU support to promote entrepreneurship. There is scope to re-allocate part of CAP and national support in agriculture currently used for decoupled (e.g. TNA) and coupled payments to interventions that have a higher potential to promote farmers' entrepreneurship, including support to investments in infrastructures, advisory services, and knowledge. Romania could also consider ways to make better use of the room for manoeuvre in the CAP and is invited to take account of relevant recommendations in the OECD review of the European Union.

Strengthen support for generational renewal and farm restructuring

Further promote generational renewal. Efforts to continue to promote generational renewal in agriculture could make greater use of CAP interventions and national instruments. The experience gained from the recent programmes designed to attract young people to agriculture and favour their access to land is a valuable starting point to further explore new and complementary solutions. Targeted support for young farmers and new entrants should be better integrated with specific support on training, as well as with programmes that facilitate their access to land and credit.

Undertake an in-depth assessment of trends in land ownership. This assessment would require investing in data to measure the phenomenon of large-scale farmland acquisitions by foreign investors and the access of young farmers to land, and to assess the effectiveness of the policies and regulations currently in place to facilitate land consolidation and farm restructuring.

Create an enabling policy environment for a more competitive and resilient agro-food sector

Adopt an integrated policy approach to further stimulate farmer competitiveness and co-operation

Adopt a comprehensive sectoral strategy to better integrate farmers in the value chain. This strategy should respond to the specific needs of each segment (small-, medium- and large-scale farms) to create the conditions for a market- and export-oriented sector in the medium- to long-term. Policy packages should cover marketing initiatives, as well as support to promote more commercially oriented and profitable production systems, and a higher degree of processing and marketing of agricultural production. A comprehensive strategy for the development of the organic sector should be adopted.

Further encourage associations and co-operation within the agricultural sector. Assess current and previous measures to promote co-operation to understand their low rate of success and inform future interventions. Various forms of associations or public-private co-operation schemes could be promoted, starting with information and promotional campaigns to increase awareness of the benefits of participating in associative forms. Such initiatives should include farmer-to-farmer sharing experiences of their success stories.

Strengthen administrative capacity and address implementation issues

Facilitate the adoption of risk management tools through additional tools and advice. A broader adoption of risk management instruments in agriculture is crucial to limiting the adverse effects of natural disasters on agricultural production. There is scope to further support farmers in managing production-related risks by addressing implementation gaps in the CAP risk management tools. Support measures for insurance for crop and animal production should be complemented with dedicated advice on a holistic approach to risk management, and information campaigns.

Invest in administrative capacity to improve policy management and implementation. It will be important to continue to use national and international funding (e.g. from the European Union and World Bank) to enhance the human capital and administrative and institutional capacity of MARD and the co-ordinated agencies. Efforts should be made to further develop civil servants' skills to increase the efficiency and effectiveness of policy design and implementation, including on audit, control, and evaluation. This should be combined with efforts to reduce paperwork and the administrative burden of MARD procedures.

Explore alternative deliberative processes to encourage stakeholder engagement (e.g. citizen's assemblies and panels). Consider conducting stakeholder consultations and performing RIA during the negotiation stage for major EU directives and regulations. Introduce a requirement to perform RIAs when transposing major EU regulations.

More effective policies are needed to improve the environmental sustainability of the agro-food sector

Encourage the adoption of sustainable farming practices

Promote agricultural practices and investments to maintain low GHG emission intensity. The structural transformation of the sector towards larger and more market-oriented farmers may pose additional environmental and climate challenges. In order to maintain the positive trends of reduced GHG intensity, policy support should focus on investments in infrastructure and adoption of sustainable practices. This is especially important for the livestock sector, where investments for improved manure management are needed. Promotion of these practices and investments for broader adoption of voluntary

agri-environmental measures also requires additional investments in training and advisory services. Soil carbon sequestration practices, such as crop rotations, catch and cover crops, and other carbon farming practices, should be prioritised.

Maintain the farming activities that safeguard traditional biodiversity through targeted interventions. Although 95% of the grassland habitat types in Romania have a favourable conservation status, pressures on biodiversity continue, e.g. in the Natura 2000 grasslands. It is therefore necessary to encourage the maintenance or adoption of extensive agricultural practices in High Nature Value (HNV) farming areas through targeted and tailored support measures.

Raise the ambition of agri-environmental interventions. Romania could increase its budget on eco-schemes and voluntary agri-environmental targeted measures to further improve the agri-environmental performance of the sector. Moreover, Romania should combine such interventions with knowledge transfer measures. Advisory services should raise farmer awareness of environmental pressures and sustainable practices and provide advice on best practices and compliance with EU agri-environment requirements and standards.

Improve the design and implementation of food system policies

Strengthen the existing policy mix to encourage healthier food choices. Promote healthy diets by strengthening school meal programmes, and assess whether their current budget is adequate in light of the significant decrease in the variety of fruits and vegetables offered to children. Explore the development of demand-side policy interventions to encourage environmentally-sustainable food choices, building on experiences from OECD countries. The recent food e-voucher programme should be evaluated to explore the possibility of using this instrument to encourage healthier food choices.

Promote an integrated policy package for food waste management. Increase efforts to measure and report food waste according to EU standards. Implement a separate collection system for bio-waste and encourage local initiatives to reduce food waste and increase treatment (i.e. that encourage in-house composting).

Adopt a comprehensive agenda to strengthen the agricultural knowledge and innovation system

Invest more in agricultural research, education, and training

Develop an ambitious education agenda in co-ordination with other relevant ministries and agencies. This agenda should address the education gaps of farmers to meet the multiple challenges and opportunities of food systems. There is a need to offer attractive agricultural education for the young and opportunities after graduation. A modernised, future-oriented curriculum should include theoretical and practical classes, covering areas such as digital technologies, environmental management, and entrepreneurship.

Improve the skill-level of farmers via training and a lifelong learning approach. The offer of formal education should be accompanied by training and advice opportunities so that farmers can develop their knowledge and skills at every stage of their career. Given the current low level of participation in life-long learning programmes in rural areas, the current offer should be re-evaluated and adapted to existing needs while overcoming potential barriers.

Adopt a strategy to improve the performance of agricultural research. There is an opportunity to continue building on the knowledge and capacities of other EU countries through cross-country collaboration within (and beyond) the European Research Area. To gain greater visibility in the international

arena, Romania could consider increasing the level of national R&D funding and co-funding, clarifying national agricultural R&D priorities.

Place knowledge and innovation at the centre of agricultural and rural development policies

Use all policy levers to strengthen advisory services. It will be important to invest in creating a well-functioning network of trusted, independent advisors to provide advice, especially to small and medium market-oriented farmers. This may require more effective collaboration between central and local governments and the private sector. Experiences from other OECD countries could provide a useful guide.

Investigate the low uptake of knowledge and innovation-related measures. An important first step would be to review the role of the various national AKIS actors and stimulate their active participation in producing and adapting agricultural knowledge and innovation. There is also scope to further promote the creation and diffusion of EIP-AGRI Operational Groups. Information campaigns explaining the purpose and functioning of such initiatives and simplifying the access to funds could help increase their uptake, especially in the early stages of implementation.

Improve the capacity of the sector to absorb innovation funding with a view to reorienting agricultural support towards knowledge and innovation systems. Since investments in knowledge and innovation are relatively limited compared to the needs of the farming sector, Romania should refocus support from decoupled and coupled payments towards investments in AKIS to guide the transformation of agriculture towards productive, innovative and sustainable pathways. For this expenditure to be effective, it will be important to first improve the absorptive capacity of the sector.

1 The agricultural policy context

Romania has made remarkable economic and social progress over the past two decades, notably since joining the European Union. Nonetheless, the country continues to face significant economic, social and environmental challenges, with persistent regional disparities, rural depopulation, poverty and population ageing. This chapter reviews the structural transformation of the agro-food sector in Romania, examining demographic and land-use trends, as well as developments in production and trade. While the weight of agriculture in the Romanian economy is declining, Romania remains the country with the highest number of farms in the European Union. This reflects the pronounced dual structure of the Romanian agriculture sector, with numerous small farms coexisting alongside a smaller group of large, highly productive holdings.

Key messages

- Romania has made impressive economic and social progress over the last two decades, especially after its accession to the European Union. However, the country continues to face significant economic, social and environmental sustainability challenges: economic prosperity is unevenly distributed, and rural areas are still characterised by depopulation, poverty and an ageing population.
- Even though the structural transformation of the country is characterised by a declining role of agriculture, Romania still has the largest share of agriculture in the Gross Domestic Product (4.2%) and the highest number of farms (2.9 million) in the European Union.
- The main characteristic of Romanian agriculture is its dual structure, with around 90% of farms smaller than 5 ha and a small group of very large farms that manage more than half of the country's agricultural land.
- Romania's agriculture is characterised by a slowly emerging sector of medium-sized professional "family farms", but land fragmentation and access to credit are barriers to farm restructuring.
- Generational renewal remains a major challenge: most farm managers are 55 years old or older. However, the increase in the number of young farmers both in absolute and in relative terms over the recent years is a very positive development.
- Romania's high labour migration to other countries impacts all sectors, but the agricultural sector has been one of the most negatively affected. Structural change, migration and farmland abandonment led to a decrease of agricultural labour by 60% between 2005 and 2022.
- Agricultural output has seen a steady growth over the past decades as result of a significant improvement of yields, determined by better technical equipment, especially for large holdings.
- The importance of agro-food in trade, particularly in exports, is increasing. Export patterns have changed in the last two decades: cereals, oilseeds and tobacco gained importance, while live animals, fruits and vegetables saw reduced shares in exports. Intra-EU exchanges dominate and the gap between intra-EU trade and trade with other partners widened after the accession to the European Union.

1.1. Context

Romania has made impressive strides in economic performance over the past few decades, transitioning to a market-based economy since 1991, acceding to the European Union in 2007, and reaching high income status. Nevertheless, overcoming the legacy of more than 40 years of communist rule was a slow process. Following the revolution of 1989 that led to the fall of the communist regime, a new constitution, approved by popular referendum in 1991, was adopted, proclaiming Romania a democracy and a market economy. Since 1991, Romania succeeded in privatising most industrial state-owned enterprises and has made great progress in institutionalising democratic principles, civil liberties, and respect for human rights. In 2003 citizens voted in favour of major amendments to the constitution in a nationwide referendum to bring Romania's law into compliance with EU standards, leading to the official accession in 2007. At present, Romania is a semi-presidential republic with a president as head of the state and a prime minister as head of government. Executive functions are held by both government and the president.

1.1.1. General features of the economy

After the accession to the European Union the Romanian economy has made significant progress...

With a total land area of over 230 000 km², Romania is the 12th largest country in the European Union. In 2021, the country had an estimated population of 19.2 million inhabitants and a Gross Domestic Product (GDP) measured in purchasing power parity (PPP) terms of USD 620.61 billion (Table 1.1). Romania's growth rate is one of the highest in the European Union, boosting convergence in living standards with the EU average. GDP per capita reached 63% of the OECD average in 2019, from around 30% in the early 2000s. After being hit hard by the global financial crisis and before the outset of the coronavirus pandemic, Romania's convergence in living standards progressed rapidly, with GDP and productivity growth rates persistently exceeding those in the OECD (OECD, 2022^[1]).

Table 1.1. Contextual indicators

	2000*	2021*
GDP (billion USD in PPPs)	131.3	690.2
Population (million)	22.5	19.2
Land area (thousand km ²)	229.7	230.1
Population density (inhabitants/km ²)	97.95	83.45
GDP per capita (USD in PPPs)	5 851	35 947

Note: *or closest available year.

Source: OECD statistical databases; UN Comtrade; World Bank, WDI and national data.

Since the transition from a planned to a market economy initiated in 1991, and especially after joining the European Union in 2007, the Romanian economy has become increasingly sophisticated and open with high levels of foreign direct investment. Structural reforms required for the EU accession, included state-owned enterprises and judiciary, and a prudent monetary policy contributed to its strong economic performance. Romania remains a dual economy, where high-performing foreign-owned companies coexist with low-productivity domestic firms. Local firms are relatively small, under-capitalised and not well integrated in global value chains (OECD, 2022^[1]).

Structural transformation has been shifting the sectoral contribution to growth, with a declining role of agriculture and an increased contributions from services. The ICT sector is one of the main contributors to growth and was the eighth largest in the European Union as a share of GDP (6.3%) as of 2021 (World Bank, 2023^[2]).

... but the country is still facing important economic, social and environmental challenges

Despite strong economic growth experienced over the past two decades, Romania continues to face substantive economic, social and environmental sustainability challenges, since prosperity is unevenly distributed, regional disparities in income and service delivery are wide, with poverty and inequality rates among the highest in the European Union (World Bank, 2023^[3]). Despite substantial improvements, Romania still lags behind most OECD countries in terms of access to high-quality education, healthcare, housing, and transport infrastructure. Demographic trends such as ageing and emigration, undermine economic development, notably by exacerbating labour shortages. Romania lost around 4.06 million inhabitants since 1991 and had one of the strongest declines in the working age population over the past decade (OECD, 2022^[1]). Romania's poverty rate is the highest in the European Union and the country's growth has followed a volatile path that questions its sustainability (World Bank, 2023^[3]).

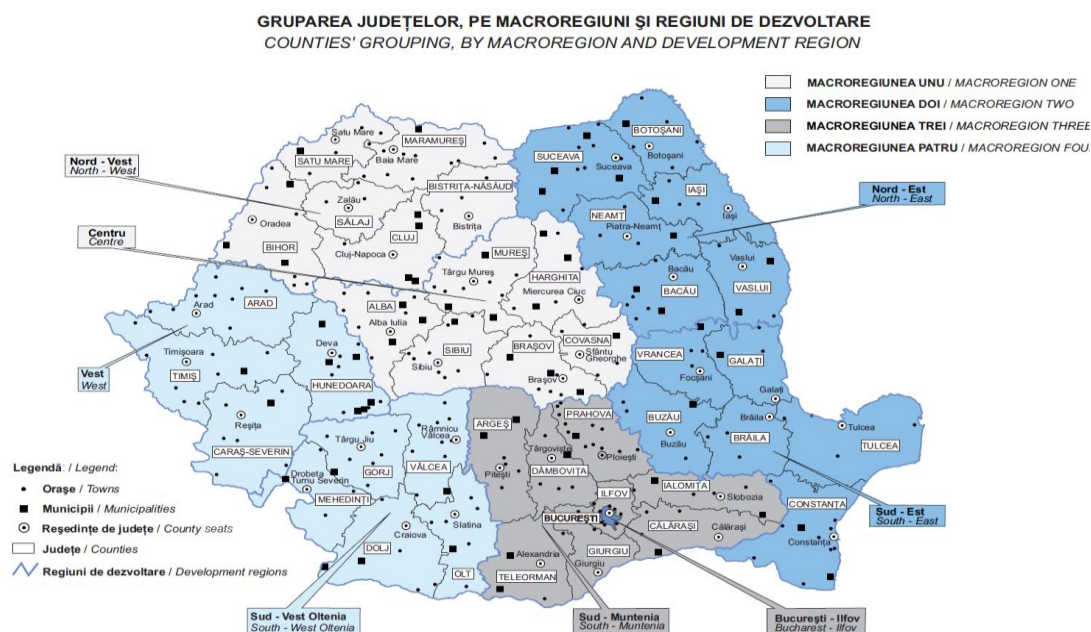
1.1.2. Political and institutional features

Romania is a country at the crossroads of central and southeast Europe, bordered by Ukraine to the north and east, Hungary to the west, Serbia to the southwest, Bulgaria to the south, Moldova to the east, and the Black Sea to the southeast. Its capital and largest city is Bucharest. The country is divided into four macro-regions and eight regional divisions (the so-called “Regiunile de dezvoltare ale României” – “development regions” of Romania). The eight development regions that correspond to NUTS 2-level divisions in EU Member States, are: Nord-Est (North-East), Sud-Est (South-East), Sud-Muntenia (South-Muntenia), Sud-Vest Oltenia (South-West Oltenia), Vest (West), Nord-Vest (North-West), Centru (Centre), and București - Ilfov (Bucharest - Ilfov) (Figure 1.1). The eight regions were established to co-ordinate regional development as the country progressed towards accession to the European Union.

Although Romania’s development regions are becoming increasingly significant in regional development projects, they do not have an administrative status and do not have a legislative or executive council or government. In 1999 the Romanian Government established eight Regional Development Agencies (RDAs), which are non-governmental, non-profit organisations accountable to their region’s Regional Development Council. These agencies are tasked with strategic planning (e.g. regional development plan, smart specialisation strategy) and are the Managing Authorities for EU Cohesion Policy Regional Programmes in Romania (OECD, 2023^[4]).

From an administrative point of view, counties and municipalities are the two tiers of subnational government. The country is subdivided in 41 counties and the municipality of Bucharest County. Each county is administered by a county council, responsible for local affairs, and a prefect responsible for administering national affairs at county level. In addition to counties, also municipalities are another important tier of subnational government, even though many small municipalities face capacity constraints. Romanian municipalities are relatively small, averaging fewer than 7 000 inhabitants, and county councils are responsible for the overall co-ordination of their constituent local councils.

Figure 1.1. Regions and counties of Romania



Source: (INS, 2023^[5]).

1.1.3. Characteristics of rural areas

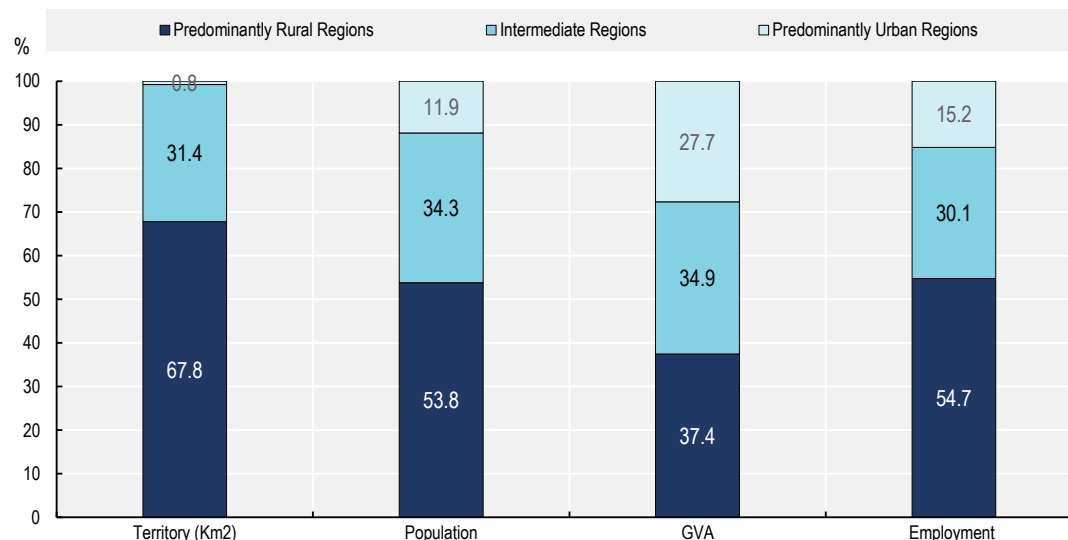
Depopulation and poverty are particularly severe in rural areas

Romania is predominantly a rural country:¹ more than two-thirds of the Romanian territory is considered rural and 47% of the population still lives in rural areas, which also retain an important role in the national economy by accounting for 37% of GVA and 55% of employment (Figure 1.2).

Many rural areas are characterised by depopulation, poverty and an ageing population. Although the share of rural population is still among the highest in the European Union, in the period 2002-22 the population in rural areas decreased by 11% and the share of residents aged less than 30 decreased from 40% to 33% (NIS, 2024^[6]). The emigration of young people from rural to urban areas is perceived as a threat to both social sustainability and the capacity of the agro-food sector to innovate (MARD, 2023^[7]). This trend has been reversed recently, with a net migration flow towards rural areas (see Section 1.5 below).

In rural areas, the share of population at-risk-of-poverty is nearly six times higher than in cities, and the country has the fourth-highest level of income inequality between urban and rural areas in the European Union, after Bulgaria, Lithuania, and Latvia. Since 2010 the poverty rates in both urban and rural areas decreased by 7% and 36% respectively, but remain higher than the EU average. In 2018, the rural poverty rate in Romania was around 46%, significantly higher than the EU average poverty rate in rural areas (24%) (OECD, 2022^[1]). The disparities in living standards are large, rural areas are poorly interconnected and suffer from a concentration of lower-skilled segments of the labour force, and a weaker labour market (World Bank, 2023^[3]).

Figure 1.2. Importance of rural areas in Romania, 2022



Source: Eurostat (2023), Labour market statistics by other typologies [URT_D3AREA, URT_PJANAGGR3, URT_10R_3GVA, URT_LFE3EMP], consulted October 2023.

1.2. Main features of the agricultural sector

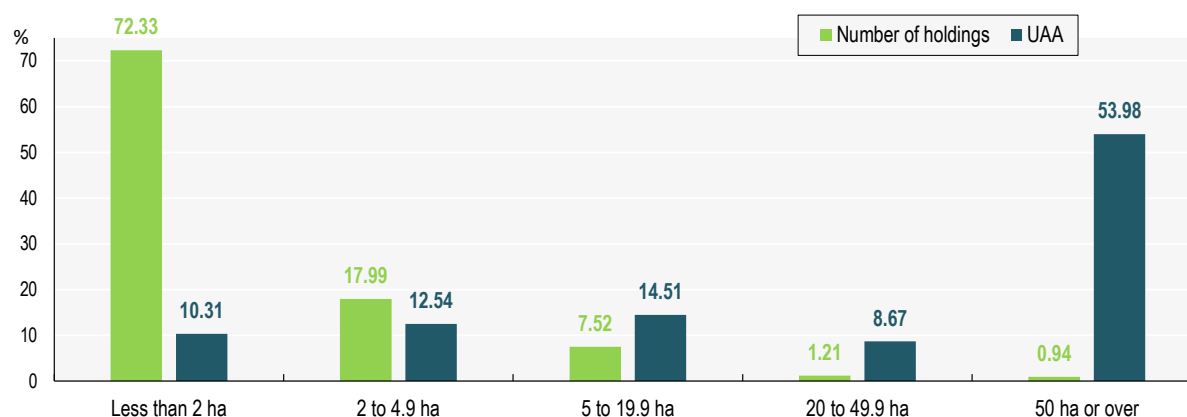
1.2.1. The role of agriculture in the economy

Romania has one-third of EU farms, but most of them are very small and semi-subsistence holdings

Romania is one of the countries with the most pronounced agricultural profile in the European Union. During the last two decades the number of farms has fallen by more than a third, from about 4.5 million in 2001 to about 2.9 million in 2020. The country has the highest number of farms within the European Union accounting for about one-third (31.8%) of all EU farms, which occupy 8.1% of EU utilised agricultural area, and produce 3.3% of the EU's standard agricultural output (Eurostat, 2022^[8]).

Romania's agriculture is divided into two very different groups of farms (Figure 1.3). Around 90% of farms are smaller than 5 ha, yet they only cover 23% of the total Utilised Agricultural Area (UAA); on the other hand, a small group of very large farms with more than 50 ha represents less than 1% of the total number of farms but owns almost 54% of the UAA. Between these two extremes, there is a small and heterogeneous group of medium-size farms (5-50 ha). The average farm size is 4.4 ha, which is the third lowest size in the European Union. The EU average farm size in 2020 was 17.4 ha (Eurostat, 2022^[8]).

Figure 1.3. Holdings and land distribution by farm size as a share of the total (2020)



Source: Eurostat (2023), Farm indicators by agricultural area, type of farm, standard output, legal form and NUTS 2 regions [EF_M_FARMLEG] Accessed July 2023.

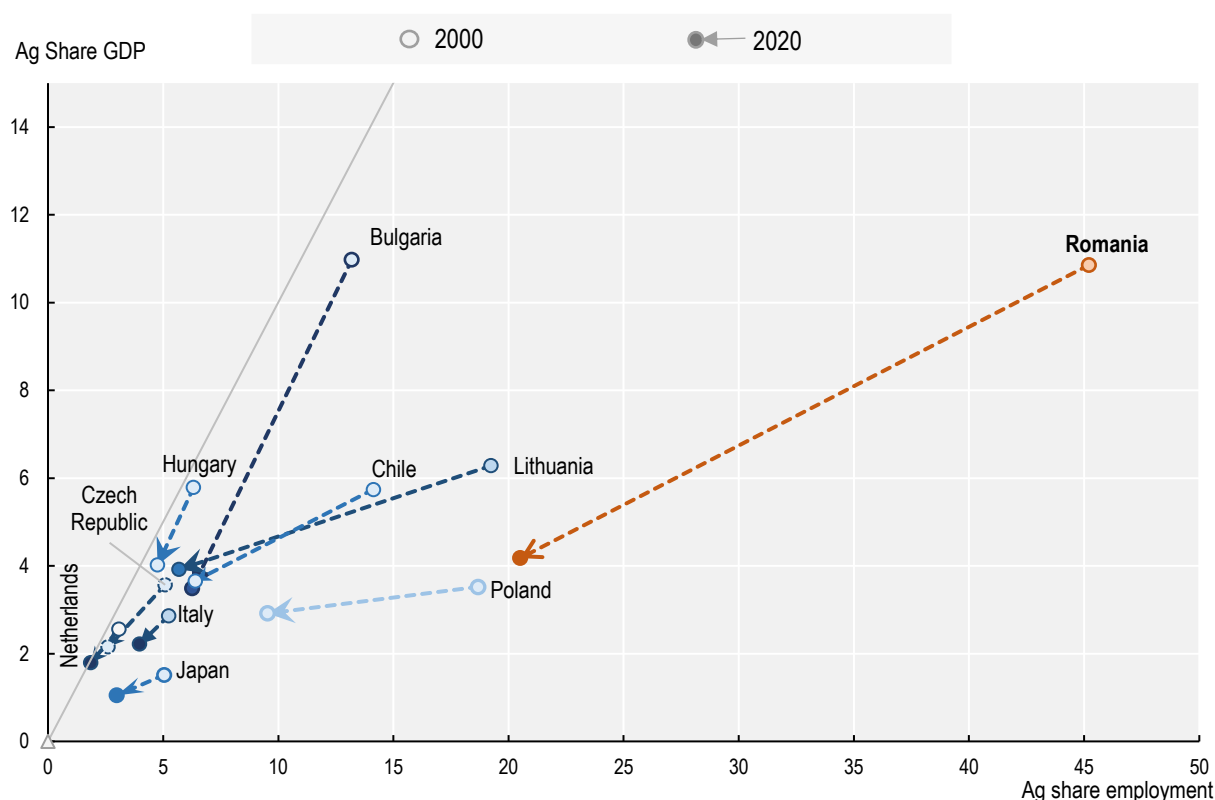
Almost all Romanian farms (99.1%) are family farms² (Eurostat, 2023^[9]), and the large majority of the smaller farms (under 5 ha) are semi-subsistence holdings which continue to farm because they have no alternative. Often such farms exploit very narrow strips of land without achieving economic efficiency, and much of their agricultural output is destined to self-consumption (Petrescu-Mag, Petrescu and Petrescu-Mag, 2017^[10]). Land fragmentation (see Section 1.4) aggravates the efficiency and technical problems of small holdings, with restricted access to mechanisation and losses by creating a vicious cycle, especially for the smallest and semi-subsistence farms.

Over the last two decades the farming sector has experienced a deep transformation

The sector contributed to 4.2% of Romania's total value added in 2020, well above the average share of the European Union (1.8%) and OECD (2.8%), it represents 13% of the country exports and 10% of its total good imports, above the EU average (see Section 1.6).

Since 2000 in Romania the agriculture share of Gross Domestic Product (GDP) has fallen to a larger extent than in other selected peer countries,³ (Figure 1.4). However, Romania still has the largest share of agriculture in the Gross Domestic Product among EU countries, and the sector still plays a significant role in the country's overall economy (World Bank, 2023^[2]). There are significant regional differences in the decrease of agriculture's share in GDP, with declining trends more accentuated in central and western regions, which proved to be more attractive for investments outside the agricultural sectors and that benefit from greater accessibility (Ianoş and Secăreanu, 2020^[11]).

Figure 1.4. Evolution of agriculture's share of GDP and employment in selected countries, 2000-2020



Source: World bank (2022), World development indicators, Eurostat (2022) [LFSA_EGAN22D] & [NAMA_10_A10], OECD (2022) National accounts at a glance.

1.2.2. Land use

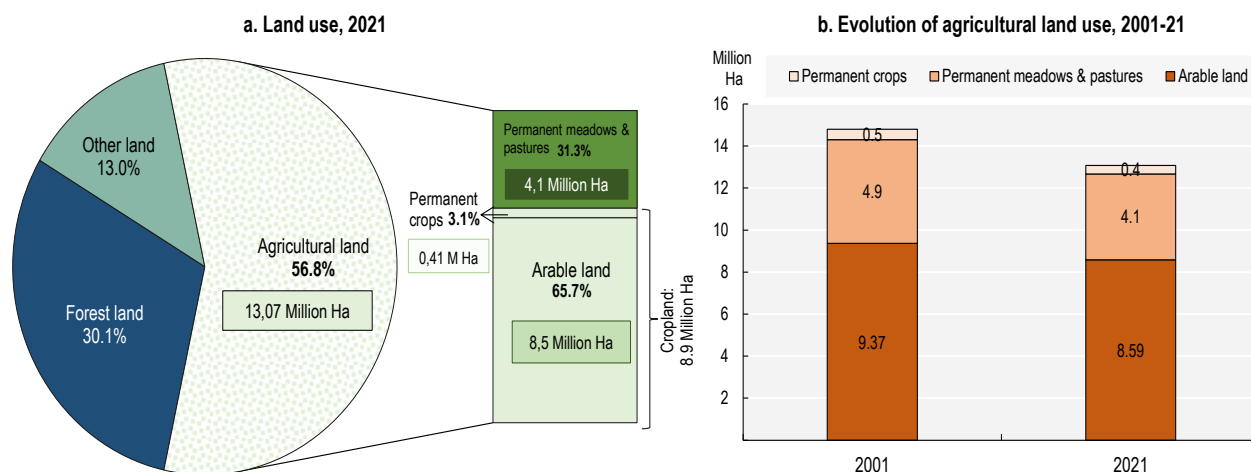
Farmland abandonment is the main reason of the decline of agricultural area

The total Utilised Agricultural Area (UAA) in Romania is around 13.1 million ha, approximately 57% of the total territory, while forest land occupies 30% of Romania's landmass (Figure 1.5, panel a). Almost two-thirds of UAA is arable land, permanent grassland accounts for 31.3%, and the remaining area (3.1%) is used for permanent crops such as fruit and grape production.

The strong decline in the number of farms observed over the last two decades has been accompanied by a reduction of 1.6 million ha of UAA (Figure 1.5, panel b). The reduction of the agricultural area is mainly the result of farmland abandonment that has mainly affected permanent meadows and pastures, low productivity arable land and some perennial crops.

The drastic and rapid changes in Romania's political and socioeconomic structures since the collapse of socialist regime involved changes in land property situation and in many cases created a large class of absentee landowners. This and other less known factors resulted in significant cropland abandonment that affected areas of high productivity during the 1990s (Müller et al., 2009^[12]). This land has since been largely "recultivated", especially following Romania's accession to the European Union in 2007. This was also driven by the introduction in 2011 of a national penalty system for unmanaged farmland (Griffiths et al., 2013^[13]).

Figure 1.5. Agricultural land use and its evolution in Romania, 2001-21



Source: FAOSTAT (2023), [Land use indicators] Accessed July 2023.

Romania has High Nature Value farmed landscapes

In Romania approximately 50% of the 4 million ha of pasture and meadows are species rich, semi-natural – the so-called High Nature Value (HNV) grasslands, mainly concentrated in mountainous areas (IEEP, 2014^[14]). The country has some of Europe's most important HNV farmed landscapes, which have been created by traditional farming practices and that deliver valuable cultural landscapes, high quality water and food, quality of life, recreation opportunities, carbon sequestration and flood control (Fundatia ADEPT Transilvania, 2016^[15]).

1.2.3. Land ownership

The dual structure of the Romanian farming sector is the result of the land reform in the 1990s

During the socialist era productive land was concentrated into state and collective farms and local communities saw an almost complete elimination of private property rights. The post socialist land reforms of the 1990s aimed at radically changing agrarian relations. The aim was to bring social justice and increase the economic efficiency of the agricultural sector (Dorondel, Rodima-Taylor and Rusu, 2022^[16]).

The agrarian reform of the 1990s, and in particular the adoption and implementation of the Land Fund Law (no. 18/1991), drove the proliferation of small farms in Romania. Indeed, in the context of the transition from the socialist era to the market economy, one of the first initiatives of the post-revolution government was the return of collectivised farmland to its cultivators: some four million small parcels representing around 80% of the arable surface were returned to the original owners or their heirs.

Farm restructuring and privatisation in Romania included two different processes: first, de-collectivisation, mainly through the restitution of land used by Agricultural Production Co-operatives to previous owners, and distribution of the remaining land to farm workers and other eligible Romanian citizens; and second, privatisation of state-owned land through sales, lease and concessions (OECD, 2000^[17]). These processes resulted in a rather equitable distribution of land ownership and prevented a sharp decline in agricultural production as in other former Soviet Union countries. Nevertheless, the land restitution to the former owners and their heirs led to excessive land fragmentation and to the sprawl of a large number of small-sized agricultural holdings and a small number of large agricultural holdings, in terms of both physical and economic size (Burja and Burja, 2016^[18]).

New owners were in many cases elderly, or else city-dwelling heirs of former owners, some of which lacked the financial resources, or technical means, to make use of the land (Ianoş and Secăreanu, 2020^[11]). Fifty-seven per cent of people who received the land were over 65 years old and only 9% were under 40 years. In 1997, 41% of the rural population consisted of pensioners who had received 65% of the land (Verdery, 2003^[19]). This contributed to the maintenance of subsistence-oriented production patterns and to keep small farmers relatively excluded from markets. Unfortunately, the transition process was also accompanied by the abandonment of infrastructures, such as irrigation pipes, machinery, buildings, and processing plants (Ianoş and Secăreanu, 2020^[11]). Overall, the accession to the European Union appears to have had limited impact on addressing the duality in Romanian farm structure. Furthermore, the implementation of the CAP, particularly direct payments, seems to have even slowed down structural change of the farming sector (Hubbard et al., 2014^[20]).⁴

Romania is among the EU countries where the acquisition of agricultural land by foreign investors has been most extensive

After Romania joined the European Union in 2007, the higher availability of funding such as for the development and improvement of farms, producer groups, the development of irrigation systems or afforestation, increased interest in investing and cultivating the land. Romanian's natural endowments make the country appealing for the development of intensive agriculture by foreign investors. Even though there is no official statistical information on the foreign ownership of agricultural land in Romania, in a study commissioned by the European Parliament, the Transnational Institute (Kay, Peuch and Franco, 2015^[21]) estimated that 30-40% of agricultural land was controlled by foreign investors in 2015, of which around one-third were by non-EU investors. More recent studies also confirmed that Romania is among the EU countries where foreign acquisition has been most extensive (Burja, Tamas-Szora and Dobra, 2020^[22]; Chiurciu, 2023^[23]). Foreigner investors also have greater capacity to access funding from the European Union: among the ten companies that received the highest support from the Agency for Payments and Intervention in Agriculture (APIA) in 2019, five had foreign capital (Chiurciu, 2023^[23]).

The relatively low price of land compared to other EU Member States, together with a permissive legislation and political support for land consolidation to increase land productivity are key factors that favoured large-scale land acquisitions (Eco Ruralis, 2015^[24]). Multinational private companies were attracted by the investment opportunities and either invested their capital into land acquisitions – and then leased or sold to third party companies – or leased the bulk of land and directed their capital into agro-industrial development and exploitation. Such companies are highly export-oriented and usually manage land through contract farming. Financial institutions and investment funds are also important actors that buy land for commercial reasons: usually they do not engage in agricultural exploitation and lease the land to other companies in processes that some commentators have described as lacking in transparency (Eco Ruralis, 2015^[24]).

The acquisition of land by foreigner investors may raise opportunities for productive investment, as well as favouring agro-industrial development, land consolidation and the orientation toward a more market-oriented and exporting farming sector. At the same time, if not well monitored, this process may have

unforeseen economic and social consequences, such as pricing out local farmers, depriving them of access to land and favouring rural exodus (Burja, Tamas-Szora and Dobra, 2020^[22]). While the new regulation on farmland sales, including large scale land acquisition, is a step forward (see Section 2.4.4), the lack of official statistics prevents a sounded evaluation of the effects of this phenomenon on the process of structural adjustment of the Romanian farming sector. While the new regulation on farmland sales, including large scale land acquisition, is a step forward, the lack of official statistics prevents a sounded evaluation of the effects of this phenomenon on the process of structural adjustment of the Romanian farming sector, in particular the medium-sized farms.

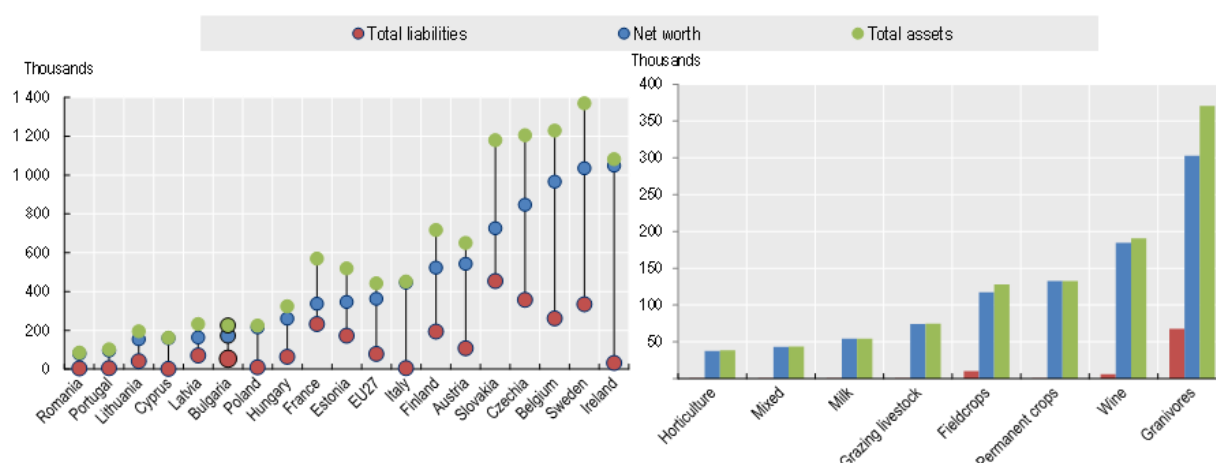
1.2.4. Financial gaps and needs

Romania is the EU country with the highest financing gap in the agricultural sector

Access to credit is a common problem among Romanian farmers. Less than 7% of Romanian farmers applied for a loan in 2017. Rejection rates in Romania are above 25%, well above the average of the 24 EU Member States monitored⁵ (fi-compass, 2020^[25]). About 80% of all farmers who used financing indicated that they relied exclusively on friends and family. Rejection rates are particularly high for livestock farmers due to the perceived higher risk of the sector for its high historical default rates, price risks and animal diseases, as well as for the high vulnerability of the sector, especially smaller farms, due to climate change risks and a lack of income diversification.

Figure 1.6. Low net worth compared to EU average and to regional peers

Assets, liabilities and net worth, selected EU countries, thousand euros, 2022



Note: Left panel reported by country, right panel for Romania in 2022 reported by subsector. FADN data is based on a survey of farm operations and is not a complete reporting of the farm population.

Note by Türkiye: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Türkiye recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Türkiye shall preserve its position concerning the "Cyprus issue".

Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Türkiye. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Source: FADN database, Total Assets SE436, Total Liabilities SE485, Net worth SE501 accessed 12/09/2024

<https://agridata.ec.europa.eu/extensions/FADNPublicDatabase/FADNPublicDatabase.html>.

In recent years, the financing gap⁶ grew dramatically, increasing from EUR 5.2 billion in 2017 to EUR 11.4 billion in 2022, the highest financing gap in the agricultural sector among the 24 EU Member

States monitored by fi-Compass. Romania also has the highest financial gap in relation to Gross Value Added (GVA) (89%) (fi-compass, 2023^[26]).

On average, Romanian farms also have the lowest assets and liabilities compared to some of the more productive countries in the European Union (Figure 1.6, left panel). Average net worth was EUR 80 500 in 2022. However, the balance sheet of the average farm for different commodities shows substantial variation (Figure 1.6, right panel). Pork and poultry farms have relatively high assets (net worth around EUR 300 000), while horticulture have a net worth below EUR 40 000.

Access to finance is low

In Romania access to finance for individuals is still low, in 2020 only 58% of individuals had a bank account, compared to the EU average of 98%. Romanians are also less likely to use their account to make or receive payments, save, or borrow. Only 47% of individuals make or receive digital payments (EU average: 92%), 14% saved at a financial institution (EU average: 49%), and 20% borrowed money or used a credit card (EU average: 46%) (World Bank, 2020^[27]).

Financial institutions are generally considered to have a lack of understanding of farming operations. Many do not have dedicated agricultural finance strategies, products, or teams. Access to finance is particularly important when farmers develop projects supported by EU programmes. Financing is less accessible to agriculture and to businesses located in rural areas. Young farmers and start-ups also face difficulties in accessing loans due to the lack of credit history (MARD, 2023^[7]). Farmers are associated with an increased credit risk due to climate change and price volatility, while the availability of financial resources is seen as an obstacle to investing in climate change adaptation by around 46% of companies in agriculture, regardless of their size (National Bank of Romania, 2023^[28]).

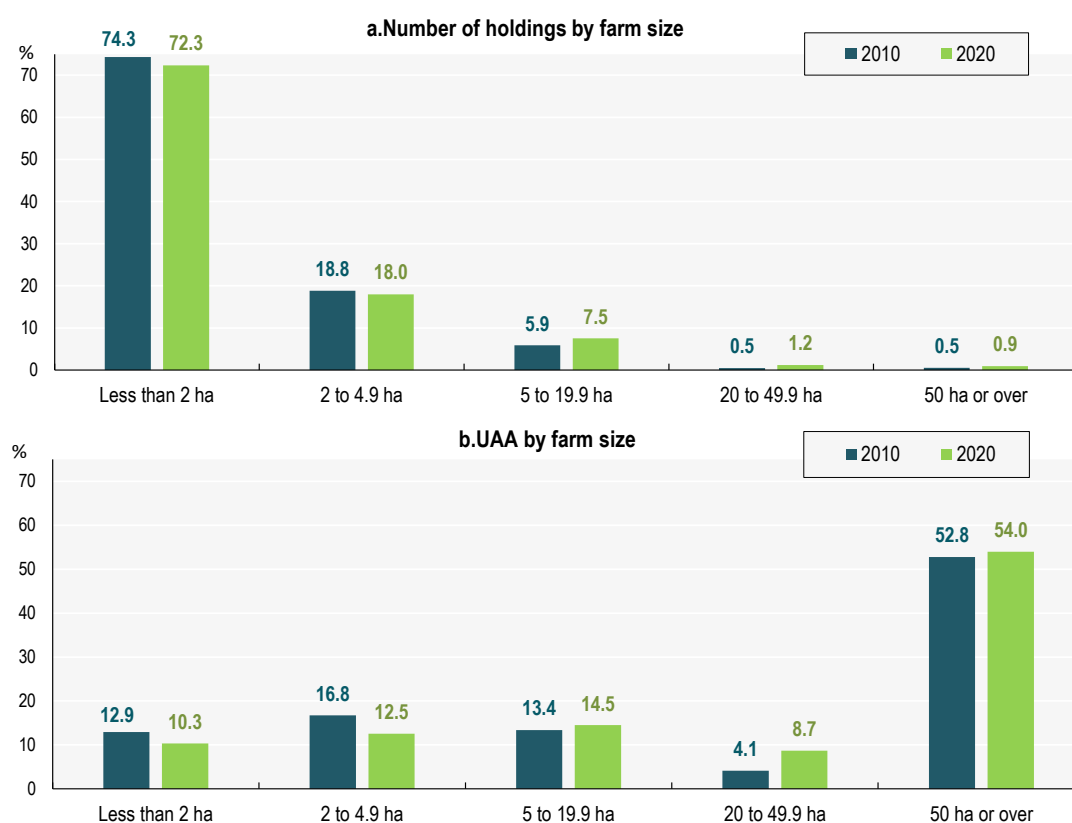
1.3. Structural change in the agro-food sector

1.3.1. Evolution of farm holdings

The Romanian agricultural landscape is still dominated by small family farms, but medium-size farms are slowly emerging

During the last decade there has been an overall decline of 1.4 million farms, mainly driven by the decrease of farms with less than 5 ha (-27.4%), while there has been an increase in the number of farms in all size classes above 5 ha (Figure 1.7, panel a). Similarly, the share of agricultural areas cultivated by farms with more than 5 ha also increased over the same period (Figure 1.7, panel b). Overall, between the two extremes of small and large farms, there is a slowly emerging sector of medium-sized, increasingly professional, “family farms” which have been recognised as the main focus of the government's commitment to promoting the structural reform and increase competitiveness of Romanian agriculture (MARD, 2015^[29]).

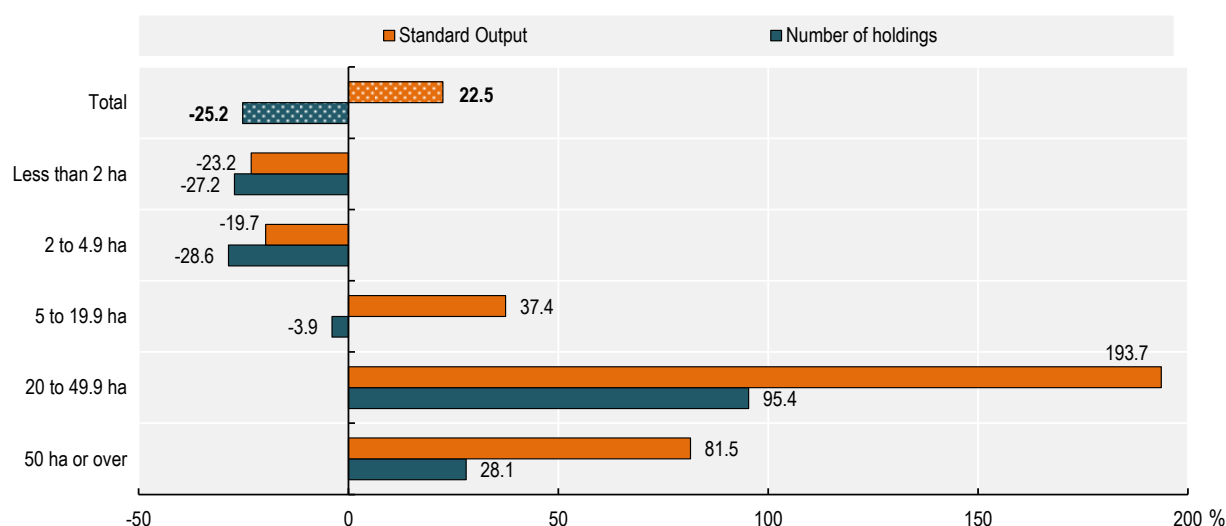
Figure 1.7. Change in number of holdings and land distribution by farm size, 2010-20



Source: Eurostat (2023), Farm indicators by agricultural area, type of farm, standard output, legal form and NUTS 2 regions [EF_M_FARMLEG] accessed July 2023.

Only larger holdings have increased their output in the last decade

In Romania, the average economic output of a family farm was EUR 2 750 in 2020 compared with an average EUR 165 456 for non-family farms, confirming that many family farms can be considered as subsistence farms (Eurostat, 2023^[9]). The decrease of farms under 5 ha between 2010 and 2020 was also accompanied by a significant reduction of their standard output (Figure 1.8). The overall increase by 22.5% of the standard output was mainly driven by farms with 20-50 ha and of farms with more than 50 ha. Such categories were the only ones that also grew in number, in particular farms with 20-50 ha almost doubled.

Figure 1.8. Percentual change of farms holdings and output by farm size, 2010-20

Source: Eurostat (2023), Farm indicators by agricultural area, type of farm, standard output, legal form and NUTS 2 regions [EF_M_FARMLEG] accessed July 2023.

Farmers' associations and co-operatives could help to improve the competitiveness of small and medium-size farms

The formation of farmers' associations and co-operatives could help to address some of the key problems that Romanian small and medium-size farms are facing, including the disadvantages in contracts with retailers (see Chapter 5), but also the difficulties in accessing to some of the main policy tools to support their development (see Chapter 2). Agricultural co-operatives may also have a major impact in improving the trade balance, increasing the added value of primary production and strengthening the role of producers in the agricultural and food chains.

As in the other post-socialist economies, private family farmers in Romania have shown a strong resistance in forming or joining formal organisations. Nevertheless, over the last decade agricultural cooperatives seem to become more popular among Romanian farmers (Wolz, Möllers and Micu, 2019^[30]). Although a significant increase was registered especially during the 2014-20 programming period, the number of Romanian farmers that are currently in an associative structure (around 1%) is still much lower than the EU average (34%). Moreover, there seems to be a “middle-size bias” when forming co-operatives: the smaller and poorer farmers, as well as the richer and larger farmers, often do not join co-operatives (Wolz, Möllers and Micu, 2019^[30]).

In its first analysis of entire agricultural co-operative sector in Romania, CRPE – the Romanian Centre for European Policies – highlighted that among the 1 083 agricultural co-operatives existing “on paper” in 2017, there were only a few economically sustainable (Ganea and Toderiță, 2018^[31]). In the updated research, CRPE recorded a significant increase in the number of legally registered agricultural cooperatives, even though most of them are still facing numerous challenges and very often they have low economic performance (Toderiță, Ganea and Popescu, 2020^[32]; Dobay, 2022^[33]). According to the official data published by MARD (2024^[34]), Romania had around 2 400 registered agricultural co-operatives in 2022, more than twice as many as in 2017.

Evidence confirms that that Rural Development Policies, and in particular LEADER measures have not played a major role in the formation of agricultural co-operatives. However, Laws no. 164/2016 and 21/2019 introduced relevant amendments of the Law on agricultural co-operation and operationalised tax

incentives for co-operatives. This could potentially stimulate the formation of farmers' associations and co-operatives (Toderiță, Ganea and Popescu, 2020^[32]; Tudor and Roșu, 2022^[35]).

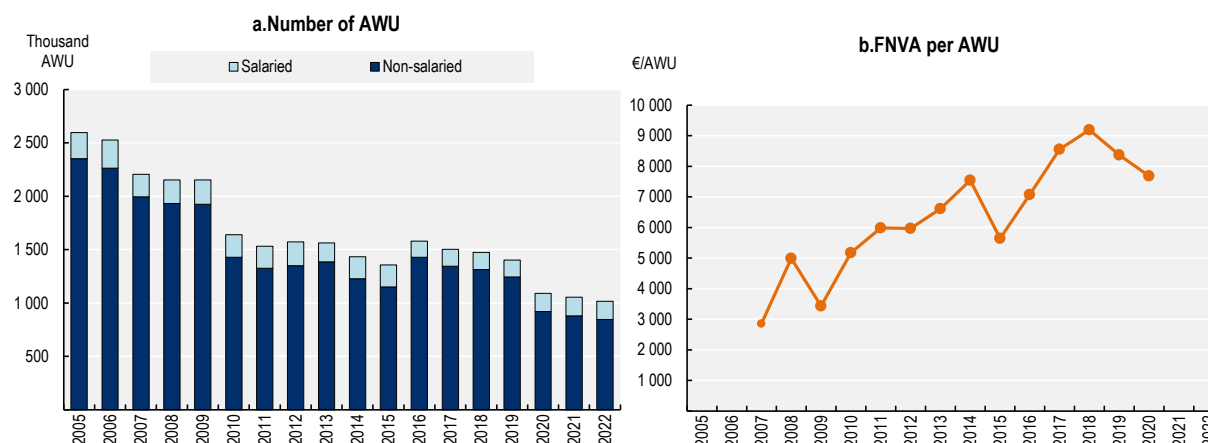
1.3.2. Farm labour and income

Strong decline in agricultural employment since EU accession, but significant increase of income

Agricultural labour, measured in Annual Working Units (AWU), decreased by 60% between 2005 and 2022 (Figure 1.9, panel a). The share of salaried labour has experienced a slight increase from around 10% in 2005 to 17% in 2022. On the other hand, the annual average farm income – expressed as average farm net value added (FNVA) per AWU⁷ experienced an important increase after Romania's EU accession up to 2018; however, in 2021 it declined to EUR 7 684, well below the EU average of EUR 28 786 (Figure 1.9, panel b).

There are divergences in farm value added depending on the activity of the farm, with the highest value (EUR 29 561) for granivores, followed by field crops (EUR 13 854), wine (EUR 9 542) and other permanent crops (EUR 7 233), while mixed farms (EUR 4 099) and horticulture (EUR 3 184) have the lowest income (FADN, 2023^[36]).

Figure 1.9. Evolution of agricultural income in Romania



Note: AWU are Agricultural Working Units, FNVA is the Farm Net Value Added (EUR/AWU).

Source: a. Eurostat (2023), Agricultural labour input statistics [AACT_ALI01]. Accessed July 2023; b. FADN (2023), (FNVA) Farm Net Value Added (€/AWU)], accessed August 2023.

1.3.3. Trends in production and yields

Crop products are driving output growth

Agricultural output has seen a steady growth over the past decades. This has been mainly driven by a growth in crop products that have the largest share in total agricultural output (Table 1.2). Cereals (maize and wheat) compose a large part of this category. Since 2005 soybeans and sunflowers experienced a substantial increase in terms of share in the agricultural output. Other forage plants, although less than in the past, maintain a moderate importance. The main livestock activities are milk and pigmeat production.

Table 1.2. Changes in the composition of agricultural production

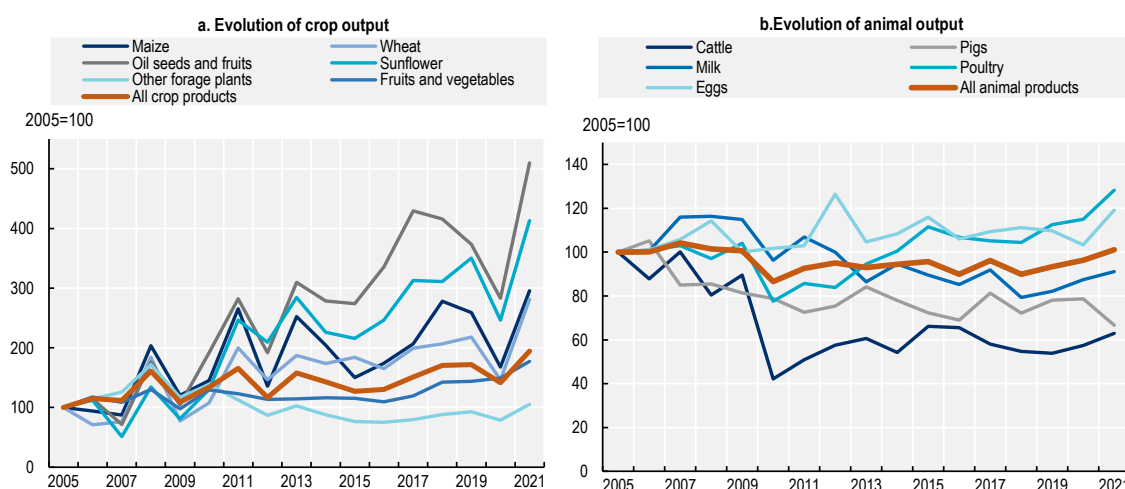
Changes in the composition of agricultural production

Average of period:	Value (EUR million)			Share %		
	2005-07	2012-14	2019-21	2005-07	2012-14	2019-21
Crops, including:	8 406.2	10 744.2	13 070.7	66%	73%	76%
Vegetables and horticulture	1 980.5	2 046.3	2 830.5	16%	14%	17%
Maize	1 012.5	2 132.5	2 600.7	8%	15%	15%
Wheat	594.0	1 219.8	1 551.2	5%	8%	9%
Fruits	971.9	1 071.3	1 428.6	8%	7%	8%
Oil seeds and oleaginous fruits (including seeds)	346.0	944.6	1 411.6	3%	6%	8%
Other forage plants	1 720.1	1 404.6	1 401.9	14%	10%	8%
Sunflower	246.8	674.3	945.8	2%	5%	6%
Wine	209.7	246.3	301.8	2%	2%	2%
Animal products, including:	4 261.5	3 955.8	4 072.5	34%	27%	24%
Milk	1 234.1	1 095.9	1 016.8	10%	7%	6%
Pigs	1 110.6	908.8	855.3	9%	6%	5%
Eggs	647.0	716.0	700.7	5%	5%	4%
Poultry	454.7	417.5	532.3	4%	3%	3%
Cattle	480.0	287.2	290.6	4%	2%	2%
Total agricultural goods output	12 667.7	14 700.0	17 143.2	100%	100%	100%

Note: Production values at current prices. "Maize" includes fodder maize.

Source: Eurostat (2023). Economic accounts for agriculture - values at current prices [aact_eaa01], accessed October 2023.

Since 2015 the production of most crops has experienced significant increases, while slight decreasing trends were observed for some animal products such as milk, pigs and eggs (Figure 1.10). The most significant output growth was observed for oilseeds, fruits and sunflowers. All crops recovered well after the severe droughts that affected the country in 2012 and 2020, when all outputs experienced a significant drop. In particular in 2020 Romania experienced the worst drought in the last 50 years, and then in 2022, the country experienced another severe drought that was estimated to have wiped EUR 1billion from the Romanian agricultural sector (MARD and the World Bank, 2023^[37]).

Figure 1.10. Evolution of the value of crop and animal output, 2005-2021

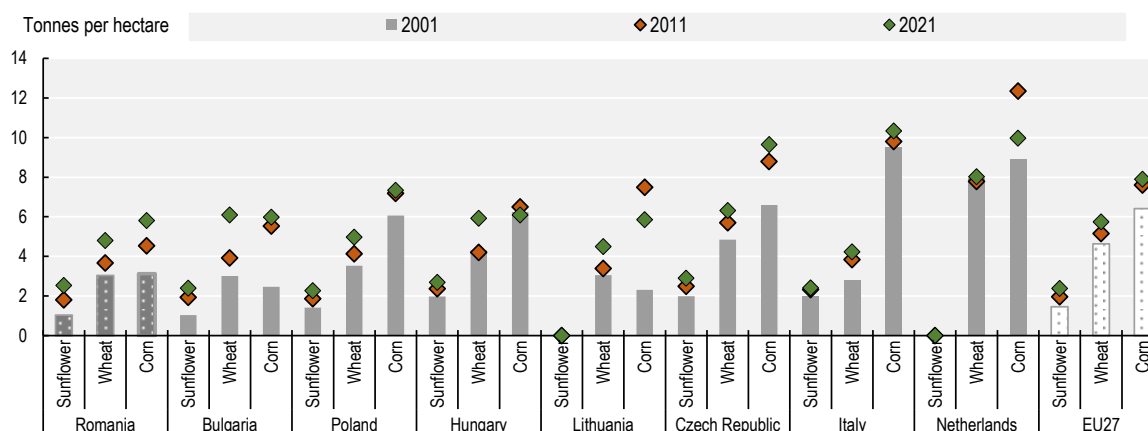
Note: "Maize" includes fodder maize.

Source: Eurostat (2023). Economic accounts for agriculture - values at current prices [aact_eaa01], accessed October 2023.

Romania succeeded in narrowing the yields gap

The observed increase of crop outputs is the result of a significant improvement of yields. As shown in Figure 1.11, over the last 20 years Romania succeeded in narrowing the yields gap compared to the EU average for two of the most important crops – wheat and maize – while sunflower yields are above EU average and higher than in countries such Bulgaria, Poland and Italy. The increase of yields was driven by better technical equipment availability, especially for large holdings. For the period 2010-19, the number of agricultural tractors increased by 18.6% (MARD, 2023^[7]). Nevertheless, around two-thirds of the currently existing farm equipment has exceeded its lifespan. In Romania, a tractor is used for an average of 100 000 hours compared to 3 000 to 4 000 hours for the European average (fi-compass, 2020^[25]).

Figure 1.11. Yield's evolution of main commodities



Note: The EU average includes only the Member States that reported data.

Source: FAOSTAT (2023), Crops and livestock products. Accessed August 2023.

1.3.4. Trends in organic farming

After an initial boom due to CAP payments, organic farming is experiencing sustained growth

Romanian organic agriculture has expanded since 2000, after the adoption of the National Organic Farming Law (34/2000). The number of certified organic producers began to increase in 2005, when organic production started to receive compensatory payments. This growth was then further enhanced with the EU accession in 2007. While the sector continued to grow until 2013, when around 15 000 organic producers were registered, the number of organic producers dropped to 8 500 in 2018. From 2018 onwards the growth of organic farming picked up again and Romania has now overcome the turning point, with 12 000 organic producers in 2021 (Lozan and Arndt, 2022^[38]).

However, processing and marketing structures have not followed the same growth trends as organic production and in many cases organic farmers are unable to market their products at higher prices than non-organic producers (Lozan and Arndt, 2022^[38]). Almost 90% of the production of organic cereals and oilseeds is not processed locally but sold in bulk to be processed in other EU countries (Brumă et al., 2024^[39]). Local demand is still low due to lack of awareness and the consumption market of products deriving from organic farming is mostly covered by companies importing processed organic products from other countries (Jităreanu et al., 2022^[40]; Giucă et al., 2023^[41]).

From 2012 to 2021 the organic area (fully converted and under conversion) doubled from 288 000 to 579 000 ha (see Chapter 3 for further details) (Eurostat, 2023^[42]). The increase of certified areas has been

driven by policy support (Measure 215 of the National Rural Development Programme 2007-13 and Measure 11 of the National Rural Development Programme 2014-22, see Chapter 2) and higher profitability for farms cultivating organic arable crops on large surfaces in the plains. Organic production mostly concerns large arable farms concentrated in the Banat and Wallachia regions. In Transylvania, organic farms tend to be smaller and more engaged in horticulture, beekeeping and ruminant livestock (Lozan and Arndt, 2022^[38]). The average farm size of an organic certified farm in 2021 was 50 ha – significantly higher than the national average of 4.8 ha.

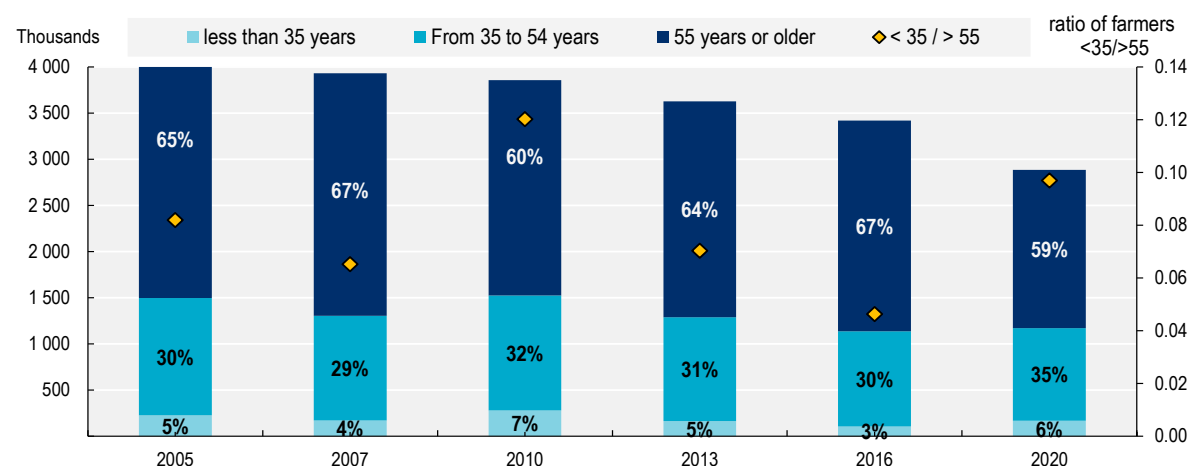
1.4. Inclusiveness of the sector, including in relation to gender, youth, and indigenous peoples

1.4.1. Generational renewal

The share of young farmers is increasing

The composition of Romanian farms by the age of their managers (Figure 1.12), reveals that 59% of them are 55 years or older. Overall, the process of generational renewal is mainly driven by the closure of less competitive holdings run by older farmers. Nonetheless, since 2016 not only the number of holdings managed by older farmers and their share in all farm holdings have decreased, but young farmers also increased consistently both in absolute and in relative terms. As a result, the ratio of farmers younger than 35 to farmers older than 55 significantly increased. The number of farm managers between 35 and 54 years old is also increasing, accounting for 35% of total holdings.

Figure 1.12. Evolution of age distribution of farm's manager and the share of young farmers in Romania



Note: Percentages refer to the share of farmer's age over total farmers.

Source: Eurostat (2023). Farm indicators [EF_M_FARMANG], consulted in July 2023.

Access to land and financing are the main barriers for young farmers

Young farmers face numerous barriers, including difficulties in access to land and to credit. The survey on the financial gaps in Romania's farming sector found that young farmers and new entrants are discouraged from applying for loans due to lack of financial literacy. Their loan applications are also often rejected because insufficient collateral (fi-compass, 2020^[25]). A 2015 study on young farmers' needs in Romania

found that young farmers have difficulties in finding qualified labour and getting advice on extension services (EC, 2015^[43]).

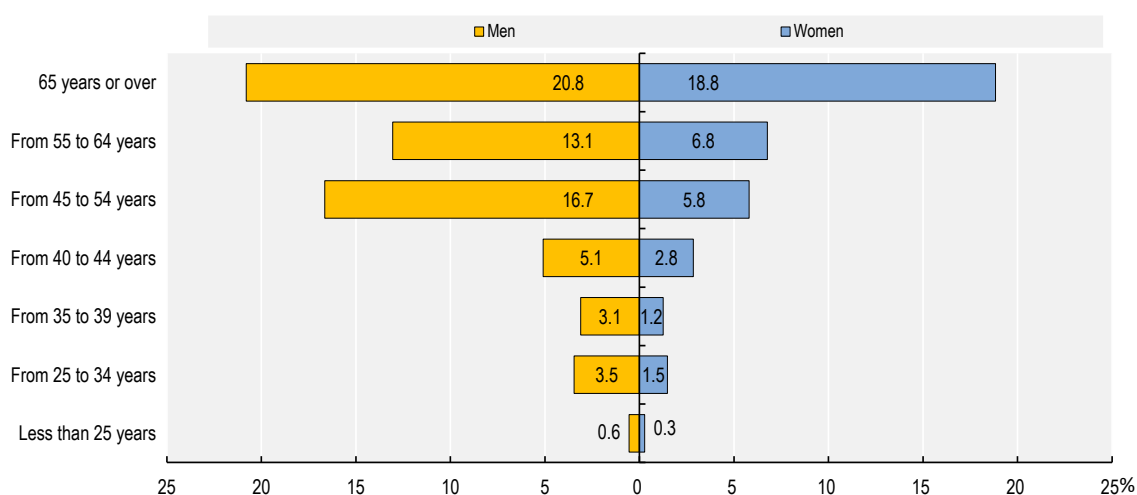
Competition with large investors and the subsequent concentration of land in extensive and in large-scale industrialised monocultures (see Section 1.3.3), was also identified as one of the main barriers for the young generation to access agricultural land (Burja, Tamas-Szora and Dobra, 2020^[22]; Popovici, Mitrică and Mocanu, 2018^[44]).

1.4.2. Gender

The importance of women in the agricultural sector is higher in Romania than in other EU countries...

In 2020 about 63% of farm holders were male (Figure 1.13), this is below the EU value of 68% (Eurostat, 2022^[45]). The percentage of males is much higher across all age groups, except for older farm managers (more than 65 years old), where females have almost the same relative weight as males.

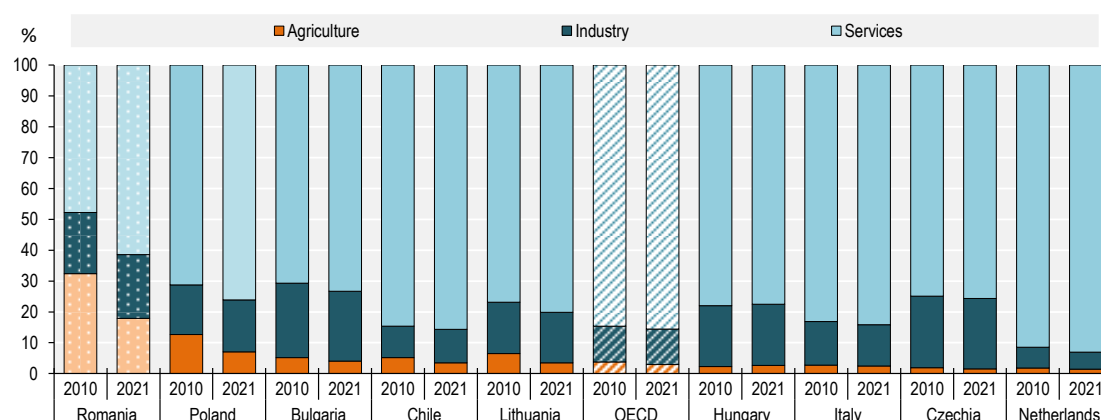
Figure 1.13. Distribution of age and gender of farm managers in Romania, 2020



Source: Eurostat (2023). Farm indicators [EF_M_FARMANG] Consulted on July 2023 Migration.

...but the share of the total female employment working in the agricultural sector is decreasing

Although agriculture is a relatively more important sector for female employment in Romania compared to the peer countries and the European Union, the share of the total female labour working in the agricultural sector decreased from 32% in 2010 to around 18% in 2021 (Figure 1.14). The decline in agriculture was offset by the increased proportion of women working in the services sector. This trend follows the overall reduction of employment in the sector, but the decrease of the female workforce is larger than that of the male counterpart over the same decade.

Figure 1.14. Evolution in the composition of female employment by sector, 2010-21

Source: World Bank (2023). World Development Indicators [database]. Accessed November 2023.

1.4.3. Migration

The agricultural sector is highly affected by outmigration

In Romania up to 4 million people born in the country have emigrated during the last two decades, around 20% of the total population (INS, 2023^[46]). Agriculture has been one of the most affected sectors of the economy and is the sector where migration has created the most labour shortages (Oprea, Vlădescu and Băncescu, 2021^[47]). In 2018 the out-migration of people involved in agricultural activities mainly occurred from counties of southern Romania, which correspond to the areas characterised by a higher prevalence of small farms (Galluzzo, 2023^[48]; Mitrică et al., 2022^[49]). The share of foreign labour in the agricultural work force is 0.2%, according to the data from the General Inspectorate for Immigration (MARD, 2023^[7]). For the first time, in 2022 immigration in Romania was the main cause of population growth. The number of immigrants exceeded the number of emigrants by just over 85 000 people (INS, 2023^[50]). The positive balance of migration flows was partly caused by the war in Ukraine.⁸

Since 1997, internal migration exhibits a trend marked by a net migration flow towards rural areas (Andrei and Mirica, 2019^[51]). In 2022, 144 674 people (15 per 1 000 inhabitants) migrated from urban to rural areas while only 98 414 people (8 per 1 000 inhabitants) moved from rural to urban areas (INS, 2023^[5]).

1.4.4. Minorities

National minorities work mainly in agriculture

The integration of national minorities is of high relevance in Romania, which was among the first countries that signed the Framework Convention for the Protection of National Minorities in February 1995 and the first State to ratify it on 29 April 1995 (Government of Romania, 2023^[52]). Romania's main minority are the Roma people. According to the 2021 population and housing census, there are 569 477 self-declared Roma people in Romania, representing 3% of the general population (NIS, 2023^[53]).⁹ As some Roma do not carry official documents, estimating the size of the Roma population is one of the biggest challenges for the Romanian Government and the real number might be much higher (EC, 2022^[54]).

A significant number of Roma people live in very poor socio-economic conditions. The social exclusion, discrimination and segregation they face are mutually reinforcing and the difficulties encountered by Roma people in entering in the labour market often result in low income and poor health compared with non-Roma people (European Parliament, 2023^[55]). Their main source of income is social support, and some

form of paid work on low-skill jobs, in manufacturing (19.7%), agriculture, forestry and fishing (16.2%), wholesale and retail trade (12.5%), or construction (12.1%) (NIS, 2023^[53]). The lack of skills is a direct consequence of low access to education. In a recent survey, only 22% of young Roma between 18 and 24 reported completing upper-secondary education, against 83% of the total population (European Union Agency for Fundamental Rights, 2023^[56]).

The integration of Roma people in the labour market is particular difficult given that about one-third of the Roma population is under the age of 15 (compared to the rest of population where one-fifth is below the age of 15). The Romanian Government is implementing a strategy on the inclusion of citizens belonging to the Roma minority for the period 2022 to 2027 (EC, 2022^[54]). The strategy identifies six main objectives: improving living conditions, ensuring access to quality inclusive education, increasing the employment rate, improving the health status, supporting research, conservation and promotion of Roma cultural heritage and cultural identity, combating discrimination.

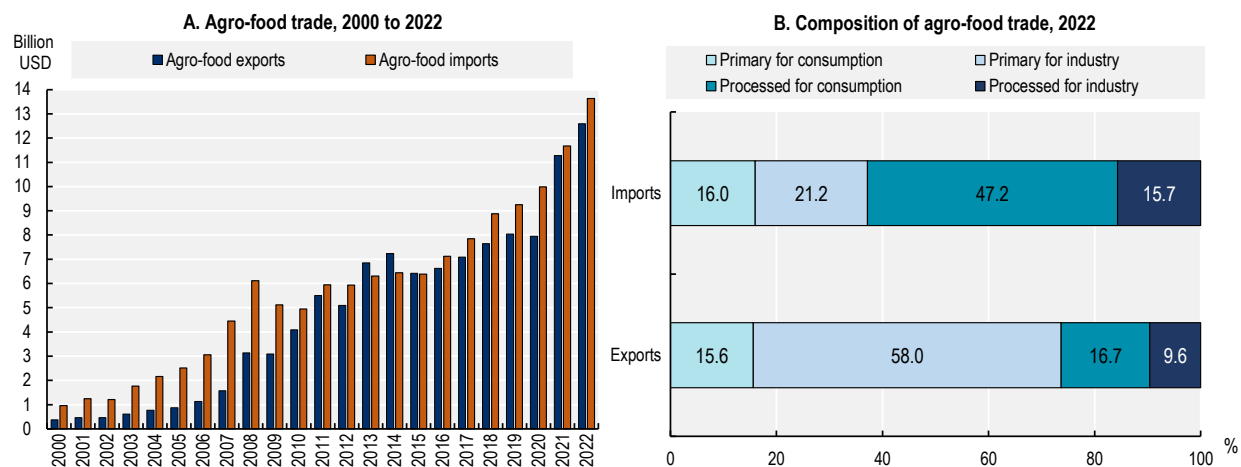
1.5. Trade and participation in global value chains

1.5.1. Evolution of agro-food trade

Agro-food products have an increasing share in Romania's exports

In 2022, agro-food products made up 13% of Romania's total goods exports and 10.3% of imports. The sector's importance in trade, particularly in exports, has increased from 3.5% of exports and 7.4% of imports in 2000. Romania had an agro-food trade deficit of varying size in most years of 2000-22 (Figure 1.15, panel A). Primary goods for industry make up the largest share of exports (60.6%), whereas the largest share of imports (59.6%) corresponds to processed goods for consumption (Figure 1.15, panel B).

Figure 1.15. Agro-food trade has experienced remarkable growth in the last decades



Note: Agro-food definition does not include fish and fish products. Agro-food codes in H0: 01, 02, 04 to 24 (excluding 1504, 1603, 1604 and 1605), 3301, 3501 to 3505, 4101 to 4103, 4301, 5001 to 5003, 5101 to 5103, 5201 to 5203, 5301, 5302, 290543/44, 380910, 382360.

Source: Authors' calculations based on UN Comtrade (database), <http://comtrade.un.org/> [accessed November 2023].

Between 2013 and 2022, agro-food exports grew at an average annual rate of 10.1%, slightly above the average annual growth of imports (8.5%). This represents a deceleration with respect to the previous decade, particularly on the export side: in 2003-12, exports grew at an average of 30.2% and imports at

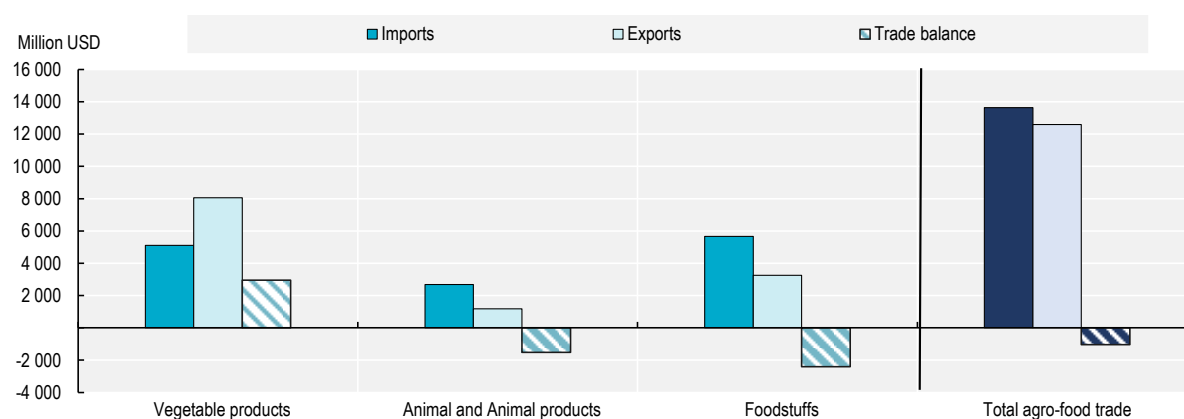
19.4%. Agro-food trade rebounded in the most recent years, particularly in 2021 – in line with the recovery trend often observed following the COVID-19 pandemic. The positive growth continued in 2022, although at more moderate rates.

Cereals and oilseeds are important drivers of the trade surplus in vegetable products

In 2022, Romania had a trade surplus in vegetable products (Chapters 06 to 15 of the Harmonised System). However, it was not sufficient to compensate the value of the negative balances observed in the trade of animal products (Chapters 01-05) and of foodstuffs (Chapters 16-24), resulting in an overall agro-food trade deficit (Figure 1.16).

Figure 1.16. Vegetable products are the most important export group

Trade balance by product group, 2022



Note: Animal and animal products do not include fish and its products.

Source: Authors' calculations based on UN (2022), UN Comtrade (database), <http://comtrade.un.org/> [accessed November 2023].

The top ten headings exported in 2022 represented 71.6% of agro-food exports (Table 1.3). They include cereals (wheat, maize and barley), oilseeds (sunflowers and rapeseed), tobacco and its products, live sheep, and bread. Imports are less concentrated: the top 10 headings made up the 37.7% of agro-food imports. Pork meat was the top import product, followed by bread, sunflower seeds, maize, cheese, chocolate, coffee, and other food and feed preparations.

Table 1.3. Cereals and oilseeds are among the most important export products

Top 10 agro-food products exported and imported, 2022

Code HS-4	Product description	Exports USD thousand	Share %	Code HS-4	Product description	Imports USD thousand	Share %
1001	Wheat and meslin	2 099 413	16.7%	0203	Pig meat, fresh, chilled, frozen	869 914	6.4%
1005	Maize or corn	1 994 736	15.8%	1905	Bread, pastry, cakes, biscuits	590 406	4.3%
1206	Sunflower seeds	1 166 091	9.3%	1206	Sunflower seeds	538 098	3.9%
2403	Manufactured tobacco and substitutes	884 112	7.0%	1005	Maize or corn	527 235	3.9%
1205	Rape or colza seeds	734 524	5.8%	2106	Food preparations, n.e.s.	526 438	3.9%
2402	Cigars, cigarillos, cigarettes	661 255	5.2%	0406	Cheese and curd	513 533	3.8%
1512	Sunflower, safflower or cottonseed oil	508 620	4.0%	2309	Animal feed preparations	496 599	3.6%
1003	Barley	451 503	3.6%	1806	Chocolate and preparations with cocoa	424 244	3.1%
0104	Live sheep and goats	278 535	2.2%	0901	Coffee	352 678	2.6%
1905	Bread, pastry, cakes, biscuits	248 299	2.0%	1001	Wheat and meslin	315 548	2.3%
Subtotal top 10 products		9 027 087	71.7%	Subtotal top 10 products		5 154 691	37.8%
Other products		3 569 151	28.3%	Other products		8 481 053	62.2%
Total agro-food exports		12 596 238	100.0%	Total agro-food imports		13 635 744	100.0%

Note: The HS descriptions have been simplified and are provided only as a reference.

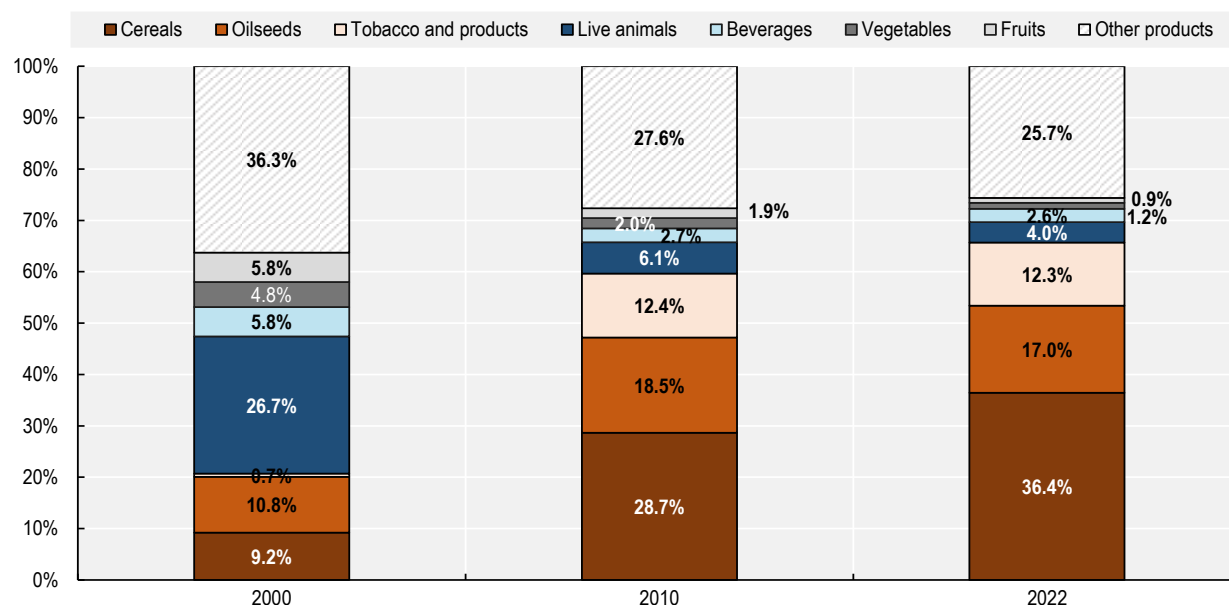
Source: Authors' calculations based on UN (2022), UN Comtrade (database), <http://comtrade.un.org/> [accessed November 2023].*Cereals, oilseeds and tobacco increasingly dominate exports*

The concentration of Romanian agro-food exports on cereals and oilseeds has increased over the last decades (Figure 1.17). In 2000, they made up 20.1% of exports. This share has increased to 53.4% of exports in 2022. Tobacco also gained importance, growing from 0.7% to 12.3% of exports in the same period. As of 2022, Romania occupied the tenth and eleventh places among world exporters of cereals and oilseeds respectively and was the seventh exporter of tobacco (ITC, 2023^[57]).

Three products – live animals, fruits and vegetables – stand out as having reduced shares in exports. In all cases the value exported increased across the period, but they lost relative importance as other products gained it (UN Comtrade, 2023^[58]).

Figure 1.17. Exports are increasingly concentrated on cereals and oilseeds

Composition of agro-food exports, 2000, 2010 and 2022



Note: Export sectors defined at the HS chapter level: live animals (01), vegetables (07), fruits (08), cereals (10), oilseeds (12), beverages (22), tobacco (24).

Source: Authors' calculations based on UN Comtrade (database), <http://comtrade.un.org/> [accessed November 2023].

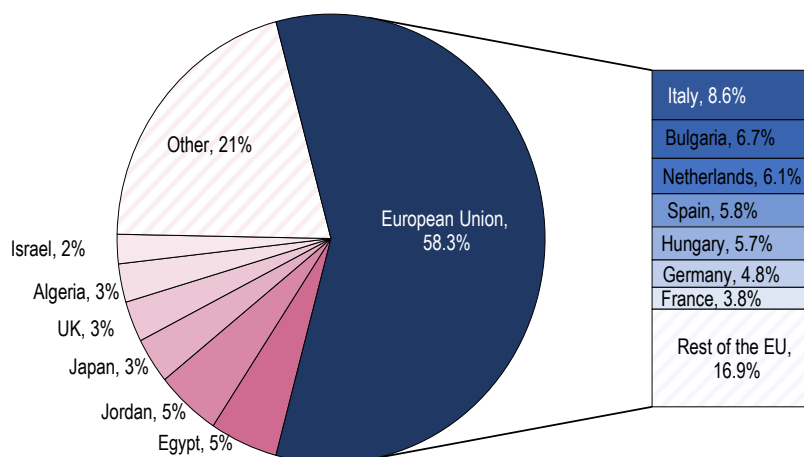
On the import side, notable changes in 2000-22 include a decrease in the import share of live animals (from 2.2% to 1.4%) and an increase in the relative importance of meat (from 7.8% to 10.0%). Other products that stand out as having gained relative importance in agro-food imports between 2000 and 2022 include dairy products (from 2.7% to 7.6%), oilseeds and oleaginous fruits (from 2.6% to 8.5%) and cereal preparations (from 2.3% to 6.2%) (UN Comtrade, 2023^[58]).

Romania mainly trades agro-food products with EU partners

Intra-EU trade made up 58.3% of Romania's 2022 agro-food exports and 75.9% of imports. The top destinations for exports within the European Union were Italy (8.6%), Bulgaria (6.7%), the Netherlands (6.1%), Spain (5.8%) and Hungary (5.7%). Outside of the European Union, exports went to markets such as Egypt (5.1%), Jordan (4.9%) and Japan (3.3%).

Figure 1.18. Non-EU partners made up 42% of Romania's agro-food exports

Main export destinations for agricultural and food products, 2022

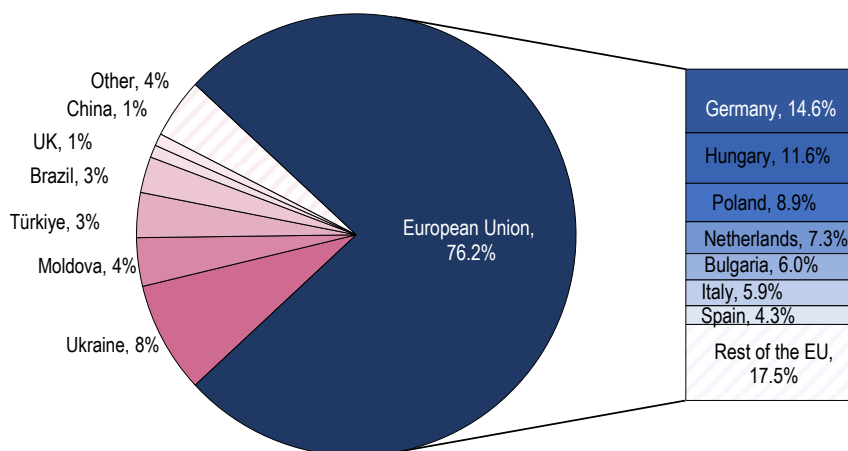


Source: Authors' calculations based on UN (2023), UN Comtrade (database), <http://comtrade.un.org/> [accessed November 2023].

Germany originated the largest share of agro-food imports (14.6%), followed by Hungary (11.6%), Poland (8.8%) and the Netherlands (7.3%). A surge in imports from Ukraine in 2022 put it at the top of non-EU import sources, with a share of 8.2% (against 1.3% in 2021). Other important non-EU sources include Moldova (3.5%), Türkiye (3.3%) and Brazil (2.7%).

Figure 1.19. EU partners supply over three-quarters of Romania's agro-food imports

Main import sources for agricultural and food products, 2022



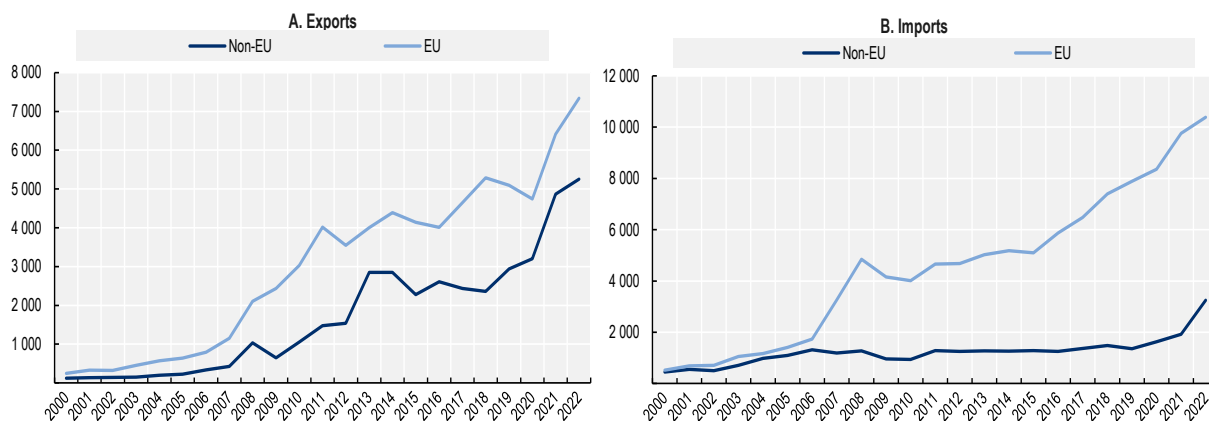
Source: Authors' calculations based on UN (2023), UN Comtrade (database), <http://comtrade.un.org/> [accessed November 2023].

Trade with EU Member States has shown more dynamism than with non-EU partners, particularly after EU accession

The value of agro-food trade with EU Members was higher than with non-EU partners, even before Romania's EU accession. After 2008, the gap between intra-EU trade and trade with other partners widened, particularly for imports. Exports to non-EU partners have grown at a higher rate after 2008 and the gap between both groups has narrowed in some of the most recent years (Figure 1.20).

Figure 1.20. Exports to non-EU partners have shown more dynamism in recent years

Evolution of agro-food trade with EU and non-EU trading partners, 2000-22



Note: EU data refers to the EU-28 (including the United Kingdom) up to 2019 and the EU-27 thereafter.

Source: Authors' calculations based on UN Comtrade (database), <http://comtrade.un.org/> [accessed November 2023].

1.5.2. Integration of the agro-food sector in international markets

The agriculture and food sectors have deepened their participation in global value chains

The OECD Trade in Value Added (TiVA) database considers the value added by each country in the production of goods and services that are consumed worldwide, providing a broad view of where value is created along each stage of global value chains (GVCs). An examination of international value-added flows related to the agro-food sector (Box 1.1) gives a perspective of countries' integration into GVCs that goes beyond conventional trade data.¹⁰

TiVA data also reveal international flows of value added that are not captured by traditional trade statistics. In some cases, the top destinations of value-added exports and sources of value-added in domestic demand differ from the top trading partners in terms of gross exports and imports. For example, higher shares of Romania's value added exports go to Germany, the United States, France and the People's Republic of China (hereafter China) than their share in Romania's gross exports. On the import side, while China represents less than 1% of agro-food imports, it is among the top five sources¹¹ of agro-food value added in Romania's domestic demand.

Box 1.1. Indicators to measure engagement in global value chains and identify value adding pathways in agriculture and food trade

Exploring trade in value added provides insight into the different types of value creation for the agricultural sector. Direct exports of agricultural value added occur from the sector itself through primary product exports. Indirect exports of agricultural value added embodied in other exports represent the agricultural value added that is exported by other domestic industries, for example in processed or transformed products. At the same time, there are important shares of value addition from services and industrial sectors in the export value of agricultural products. Services represent a wide range of activities including business services (such as agricultural consultants and contractors), transport and trade services, which, in the same way as food processing, can increase domestic value creation.

OECD research has identified two value adding pathways related to trade and GVC engagement. The first is a processing pathway, where domestic value addition to agriculture and links to trade and GVCs occur through downstream processing sectors. The second is a primary pathway, where domestic value addition is made to the primary product, and the sector's engagement in trade and GVCs is via direct exports for foreign processing or foreign final demand. The research found that countries participating in trade and GVCs via the primary pathway generated equivalent overall trade-related domestic value-added returns as those participating via the processing pathway. A key difference was the share of services value-added, which was higher in countries that followed the primary pathway.

These two pathways are captured in two key indicators that measure a country's degree of engagement in GVCs: i) backward participation, which measures the share of imported intermediates embedded in the country's exports and represents the processing pathway; and ii) forward participation, which measures the share of exports that form an intermediate into other countries' exports and represents the primary pathway.

Source: (Greenville, Kawasaki and Jouanjean, 2019^[59]); (OECD, 2020^[60]).

Romania's agriculture and food industry have increased their forward and backward linkages with global production networks since 2000 (Table 1.4), although the foreign value-added content of agriculture exports from Romania to the world had a slight decrease between 2010 and 2020. The share of Romanian value added embodied in other countries' exports of both sectors increased across the period. Both sectors also increased their reliance in foreign demand, but growth was much stronger for agriculture. As of 2020, most indicators of linkages with GVCs were lower than the EU average, except the indicator of forward linkages for the food industry.

Table 1.4. Agriculture and food have increased their forward and backward linkages

Evolution of indicators of participation in global value chains

	Romania			EU-27 average		
	2000	2010	2020	2000	2010	2020
Agriculture, hunting and forestry						
Backward linkages: Foreign value added in exports	7.50	20.50	19.70	22.27	28.27	28.61
Forward linkages: Domestic value added embodied in foreign countries' exports	0.30	0.50	0.60	0.29	0.38	0.46
Share of industry's value-added meeting foreign final demand	10.20	23.00	33.60	36.44	45.11	50.47
Food, beverages and tobacco						
Backward linkages: Foreign value added in exports	13.10	19.20	23.70	31.59	35.34	36.87
Forward linkages: Domestic value added embodied in foreign countries' exports	0.90	1.20	1.50	0.94	1.11	1.22
Share of industry's value-added meeting foreign final demand	8.20	8.20	9.50	29.15	34.63	37.33

Note: The value for the EU is a simple average of the values for its members in the corresponding year. The table refers to the TiVA indicators EXGR_FVASH (foreign value added embodied in the industry's exports as a percentage of industry's total exports); EXGR_DVAFXSH (domestic value added content embodied in the exports of the industry in foreign countries, as a percentage of country's gross exports), and VALU_FFDDVA (share of the industry's value added that ultimately meets foreign final demand (whether as a direct or an indirect export)).

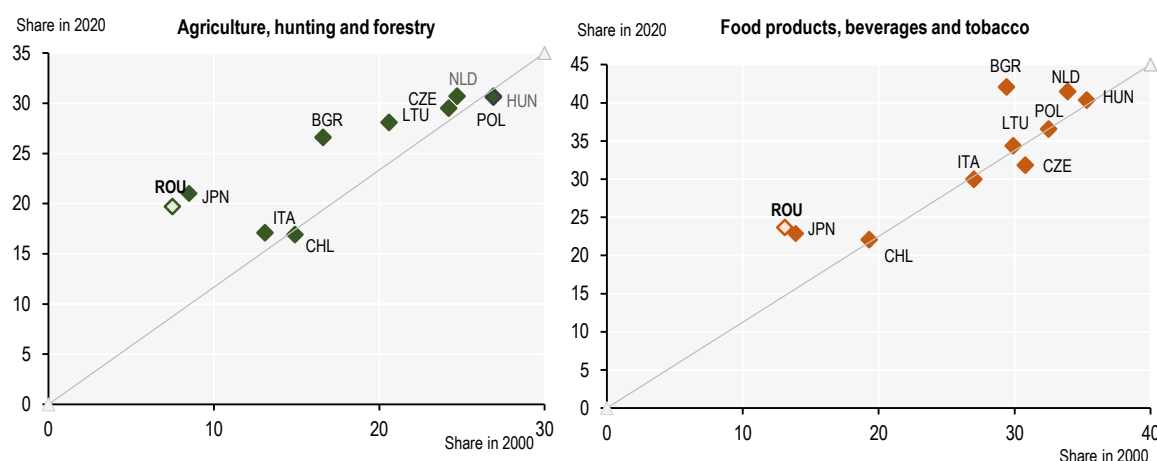
Source: OECD (2023), Trade in Value Added (TiVA) [database], <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (consulted November 2023).

The foreign value-added (FVA) content of agriculture (19.7%) and food exports (23.7%) are below or close to the FVA share observed in 2020 for the Romanian economy (24.4%). The highest FVA shares in the economy are found in industries such as motor vehicles (39.2%) and rubber and plastics (39%). Romania is below the peer group in terms of the FVA content of exports of both agriculture and food. Romania

scored the third lowest foreign value added shares in its 2020 agricultural export. For the food industry, Romania had the third lowest FVA share (Figure 1.21).

Figure 1.21. Romania has a relatively low share of foreign value-added in its agro-food exports

Evolution of foreign value added in exports between 2000 and 2020



Source: OECD (2023), Trade in Value Added (TiVA) [database], <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (consulted November 2023).

Agro-food exports have an increasing content of foreign services

TiVA indicators also highlight the trend of “servicification” of global value chains,¹² reflected in an increase in exports of services value-added, both direct and indirect (in particular services embodied as inputs in the exports of goods). For Romania, the total services content (domestic and foreign) is slightly higher for the food industry than for agriculture (25.5% vs. 24% in 2020) and has increased since 2000, although it remains lower than that of the European Union (Table 1.5). The foreign services content in Romania is lower than the European Union average for both sectors.

Table 1.5. The foreign services content of agro-food exports is increasing

Evolution of the services value-added content of exports

	Romania			EU-27 average		
	2000	2010	2020	2000	2010	2020
Agriculture, hunting and forestry						
Foreign services content	3.30	9.50	9.90	10.71	14.01	15.11
Domestic services content	5.60	9.60	14.30	12.55	14.11	13.40
Total services content	8.90	19.10	24.20	23.26	28.12	28.51
Food, beverages and tobacco						
Foreign services content	6.10	8.80	11.60	15.05	18.16	19.94
Domestic services content	9.60	9.50	13.90	17.24	18.80	17.49
Total services content	15.70	18.30	25.50	32.29	36.96	37.43

Note: The value for the EU is a simple average of the values for its members in the corresponding year. Share of value-added originating from all domestic and foreign service industries in total gross exports by industry. Service industries include construction, wholesale and retail, hotels and restaurants, transport and communications, finance, real estate and business services as well as public services.

Source: OECD (2023), Trade in Value Added (TiVA) 2022 edition (database), <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (consulted November 2023).

1.6. Conclusions

Romania has made significant economic progress over the past few decades, and its economy has become increasingly open and sophisticated. Nevertheless, its poverty rate is still the highest in the European Union and income inequality and disparities in living standards between urban and rural areas are large.

Over the last two decades the role of agriculture in the economy has fallen to a larger extent than in other selected peer countries, but Romania has the largest share of agriculture in the Gross Domestic Product in the European Union and the farming sector still employs 20% of the workforce. The share of employment in farming is declining, and agricultural area is decreasing, mainly as result of farmland abandonment.

Romania accounts for almost one-third of all farms in the European Union, but the structure of the sector is characterised by a large number of small and semi-subsistence family farms that manage less than one-quarter of the agricultural land and a small group of very large farms that owns more than half of the agricultural land. Medium-size farms are slowly emerging.

As result of the positive development of the regulatory framework, a significant increase of agricultural co-operatives was registered over the last decade, but the number of Romanian farmers that are currently in an associative structure (around 1%) is still much lower than the EU average (34%).

Access to credit and to land are key barriers for the structural change of the farming sector. Romania is the EU country with the highest financing gap in the agricultural sector and is among the countries that have the most severe problems of land fragmentation. The significant increase in the number of young farmers is an encouraging development in light of this challenging context.

Agriculture is a relatively more important sector for female employment in Romania compared to the peer countries and the European Union, however over the last decade the share of agriculture in the total female employment has decreased.

The crops sector is driving agricultural output growth, also because the country managed to reduce the yield gap with the European Union for some of its major crops. On the other hand, the livestock sector is in slight decline.

Agriculture is important in trade and agro-food exports are increasing. Romania's exports are dominated by primary products and there is a concentration of exports on grain, oilseeds and tobacco. Integration of the agro-food sector into global value chains has increased over time, but it is relatively low when compared to peer countries.

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Notes

¹ The EU territory is subdivided into regions at three levels, from larger to smaller units (NUTS 1, 2 and 3). The urban-rural typology is applied to NUTS 3 regions. “Predominantly rural” regions are those where at least 50% of the population live in rural grid cells, or 1 km² cells with a population density of less than 300 inhabitants per km² and/or fewer than 5 000 inhabitants (Eurostat, 2020^[61]).

² Eurostat defines a family farm any farm under family management where 50% or more of the agricultural labour force is provided by family workers. This is based on the FAO definition of a family farm, which is “an agricultural holding [...] managed and operated by a household and where farm labour is largely supplied by that household”,

³ The choice of illustrative peer countries for Romania includes a mixture of significant EU trading partners, small non-EU OECD Members and fellow OECD accession candidate countries.

⁴ For a more detailed discussion on the effect of CAP direct payments on the structural transformation of agriculture see OECD (2023^[62]).

⁵ Austria, Belgium, Bulgaria, Croatia, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

⁶ Fi-compass, the platform for advisory services on financial instruments under EU shared management, defines this gap as the unmet financing demand from economically viable farms and agri-food SMEs. It includes loans applied for but not obtained, financing refused by the potential borrower, and loans not applied for due to fear of rejection.

⁷ Average farm net value added (FNVA) per AWU is equal to gross farm income minus the depreciation costs. It takes into account agricultural support and income taxes. Measuring farm income per AWU allows to account for the different farm scales and provides a better measurement of agricultural labour productivity.

⁸ Immigrants are defined by the Romanian National Institute of Statistics as people (of Romanian citizenship, foreign or stateless) who immigrate to Romania for a period of at least 12 months. During the period of the war in Ukraine, based on the additional clarifications developed by Eurostat, in the measurement of the immigration phenomenon, Ukrainian citizens who obtained a form of temporary international protection are also taken into account. See https://insse.ro/cms/files/statistici/comunicate/com_anuale/populatie/Precizari_metodologice_poprezidenta_1ian2023.pdf.

⁹ The number of Roma people in Romania might be much higher. The Council of Europe estimates that 1 850 000 Roma are living in Romania, about 8% of the population (Council of Europe, 2012^[63]).

¹⁰ Conventional measures of international trade not always reflect the flows of goods and services within global production chains. The TiVA approach better reflects the significantly higher contribution made by services in GVCs, the role of imports in export performance, and the true nature of economic interdependencies.

¹¹ Note that foreign value added of the agriculture or food sectors may be embodied in imports of other industries.

¹² This phenomenon describes the trend of manufacturing sectors increasingly relying on services, whether as inputs, as activities within firms or as output sold bundled with goods. It relates to GVCs, as services are often deployed through international production networks.

2 Trends and evaluation of agricultural policies

Since Romania's accession to the European Union (EU) in 2007, the policy framework for the agricultural sector has been shaped by the EU Common Agricultural Policy (CAP). Financial support to farmers has increased significantly, mainly in the form of direct payments. This chapter reviews the institutional and policy framework governing Romania's agro-food sector and examines the evolution of agricultural policies up to the implementation of the current CAP 2023–27. The chapter also examines other relevant EU and national policies, including those aimed at supporting young farmers, regulations covering the market for farmland and relevant developments in trade policy.

Key messages

- After joining the European Union in 2007, the policy setting affecting the agricultural sector in Romania has been driven by the Common Agricultural Policy (CAP), with increasing EU financial support to farmers, mainly in the form of direct payments.
- The number of beneficiaries of CAP direct payments has decreased over time, and in 2021 less than one-third of Romanian farms received payments, with the largest share of support received by medium and large farms.
- Romania used some of the increased flexibilities of the CAP 2023-27 to adapt EU policy to its needs and priorities, including the transfer of 3% of the initial budget to rural development and the assignments of funds from direct payments to risk management tools.
- The allocation of direct payments funding in the new CAP strategic plan (CSP) of Romania is similar to the EU average, while rural development interventions put greater emphasis on investments, with a very low share of the budget (0.2%) dedicated to knowledge exchange and dissemination of information.
- Among the broad range of domestic policies implemented in Romania to complement the CAP, measures and regulations designed to attract young people to the sector, and to regulate the farmland market are the ones with the highest potential to improve the competitiveness and the sustainable development of the farming sector.
- Increasing the exports of processed agro-food products, improving access to international markets and opening new markets with higher value-added are important policy objectives for Romania, and a new agency was established in 2023 to take actions toward these goals.

2.1. Key policy developments before the accession to the European Union

2.1.1. Pre-accession reforms and instruments

The 1997 reform was the first important step to make Romanian agricultural policies compatible with a market economy

Following the 1989 Revolution, Romanian agriculture, as other sectors of the economy, faced daunting obstacles to becoming a competitive market system. Agro-food policies applied until 1996 were highly distortive, impeding restructuring and the development of market mechanisms. The objectives of guaranteeing the domestic food supply and of ensuring low and stable food prices were achieved within the framework of the command system, which was based on fixed prices, strict control of farms' output, direct budgetary financing of most of general services for agriculture and large-scale capital investments concessions (OECD, 2000^[1]).

The radical liberalisation of agricultural policies that took place in 1997 was driven by the World Bank's Agricultural Sector Adjustment Loan (ASAL), a USD 350 million programme aimed at fostering the transition to an efficient agricultural market economy (World Bank, 2005^[2]). After the 1997 reform, agricultural policies were limited to the support for input purchases and ad hoc measures to stabilise selected commodity markets.

Several legislative and organisational steps were also taken to move Romanian policies and regulations closer to the EU framework, especially in policy areas such as rural development, environmental protection, extension, and quality and sanitary control. As result of the EU accession, Romania also

changed its biosafety regulatory framework and this has led to no longer cultivating genetically modified (GM) crops in the country (Antofie and Sand-Sava, 2022^[3]). Indeed, Romania was one of the first countries in the world to adopt GM crops in 1999 after its commercial release in 1996. In the span of eight years, Romania undertook considerable deployment of a glyphosate herbicide tolerant variety of soybean and, in the year before joining the European Union, the country reached its historical peak of areas cultivated with GM crops (137 000 hectares). Since then, the areas cultivated with GM crops have declined; by 2016, no commercial cultivated GM crops were reported. Although the commercial cultivation of GM crops in Romania remains legally possible according to the EU regulations, it has been argued that the adoption of the EU Directive 2015/412 de facto resulted in GM ban (Ilichim, 2018^[4]).

EU pre-accession financial instruments in early 2000s further supported agricultural structural changes

The official opening of the negotiations for the accession to the European Union in May 2000 represented another crucial step in reshaping Romanian agricultural policy. As for the other new Member countries, the accession process involved the adoption of EU legislation. PHARE (the Programme of Community aid to the countries of central and eastern Europe) was the main financial instrument of the pre-accession strategy supporting central and eastern Europe in its evolution toward a democratic society and a market economy, focusing on institutional development and investments.

As for agriculture and rural development, in preparation for accession, Agenda 2000 reform initiated two additional pre-accession financial instruments: the Instrument for Structural Policies for Pre-Accession (ISPA) and Special Accession Programme for Agriculture and Rural Development (SAPARD) (Gorton, Hubbard and Hubbard, 2009^[5]). Designed to function on similar principles as those of the Guarantee Section of the European Guidance and Guarantee Fund (EAGGF), SAPARD was created specifically to support these countries to undertake structural changes and help them comply with the EU agricultural regulations concerning the CAP and related policies (Toma et al., 2021^[6]).

2.1.2. Convergence with EU policies

In Romania pre-accession agricultural programme only started in 2003

SAPARD measures were designed to implement the plethora of already existing EU measures, instead of promoting new national policy measures. Each candidate country was invited to develop its own national seven-year agricultural and rural development plan (2000-06). The European Union contribution was set up to a maximum of 75% of the total eligible public expenditure and, for certain measures, could cover the entire costs. The process of establishing operational SAPARD paying and implementing agencies suffered considerable delays, and the programme did not start to function until 2003 (Csaky and Kray, 2005^[7]).

The overall SAPARD budget for Romania amounted to almost EUR 920 million (MARD, 2006^[8]) and three measures were dominant: processing and marketing of agricultural and fisheries products (36% of the total); investments in agricultural holdings (28%); and development and investment of rural infrastructure (16%). Measure to promote sustainable agricultural practices or to setting-up producer groups schemes were financed by the 2% and 1% of the total budget respectively.

SAPARD programme helped adapting the existing regulatory framework for EU accession but left many challenges unsolved

As reported in the final report of the ex-post evaluation of SAPARD (Asociatia Ecosfera V.I.C. and Agriculture Capital & Engineering, 2011^[9]), the programme gave momentum to the adoption of the existing framework for Romania's EU accession. In particular, the programme drove the approval of more than 50 legislative documents regarding the institutional system of agricultural policy. These included the

management of agriculture and rural development policy, Romania's agreements with the European Union regarding the SAPARD Program, and regulations on producer groups and disadvantaged areas (including areas affected by floods and calamities), and on loans and agricultural credits.

SAPARD was less effective in preparing the sector for the accession beyond the narrow circle of direct beneficiaries. The vast needs of Romanian rural areas could not be fully addressed with SAPARD financial resources. But, in some cases, measures were poorly designed. For example, a high threshold was set for beneficiaries to participate in investment measures, and there was low uptake of training measures to prepare farmers for joint investment schemes (Metis, 2013^[10]).

2.2. Post-accession and adoption of the Common Agricultural Policy

2.2.1. The start of the CAP: The 2007-13 programming period

With the CAP, EU financial support to the farming sector increased...

The Treaty of Accession signed in April 2005 paved the way for Romania to become a member of the European Union as of January 2007. As for the other EU Member States, after joining the European Union in Romania the policy setting affecting the agricultural sector has been driven by the Common Agricultural Policy (CAP) (see Box 2.1).

While the CAP has been the European Union's agricultural policy framework since its institution in 1962, the mix of policy instruments has evolved substantially over time. Levels of trade protection and producer support have been reduced since the mid-1990s, and new instruments, such as payments that do not require production, have replaced price support policies (OECD, 2023^[11]). Since the 1990s this evolution of the CAP instruments has taken place in a context of consistent enlargement of membership to the European Union, almost doubling in 20 years, from 15 countries in 1995 to 25 in 2004, 27 in 2007 and 28 in 2013.

Box 2.1. The EU Common Agricultural Policy

The CAP is the first common policy adopted by the European Union under the Treaty establishing the European Economic Community (the Treaty of Rome) in 1957. It is based on three principles: a common market, community preference, and financial solidarity. Its objectives set out in Article 39 of the Treaty on the Functioning of the European Union are to increase agricultural productivity by promoting technical progress, and thus to ensure a fair standard of living for the agricultural population; to stabilise markets; to ensure the availability of supplies; and to ensure that supplies reach consumers at reasonable prices. While these objectives have not changed since the CAP was launched over 60 years ago, in practice, the CAP now addresses additional objectives such as the environment, climate change, rural development and animal welfare.

The CAP is composed of two pillars, with two separate funding sources:

- Pillar 1 is funded by the European Agricultural Guarantee Fund (EAGF) and defines and funds Direct Payments to farmers and market measures under the Common Market Organisation.
- Pillar 2, or Rural Development Regulation, is funded by the European Agricultural Fund for Rural Development (EAFRD) and EU Member States' national budgets. Pillar 2 contains various measures co-financed by Member States, including agri-environmental schemes, payments to areas with natural constraints, rural development and investment assistance.

Direct payments under Pillar 1 are largely decoupled from production as they are based on farm area, and do not depend on current production decisions. Such payments make up the bulk of CAP spending: in 2022, they accounted for two-thirds of the CAP expenditures (OECD, 2023^[11]).

Pillar 1 also funds market support measures, representing 5.6% of the overall EU agriculture and rural development budget in 2022. These cover mainly the fruit and vegetables and wine sectors, while other market-related expenditures include the POSEI (*Programmes d'Options Spécifiques à l'Eloignement et à l'Insularité*) and Smaller Aegan Islands (excluding direct payments), promotion of agricultural products, apiculture and school schemes.

The Rural Development fund EAFRD is part of the EU-level Common Strategic Framework covering all support from European Structural and Investment funds (ESIF) in Member States through partnership agreements. Pillar 2 also supports projects using the LEADER approach (*Liaison Entre Actions de Développement de l'Économie Rurale*) based on a multi-sectoral approach and local partnerships to address specific local problems.

Romania adopted the CAP after the 2003 Fischler Reform, which introduced the single payment scheme, decoupling most support from any requirement to produce. The reform included further cross-compliance and modulation, more financial discipline, and splitting the budget into two separate funds for Pillar 1 and Pillar 2. Measures taken under the 2009 Health Check sought to continue the direction of the 2003 reform. Decoupling of aid continued and nearly all payments were transformed into decoupled direct payments: the single payment scheme. It further reduced market intervention for a number of products, abolished set-aside and announced the phasing out of milk quotas (OECD, 2023^[12]).

In 2023, the OECD reviewed the European Union's policies for the sector over the period 2014-22, including the CAP, and made recommendations that can be applied either during the current programming period 2023-27 or in the next programming period (Box 2.2).

After the accession, in Romania the EU financial support to the farming sector increased, particularly in the form of direct payments, whilst the contribution of national funds has decreased year by year (Hubbard et al., 2014^[13]). As for the second pillar of the CAP, Romania set up the system for the administration of the National Rural Development Program (NRDP). In the programming period 2007-13, Romania received about EUR 14 billion from the EU budget, of which about EUR 8 million was allocated to the second pillar (around 60%), a larger share than the EU average of 24% (MARD, 2017^[14]).

Box 2.2. Policies for the Future of Farming and Food in the European Union: Key messages

- The European Union's diverse agro-food sector is at a critical juncture, confronting climate change and successive crises such as the systemic shock of the COVID-19 pandemic and the war in Ukraine, while addressing the triple challenge facing food systems: ensuring food security and nutrition, providing livelihoods for actors in the food chain, and improving environmental sustainability.
- Through the OECD's Agro-Food Productivity-Sustainability-Resilience lens, this review, which draws lessons from the period 2014-22, shows that, in this ever-changing economic and policy environment, the EU agro-food system has demonstrated its resilience and has been able to keep productivity growing, in particular in post-2004 Member States, to reduce GHG emissions intensity, and to foster cross-country collaboration on innovation.
- However, in recent years, agricultural productivity has increased at a slower pace than in other OECD countries, while the environmental sustainability performance of the sector has not

improved in line with expectations. This stalled progress is not due to insufficient ambition or lack of resources, but rather to policy design and implementation.

- The Common Agricultural Policy (CAP) 2023-27, which represents about one-third of the EU budget, includes promising new approaches and priorities. The CAP is considered strategic for the European Green Deal (EGD) agenda due to its potential for addressing environmental concerns, and is increasingly expected to deliver on broad food systems objectives that go beyond the agricultural sector.
- The transition of the EU food systems calls for an overall transformation, where innovation will play a critical role in delivering sustainable productivity growth. Meeting the ambitious EGD objectives will require further reform, by redesigning payments, regulations, innovation and data strategies, as well as adopting new approaches to deliver environmental services.
 - **Payments.** Further redesign CAP payments into separate measures targeted at income support and environmental sustainability and align the CAP expenditures with environmental and climate priorities. Introduce specific mechanisms to incentivise performance by Member States, reduce total spending on decoupled income payments and phase out coupled support.
 - **Regulations.** Address the implementation gap on sustainability objectives, enhance regulatory design and overcome potential barriers that hamper innovation. Bring innovation to the centre of EU agricultural policy strategy to ensure that it effectively helps the sector to become more productive, sustainable and resilient.
 - **Data.** Strengthen the EU agro-food data strategy and enhance digitalisation to monitor policies, create awareness, facilitate knowledge exchanges and find innovative solutions.
 - **Environmental services.** Advance in the adoption of result-based multi-annual payments and collective action for environmental services when possible, and introduce reporting on results.

Source: (OECD, 2023^[12]).

... but more than half of Romanian farmers were ineligible for direct payments

Following EU accession, Romanian farmers were eligible for direct payments under Pillar 1 starting in 2008. Romania opted for a simplified transitional version– the Single Area Payment Scheme (SAPS) – instead of implementing the Single Payment Scheme. Under the SAPS, each hectare in a Member State receives the same payment rate per hectare irrespective of what is produced, as long as their land is maintained in good agricultural conditions.¹ Given the very large number of very small farms (see Chapter 1), Romania set its minimum threshold for farm eligibility for direct payments at 1 ha (the EU minimum allowable surface is 0.3 ha). This decision responds to farm efficiency considerations and reduction of the administrative burdens,² but it left 2.6 million of farming households – over half of the farming population – ineligible for direct payments (Knight et al., 2010^[15]).

All the Member States which joined the European Union in 2004, 2007 and 2013 were subject to a phasing-in process, with a gradual increase of direct payments and total financial support to farmers. This phasing-in period in Romania finished in 2016. Romania was allowed to pay Complementary National Direct payments (CNDPs) from national funds as complements during the phasing-in of direct payments in the Member States that apply the SAPS. The Romanian CNDPs comprised support for both livestock and crop sectors. CNDPs for arable crops were decoupled payments granted to top up the EU direct payments. Sugar beet, tobacco, flax seeds and hemp, and hops were also supported through CNDPs. Decoupled CNDP payments were also offered to support the cattle sector (Hubbard et al., 2014^[13]).

With the adoption of the CAP, Romania also adopted compulsory cross-compliance regarding farmers' obligations under statutory management requirements (SMRs) and a series of rules relating to the environment, food safety, animal and plant health, and animal welfare and to maintaining agricultural land in good agricultural and environmental conditions (GAEC) (OECD, 2023^[12]).³

The National Rural Development Programme 2007-13 focused on competitiveness

The National Rural Development Programme (NRDP) 2007-13 was based on the strategic framework provided by the National Strategic Plan, which had three main goals: (i) to improve the competitiveness of the agriculture and forestry sector; (ii) to maintain and enhance the quality of the environment and rural areas through the sustainable use of agricultural and forestry land; (iii) to enhance the quality of life in rural areas and diversification of the rural economy.

The total expenditure for the NRDP – including public and private funding – was more than EUR 11.7 billion. Budget allocations were broadly divided into four main areas of expenditure, known as axes, with 41% the expenditures concentrated on Axis 1 – improving the competitiveness of the agriculture and forestry sector (Table 2.1).

According to the NRDP evaluation (ACZ Consulting and T33, 2017^[16]), the programme addressed the most important needs but suffered from low capacity of financial absorption. The Programme's effectiveness varied across the different axes and measures. Overall, the effects on the environment (especially on biodiversity, validated through the results of two specialised studies) were positively assessed. Capacity building and networking – the two main types of intangible effects of the programme – were not quantified and systematically monitored.

Table 2.1. NRDP 2007-13, budget breakdown by axis

	Public funding	Private funding	Total	Budget allocation
	EUR Million	EUR Million	EUR Million	%
Axis 1 – Improving the competitiveness of the agricultural and forestry sector	2 885	1 900	4 786	40.8
Axis 2 – Improving the environment and the countryside	3 163	0.5	3 164	27.0
Axis 3 – Quality of life in rural areas and diversification of the rural economy	2 338	382	2 720	23.2
Axis 4 – LEADER	386	138	524	4.5
Technical assistance	132	-	132	1.1
Complementary direct payments	393	-	393	3.3
Total	9 296	2 421	11 717	100.0

Note: Public funding includes national funding, EAFRD and European Economic Recovery Plan.

Source: (MARD, 2015^[17]).

The NRDP 2007-13 period was also supported by other complementary programmes initiated by MARD, namely the Farmer Programme launched in 2005 to support long-term investments in agriculture and agro-industrial sector, the Agricultural Rendering Programme aimed at concentrate agricultural land in efficient farms and the Food Competitiveness Growth Programme aimed at supporting investments in the implementation of food quality and food safety management systems within the food processing units during the period 2003-09.

The management of agricultural and rural development policies in Romania is under the responsibility of the Ministry of Agriculture and Rural Development (MARD), even though several other institutions and organisations contribute to their design and implementation (Box 2.3).

Box 2.3. Institutions involved in the design and implementation of agricultural policy

The **Ministry of Agriculture and Rural Development (MARD)** is the central public authority, with legal personality, subordinate to the government, responsible for the development and implementation of national sectoral strategies and policies in the fields of: agriculture, animal husbandry and food industry, rural development, fishing and aquaculture, and land improvement. MARD is also the main authority in specialised scientific research, phytosanitary, conservation and sustainable management of soils and plant and animal genetic resources, development of the irrigation system and the national anti-hail and precipitation increase system.

The **Management Authority** is the structure within MARD responsible for managing and implementing the NRDP 2014-20 and the CAP strategic plan (CSP) 2023-27 (see Section 2.4 below). Its main tasks include setting the electronic information system to collect the monitoring and implementation data of the CSP and the submission of annual performance report to the Monitoring Committee.

The **Agency for Payments and Intervention in Agriculture (APIA)** and **Agency for Rural Investment Financing (AFIR)** are the two payment agencies under MARD, which also deal with the implementation of the NRDP and the CSP, as well as with the approval of the quality and conformity of imported agricultural and agri-food products:

- **APIA** was established in 2004 and is in charge of managing most of the support measures financed by the European Agricultural Guarantee Fund (EAGF), by the European Agricultural Fund for Rural Development (EAFRD) and by the national budget. As for the CAP 2023-27, APIA is expected to manage EUR 12 billion of the EUR 15 billion allocated to Romania. APIA will also implement the other state aid measures during the 2023-27 programming period, including eventual exceptional aids.
- **AFIR** implements several interventions financed from EAFRD and supervises the implementation of some measures/interventions implemented by APIA. AFIR also carries out the verification and payment authorisation for the environmental and climate compensatory support schemes financed from EAFRD and implemented by APIA.

The **State Domains Agency (SDA)** is a public institution with legal personality, fully financed from the state budget, through the budget of the MARD, which carries out the privatisation of commercial companies with an agricultural profile, and the leasing and concession of agricultural lands, public and private property of the state, administered by these companies.

Other authorities responsible for the enforcement of environmental regulations that are relevant for agriculture are: **the Ministry of Environment, Waters and Forest; the National Environmental Protection Agency; the National Environmental Guard and the National Administration Romanian Waters.**

Finally, other bodies relevant for the agricultural policies are: the **Romanian Competition Council**, which implements and ensures compliance with national and Community competition provisions; the **Romanian Court of Auditors** that exercises the function of control over the administration and use of state and public sector financial resources; and the **National Institute of Statistics** that collects agricultural data.

Source: (MARD, 2023^[18]).

2.2.2. CAP 2014-22 in Romania: Main policy instruments and implementation choices

Romania used more than 5% of its annual national ceiling for financing the redistributive payment

In the CAP 2014-22, which includes the 2014-20 Reform and the 2021-22 transitional rules, the European Commission maintained the two-pillar structure, but replaced the single payment scheme by a system of decoupled payments with seven components: 1) a basic payment; 2) a greening payment for agricultural practices beneficial for the climate and the environment; 3) an additional payment for young farmers; 4) a “redistributive” payment for first hectares of farmland; 5) support for areas with specific natural constraints; 6) aid coupled to production; and 7) a simplified system for small farmers. These options also applied in countries implementing the Single Area Payment Scheme. As all other Member States previously applying SAPS, Romania decided to continue applying this scheme. Romania did not implement the reduction of 5% of SAPS payment to farmers exceeding EUR 150 000. On the other hand, Romania opted for using more than 5% of its annual national ceiling (total direct payments envelope) for financing the redistributive payment.

The redistributive payment allowed to grant higher payments to the first hectares up to a maximum number of hectares, which Romania set to 30 ha. In 2020 in Romania the redistributive payments were paid for approximately 44% of the basic payment area (European Commission, 2022^[19]).

The simplified small farm scheme was used by half of the farms, but larger farms received the bulk of direct payments

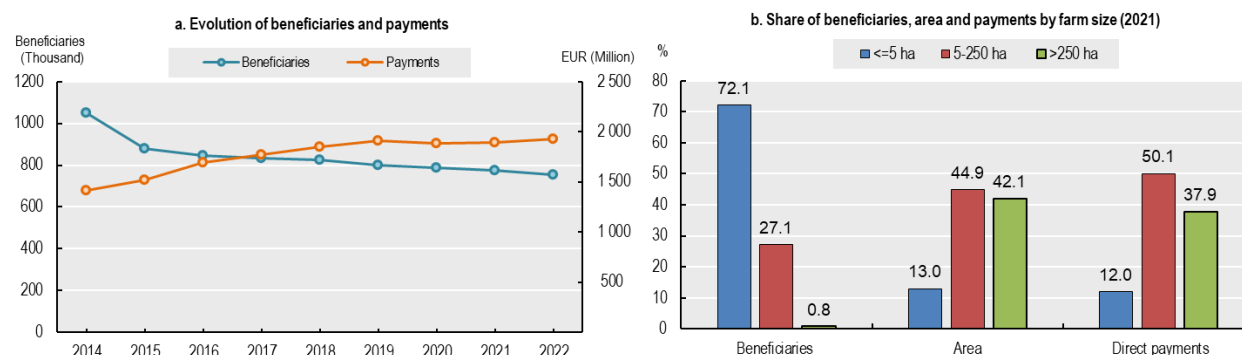
A top-up payment to young farmers (under 40 years old) in addition to the basic payments and SAPS applied in all Member States. In 2020, this payment accounted for 1.3% of the European Union's direct payments envelope and the average payments ranged between EUR 20/ha in Malta to EUR 146/ha in Denmark. Although in Romania the average payment per hectare slightly increased over the period 2017-20, it remained well below EUR 20/ha (European Commission, 2022^[19]). The number of beneficiaries who received support through the Young Farmers Scheme in Romania increased by almost 30% over the period 2015-19, from 45 500 to 59 000 (Bădan and Fîntîneru, 2021^[20]).

In the 2014-22 programming period Romania was among the 15 Member States that applied the small farmers scheme, a simplified scheme replacing all other direct payments that a farmer could be entitled to. The level of payment was limited to a maximum of EUR 1 250 per year, but participating farmers were exempted from greening obligations and cross-compliance penalties. In 2020 the applicants for this scheme represented 47.5% of the total decoupled payments applicants in Romania – the second largest share after Malta (79%).

Overall, the number of beneficiaries of direct payments has decreased over time beyond the reduction in the number of farms and in 2022 beneficiaries were less than one-third of total Romanian farms (Figure 2.1, panel a) and the largest share of payments were received by medium and large farms (Figure 2.1, panel b). The majority of funds went to under 2% of beneficiaries receiving the largest payments (EC, 2024^[21]).

Figure 2.1. Most direct payments went to medium and large farms

Direct payments evolution and distribution of beneficiaries, area and payments by size class



Source: (EC, 2025^[22]) (EC, 2022^[23]).

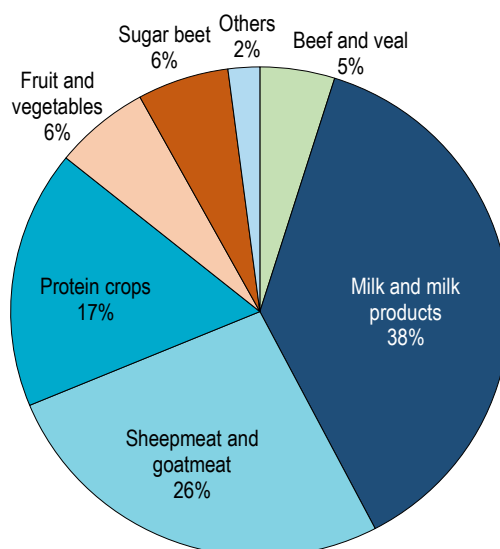
Romania targeted coupled support to inefficient sectors

In the CAP 2014-22, Member States could choose to allocate part of their direct payment's envelope to commodity-specific payments within defined ceilings (up to 13%) and under defined conditions. Romania decided to earmark 12.3% of direct payments not only to hectares but to specific products or processes – such as beef and veal, fruits and vegetables, grain legumes, hemp, hops, milk and milk products, protein crops, rice, seeds, sheep meat and goat meat, silkworms and sugar beet.

The livestock sector also largely benefited from coupled support, receiving almost EUR 670 million in the period 2015-19, of which 60.7% went to the dairy sector, 30.5% to the sheep and goat sector, 7.8% to beef cattle and 1% to the dairy buffalo sector. As reported by Grodea (2021^[24]), despite these coupled payments, the cattle and cow milk sectors in the same period experienced a decline in terms of the total number of animals, of meat and cow milk production. On the other hand, the sheep and goat sector had a positive evolution. In 2021, voluntary coupled payments amounted to a total of EUR 268 million, with more than half going to the livestock sector, especially milk and dairy products and sheep and goat meat (Figure 2.2).

Figure 2.2. Most coupled support went to livestock sector

Distribution by sector of coupled support paid under the CAP VCS, 2021



Note: This does not include coupled support granted from Romania's State budget.

Source: (EC, 2023^[25]).

Overall, while voluntary coupled payments played a very marginal role in crop farming, they represented a more relevant share of revenue for livestock farming, in particular for cows (see Table 2.2). With more than EUR 600 per hectare, Romania granted by far the highest rate of VCS to sugar beet production among EU countries, but the medium-long term effects of this choice were unclear, since Romania protected a sector that was already in great difficulties (Haß, 2021^[26]).

Table 2.2. Coupled payments as a share of farm revenues

Percentage, year 2018

Crops		Livestock	
Soybeans	3.3	Cows	24.2
Potatoes	1.8	Sheep	12.6
Sugar beets	1.4	Cattle	12.4
Peas	1.4	Goats	9.5
Indoor vegetables	0.9	Buffalo	5.4

Note: Calculated from the 2018 survey of Romanian FADN (by MARD).

Source: (MARD and Wold Bank, 2022^[27]).*Since 2015 Romania has applied greening*

In the CAP 2014-22 cross-compliance rules were set out in 13 Statutory Management Requirements (SMRs) and seven good agricultural and environmental conditions (GAEC) standards. In Romania SMR and GAEC standards were defined in accordance with EU Regulation No. 1306/2013 and transposed into Romanian legislation via a Joint Ministry Order No. 352/636/54/2015 which defined the specification of each SMR and GAEC and put in force cross-compliance from May 2015. The Paying Agency (APIA) was responsible for the control of the implementation of GAEC standards by farmers.

In addition to cross-compliance, the green architecture of the CAP 2014-22 required that 30% of each Member State's direct payments envelope was used for a greening payment for compulsory "agricultural practices beneficial for the climate and the environment". In Romania this corresponded to EUR 570 million in 2020 (Ecorys, 2016^[28]). The three greening practices included: 1) crop diversification (the cultivation of a minimum of two or three crops on arable land above a certain size limit primarily to improve soil quality); 2) the maintenance of permanent grassland; and 3) a requirement to manage at least 5% of the arable land of farms with more than 15 ha of arable land as Ecological Focus Areas (EFAs), comprising a combination of management practices or landscape features as set out in the regulation and applied by Member States, in order to safeguard and improve biodiversity on farms. The implementation of cross-compliance and greening measures in Romania are discussed in greater detail in Chapter 3.

Investments in physical assets and payments to areas facing natural constraints were at the core of Rural Development Programmes 2014-22

The nine-year period 2014-2022 Rural Development Programme for Romania focused mainly on three priority areas: promoting competitiveness and restructuring in Romania's large agricultural sector; environmental protection and climate change; and stimulating economic development, job creation and a better quality of life in Romanian villages. The funding allocation responded to the stated objectives. The four biggest RDP measures in terms of allocated budget (total public funding) were: Measure 4 on Investments in physical assets (EUR 3.4 billion); Measure 13 on Payments to areas facing natural or other specific constraints⁴ (EUR 2.17 billion); Measure 7 on Basic services and village renewal in rural areas (EUR 1.42 billion) and Measure 6 on Farm and business development (EUR 1.33 billion) (EC, 2023^[29]).

Table 2.3. The utilisation of rural development measures diverged

Detail of planned and effective expenditure per measure in Romania's RDP, 2023 (million EUR)

Measure		Total public funding (EU and national)			
		Planned	Decided	Spent	Share spent
M01	Knowledge	6.3	7.9	5.6	90%
M02	Advisory services	3.7	3.9	2.7	74%
M04	Physical Investment	3 401.2	3 251.9	2 384.8	70%
M05	Restoring agricultural potential	23.5	25.3	17.2	73%
M06	Farm and business development	1 332.7	1 322.6	1 153.1	87%
M07	Basic services	1 421.2	1 451.1	1 159.8	82%
M08	Afforestation of agricultural land	12.8	22.9	8.9	70%
M09	Producer groups / organisations	40.0	26.0	17.1	43%
M10	Agri-environment and climate	1 235.9	1 074.5	1 121.4	91%
M11	Organic farming	541.8	481.5	476.0	88%
M13	Areas with natural constraints	2 172.3	2 098.7	2 127.0	98%
M14	Animal welfare	1 021.2	1 260.5	1 020.4	100%
M15	Forest-environmental-climate	115.1	123.0	75.9	66%
M16	Cooperation	81.4	23.6	20.2	25%
M17	Risk management	71.9	37.7	48.8	68%
M19	LEADER and CLLD	765.6	483.4	557.4	73%
M20	Technical assistance	273.9	174.1	194.1	71%
M21	COVID-19 crisis (from 2020)	178.5	182.5	176.9	99%
Total RDP funding		12 699.1	12 051.0	10 567.4	83%

Note: "Planned" refers to the total amount allocated. "Decided" refers to the total amount allocated to the projects selected by the programme managers. "Spent" is the total expenditure eligible for reimbursement, as reported by the beneficiary projects and transmitted by the programmes to the European Commission.

Source: (EC, 2024^[30]).

There were significant variations in the uptake of RDP measures (Table 2.3). The funds related to measures for areas with natural constraints, measures with environmental and climate purposes and measures for animal welfare were fully utilised. On the other hand, measures to foster producer groups and organisations as well as to stimulate co-operation had a low share of use of the initially budgeted funding (see Chapter 5 for a more detailed discussion on cooperation issues). Risk management (support for insurance premia) measures were also underused due to several factors including lack of insurance packages for drought and insufficient awareness of insurance possibilities (see Section 2.5.2). Overall, Romania achieved a relatively high overall utilisation of its 2014-22 rural development budget: at the end of 2023 it had spent 83% of the funds, just above the EU average of 82%.

2.3. The CAP 2023-27

2.3.1. Overview of Romania's CAP Strategic Plan

The new delivery model

In January 2023, the European Commission and the EU Member countries began to implement the CAP 2023-27, which is built around ten specific objectives (SOs): 1) Support viable fair income for farmers; 2) Enhance market orientation and increase farm competitiveness; 3) improve the position of farmers in the food chain; 4) Contribute to climate change mitigation and adaptation; 5) Foster sustainable development and efficient management of natural resources; 6) Enhance ecosystem services and preserve habitats and landscapes; 7) Support generational renewal; 8) Promote employment, growth, social inclusion and local development in rural areas; 9) Improve the response of EU agriculture to societal demands on food; and 10) Foster knowledge and innovation.

Although with a similar annual budget as the previous period, the CAP 2023-27 entails a new delivery model (NDM), in which Member States play a critical role in designing and implementing their CAP Strategic Plans (CSPs). This programming approach applies to interventions under both pillars of the CAP and not only to rural development interventions as in the Rural Development Plans (RDPs) of the CAP 2014-22. There is one CSP for each Member State.

The drafting of Romania's CSP 2023-27 was the result of an extensive consultation process. In order to ensure transparency and to provide the opportunity to contribute to the design of the CSP, MARD consulted a broad range of stakeholders, with more than 150 people, representing approximately 60 public and private organisations consulted during 17 online events (MARD, 2024^[31]). The consultation was structured in thematic working groups on topics such as direct payments, coupled support, investment and market measures, environment and forestry, rural economy and infrastructure, research and innovation. Romania's CSP includes 89 types of interventions: 51 interventions through the Pillar 1 and 38 interventions through Pillar 2.

Farmer income and sector competitiveness are high priorities in Romania's CSP

The main objectives of Romania's CSP are (MARD, 2022^[32]):

- Promoting a smart, resilient and diversified agricultural sector ensuring food security, increasing the viability of farms by stabilising farmers' incomes and closing disparities between farms.
- Strengthening market orientation and increasing the competitiveness of the agro-food sector by intensifying co-operation, encouraging collective investment, modernisation of farms, investment to improve productivity while developing, modernising the food industry.

- Socio-economic development of rural space by attracting and supporting young people and facilitating business development, promoting and increasing employment, social inclusion and local development in rural areas.
- Environmental objectives, including on contributing to climate change mitigation and adaptation, promoting sustainable development and efficient management of natural resources as well as contributing to protecting biodiversity, improving ecosystem services and preserving habitats and landscapes.

Such objectives are reflected in the needs identified in the SWOT analysis included in the CSP. There are a total of 44 needs under the 10 specific objectives (SOs), with different levels of priority. Out of the 44 identified needs, 15 are assigned “high” priority, 20 “medium” priority and 9 “low priority”. Several high-priority needs fall under SOs 1, 2 and 3 and give relevant focus at increasing farmers income and improve the competitiveness of the agricultural sector in general, and of farmers specifically, with a special attention to the wine, fruit and beekeeping sectors. While climate change action (SO4) contains a set of needs with generally medium priority, higher priority was assigned to the objectives of preserving water resources, traditional farming practices, landscapes and biodiversity (SOs 5 and 6). Regarding the social aspects addressed in the CSP (SOs 7, 8 and 9), the highest priority is given to generational renewal. While the socio-economic development of rural area contains a relatively high number of identified needs, these are mostly medium-priority.

Furthermore, in the context of food and health quality, increasing animal welfare is a high priority, while limiting the use of antibiotics and fertilisers is a low priority in the CSP. The needs regarding the improvement of AKIS system are also regarded as medium priority. The other low-priority needs are access to financial instruments; developing a sustainable food sector; raise awareness and encourage the consumption of healthy/nutritious foods; adaptation of agricultural practices in climate-related risk area; support the development of production models based on high added value products; reducing poverty, promoting social inclusion and non-discrimination; improving agriculture’s response to food waste; and improving collaboration between rural actors.

But there is a low share of national co-financing and low budget transfer to the second pillar

At the EU level, the overall balance between Pillar 1 and Pillar 2 funding is similar to the 2014-22 programming period. Direct payments still represent the main form of support, with differences in the distribution of funding among countries. The CAP 2023-27 gives Member States more flexibility to transfer funds among pillars: up to 25% of the allocated funds may be transferred from direct payments to rural development and vice versa.

Romania is among the 11 Member States that used the option of transferring funds to rural development, but transferred only 3% of the initial budget, even though most of the other countries transferred more.⁵ Romania is also one of the three Member States (with Bulgaria and Italy) that used the new possibility to assign funds from the direct payments to finance farmers’ contributions to a risk management tool as complementary to the support for risk management under EAFRD. Romania decided to transfer 3% of its allocation for direct payments for this purpose, which is the maximum.

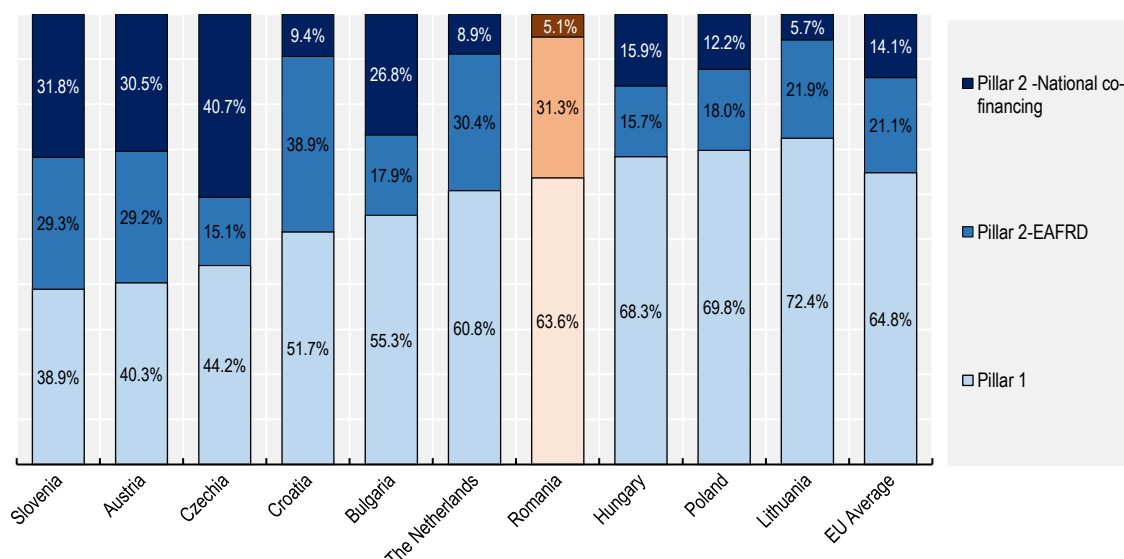
The total public budget of Romania’s CSP 2023-27 amounts to EUR 15.8 billion and is distributed as follow (EC, 2023^[33]):

- Direct payments, including Voluntary Coupled Support: EUR 9.78 billion EAGF, corresponding to 61.8% of the total CSP budget.
- Sectoral interventions, including investment support for tangible and intangible assets for research, product innovation and innovation in production methods, promotion, communication and information actions: EUR 182 million (EUR 151.7 million EAGF and EUR 30.4 million of co-financing), corresponding to 1.1% of the total CSP budget.

- Rural development: EUR 5.87 billion (EUR 5 billion EAFRD and EUR 835 million of co-financing), corresponding to 37.1% of the total CSP budget.

The allocation of CSP funding Romania is somewhat in similar to the EU average, but it has the lowest share of national co-financing (5%) compared to peer countries (Figure 2.3).

Figure 2.3. Distribution of total planned expenditures for the CAP 2023-27



Note: Pillar I includes direct payments and sectorial interventions. Pillar II refers to the rural development programs. Pillar II is funded through EAFRD and national co-financing. There is a small portion of Pillar I - sectorial interventions that have national co-financing for BG (0.1%) and RO (0.15%) for the Apiculture sector.

Source: OECD data based on national and EU sources.

2.3.2. Direct payments and sectoral interventions

Romania did not apply capping and degressivity for direct payments

The CAP 2023-27 includes five types of direct payments: the mandatory basic income support for sustainability (BISS); the complementary redistributive income support for sustainability (CRISS); complementary income support for young farmers (CIS-YF); the eco-schemes for the climate, the environment and animal welfare; and the coupled income support (CIS).⁶ Member States may also opt to grant up to a EUR 1 250 lump sum payment to small farmers.

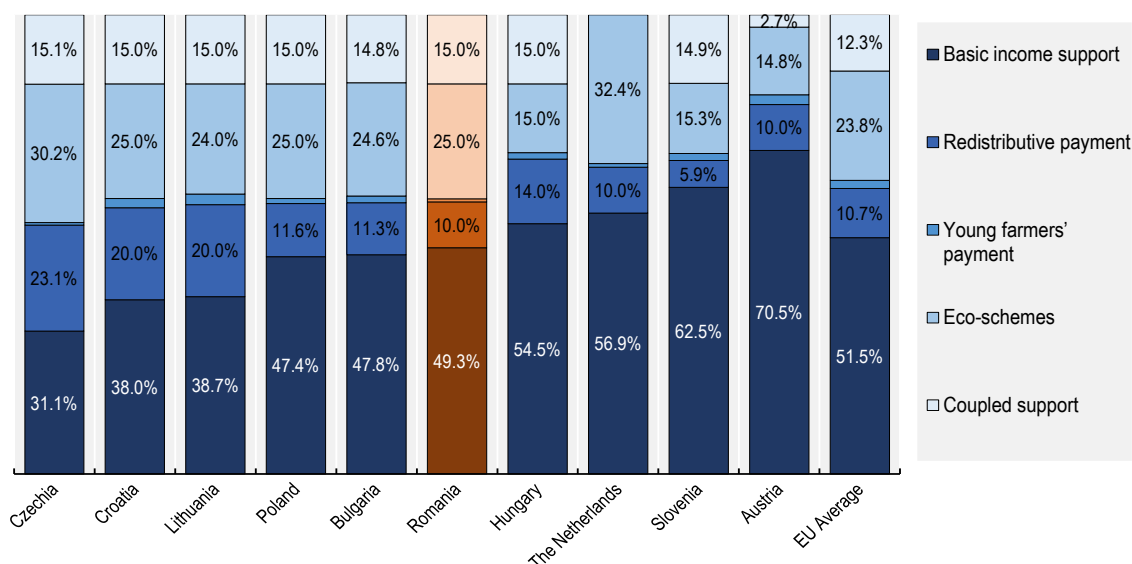
All Member States had to allocate funds to the BISS and eco-schemes. CRISS was implemented by all Member States except Denmark and Malta, while CIS-YF was implemented by all countries except Denmark and Portugal. The choice of implementation of CIS and payments for small farmers was left to the Member States. Romania opted to grant coupled income support but not the payment for small farmers.

Member States could also decide to cap the total aid given to one farm and reduce the amount of the basic income support received by a single farm up to 85% or more, if the support exceeds EUR 60 000 per year (degressivity). Romania decided not to apply either capping or degressivity. This aimed at ensuring the consolidation of land but may lead to a bias in the distribution of income support towards large holdings (Frelih-Larsen et al., 2024^[34]). Data provided by MARD suggest that capping and degressivity would have affected just 0.12% of its farms, whereas it would have targeted between a third and a half of all direct payments. This issue warrants consideration in view of Romania's desire to pursue a targeted approach

to support active farmers and enhance the viability of small farms. As for the redistributive income support, Romania opted for the application of the CRISS for farms between 1 and 50 ha only, since this intermediate segment of farms is the one perceived to have the greatest need for support (Münch, 2023^[35]).

As shown in Figure 2.4, Romania's allocation of Pillar 1 funding is similar to the EU average. In addition, the budget allocated to CRISS (10%) and to eco-schemes (25%) fully corresponds with the minimum allocations required by the CAP regulations.

Figure 2.4. Distribution of planned expenditures by type of direct payments (2023-27)



Source: OECD data based on national and EU sources.

Coupled income support mainly targets the more inefficient livestock sector

Coupled income support (CIS) provides Member States the possibility to link direct payment support to agricultural production in specific sectors. This type of support regained importance in the 2023-27 period compared to the previous CAP 2014-22, with the largest support going to the livestock ruminant sectors⁷ (EC, 2023^[36]). The allocated CIS of Romania represents 15% of the total budget, with most of the payments targeting dairy cows (35.6% of the CIS), sheep and goats (28.1%) and cows for beef (7.8%). Relatively less support is directed to the more efficient crop production sector, of which soybeans, sugar beet and alfa-alfa are the most important products with 9.5%, 6.2% and 4.4% respectively (Table 2.4).

Table 2.4. More than one-third of coupled payments will support the dairy sector

	EUR Million	Share
Dairy cows	522.0	35.6%
Sheep and goats	411.8	28.1%
Soybeans	139.7	9.5%
Beef	114.9	7.8%
Sugar beet	91.0	6.2%
Lucerne (alfa-alfa)	65.3	4.4%
Others	122.7	8.4%

Source: (MARD, 2022^[32]).

Sectoral interventions are relatively small and mainly targeted to the wine and apiculture sectors

In addition to direct payments, CAP Pillar 1 includes support targeted at specific agricultural sectors. This support covers different types of interventions (e.g. investment support for tangible and intangible assets for research, product innovation and innovation in production methods, promotion, communication and information actions, advisory services, improving market knowledge by inter-branch organisations and the setting-up of mutual funds), which may take the form of reimbursement of eligible costs, unit costs, lump sums or flat rate financing. The weight of sectoral interventions strongly varies across Member States depending on the natural conditions and on the presence of eligible crops. Overall, this support is relatively small, and the planned spending on sectoral support in 2023-27 (3% of total public funding) represents a smaller share than market measures in 2014-20 (5%) (Münch, 2023^[35]).

In Romania the financial resources devoted to sectoral interventions (EUR 182 million) will be mainly absorbed by the wine sector (EUR 112.7 million, 62%) and most of the remaining budget (33%) will go to the apiculture sector (EUR 60.8 million, of which 50% co-financed by national funding). The remaining 5% (corresponding to EUR 8.6 million) will finance the fruit and vegetables sector.

2.3.3. Conditionalities

Enhanced environmental conditionality

In the CAP 2023-27 environmental sustainability is addressed through a new “green architecture”. Greening payments were replaced by stricter environmental requirements in cross-compliance (enhanced conditionality), while eco-schemes were introduced to incentivise the adoption of specific farming practices with additional environmental benefits (see section below). The enhanced conditionality rules for Romania are detailed in the Order no. 54/570/32/2023 and are analysed in greater detail in Chapter 3.

Romania will implement social conditionality from 2025

The new CAP introduced the concept of social conditionality. Regulation (EU) 2021/2115 requires Member States to comply with the requirements related to applicable working and employment conditions or employer obligations for direct payments, environment and climate commitments and for area-specific disadvantages interventions. Because of the complexity of setting up systems at the national level which respect the autonomy and specificity of national systems, Member States are allowed to delay the implementation of social conditionality, but they will have to implement it by 1 January 2025. Romania is among the Member States⁸ that will apply social conditionality from 2025. The social conditionality mechanism will cover directives on:

- Transparent and predictable employment conditions: farm workers must be informed of employment conditions in writing, regardless of the hours worked. This includes place and type of work; beginning and, where relevant, end of employment; information on probation period; paid leave; notice periods; remuneration; work pattern/schedule; and social security information.
- On-farm safety and health: employers must ensure the safety and protection of farm workers with regard to farm machinery and equipment, protective clothing and equipment, or dangerous substances.

2.3.4. Eco-schemes

Romania allocated the minimum compulsory 25% of the direct payment's envelope to five eco-schemes

Eco-schemes are the new instrument funded from the EAGF and part of the direct payments, to address Climate, Environment and Animal Welfare related objectives (Box 2.3). Eco-scheme interventions are a key intervention type of the new CAP, with an allocation of EUR 44 713 million, which is the second largest planned financial allocation for direct payments (24%) after Basic Income Support Scheme BISS (which represents 51%) (EC, 2023^[36]).

Romania allocated 25% of the direct payment's envelope (EUR 2 447 billion) to five eco-schemes (see Chapter 3), which represent compensatory payments for the estimated extra costs for farmers that go beyond the legal requirements or usual practice in terms of climate and environment. Romanian stakeholders have not carried out an ex ante impact assessment of farmers adopting eco-schemes, and concerns have been raised during negotiations that eco-schemes funds will not be used due to their voluntary nature (Toma et al., 2023^[37]).

Box 2.4. Eco-schemes

Eco schemes are one of the new elements of the CAP 2023-27 and aim at supporting farmers in adopting practices that minimise the negative impact of agriculture on the environment and climate, and help them evolve towards more sustainable farming models. While participation in eco-schemes is voluntary for farmers, Member States were obliged to include one or more eco-schemes in their CSPs and they were also required to allocate a minimum of 25% of direct payment funding for these new measures. Each eco-scheme must cover at least two of the following areas of action:

- Climate (mitigation and adaptation)
- Environment (protection or improvement of water quality, reduction of pressures on water resources, prevention of soil degradation, soil restoration, improvement of soil fertility and nutrition management, protection of biodiversity, conservation, restoration of habitats or species, reduced or sustainable use of pesticides)
- Animal welfare and anti-microbial resistance.

Eco-schemes, as part of Pillar 1, are fully financed by the EU budget and the related payments are granted per hectare in two forms: either as compensation for additional costs incurred or income foregone, (as for the voluntary agri-environmental-climate measures (AECM) in Pillar 2, or as fixed top-up payments in addition to decoupled direct payments.

Unlike AECM, the eco-schemes are confined to farmers in receipt of direct payments, are annual and have greater flexibility in the way payments are set. Payments made as compensation for costs or lost income can take account of the targets set for eco-schemes, implying a more flexible interpretation of the compensation principle than used in the CAP 2014-22. The top-up option can enhance the attractiveness of enrolling in eco-schemes for more intensive farms.

Member States can use eco-schemes to better target support (EC, 2022^[38]) and may adapt them to national needs. The payments are granted per hectare either as compensation for additional costs incurred or income foregone, or as fixed top-ups to decoupled direct payments. Among the 158 eco-schemes that have been developed by Member States, 82% provide compensation for costs or lost income and 18% provide top-ups to area payments (EC, 2023^[39]).

2.3.5. Rural development interventions

The largest share of Pillar 2 funding is targeted to investments

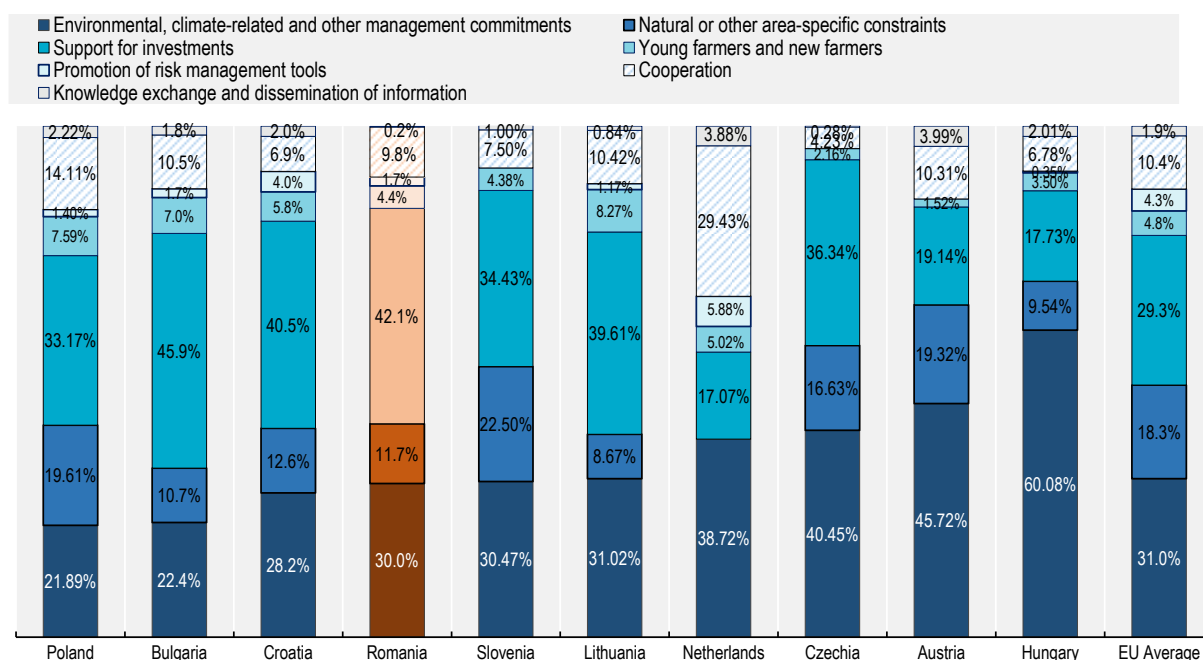
Under the CAP 2023-27, rural development includes eight types of interventions, with a significant simplification in comparison to the preceding 2014-22 period which encompassed 20 measures: (1) Environment, climate-related and other management commitments aim at improving environmental sustainability of the farming sector (Article 70 of Regulation (EU) 2021/2115); (2) Natural or other area-specific constraints (Article 71); (3) Payments for area-specific disadvantages resulting from certain mandatory requirements (Article 72); (4) Support for investments (Articles 73 and 74); (5) Intervention on the setting-up of young farmers and new farmers and rural business start-up (Article 75); (6) Promotion of risk management tools (Article 76); (7) Cooperation⁹ (Article 77); and (8) Knowledge exchange and dissemination of information (Article 78).

Member States are mostly free to allocate funds to the interventions as they judge appropriate, based on their SWOT analysis and needs assessment, they have to respect several ring-fencing requirements, such as reserving a minimum of 35% of their EAFRD envelope to environmental, climate and animal welfare actions undertaken across Articles 70 to 74 and reserving 5% of EAFRD funds for LEADER.

As shown in Figure 2.5, compared to the EU average Romania put greater emphasis on investments, while knowledge exchange and dissemination of information accounts only for 0.2% of rural development interventions. As for the case of eco-schemes in Pillar 1, the share of budget for environmental, climate-related and other management commitments is in line with the EU average.

Figure 2.5. Distribution of funding by type of Rural Development intervention (2023-27)

Share of CAP pillar 2 spending for 2023-27, as a percentage



Note: Interventions targeted to areas with "Natural or other area-specific constraints" include the allocated funds for interventions based on art. 71 of the CAP Strategic Plan Regulation no. 2115/2021 on "Disadvantages specific to certain areas, generated by certain mandatory requirements from "Support for investments" includes the funds allocated for intervention in irrigation investments, corresponding to art.74 of the CAP Strategic Plan Regulation no. 2115/2021.

Source: OECD data based on national and EU sources.

Support for investments focuses on farm modernisation and infrastructure

Support for investments is a key type of support to address market orientation, competitiveness of the agricultural sector by improving its productivity and resource efficiency, which are among the most important objectives of Romania's CSP. Not surprisingly these interventions concentrate most of the Pillar 2 planned expenditures (EUR 2 392 million), similarly to the RDP 2014-22.

The 46.6% of the budget dedicated to this type of intervention, which will offer both grants and financial instruments, is targeted to on-farm productive investments, with the objective of accompanying farmers in introducing new technologies, and in scaling up and modernising their operations (Table 2.5). Romania also targeted specific investments support to small farmers and assigned an investment priority to the livestock sector. Furthermore, one-third of the investments' support is targeted to public and private infrastructures related to specific sectors and services, such as investments in irrigation, with most interventions linked to improvement of existing irrigation installations. Finally, Romania's CSP includes a significant share (19.3%) also to off-farm productive investment support, including investments for the processing, storage and marketing of agricultural products and investments in forest technologies.

Table 2.5. Almost half of investment funding will support on-farm productive investments

Planned investment measures (Articles 73 and 74) and budget for 2023-27 (EUR million)

	Total budget	EAFRD	National co-financing	Share
On-farm productive investments, of which	1 115.0	943.2	171.7	46.6%
• Investments in the livestock sector	224.6	189.7	34.9	9.4%
• Investments in the consolidation of holdings of young farmers setting up and newly established farmers	169.6	144.0	25.6	7.1%
• Investments in the vegetable and/or potato sector	151.4	127.5	23.9	6.3%
• Investment in orchard holdings	151.4	127.5	23.9	6.3%
• Investments in creation and development of non-agricultural activities	150.0	126.7	23.3	6.3%
• Investments in small farms	108.0	91.8	16.2	4.5%
• Purchases of agricultural machinery for the plant sector	100.0	85.0	15.0	4.2%
• Investments in the hops and/or table grapes sectors	45.0	38.3	6.8	1.9%
• Investments to prevent the spread of African swine fever (ASF)	10.0	8.5	1.5	0.4%
• Investments in flowers, medicinal and aromatic plants	5.0	4.3	0.8	0.2%
Infrastructure investments, of which	803.4	680.0	123.4	33.6%
• Modernisation of irrigation infrastructure	400.0	340.0	60.0	16.7%
• Creation/upgrading of basic rural road infrastructure	201.0	170.0	31.0	8.4%
• Establishment of irrigation systems	102.4	85.0	17.4	4.3%
• Creation/modernisation of agricultural access infrastructure	100.0	85.0	15.0	4.2%
Off-farm productive investment support, of which	461.9	391.1	70.7	19.3%
• Investments in conditioning, storage and processing of agricultural and fruit products	210.3	178.8	31.5	8.8%
• Investments for processing and marketing of agricultural products into food and processed products other than those referred to in Annex 1 to the Treaty on the Functioning of the European Union	164.9	138.8	26.2	6.9%
• Investments in forestry technologies improving the resilience and environmental value of forest ecosystems	86.6	73.6	13.0	3.6%
Non-productive investments	11.8	10.0	1.8	0.5%
Total	2 392.0	2 024.4	367.6	100.0%

Source: Authors, based on the CSP of Romania (MARD, 2022^[32]).

Voluntary agri-environmental support in the RDP is mainly targeted to animal welfare and permanent grasslands

The environmental and climate-related interventions included in Romania's CSP are financed with EUR 1 705 million for the 2023-27 period, the second most important intervention in financial terms after investments. Most of this support (43% of the total budget) is targeted to animal welfare measures, followed by measures for sustainable management of permanent grasslands (23%) and for the maintenance of organic farming (9.6%) (see Chapter 3 for further details).

Other RDP interventions are targeted to areas affected by natural and other specific constraints and LEADER

While investments and environmental, climate-related and other management commitments concentrate the 72% of the CSP's Pillar 2 planned expenditures (Table 2.6), there is also a relatively high share of payments that will benefit areas affected by natural and other specific constraints (EUR 664 million), such as mountainous areas, Danube Delta area and regions affected by significant natural constraints (clay, sandy and organic soils, skeleton soil and coarse material, soils with low root depth, soil with unfavourable chemical properties, drought, low temperatures, limited soil drainage, sloping terrain).

Measures intending to foster co-operation represent 9.8% of the planned financial allocation for Rural Development. LEADER, the community-led local development approach bringing together public, private and civil-society stakeholders to find shared solutions for rural areas, is a key intervention of Romania's CSP. In this framework, at the end of 2023 MARD selected 246 local development strategies to be put in place during the 2023-27 CAP programming period, with a total support of EUR 500 million (MARD, 2023^[40]).

Table 2.6. High share of payments will support areas affected by natural and other specific constraints

Other RDP interventions, budget for 2023-27 (EUR million)

	Total budget	EAFRD	National co-financing	Share (per type of intervention)
Natural or other area-specific constraints, of which:	664.0	564.9	100.1	100.0%
• Areas affected by natural constraints – mountainous area	414.8	352.6	62.2	62.5%
• Areas affected by significant natural constraints	224.0	189.9	34.1	33.7%
• Areas affected by specific natural constraints	25.2	21.4	3.8	3.8%
Cooperation, of which:	555.7	471.5	84.2	100.0%
• LEADER - Community Led Local Development	500.0	424.8	75.3	90.0%
• Developing cooperation in the value chain	20.2	17.0	3.2	3.6%
• EIP Operational Groups	20.0	17.0	3.0	3.6%
• Setting up of producer groups in the agricultural/fruit sector	15.4	12.8	2.7	2.8%
Business start-up aid for young farmers	250.7	242.4	8.3	100.0%
Knowledge exchange and dissemination of information, of which	10.0	8.5	1.5	100.0%
Knowledge transfer	6.0	5.1	0.9	59.8%
Advice on agricultural business	4.0	3.4	0.6	40.2%
Risk management tools	97.9	82.4	15.5	100.0%
Support instrument for farmers affected by agricultural production losses	73.8	62.4	11.4	75.4%
Financial contributions to the payment of insurance premiums	24.1	20.0	4.1	24.6%

Source: Authors, based on the CSP of Romania (MARD, 2022^[32]).

Around EUR 250 million is reserved for investments supporting the development of the businesses of young farmers (4.4% of the RDP), while EUR 98 million will be allocated to risk management tools, such as support for insurance premia or compensation for the loss of agricultural production. As shown above, 3% of the direct payment's envelope will also complement this amount with additional EUR 59 million per year available for risk management tools (MARD, 2023^[41])¹⁰ (see Section 2.5 below for additional details).

2.4. Other domestic policies

Domestic agricultural policies are developed considering CAP objectives along with other EU and international commitments and domestic priorities. The National Recovery and Resilience Plan (NRRP) is the most important source of financial resources over the 2021-26 period, but there are other broader strategies, plans, state aids and domestic regulations that are relevant to agriculture.

2.4.1. Strategic vision and major planning initiatives

Romania adopted the National Sustainable Development Strategy in 2018

Romania's National Sustainable Development Strategy 2030 (DPDD, 2018^[42]) was adopted by the Romanian Government on 9 November 2018 through Government Decision 877/2018. The strategy establishes Romania's vision and general framework to contribute and implement the United Nations (UN) 2030 Agenda and includes a detailed actions for all the 17 Sustainable Development Goals (SDGs). The 2030 targets set by SDG 2 (Zero Hunger), SDG 6 (Clean water and sanitation) and SDG 15 (Life on Land) are particularly relevant for the farming sector.

Under SDG 2 "End hunger, achieve food security and improved nutrition and promote sustainable agriculture", the specific targets for Romania to be achieved by 2030 are: finalisation of the agricultural cadastre; double the share of agriculture in Romania's GDP relative to 2018; maintain and increase the genetic diversity of seeds, crops and farm, and both domestic animals and related wild species; increase the use of local agricultural production; and increase the share of ecological agriculture in total agricultural production.

SDG 6 aims at ensuring availability and sustainable management of water and sanitation for all. The 2030 targets for Romania relating to the agricultural sector are to: substantially increase the efficiency of water use; expand the rational reuse of treated and recycled water with a view to meeting the requirements of a circular economy; substantially increase the efficiency of water use in all sectors and ensure a sustainable process of abstraction and supply of drinking water in order to address water shortages.

Under the SDG 15 "Life on land", Romania aims at pursuing the sustainable conservation and use of terrestrial ecosystems and the sustainable management of forests, in order to combat desertification, to regenerate degraded land and soil, including land affected by desertification, drought and flooding, to develop green infrastructure, to conserve and protect wetlands, to ensure the conservation of mountain ecosystems and support research in the field, to manage forests sustainably, to eliminate illegal logging and clear-felling, and to support the transition to a circular economy.

Strategies for the development of the agri-food sector

In 2015 the Romanian Ministry of Agriculture and Rural Development launched a strategy for the agri-food sector setting the vision and the strategic objectives for the medium (2020) and long term (2030) period (MARD, 2015^[43]). The strategy, which includes objectives and specific targets on the competitiveness of the farming and food sectors, on the sustainable management of natural resources, and on improving living standards in rural areas, was the result of an extensive consultation process which took place in 2013 and

represented the basis for the design and implementation of the most relevant EU policies for Romania's farming and food sector during the 2014-20 programming period (including the NRDP).

The priorities set out in the strategy for the agri-food sector were further detailed and supported through more specific measures by the Institutional Strategic Plan (ISP) for the period 2024-27, which was elaborated by MARD with the technical support of the World Bank within a project implemented by the General Government Secretary financed through The Recovery and Resilience Facility (World Bank, 2019^[44]). The ISP is structured around the following five strategic objectives:

- Promoting an intelligent, resilient and diversified agricultural sector that ensures reliable income for farmers and increases the competitiveness of the agri-food sector.
- Improving living standards in rural areas through sustainable management of resources and investments for the sustainable development of enterprises.
- Effective management of natural resources (water, air, soil) in order to mitigate climate change, improve ecosystem services, preservation of habitats and landscapes.
- Supporting the sustainability, competitiveness and efficiency of the fishing and aquaculture sector and supporting the development of fishing areas.
- Development of MADR's institutional capacity.

In order to achieve these objectives, the ISP includes 5 programmes, 48 measures including the CSPs 2023-27, state aids and legislative tools relevant to the agricultural policy domain and are described with the respective planned financial resources and planned outputs.

According to the Government Decision 427/2022, the responsibility on strategic planning is divided among ministries and the government. This decision introduced budget programmes and performance-based monitoring for all ministries starting with 2024 and can be considered a significant step towards improving overall public spending quality in Romania (World Bank, 2022^[45]).

2.4.2. The National Recovery and Resilience Plan (NRRP)

Romania's NRRP focuses on the green and digital transition, with relevant investments that have impacts on the farming sector

Romania's National Recovery and Resilience Plan (NRRP) embodies an ambitious agenda of reforms and investment aimed at mitigating the socio-economic effects of the COVID-19 crisis. The budget allocation to Romania, which corresponds to 3.9% of the total volume of the EU Recovery and Resilience Facility (RRF), comes with EUR 13.6 billion in grants and EUR 14.9 billion in loans. On 8 September 2023, Romania submitted to the European Commission a request to amend its NRRP, including a new REPowerEU chapter with eight additional measures and a reinforced existing one (EP, 2023^[46]).

The Romanian NRRP outlines the country's reform and investment priorities, with a view to supporting resilience and crisis preparedness, and promoting adaptability, sustainability, and inclusive growth and it focuses on six pillars: (i) green transition; (ii) digital transformation; (iii) smart, sustainable, and inclusive growth; (iv) social and territorial cohesion; (v) health, and economic, social, and institutional resilience; and (vi) policies for the next generation, children, and the youth. Over 65% of Romania's NRRP funds have been allocated to the green (44.1%) and digital (21.8%) transitions (EC, 2024^[47]), aiming to heal social scarring from the pandemic and address infrastructure bottlenecks.

With regard to the farming and forestry sector, the most important NRRP investments and reforms are the following ones (Chereji et al., 2021^[48]):

- Investments in afforestation and reforestation campaigns, including urban forests.

- Reform of the management system of protected natural areas for the coherent and effective implementation of the European Biodiversity Strategy.
- Investments on infrastructure for manure and other compostable agricultural waste management. The investment will primarily consist of the establishment of integrated communal systems for manure recovery, composting stations and compost management equipment for large farm communities.
- Investments for the transformation of agricultural high schools into professionalisation centres and Equipping practice workshops in VET schools, including dual training units (see Chapter 4).

Agricultural landowners will benefit from the afforestation measure

As part of the NRRP, Romania also developed the National Forest Strategy 2030 (Government of Romania, 2022^[49]), which is outlined around five thematic areas: (i) Supporting the socio-economic functions of the forest and stimulating the forest bioeconomy within the limits of sustainability; (ii) Protection, restoration and extension of forests in Romania; (iii) Strategic monitoring, collection, processing and reporting of forest data; (iv) Communication, awareness, education and scientific research; (v) Efficiency and transparency in forest governance and control of forest management.

The NRRP seeks to increase forest area by 5% by 2050 and to establish new forests on an area of 26 760 ha by 2026. In June 2022 the European Commission approved, under EU State aid rules, a EUR 500 million scheme to support the growth of new forest areas, financed by the Romania's NRRP. The scheme, which will run until 30 June 2026, is aimed at supporting owners of agricultural land suitable for afforestation to establish new forest areas. Afforestation must be carried out in compliance with a project plan approved by the Romanian National Forest Guard, detailing the species of trees and shrubs to be planted, as well as the density of the plantations. According to the European Commission this scheme could encourage forest development to correct a market failure, as the market is not delivering the expected objectives in terms of afforestation (EC, 2022^[50]).

2.4.3. Support measures not financed by CAP funds

Complementary transition national support is mainly in the form of decoupled payments

As for the other EU Member States, in Romania national support was maintained also after completion of the phasing-in mechanism to avoid a sudden and substantial decrease of income for certain sectors. Thus, in addition to CAP payments, Romanian farmers receive complementary national direct payments (CNDPs) in 2007-14 and of its successor, transitional national aid (TNA) in 2015-23 and 2023-27.¹¹ During the 2014-22 programming period, the bulk of TNA was in the form of decoupled area payments (EUR 42 million for around 600 000 beneficiaries in 2020) and of coupled payments for sheep and goat (EUR 19 million for around 42 000 beneficiaries in 2020) (European Commission, 2022^[19]). Similarly, TNA support planned for the 2023-27 period amounts to around EUR 900 million and is mainly decoupled from production, except for goat and sheep sector (17%, corresponding to EUR 156 million for the entire period). The bulk of TNA support goes to arable crops (EUR 341 million, 37.8%) and to beef and veal (EUR 311 million, 34.5%) (MARD, 2022^[32]).

Special support for beekeepers

The apicultural sector is a critical component for Romanian agriculture. In addition to the support planned with the CAP 2023-27, beekeepers also benefit from support from the state budget in the form of *de minimis* aid¹² through a scheme that compensates the economic losses deriving from adverse hydrometeorological phenomena (e.g. bees lost due to drought, hail, heavy rain, etc.). This state aid provided financial support to ensure the continuation of the production cycle, in the amount of RON 23.7/family of bees (approx.

EUR 4.79/family).¹³ In 2021 the total financial resources allocated to this aid scheme amounted to around RON 53 million (approx. EUR 10.7 million).

Other state aids go to vegetables production in protected areas, garlic and aromatic plants

Other relevant national programmes under the *de minimis* state aid rules that have recently implemented in Romania are:

- A scheme targeted to vegetables production in protected areas,¹⁴ applied throughout Romania in 2021 to support the production of bell pepper and/or long pepper, cucumber, tomato, and aubergines. The total monetary value of the scheme was RON 150 million (around EUR 30.8 million).
- A scheme aimed at supporting garlic production,¹⁵ which was adopted over the period 2019-21 to mitigate the high import volume of garlic. The financial resources allocated for 2020 amounted to a maximum of RON 7.5 million (approx. EUR 1.5 million).
- A scheme to support the production of the following aromatic plants: basil, thyme, coriander, fennel and mustard,¹⁶ which was applied throughout Romania in 2021 with a budget of RON 153 million (around EUR 31 million).

State aids for the animal breeding sector

Romanian producers also benefit from national support for breeding activities in the livestock sector through state aids - which are regulated under Government Decision 1179/2014.¹⁷ This programme has the objective of covering the administrative costs related to the preparation and maintenance of the genealogical register and the costs related to the tests for determining the genetic quality or yield of different types of livestock. For the year 2023 the amount allocated to this state aid was up to RON 74 million, of which around RON 32 million for the bull, bufaline species, pigs and equine and around RON 41 million for sheep and goat species.

Romania also implements state aids targeted to pig breeding. In 2018 Romania launched a scheme¹⁸ – with a budget of EUR 130 million – aims at improving the level of performance and sustainability of pig breeding/fattening farms through investments for the establishment of new accommodation places in new and in existing farms and for stimulating association in co-operatives. From 2020 to 2022 pig breeders were also supported by a *de minimis* aid¹⁹ targeted to the Bazna and/or Mangalica breeds, with a total budget for the three years of RON 2.3 million (approx. EUR 0.5 million).

State aids granted in response to the COVID-19 pandemic

Romania's government established several emergency measures to mitigate the exceptional circumstances created by the COVID-19 pandemic. Significant support was granted to the livestock sector, such as:

- A programme to support the activity of cattle breeders in 2021²⁰ to mitigate losses incurred due to imposed restrictions. Support was granted on the basis of the number of heads to which may be added an amount calculated on the basis of milk produced. The maximum total value of this scheme was RON 225 million (approx. EUR 45 million) and it was distributed as follows: RON 183 million (approx. EUR 37 million) for the aid provided per head and RON 42 million (approx. EUR 8 million) for the aid provided per milk produced.
- A programme to support the activity of breeders in the bovine, swine and poultry sectors²¹ with a maximum total value of RON 454 million (approx. EUR 91 million), distributed as follows: RON 170 million (approx. EUR 34 million) for the cattle sector, RON 168 million (approx.

EUR 34 million) for the swine sector and RON 116 million (approx. EUR 23 million) for the poultry sector.

State aids granted in response to the war in Ukraine

Specific support was also granted in the farming sector following the war in Ukraine. A national programme was adopted to support the livestock sector in 2022,²² with a total value of RON 218 million (approx. EUR 44 million). For the crop sector, two emergency support measures for the cereals and oilseed sectors were approved in 2023 and co-financed by the European Agricultural Guarantee Fund with the aim of compensating farmers affected by the increase in grain imports from Ukraine. The first one, targeted to the cereals sector, was adopted to compensate the expenses incurred by agricultural producers for the storage of wheat harvested in 2022,²³ with a total value of RON 99 million (approx. EUR 20 million). The second state aid on emergency support for the cereals and oilseed sectors was adopted in 2022 with a budget of RON 305 million (around EUR 61 million).²⁴

Specific programmes were adopted to attract young people in the farming sector

In the period 2018-22 Romania adopted a national programme to attract young people in the agriculture, aquaculture and food industry sectors.²⁵ The overall objective was to avoid job losses in these sectors, and to create new employment opportunities by providing financial support to employers. The farmer who proved he had employed two young beneficiaries of the programme could benefit from a monthly financial support ranging from RON 500 to RON 1 000 (EUR 100 to EUR 200) depending on the level of education of the employees.²⁶

In 2020 the State Domain Agency launched the programme *Tineri Fermieri* with the objective of helping young people (up to 40 years old) to set up a farm by assigning directly to them some of the State Domains Agency land free of contract (corresponding in total to around 55 000 ha) through direct concession (SDA, 2023^[51]). To be eligible, applicants must have completed studies in agriculture or a related discipline, be domiciled in the county in which the land is located and agree to establish a farm within the first year of holding the land. A direct award or competitive procedure is followed to allocate the land. The land is granted to successful applications for up to 20 years, with the possibility of extension.

2.4.4. Policies related to agricultural land management

Farmland sales are regulated by pre-emption rights

The main objective of the land market regulations in Romania is to prioritise access to land for young farmers and for existing farms that intend to expand and consolidate their agricultural production (both for family farmers and agricultural companies). According to Law no. 17/2014, before a purchase can be legally concluded, the seller must apply to the town hall to advertise the sale offer. During a 45 working-day notice period, co-owners, tenants, owners of neighbouring plots, and young resident farmers in Romania can assert pre-emptive rights to purchase a property for sale. If no pre-emptor buys the land, a further 30-day period commences during which a second group of pre-emptors – including Romania-based individuals and firms involved in agriculture – have an opportunity to buy the property. At the end of this second window, if no offer-to-buy has materialised, the owner can sell the land to other purchasers, including buyers based in other EU countries.

The most recent regulation – Law no. 175/2020 amending and supplementing Law no. 17/2014 – was conceived to strengthen previous laws and reduce the negative consequences of large land purchases by foreign buyers (see Chapter 1, Section 1.2) and to avoid land fragmentation (see Chapter 1, Section 1.4). The overall objective of this law is favouring the access to land for young farmers, expanding and consolidating the agricultural holdings of existing agricultural producers and ensuring, more generally, the

sustainable development of Romanian agriculture. To achieve these objectives, the law provides more rights to selected classes of buyers (especially farmers and owners of agricultural investments for the cultivation of trees, vines, hops); limits the reselling of land within eight years from the purchase with an 80% tax on the price difference; favours the use of land for agricultural purpose imposing higher sanctions for non-compliance.

2.4.5. Tax incentives

Within certain thresholds and for some activities, agriculture is exempt from the income tax and contributions to social security

The Romanian fiscal code provides a series of fiscal facilities for the agricultural sector and the food industry, such as: (i) exemption from the payment of income tax, for income from salaries and incomes assimilated to salaries; (ii) reduction of the social insurance contribution rate, for income from wages and incomes assimilated to wages; (iii) exemption from the payment of the social health insurance contribution, for income from wages and wages; (iv) reduction of the share of the insurance contribution for work; and (v) exemption from the payment of social insurance contributions owed by employers, in the case of special work conditions or special work conditions.

The income obtained from some categories of agricultural products such as those obtained by exploitation of pastures and natural hay are not taxed by the income tax, while incomes deriving from the cultivation of crops and breeding animals are not taxable under the limits synthesised in Table 2.7.

Table 2.7. Agricultural products exempt from the income tax

	Products	Tax-free up to
Crops	Cereals, oil plants, potato, sugar beet, hops and fodder, medicinal and aromatic plants	2 ha
	Legumes for grains, fruit trees	1.5 ha
	Tobacco, vineyards, fruit bushes, Strawberries	1 ha
	Field vegetables	0.5 ha
	Flowers and ornamental plants	0.3 ha
	Vegetables in protected areas	0.2 ha
Livestock	Cows, female buffalo	2 heads
	Sheep	50 heads
	Goats	25 heads
	Pigs	6 heads
	Bees	75 hives
	Poultry	100 heads

Source: (MARD, 2023^[18]).

The new 2022 fiscal provisions reduced tax exemptions for farming and food sectors

Nevertheless, the 2022 amendments to the fiscal code introduced relevant changes for the agriculture and food sector, by decreasing the maximum monthly gross salary threshold for tax reliefs from RON 30 000 to RON 10 000 (from approx. EUR 6 000 to EUR 2 000). Currently, the portion exceeding the RON 10 000 threshold is fully taxable. Some concerns have arisen on the effect that these new provisions might have on small producers, and especially for those who work their land for subsistence and who sell, mostly on a door-to-door basis, small quantities of surplus products producers. The new fiscal regime could also discourage them to keep practicing agriculture by adding red tape (ARC 2020, 2023^[52]).

Romania applies a special VAT regime for farmers

In Romania a special VAT regime applies to all individuals who earn revenue from agricultural activities, forestry and fish farming, and who do not carry out other economic activities or carry out other economic activities whose annual turnover is lower than the exemption ceiling (i.e. RON 300 000, approx. EUR 60 000). All farmers subject to this special regime do not have deduction rights for input VAT and do not have an obligation to collect VAT on their supplies. According to this special regime, a flat-rate compensation is paid directly to the farmer by the customers (as for 2019, a flat-rate compensation rate of 8% applies). Farmers are obliged to issue invoices to customers that include the flat-rate compensation percentage and amount, and the invoice must also mention the application of this special regime for farmers.

The revenue from agricultural production activities obtained by the farmer and the agricultural services provided by a farmer are not included in the turnover that serves as a reference for the application of the special exemption regime for small businesses. Farmers do not have the obligation to register for VAT purposes if they exclusively carry out these activities. Farmers who apply the special regime are exempted from the following obligations: (i) keeping records for VAT purposes; (ii) submitting a tax statement; and (iii) any other obligations that fall to taxable persons registered for VAT purposes according to the Fiscal Code (MARD, 2023^[18]).

Farmers are exempt from excise duties on a fixed amount of diesel for agricultural use

Romanian farmers are also exempt from excise duties on diesel fuel used in agriculture. This state aid scheme, which is regulated by the Government Decision no. 1174/2014, on 8 December 2023 was extended until 31 December 2026 based on the Council Directive 2003/96/EC. Beneficiaries of this exemption scheme are not only the agricultural producers, but also federations of land improvement organisations, agricultural universities and research institutes. The maximum annual amount of diesel for which state aid is granted in the form of reimbursement is 410 million litres. This state aid is managed by APIA (APIA, 2023^[53]).

A reduced rate is also applicable on diesel used in agricultural works. This reduced rate amounts to EUR 21 per 1 000 litres and it is granted according to article 8 provided for in Council Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity. In this case the difference between the standard excise duty rate and the reduced rate of excise duty is granted as state aid in the form of direct reimbursement (MARD, 2023^[18]).

2.5. Risk management and resilience policies

2.5.1. Main resilience policies

The recent National Disaster Risk Reduction Strategy adopts multi-sectoral and multi-hazard actions

Over the past two decades, Romania has reformed and strengthened the legislative framework for disaster risk management. Prevention is supported in sectoral legislations and specific hazard-oriented regulations (European Union Civil Protection, 2022^[54]). While horizontal co-ordination between central government and key stakeholder organisations is well managed for emergency response, limited capacities on the administrative, technical and financial side have often limited vertical co-ordination, hurting especially local governance levels. For example, local authorities were required to have hazard and risk maps for their territorial administrative units, but often these maps were reported as unsatisfactory (World Bank, 2018^[55]).

The new National Disaster Risk Reduction Strategy 2022-2035 (NDRRS) seeks to overcome some of the limitations of past policies. This strategy, which was developed in collaboration with the World Bank, aims at ensuring Romania's resilience to disasters through multi-sectoral, multi-hazard actions, and with a whole-of-society approach (World Bank, 2023^[56]). The specific hazards targeted in the strategy that pertain to the agricultural sector are floods, forest fires, drought, extreme weather events and epizootics and zoonoses. The strategy will be implemented through an Action Plan, which will be updated every three years, depending on the results obtained in achieving the proposed objectives. The strategy is based on the implementation and monitoring of four priorities, namely:

- Improving the knowledge and awareness of the types of risk and their effects.
- Increasing the capacity of public administration authorities to manage risks.
- Encouraging investments in structural and non-structural measures for disaster risk reduction.
- Strengthening the preparedness of response forces and all actors involved, to ensure an efficient response at all levels.

Romania adopted a dedicated knowledge platform to climate change adaptation

Romania's National Strategy on Climate Change and economic growth based on low carbon emissions for the period 2016-20 and its associated action plan included measures to increase the use of insurance for damage caused by climate hazards by creating climate risk insurance funds. An updated strategy and associated action plan dedicated to adaptation to climate change have been approved for 2024-30. The new strategy for adaptation will have a dedicated knowledge platform (RO-ADAPT), following the model of the European Climate platform ADAPT. The strategy includes two types of adaptation approaches:

- Systemic measures, including the development of roadmaps for adaptation and resilience at sectoral level and continuous development of the RO-ADAPT platform, including a section dedicated to the National Climate-Health Observatory.
- Regional and local measures, including the development of a network of certified experts on adaptation to be consulted by local administrations as well as adaptation strategies and associated action plans, developed at the level of each territorial-administrative unit.

2.5.2. Risk management tools in agriculture

The agricultural insurance market is not well-developed

Agricultural insurance is one of the financial tools that can be used to mitigate the consequences of risks. In Romania agricultural insurance is a very small segment of less than 2% of the whole general insurance market. Even though agricultural insurance has been operating since the early 1990s, the total insured area on the private market over the period 2014-17 was 1.8 million ha/year, representing approximately 22% of the total arable land of Romania (Dragos et al., 2023^[57]).

In Romania agricultural insurance is private, the contracts being subscribed mainly by farmers. Small producers subscribe less insurance due to insufficient funds or knowledge about the importance of risk management tools. The farmers who have insured their crops are indemnified by the insurance companies for the losses generated by insurable risks and also by the government for damages caused by natural calamities (according to Law 381/2002). MARD assists farmers that insure their productions by co-financing their insurance premiums. Both the 2014-20 NRDP and the current CSP 2023-27 include contributions to insurance premiums, covering both the vegetable and livestock sectors.

Several institutional factors hampered the use of mutual funds

The lack of adequate coverage from private insurers to cover against droughts, floods, frost and sanitary risks pushed Romanian authorities to plan the financing of mutual funds²⁷ through CAP measures. Indeed, Romania was among the three Member States – together with France and Italy – that during the 2014-22 CAP planned financial support to farmers under Article 38 to compensate production losses due to climatic, sanitary and environmental events (Romania planned EUR 200 million of expenditures, while France EUR 60 million and Italy EUR 97 million).

Despite these available resources, MARD did not finance any support instruments in the form of mutual funds (MARD, 2023^[18]). Indeed, setting a national mutual fund encountered many difficulties, due to the heterogeneity of farm structures and to the lack of trust in such an instrument from farmers. Other institutional obstacles encountered were a lack of experience and of an appropriate national legal framework to support mutual funds (Ecorys and Wageningen Economic Research, 2017^[58]).

The CSP 2023-27 strengthened the support to farmers affected by agricultural production losses

Romania is one of the three Member States (together with Bulgaria and Italy) that used the new possibility of the CAP 2023-27 (Article 19 of EU Regulation no. 2115/2021) to assign funds from direct payments to finance farmers' contributions to a risk management tool as complementary to the support for risk management under EAFRD. Romania decided to transfer 3% of its allocation for direct payments for this purpose, which is the maximum. The objective of activating this provision is to provide a risk management tool for the contributions of all farmers receiving direct payments. Farmers will thus be assured of support in the form of compensation in the event of production losses, with financial support to enable them to cover at least part of the expenditure incurred.

In addition, through the sectoral interventions financed from Pillar 1 of the CAP, the contributions to the insurance premiums in the wine sector are supported. Romania's National Strategy on Climate Change 2016 (see Chapter 3) and its associated action plan included measures to increase the use of insurance for damage caused by climate hazards by creating climate risk insurance funds.

At the level of the investment projects financed through the CSP 2023-27, complementary prevention and protection operations are also supported, such as those for anti-hail nets, irrigation systems at the farm level, the use of digital solutions and/or operations related to precision agriculture, investments in protected areas which have the role of preparing farmers to tackle the risks to which agricultural production is exposed.

2.6. Trade policies affecting the agricultural sector

Romania's participation in the multilateral trading system began decades before its transformation into a market economy. The country became an observer of the General Agreement on Tariffs and Trade (GATT) in 1957, and joined as a full member in 1971, becoming an original member of the World Trade Organization (WTO) at its inception in 1995. In the years thereafter, following its application for EU membership and the opening of accession negotiations in 2000, Romania began to align its trade regime with that of the European Union. Upon its EU accession, it adopted the Common Commercial Policy of the European Union.

2.6.1. The EU trade policy framework

The policies governing trade with non-EU countries are an exclusive competence of the European Union. The common commercial policy covers trade in goods and services, intellectual property, foreign direct

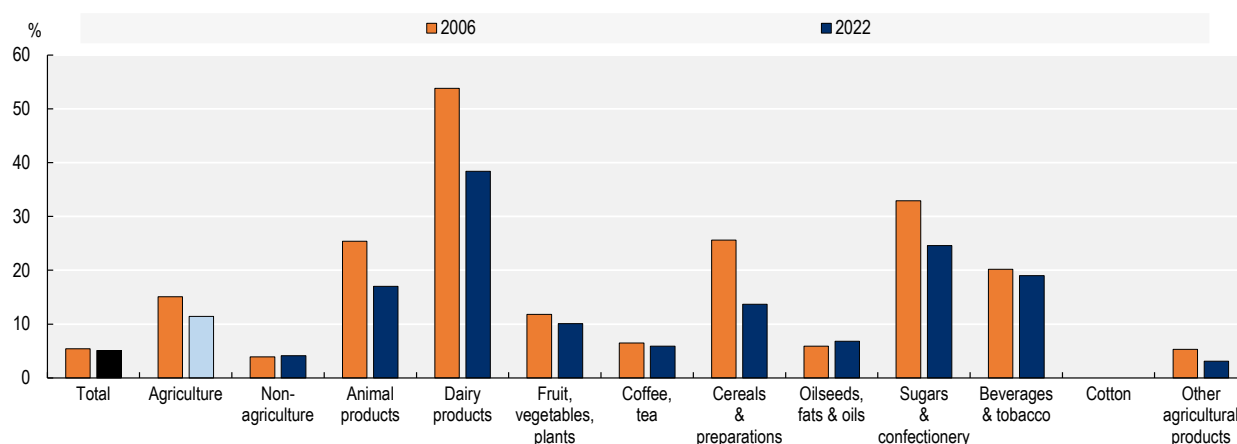
investment (FDI) and public procurement. Trade agreements with non-EU partners are negotiated by the European Commission on behalf of Member States. In this framework, measures related to the trade of agro-food products, such as tariffs and tariff rate quotas (TRQs) are defined and co-ordinated at the EU level, as is the large majority of legislation related to sanitary and phytosanitary measures (SPS) and technical barriers to trade (TBT).

Agro-food products face higher tariffs than other sectors and are subject to numerous non-tariff measures

Imports of goods into Romania are subject to the EU Common Customs Tariff (CCT) regime.²⁸ Agro-food trade overall is subject to higher applied tariffs than other sectors: in 2022, the simple average most-favoured nation (MFN) tariff applied by the European Union on agro-food products (as defined in Annex I of the WTO Agreement on Agriculture) was 11.4%, compared with 4.1% for non-agricultural goods (Figure 2.6). Certain subsectors face tariff peaks, with maximum rates of up to 144% (against a maximum of 26% for other products). In addition, 31% of agro-food tariff lines were subject to non-ad valorem (NAV) tariffs²⁹ (as opposed to only 0.6% for non-agricultural goods) (World Trade Organization, 2023^[59]), which can increase complexity in trade. For example, tariffs on certain food products are calculated based on their content of milk or sugar, and some vegetables are subject to seasonal tariffs that can take a mixed form (a tariff ad valorem plus a specific tariff by weight) in certain months (D'Elia, 2016^[60]).

Figure 2.6. Agro-food tariffs are almost three times higher than for other sectors

EU most-favoured nation applied tariffs by product groups, 2006 and 2022



Source: (WTO, 2023^[51]) and (WTO, 2006^[62]).

The EU average agro-food tariff has decreased over time. At 11.4% in 2022, it is below its 2006 value of 15.1%.³⁰ The 2022 average tariff is higher than in OECD members such as Australia, Chile, New Zealand, the United Kingdom and the United States, and accession candidate countries Brazil and Peru, but lower or similar to Costa Rica, Colombia, Japan, Norway, and Switzerland. Of these countries, only Switzerland, Norway, the United States, and the United Kingdom have similar or higher shares of tariff lines subject to NAV tariffs (Table 2.8).

Table 2.8. The EU has a relatively high share of agro-food tariffs in non-ad valorem form

Agricultural MFN tariffs in selected countries, 2022

	Average MFN tariff on agriculture	Agriculture tariff lines with non-ad valorem MFN duties (%)
OECD members		
Australia	1.2	0.9
Chile	6.0	1.0
Colombia	14.3	15.1
Costa Rica	11.5	0.0
European Union	11.4	31.3
Japan	13.4	13.1
New Zealand	2.3	0.1
Norway	35.5	42.9
Switzerland	32.4	69.2
United Kingdom	9.4	26.2
United States	5.1	42.5
Accession candidate countries		
Brazil	8.0	0.0
Peru	2.8	3.2

Note: The table shows simple averages. The calculation of the average includes an estimation of ad valorem equivalents for tariffs expressed in NAV form. Agriculture is defined according to Annex I of the WTO Agreement on Agriculture.

Source: (WTO, 2023^[61]).

Tariffs on agro-food imports can also be increased through the special agricultural safeguard (SSG), under which an additional import duty is applied if a trigger import price or volume is reached. In its WTO commitments, the European Union reserved the right to use the SSG for 539 tariff lines and has invoked it at least once each year since 1995, most recently using the price-based safeguard for one line of poultry products (HS 02071410) in the marketing year 2022/23 (World Trade Organization, 2023^[63]).

A large number of agro-food products is subject to tariff rate quotas (TRQs), which allow for the import of determined quantities subject to a lower or zero tariff rate. The EU uses three types of quotas: (i) WTO TRQs, established pursuant to its WTO schedule of commitments, (ii) preferential TRQs, granted to products from trade agreement partners, and (iii) autonomous TRQs, which can be opened to facilitate access of certain agricultural and industrial products insufficiently available in the European Union.

WTO TRQs are available for 124 products (one TRQ was not used in 2022). They cover a wide range of sectors, including meat, dairy, cereals, fruits, vegetables, sugar, and other processed products. In 2022, 29 of the quotas were fully used (fill rate of 100%), and 31 had not been used at all (fill rate of 0%); the average fill rate (imports as a percentage of quota quantity) was 39% (World Trade Organization, 2023^[64]). In the case of autonomous TRQs, as of June 2023 they were open for four agro-food products: mushrooms of the species *Auricularia polytricha*, preserved sweet cherries for use in chocolate products, animal feed additives, and unprocessed tobacco (Official Journal of the European Union, 2023^[65]). The products and quantities for preferential TRQs are defined in the specific EU trade agreements.

TRQs can be allocated either on a first-come-first-served (FCFS) basis or on the basis of import licences. In 2022, 35% of the European Union's agricultural TRQs were allocated by licences and 65% under the FCFS method (World Trade Organization, 2023^[66]). TRQs allocated on a FCFS basis are managed by the Directorate General for Taxation and Customs Union (DG TAXUD) and available for agricultural and non-agricultural products. TRQs administered through import licences concern exclusively agricultural products and are managed by the Directorate General for Agriculture and Rural Development (DG AGRI). The licences are issued by competent authorities in Member States to any applicant registered on their territory

for Value Added Tax (VAT) purposes, require lodging a security to guarantee that the commitment to import will be fulfilled, and are valid in all of the European Union (World Trade Organization, 2023^[67]).

Beyond tariffs and quantitative restrictions, the European Union applies other non-tariff measures (NTMs), such as sanitary and phytosanitary measures and technical barriers to trade, on agro-food products. They include requirements on food production and safety, animal and plant health, animal welfare, alien organisms, and gene technology (OECD, 2023^[12]). A 2016 inventory estimated that only 0.5% of food products, 1% of vegetable products and 4% of animal products in the European Union were not subject to NTMs (WITS, 2018^[68]).

The European Commission's Directorate General for Health and Food Safety (DG SANTE) is responsible for the formulation of policies related to sanitary and phytosanitary measures (SPS). DG SANTE is also in charge of monitoring Member States' implementation and enforcement of these measures and of notifying them to the World Trade Organization (WTO). Multilateral rules require WTO members to have enquiry points responsible for answering questions and providing relevant documents on SPS measures. In the case of the European Union, the enquiry point is DG SANTE alongside with Member States' enquiry points. In 2022, the European Union notified 105 SPS measures to the WTO, or almost 5% of the total notifications submitted by WTO Members. As of November 2023, and based on the cumulative number of notifications submitted since 1995, the EU is the fourth notifying WTO member after the United States, Brazil and Canada (World Trade Organization, n.d.^[69]).

While SPS measures are mostly associated with agricultural products, the universe of technical barriers to trade (TBT) measures of relevance for the sector is smaller. They can include standards for food packaging and labelling, animal welfare measures, or measures on chemicals for agricultural and veterinary use (Gourdon, Stone and van Tongeren, 2020^[70]). Of the 83 TBT notifications that the European Union submitted in 2022, 14 covered agro-food products, addressing aspects such as the labelling of organic pet food, production rules for organic salts for food and feed, or standards for olive oil, among others. A further four TBT notifications concerned agricultural pesticides and fertilisers. Based on the number of TBT notifications presented up to November 2023, the European Union is also the fourth notifying WTO Member after the United States, Uganda, and Brazil (World Trade Organization, n.d.^[69]). The EU enquiry point for TBT measures is the Directorate General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW), along with Member States' enquiry points.

The European Union has a network of 42 regional trade agreements with 74 preferential partners. These agreements are seen as a key factor contributing to the EU's position as a major global trader of agro-food products and to the resilience of the sector. The United Kingdom is the EU's most important preferential partner, as well as the top destination of its agro-food exports and the main source of agro-food imports (European Commission, 2023^[71]). The European Union also grants duty-free and quota-free access to all imports (except arms and ammunition) from least developed countries (LDCs) and unilateral trade preferences to other developing countries (subject to eligibility criteria) under its Generalised Scheme of Preferences (GSP).

2.6.2. Policies at the national level

Several national agencies are in charge of implementing agro-food trade policies

In Romania, the competent national authority for receiving applications and issuing import and export licences for agro-food products is the Agency for Payments and Intervention for Agriculture (APIA). APIA plays a role in the enforcement of EU TRQ regulations, ensuring that importers respect the conditions specified in their licenses, including the requirement to lodge a guarantee. In 2022, APIA issued 172 licences for the import of agro-food products (APIA, 2023^[72]).

In the area of SPS, the Ministry of Agriculture and Rural Development (MARD) is the authority for plant protection, phytosanitary quarantine and phytosanitary products. It co-ordinates and controls the application of specific legal provisions through the National Phytosanitary Authority. This agency, established in 2014, is a specialised body of the central public administration subordinate to the MADR. For animal health and food safety matters, the competent authority is the National Sanitary Veterinary and Food Safety Authority (*Autoritatea Națională Sanitară Veterinară și pentru Siguranța Alimentelor* - ANSVSA), a specialised body of the central public administration co-ordinated by the prime minister (ANSVSA, n.d.^[73]). ANSVSA is also the national contact point for the Rapid Alert System for Food and Feed (RASFF), which is initiated in the event of an identified risk, and the national focal point of the European Food Safety Agency (EFSA).

The national enquiry points under the WTO SPS Agreement, in charge of answering questions and providing information to WTO members on relevant measures, are the Phytosanitary Division at MADR for phytosanitary issues and ANSVSA for sanitary, veterinary and food safety questions.

The national enquiry point under the WTO TBT Agreement is the Romanian Standards Institute (*Asociația de Standardizare din România*), which is in charge of providing information to other WTO Members on the technical regulations and standards effective in Romania.

Trade facilitation performance has increased in recent years, but Romania could improve in some areas

Policy related to the trade of agro-food products involves a complex array of policy objectives that are equally important, and their enforcement often involves multiple agencies (Moisé and Sorescu, 2021^[74]). While the trade policies applied in Romania are defined at the EU level, their implementation is managed by national agencies. The [OECD Trade Facilitation Indicators](#) allow to benchmark country performance along the spectrum of border procedures. In 2022, Romania had an overall average trade facilitation performance of 1.62 (of a maximum of 2). Although performance has improved consistently in recent years, it is still the lowest among EU Member States. Performance scores were at or close to best practice in areas such as the availability of trade information and the streamlining of border procedures (which covers measures relevant for the treatment of perishable goods at the border). However, performance is lower in the areas of co-operation among agencies at the national level and the automation of border formalities, where the scores of 1.18 and 1.23 were significantly below the OECD averages (OECD, n.d.^[75]).

A new agency has been tasked with promoting exports and market diversification for Romanian products

Increasing the exports of processed agro-food products with higher value-added is an important policy objective for Romania. Improving access to international markets and opening new markets by taking advantage of the opportunities brought by the EU's trade agreements are priority aims of the national authorities (MARD, 2023^[18]). Actions toward these objectives include the establishment in 2023 of the Romanian Agency for Investments and Foreign Trade (*Agentia Romana pentru Investitii si Comert Exterior* - ARICE). This agency under the authority of the Prime Minister, took over the investment and trade promotion activities previously performed by the Ministry of Economy, Entrepreneurship and Tourism (Government of Romania, 2023^[76]).

Romania has applied some autonomous trade restrictions and specific measures to tackle recent crises and fight food inflation

The war in Ukraine resulted in disruptions to international markets and value chains for both agricultural commodities and key inputs. As a part of the solidarity response to Ukraine, the European Union implemented trade-facilitating measures, accounting for a significant share of Ukraine's cereal exports,

with some implementation problems in some neighbouring Member States due to the increased trade volumes (OECD, 2023^[11]). In this context, Romania established a consultation and co-ordinated reaction mechanism in relation to import from Ukraine for the following agricultural products: wheat, barley, rapeseed, rapeseed sunflower, corn, wheat flour and sugar. Such products, for a certain period, can be imported from Ukraine only on the basis of a specific agreement for free circulation and use in/on the territory of Romania (Government Emergency Ordinance no. 84/2023, with subsequent amendments and additions).

Another exceptional measure in the context of Russia's war of aggression against Ukraine was adopted in April 2023, allocating an amount of EUR 56 million to support farmers most affected by the increase in imports of oilseeds and cereals in Romania, Bulgaria and Poland. This measure was expanded in June 2023 with EUR 100 million made available to farmers of selected oilseeds and cereals in the same three countries, plus Hungary and Slovakia (European Commission, 2024^[77]). Romania also implemented an aid scheme to compensate processing companies in the grain, oil, dairy and meat sectors to compensate increased costs derived from buying raw materials (Government of Romania, 2022^[78]).

In June 2023, the Romanian Government established a temporary cap on the mark-ups of certain food products, which was later extended until the end of 2024 (Government of Romania, 2023^[79]) (Government of Romania, 2023^[80]). Recent announcements suggest that these restrictions might also be extended to all Romanian food products, in an attempt to ensure that low and middle-income Romanians have access to basic Romanian food at fair prices (Digi 24, 2024^[81]).

2.7. Evaluation of support to agriculture (PSE indicators)

2.7.1. Producer Support Estimate of the European Union

Reforms to the Common Agricultural Policy (CAP) over the last decades have reduced the European Union's support to agriculture and shifted its composition to less production- and trade-distorting measures (Figure 2.7). In 2020-22, EU support to producers³¹ as a share of gross farm receipts stood at 16%, close to the OECD average.

Most of the EU's support to agriculture goes to producers: in 2020-22, the Producer Support Estimate (PSE) represented 87% of its Total Support Estimate (TSE). The majority of this support to producers (84% in 2020-22) is budgetary, granted mostly in the form of decoupled direct payments. Market Price Support (MPS) accounted for 16% of support to producers in 2020-22, down from 46% in 2000-02. On average, nearly half of budgetary support in 2020-22 was based on historical entitlements, while around 29% was based on current area or animal numbers requiring production, and 20% on input use.

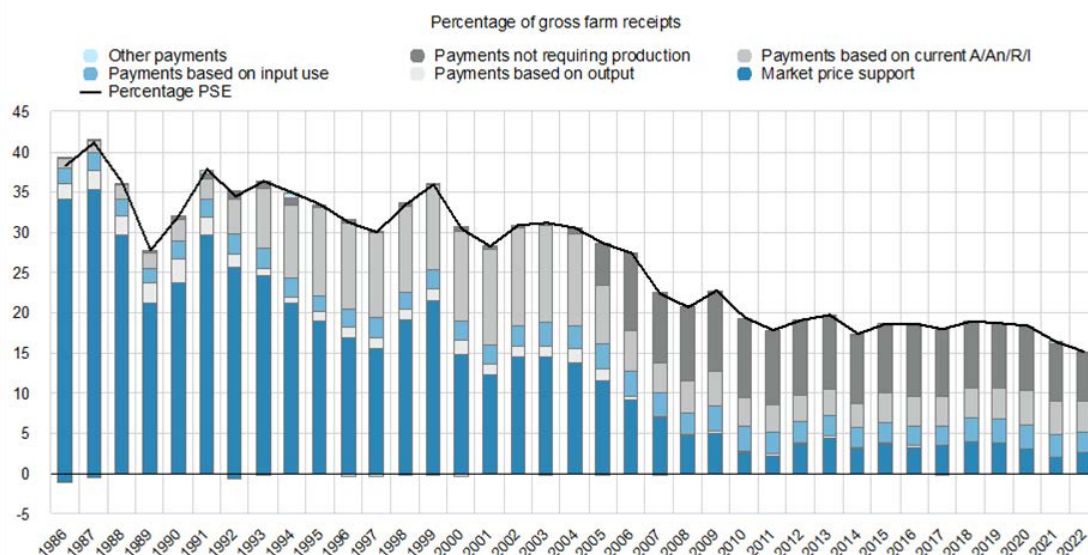
In 2020-22, general services expenditures (General Service Support Estimate, GSSE) represented 12.9% of total support to agriculture, equivalent to 2.8% of the EU's value of agricultural production. This is a decrease compared to 3.7% of the value of production in 2000-02 and is below the OECD average. That said, the EU's GSSE expenditure actually increased in monetary terms between 2000-02 and 2020-22, but the value of agricultural production more than doubled in the same period. Expenditures on agricultural knowledge and innovation systems –the most important of the EU GSSE's components– increased over the past two decades, and their share of GSSE rose from 42% in 2000-02 to 52% in 2020-22. The share of expenditures on marketing and promotion also increased, while the share of support for infrastructure and public stockholding decreased.

In its 2023 review of EU policies, the OECD made recommendations related to the structure and design of the CAP. Specifically on CAP payments, it recommended aligning budget allocations with stated priorities and addressing disincentives, linking payments that focus on sustainability, resilience and innovation objectives to monitorable performance, transitioning to targeted income support and introducing a clearer

separation of income support from measures targeted towards environmental sustainability, and ensuring that CAP payments do not create barriers to entry (OECD, 2023^[12]).

Figure 2.7. CAP reforms have changed the share and composition of EU producer support

Level and composition by categories of the Producer Support Estimate for the European Union, 1986-2022



Notes: A/An/R/I: Area planted/Animal numbers/Receipts/Income. "Payments not requiring production" include Payments based on non-current A/An/R/I (production not required) and Payment based on non-commodity criteria. "Other payments" include Payments based on non-current A/An/R/I (production required) and Miscellaneous payments. European Union refers to EEC12 for 1986-94, EU15 for 1995-2003, EU25 for 2004-06, EU27 for 2007-13, EU28 for 2014-19, EU27 and the United Kingdom for 2020, and EU27 from 2021.

Source: OECD (2023), "Producer and Consumer Support Estimates", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-pcse-data-en>.

2.7.2. Budgetary support to agriculture in Romania

Budgetary support to agriculture in Romania comes through both EU policies (from the EU budget, in some cases with national co-financing) and national programmes. During the last five years of the last CAP planning period (2018-22) the annual average budgetary expenditures for agriculture amounted to EUR 3.7 billion (Table 2.9).³² Out of all budgetary expenditures, EUR 2.8 billion (77%) came from the European Union budget, and EUR 866 million (23%) from Romania's budget.

Most of the budgetary expenditures (93%) supported producers. EU-financed budgetary expenditures include CAP direct payments (EUR 1.8 billion) and market measures (EUR 35 million) under Pillar 1, as well as rural development support under Pillar 2 (EUR 893 million). EU funds fully financed CAP Pillar 1 measures and more than 80% of CAP Pillar 2 expenditures. Decoupled income support is the largest item under Pillar 1 at EUR 1.6 billion per year, representing 85% of Pillar 1 spending and 43% of budgetary spending of all types. Some rural development and market measures provide general services to the sector, such as knowledge transfer or infrastructure services. EU funds also financed consumers in the form of school food programmes covering milk, fruit and vegetables.

As described in previous sections, measures fully financed by Romania include, among others, Transitional National Aid payments, programmes for the conservation of native breeds, measures to respond to the COVID-19 crisis and to the domestic market effects associated with of the war in Ukraine, and compensation to producers for losses due to natural disasters or pests and diseases. In 2018-22 the annual

average budgetary expenditures for top up payments - which were mostly decoupled from production - amounted to EUR 107 million, while coupled payments (EUR 398 million) accounted for about half of the national budgetary expenditures for individual producers.

Table 2.9. EU funds finance more than three quarters of budgetary support to agriculture

Annual average budgetary support to agriculture in Romania, 2018-22 (million EUR)

	Total	From EU budget	From national budget
1. Budgetary expenditures for producers	3 438.6	2 623.5	815.2
Measures fully or partly financed by the European Union			
CAP pillar 1 direct payments, of which:	1 848.2	1 848.2	0.0
<i>Decoupled income support¹</i>	1 604.5	1 604.5	0.0
<i>Coupled income support</i>	243.7	243.7	0.0
CAP pillar 1 market measures	35.1	35.1	0.0
CAP pillar 2 rural development measures	893.3	740.2	153.1
Measures fully financed from Romania's national budget			
National top-ups to CAP direct payments ²	107.5	0.0	107.5
National programmes, of which:	184.8	0.0	554.5
<i>Tax exemption on agricultural diesel</i>	141.4	0.0	141.4
<i>Coupled payments from national budget</i>	398.0	0.0	398.0
<i>Other national programmes³</i>	15.1	0.0	15.1
2. Budgetary expenditures for general services	253.3	202.6	50.7
Measures fully or partly financed by the European Union			
CAP pillar 1 market measures	0.3	0.3	0.0
CAP pillar 2 rural development measures	214.7	182.0	32.8
Other EU co-financed expenditures	23.2	20.3	2.9
Measures fully financed from Romania's national budget			
National programmes ⁴	15.1	0.0	15.1
3. Budgetary expenditures for consumers	15.8	15.5	0.3
Measures fully or partly financed by the European Union			
School schemes (milk, fruit and vegetables)	15.5	15.5	0.0
Measures fully financed from Romania's national budget			
National programmes	0.3	0.0	0.3
TOTAL BUDGETARY EXPENDITURES (1+2+3)	3 707.7	2 841.5	866.2
Measures fully or partly financed by the European Union	3 030.3	2 841.5	188.7
Measures fully financed from Romania's national budget	677.4	0.0	677.4

1. Includes the basic payment, the redistributive payment, the young farmers' payment and the "greening" payment.

2. The period covered includes the phase-in of direct payments in Romania, during which it was allowed to use transitional national assistance to top up EU-financed payments, as detailed in Section 2.4.3.

3. Includes programmes for the conservation of native breeds, to respond to the COVID-19 crisis and to Russia's invasion of Ukraine, and compensation to producers for losses due to natural disasters or pests and diseases, among others.

4. Includes expenditures on agricultural research and inspection services that were financed exclusively from the national budget.

Source: Authors, with data from the Ministry of Agriculture and Rural Development of Romania.

2.8. Conclusions

- The adoption of pre-accession programmes in Romania was not without difficulties, but overall it helped the country to put in place an institutional system able to manage EU agricultural fundings and to align country's laws and policies to the EU framework.
- The adoption of the CAP entirely changed the country's agricultural policy setting. The financial support to the farming sector increased considerably and was delivered mainly under the form of direct payments. Romania opted for a simplified version of them, the Single Area Payment Scheme, which was applied for two programming periods, from 2008 to 2022.
- During the CAP 2014-22 despite the adoption of the small farmers schemes and the redistributive payments, the largest share of direct payments was received by medium and large farms. Romania also devoted a relatively high share of coupled support to sugar beet and livestock sector, while the CAP second pillar support mainly focused on on-farm investments.
- In the framework of the CAP 2023-27, the Ministry of Agriculture and Rural Development (MARD) designed the CAP Strategic Plan (CSP) after an extensive consultation with stakeholders for better aligning policy instruments to the country needs and priorities. The most relevant changes compared to the previous programming periods were: the choice of not applying the small farm scheme, capping and degressivity, which reveals a stronger target of policy support to medium-size farms; and the choice to transfer only 3% of the initial budget from Pillar 1 to rural development (Pillar 2). Coupled support remains relatively high and it is mainly directed to the livestock sector.
- In addition to the CAP payments, Romania is also implementing a broad range of other national and EU policies which are highly relevant for the farming sector, including measures under the National Recovery and Resilience Plan, which devotes over 60% of funding to the green and digital transition. Complementary national aids targeted the livestock sector, and some minor crops are also combined with significant tax exemptions for farmers.
- Romania adopted national programmes and laws to favour generational turnover in agriculture, including a new regulation on farmland sales which aims at prioritising access to land for young farmers and at limiting large purchases by foreigner buyers. The effects of these regulations are still uncertain.
- Romania has advanced toward an integrated approach to disaster risk management. As for the farming sector, agricultural insurances are not well developed and, so far, the risk management tools financed through CAP have been only partially implemented. Nevertheless, during the last five years in which the co-financing of the insurance premiums has been implemented, the number of insured farmers and the value of the premiums have registered a significant increase. The CSP 2023-27 strengthen to support to risk management and Romania used the possibility to assign 3% of its budget allocation of direct payments as complementary to the support for risk management under EAFRD.
- Over the last decade MARD has adopted several strategic documents to set the vision and the key objectives for the agro-food sector. Nevertheless, both the distribution of CAP funding among different types of measures has always been very similar to the EU average. State aids and other types of national support lack of clear targeting and do not seem to be fully in line with the stated medium- and long-term objectives.
- The bulk of the trade policy is defined at the EU level, with the agro-food sector generally facing higher protection than other products. In Romania policy implementation in this area is in the hands of several institutions, including MARD and the Agency for Payments and Intervention for Agriculture (APIA). Although trade facilitation performance has improved consistently in recent years, Romania's performance indicator is still the lowest among EU Member States.

- Going forward, Romania could consider ways to make better use of the room for manoeuvre in the CAP and is invited to take account of relevant recommendations in the OECD review of the European Union (see Box 2.2 and (OECD, 2023^[12]).

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Notes

¹ Payments relating to the reform of the sugar regime and the fruit and vegetable regime were paid on a historical basis and have been progressively included in the Basic Payment Scheme starting in 2015.

² The costs to administer EU agricultural funds were estimated to be approximately EUR 100 per hectare.

³ The GAEC standards for 2007-2013 were defined in accordance with EU Regulation No. 73/2009, transposed into Romanian legislation by Order No. 30/2010 of the Ministry of Agriculture and Rural Development and put in force from February 2010.

⁴ A new delimitation of areas with “other significant natural constraints” was introduced from 2015 in Romania, meaning the total area designated with natural constraints (ANC) will now cover nearly 50% of the Romanian agricultural area. Compensatory payments were granted to farmers on more than 70% of all the areas designated, representing 5.3 million hectares (more than one-third of all the agricultural land) in order to prevent land abandonment and soil erosion (in areas affected by climatic and physical constraints such as the mountainous areas but also areas affected by significantly natural constraints, etc.).

⁵ The other Member States that transferred funds from direct payments to rural development (total flexibility %) are: Belgium-Flanders (11%), Czechia (3%), Denmark (6%), France (8%), Germany (12%), Greece (10%), Italy (3%), Latvia (5%), the Netherlands (21%), and Slovak Republic (transfers from capping).

⁶ This includes the crop-specific payment for cotton, which is mandatory in selected Member States (Bulgaria, Greece, Spain and Portugal).

⁷ Note that the pig and poultry sectors are not eligible for CIS.

⁸ Together with Belgium-Flanders, Belgium-Wallonia, Bulgaria, Croatia, Czechia, Denmark, Finland, Hungary, Ireland, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

⁹ This intervention covers a wide range of measures such as EIP Agri, LEADER, smart villages strategies, producer groups, producer organisations, inter-branch groups, participation in quality schemes etc.

¹⁰ If the funds collected during a year will not fully used for the payment of compensation, they will be capitalised at the level of the support instrument.

¹¹ TNA can be granted by SAPS Member States only.

¹² Small amounts of support that are exempted from state aid control under EU rules on state aid, since they are deemed to have no impact on competition and trade in the Single Market. Under the most recent regulation (Commission Regulation (EU) 2023/2831 of 13 December 2023), the ceiling of de minimis aid that a single company may receive in a 3-year period was increased from EUR 200 000 to EUR 300 000.

¹³ Government of Romania, approving the scheme “De minimis aid for compensating the effects of adverse hydrometeorological phenomena manifested during March-May 2021 on the beekeeping sector”, GD No. 1.219 of 17 November 2021, [DECISION 1219 17/11/2021 - Legislative portal \(just.ro\)](#).

- ¹⁴ Government of Romania, Approval of the programme to support the production of vegetables in protected areas for 2021, GD No. 651/2021, [DECISION 651 16/06/2021 - Legislative portal \(just.ro\)](#).
- ¹⁵ Government of Romania, *De minimis* aid for the application of the garlic production support programme, GD No. 202/2020, [Substantiation Note - GD no.202 / 18.03.2020 \(gov.ro\)](#).
- ¹⁶ Government of Romania, Approving the programme to support the production of aromatic plants for 2021, GD No. 652/2021, [DECISION 652 16/06/2021 - Legislative portal \(just.ro\)](#).
- ¹⁷ Government of Romania, establishing a State aid scheme in the livestock sector, GD 1.179/2014, [DECISION \(A\) 1179 29/12/2014 - Legislative portal \(just.ro\)](#).
- ¹⁸ Government of Romania, Approval of the programme to support pig breeders for breeding activity, Law No. 195/2018 [L 195 2018.pdf \(anaf.ro\)](#).
- ¹⁹ Government of Romania, *De minimis* aid for the implementation of the support programme for breeding pig of the Bazna and/or Mangalica breeds, GD No. 365/2020 [DECISION 365 07/05/2020 - Legislative portal \(just.ro\)](#).
- ²⁰ Government of Romania, establishing a State aid scheme to support the activity of cattle breeders in 2021 in the context of the economic crisis generated by the COVID-19 pandemic, Emergency Ordinance No. 58 of 24 June 2021, [EMERGENCY ORDINANCE 58 24/06/2021 - Legislative portal \(just.ro\)](#).
- ²¹ Government of Romania, establishing a State aid scheme to support the activity of breeders in the bovine, swine and poultry sectors in the context of the economic crisis triggered by the COVID-19 pandemic, Emergency Ordinance No. 51 of 21 April 2022, [EMERGENCY ORDER 51 21/04/2022 - Legislative Portal \(just.ro\)](#).
- ²² Government of Romania, establishment of a state aid scheme to support the activity of cattle breeders in 2022, in the context of the crisis caused by Russia's aggression against Ukraine, Emergency Ordinance No. 3/2023, [EMERGENCY ORDINANCE 3 08/02/2023 - Legislative Portal \(just.ro\)](#).
- ²³ Government of Romania, granting an emergency support measure to agricultural producers in the cereals sector, GD No. 352 of 20 April 2023, [DECISION 352 20/04/2023 - Legislative portal \(just.ro\)](#).
- ²⁴ Government of Romania, providing emergency support to the cereals and oilseeds sectors, GD No. 845 of 14 September 2023, [DECISION 845 14/09/2023 - Legislative portal \(just.ro\)](#). The budget was calculated based on the area of maize, barley, rapeseed and/or sunflower crops that has been submitted in 2022 for single area payment.
- ²⁵ Parliament of Romania, approving the Programme for stimulating youth employment in the agriculture, aquaculture and food industry sectors, Law No. 336 of 21 December 2018, [LAW 336 21/12/2018 - Legislative Portal \(just.ro\)](#).
- ²⁶ Employer received RON 500 for new employees without education, RON 750 for employees with secondary specialised education or short-term professional training courses and RON 1 000 with specialised higher education in the agriculture, aquaculture and/or food industry sectors.

²⁷ Mutual funds are based on the establishment of financial reserves, built up through participants' contributions, which can be withdrawn by members when losses occur, according to predefined rules.

²⁸ The EU Common Customs Tariff for any good is defined by the Combined Nomenclature (CN) of goods or any other nomenclature based on the CN, such as the Integrated Tariff (TARIC) nomenclature, and the duty rates applying to each class of goods. The publicly available TARIC database provides information on all tariff and trade policy measures that apply to specific goods in the European Union, such as tariff measures, agricultural measures, trade defence instruments, prohibitions and restrictions to imports and exports and surveillance of movements of goods at import and export (EC, 2025^[22]).

²⁹ Non-ad valorem (NAV) tariffs are those in which the duty rate is expressed in a form different than a percentage of the product's value. They can include specific, compound, mixed or technical tariffs. Their use can make the analysis of tariff rates more challenging, as they cannot be directly compared or aggregated and must first be converted into ad-valorem equivalents (AVEs), for which methodologies differ.

³⁰ The calculation of this average tariff rate requires obtaining ad valorem equivalents (AVE) for tariffs expressed in non-ad valorem form. There can be variations of the average rate depending on the methodology used.

³¹ The current Producer Support Estimate (PSE) database calculates support at the European Union level. Estimates at the Member State level can vary.

³² As agreed by the Committee for Agriculture in May 2024, this table presents data on budgetary expenditures underlying policies which support agricultural production, provided to producers individually, producers collectively (expenditures for general services) or to consumers. The planned expenditures for 2023-27 under the CAP Strategic Plan (including the budgeted national co-financing) are presented in Section 2.3 above.

3

Natural resources management

Romania's natural environment has favourable soil and water conditions and a relatively well-preserved traditional agricultural landscapes and levels of biodiversity. That said, there are continued pressures on biodiversity, the agriculture sector's share of total emissions is increasing, and outdated irrigation infrastructure is contributing to inefficient water use. This chapter reviews Romania's environmental performance and policies affecting agriculture, including measures related to climate change mitigation and adaptation, land use, and water management, with particular attention to those adopted under the Romanian CAP Strategic Plan 2023-27.

Key messages

- Romania's natural environment exhibits good conditions of soil and water resources and a relatively good preservation of traditional landscapes and biodiversity, although challenges remain:
 - 95% of the grassland habitat types have favourable conservation status, but there are pressures for biodiversity especially in the Natura 2000 grassland, croplands, and forests. Romania also faces challenges in maintaining biodiversity in areas characterised by intensive silvicultural practices.
 - GHG emission from agriculture have declined over the last decade, however the agricultural sector's contribution to total emissions has risen. GHG emissions from manure storage and land application are still high, mainly due to inadequate storage facilities and outdated equipment used for manure land application.
 - Although water withdrawals are below the international benchmark for pressure on available water resources, climate change – through decreased river runoff – is increasing the gap between demand and supply of water. The volume of water used for agriculture for irrigation purposes is increasing, and obsolete irrigation infrastructure contributes to water losses.
- Environmental policy developments are mostly driven by EU directives and regulations and include the commitment to ammonia emission reductions and the implementation of river basin management measures.
- Under the CAP Strategic Plan (CSP) 2023-27 Romania allocated the minimum required 25% of direct payments to its six eco-schemes. Two-thirds of the budget will be destined to the first eco-scheme focusing on environmentally beneficial practices applicable in arable land.
- Romania has the seventh largest area under organic farming in the European Union. Romanian's CSP 2023-27 has set the target to increase the area under organic production to 6% of the total Utilised Agricultural Area by 2030.
- Investments in irrigation and the adoption of conservation agriculture practices are important adaptation strategies for the Romanian agricultural sector. Romania's National Strategy for Rehabilitation and Expansion of Irrigation Infrastructure aims to increase the irrigated agricultural areas.

3.1. Key environmental objectives and institutional framework of environmental regulations

3.1.1. Agri-environmental context

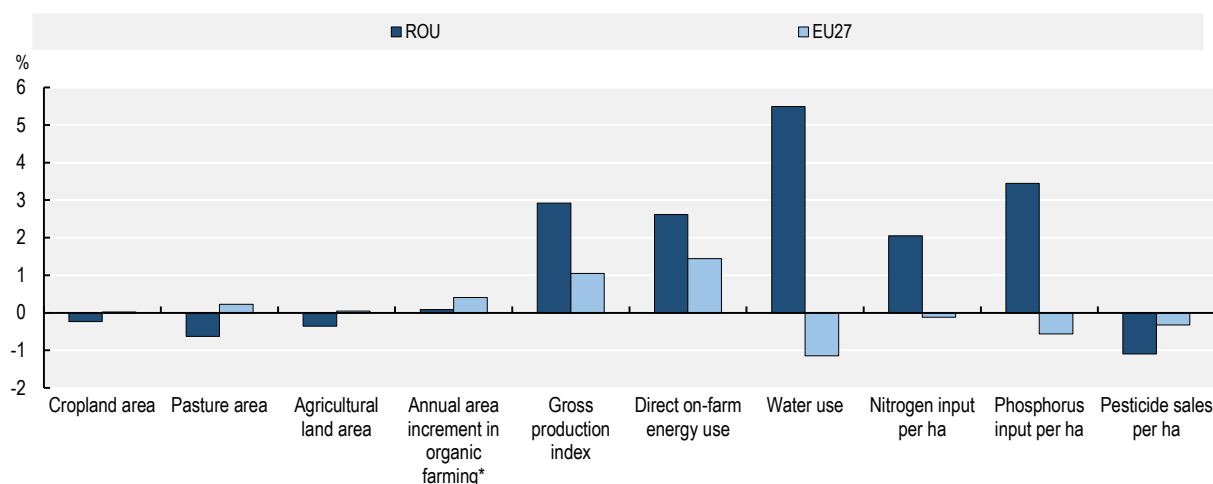
Overall, the natural environment in Romania is characterised by a relatively good state of soil and water resources, preservation of traditional landscapes and high biological diversity. High Nature Value (HNV) farming is important for Romania's nature through creating and maintaining biodiversity, especially the species-rich semi-natural grasslands in the more marginal, mountainous, and sub-mountainous areas where agricultural productivity is affected by climatic and topographical conditions and is limited by poor soils, high altitude, and steep slopes.

Regarding the general state of the farmed environment in Romania, the most pressing challenges are the increase in the number of extreme climatic phenomena and their intensity, the abandonment of agricultural activities with negative influences on the quality of the soil, the condition of the landscapes, especially in

areas affected by natural constraints, the persistent problem of the pollution of shallow drinking water wells with nitrates in some regions, and the risk of desertification in some parts of southern Romania. More specifically:

- Although 95% of the grassland habitat types present in Romania have favourable conservation status, there are pressures for biodiversity especially in the Natura 2000 grassland, croplands, and forests (EC, 2020_[1]).
- Soil erosion by water is a widespread form of soil degradation in Romania and it is estimated that about 9.1% of total agricultural land is affected by moderate to severe water erosion (EC, 2020_[2]).
- As regards water quality most of the surface and groundwater resources in Romania fall into good and very good quality classes (EC, 2020_[1]). Diffuse nutrient pollution from agriculture is the second largest source of water pollution in Romania, but potential nutrient pollution from agriculture as indicated by calculated nitrogen and phosphorus surpluses is clearly below the EU average.
- Ammonia emissions in Romania have been quite stable since 2010 (about 150 000 tonnes of NH₃ in 2016) and the share of emissions from agriculture in total ammonia emissions is about 88%, which is below the EU average (92%). Romania has not reached the National Emission Reduction Commitments Directive target for ammonia emission reductions (-13% by 2020 and -25% by 2030 compared to 2005) (EC, 2020_[1]), but according to the national inventory reported in March 2024 has recently fulfilled the commitment of reducing emissions by 13% compared to 2005.
- The share of agriculture of total GHG emissions was 19% in 2017 versus the EU average of 10%, which reflects the relative importance of the agricultural sector for the economy. Total GHG emissions from agriculture have decreased by about 44% from 1990 to 2018 mainly due to the reduction of livestock and mineral fertilisers. The main sources for GHG emissions are enteric fermentation (54.6%), agricultural soils (32.7%) and manure management (13.7%) (EC, 2020_[1]).

Figure 3.1 shows the average annual percentage change in selected agricultural and environmental indicators. Although agricultural land area has decreased annually by 0.4% the annual production has increased by almost 3%, which is clearly higher than the EU27 average of 1%. Direct on-farm energy consumption has increased in Romania more rapidly than in EU27, but it remains among the lowest in EU27 (about 28 kg of oil equivalent per ha) (EC, 2020_[1]). Albeit water use for agriculture has increased over 5% annually, it is still clearly below the EU27 average. Both nitrogen and phosphorus inputs per hectare of agricultural land have increased annually by 2% and 3.5%, respectively. However, their levels remain clearly below the EU27 averages. Pesticide sales per hectare of cropland have decreased and represent one-third of the average levels of the EU27 averages.

Figure 3.1. Average annual change in selected agri-environmental indicators (%), 2011-2019

Note: *Annual area increment in organic farming is the average annual difference in the share (in %) of organic farming in agricultural area. A value of 1% indicates that the share of organic farming in total agricultural land was increased by 1 percentage point per year on average. All other indicators are expressed as average relative change in the selected variables.

Source: OECD Agri-environmental indicators (Agricultural land area, direct on-farm energy use, nutrient balances, pesticide sales), Eurostat (Gross production index, water use), FiBL (organic farming are).

3.1.2. Governance of agriculture and forest environmental sustainability

In Romania the authorities that are responsible for the enforcement of environmental regulations that are relevant for agriculture are: the Ministry of Environment, Waters and Forest; the National Agency for Environmental Protection; the National Environmental Guard and the National Administration of Romanian Waters.

The Ministry of Environment, Waters and Forest is responsible for overall legislative, policymaking, management, monitoring, inspection and control competences in the following fields: strategic planning, sustainable development as regards environmental sustainability, environmental infrastructure and water management, meteorology, hydrology, hydrogeology, climate, protected natural areas, waste management, management of hazardous substances, biodiversity conservation, management of air quality, biosecurity and ambient noise levels, and administration of forest management. The Ministry is also in charge of the implementation and co-ordination of the financial assistance granted by the European Union in the field of environment and forests and of programmes financed from EU funds.

The National Agency for Environmental Protection is the specialised institution of the central public administration, subordinate to the Ministry of the Environment, Water and Forests with competences in the implementation of policies and legislation in the field of environmental protection. The Agency is responsible for strategic environmental planning, monitoring of environmental issues, authorisation of activities with an impact on the environment, assessing the impact of certain public and private projects on the environment according to the Law no. 292/2018, implementation of environmental legislation and policies at national and local level. The Agency also reports to the European Environment Agency regarding the following areas: air quality, climate change, protected areas, soil contamination, and water (MARD, 2023^[3]).

The National Environmental Guard is a public institution subordinated to the Ministry of Environment, Waters and Forests. It is a specialised inspection and control agency that can take measures to sanction, suspend, or stop the activity, because of pollution and damage to its environment for non-compliance with the conditions imposed by the regulatory acts. The National Environmental Guard is responsible for ensuring the control of the professional, uniform, and integrated implementation of the government's policy

of applying the national legislation harmonised with the community one, in the field of environmental protection. It has attributions regarding the application of the government's policy in the matter of preventing, detecting and sanctioning the violation of the legal provisions on environmental protection, including non-compliance with the regulations provided for in the specific laws in the fields of industrial pollution control and risk management, dangerous substances and preparations, biodiversity and protected natural areas. The Guard also plays an active role in ensuring the security of the environment through actions to prevent risks and limit ecological threats, namely pollution of water and air resources, reduction of soil fertility, cross-border pollution, and others (MARD, 2023^[3]).

The responsible authorities for the development of the water policies are the Ministry of Environment, Waters and Forests and the implementation of the policies is done by the National Administration "Romanian Waters" (NARW), which is a public institution under the co-ordination of the Ministry of Environment, Waters and Forests. NARW manages the waters of the state public domain and the infrastructure of the National System of Water Management, is implementing the National Strategy for Flood Risk management in the medium and long term (2010-35) and reviews how the implementation plans for different fields related to water are applied by different sectors (local authorities for water supply and sanitation, agriculture for irrigation and reduction of pollution with nitrates, hydropower for environmental discharge downstream from their dams). The Ministry of Environment, Waters and Forests and NARW co-operate for the development, updating and implementation of the River Basin Management Plan (RBMP) and National Management Plan, synthesis of the 11 RBMPs, and Flood Risk Management Plan (FRMP), which are developed according with the provisions of the Water Framework Directive and Flood Risk Management Directive (MARD, 2023^[3]). The National Water Management Strategy was adopted in November 2023.

In addition, County Environmental Protection Agencies that are subordinated to the National Environmental Protection Agency, are responsible for implementation of policies, strategies and legislation in the field of environmental protection at the county level, authorisation of activities with an impact on the environment and also assessing the impact of certain public and private projects on the environment according to the Law no. 292/2018.

3.1.3. Key EU and domestic environmental legislation and strategies

Transposition of EU directives and regulations

Environmental policy developments in Romania are mainly driven by EU directives and regulations, and the relevant EU rules are generally transposed in time (EC, 2022^[4]). The Ministry of Environment, Waters and Forests is responsible for the transposition of EU regulations regarding environment into national legislation.

Under the Directive 2016/2284/EU on the reduction of national emissions of certain atmospheric pollutants new emission reduction commitments apply for 2020-29 and for 2030 onwards for total emissions of the main air pollutants: nitrogen oxides (NO_x), non-methane volatile organic compounds (NMVOCs), sulphur dioxide (SO₂), ammonia (NH₃) and fine particulate matter (PM_{2.5}). The directive transposes the reduction commitments for 2020 agreed by the European Union and its Member States under the 2012 revised Gothenburg Protocol under the Convention on Long-range Transboundary Air Pollution (LRTAP Convention).

The more ambitious reduction commitments agreed for 2030 are designed to reduce the health impacts of air pollution by half compared with 2005. In the case of ammonia emissions, that are mainly generated by the agricultural sector, Romania must maintain, for any year from 2020 to 2029, the commitment to reduce emissions by 13% and for the period 2030 onwards by 25% compared with 2005 emissions level.

The EU Water Framework Directive (WFD) is implemented through River Basin Management Plans (RBMP), which are updated every six years. These plans include a main chapter dedicated to the programmes of measures to achieve the environmental objectives, represented mainly by “good status” for all water bodies, and compliance with the principle of non-deterioration (principle of prevention). The assessment report for Romania shows that the National Programme of measures included 13 343 planned measures for the period 2016 to 2021, and 4 822 measures (which corresponds to 36% of total measures) were planned to be implemented up to 2018 (EC, 2022^[5]). However, only 59.7% of the latter planned measures had been implemented by 2018. The highest percentage of measures implemented has been reached for measures tackling pressures from agricultural activities.

Starting in 2013, Romania has applied the Nitrates Directive (ND)’s requirements to the whole territory, instead of identifying Nitrate Vulnerable Zones for action, with the view to prevent pollution. It has also improved some measures of the ND Action Programme. Groundwater quality in 2016-19 slightly improved compared to the previous reporting period, with around 15% of stations exceeding the annual average of 50 mg of nitrate per litre (EC, 2022^[4]). For surface waters, the improvement of the water’s quality is more significant, considering that the 100% of lakes, coastal and transitional monitoring sites are under 10mg/l NO₃.

Article 17 of the Habitats Directive and Article 12 of the Birds Directive require EU Member States to report on the progress made towards maintaining or restoring the favourable conservation status of species and habitats. According to the report submitted by Romania on the conservation status of habitats and species covered by the Article 17 of the Habitats Directive for the period 2013-18, the conservation status of around 68% of the habitats and 46% of species was good. Regarding birds, about 19% of the breeding species showed short-term increasing or stable population trends while the same figure for the wintering species was 15% (EC, 2022^[4]).

Regulations and policies for the forestry sector

In the forestry sector the main regulation for forest land is the Forest Code or Forest Law (Law 85/2024, which amends and supplements Law no. 46/2008). There is a Minister’s Order (no. 694/2016) that regulates the change of forest land use. Conversion of forest land is forbidden unless it is done to achieve the objectives of national interest, declared of public utility, for the location and/or extension of the components of the national meteorological surveillance network, for the location and/or extension of the special telecommunications infrastructure, as well as for military services of strategic interest for national security.

As discussed in Chapter 2, Romania recently also developed the National Forest Strategy 2030 adopted by Government Decision 1227/2022 as part of the National Recovery and Resilience Plan (NRRP) (Government of Romania, 2022^[6]). Romania is not only among the EU Member States that have integrated forest-related interventions into the NRRP, but it is also one of the countries that dedicate most of the plans’ funds to forestry (more than 5% of the budget). With the exception of Sweden, who used more than 7% of NRRP’s budget for the forestry sector, the other countries used lower shares, between 0.2% and 2.3% (Bottaro, Liagre and Pettenella, 2024^[7]).

The National Circular Economy Strategy

Adopted in 2022, the National Circular Economy Strategy (NCES) defines a long-term vision and strategic direction for the transition to a circular economy in Romania (DPDD, 2022^[8]). Agriculture, together with forestry, is one of the nine areas which are considered to have the highest circularity potential. The strategy identifies the challenges and problems of the farming sector and provides guidelines on solutions and opportunities for the different phases of the life cycle, from the production phase to the end-of-life phase.

NCES highlights the importance of biomass-based natural solutions for agriculture – such as organic fertilisers or compost, soil improvers, plant bio-stimulants – to encourage circular approaches, but it also acknowledges the need for additional research, innovation and financial resources to help farmers to adopt such practices more extensively. It also advocates for the development of collective urban agriculture since it may contribute towards social cohesion and more responsible food consumption. Finally, the strategy recognises the importance of the farming sector's initiatives that use waste to produce energy, biomass, bioliquids, biogas, fermentation gases from waste and sludge.

In terms of policy recommendations, NCES suggests addressing illegal tree cutting through stricter regulation and traceability measures and asks for a new regulation on water re-use to encourage circular approaches. It also advocates for more rewarding measures for carbon sequestration activities by farmers as well as for a more effective legal framework for organic production, to create more business opportunities in this sector.

In 2023, the Action Plan for NCES was approved (GD 927/2023), which includes actions for each priority sector identified as having the greatest potential to facilitate Romania's transition to a circular economy. Transversal actions include: (i) promotion of education and professional training, (ii) digitalisation of the essential areas for the green transition, (iii) facilitating research, development and innovation in relevant fields, and (iv) green public procurement. Specific actions for agriculture and forestry include:

- Increasing the degree of use of biomass from agricultural and forestry activities for the production of energy and biofertilisers.
- Promote the use of treated wastewater in irrigation systems, in accordance with EU minimum requirements for water quality and monitoring, to replace freshwater consumption in agriculture, together with the provision of guidelines on their use.
- Promoting sustainable agricultural methods that conserve and regenerate the natural fertility of soils and ensure the protection and restoration of ecosystems.
- Supporting farmers and foresters through the construction of logistics centres and infrastructure for storage and distribution of agroforestry and food products in order to facilitate access to specialised markets, by ensuring access to new technologies and education, as well as through other measures.
- Adaptation of financing instruments to facilitate the access of farmers and foresters to information provided by research and development activities in the agriculture and forestry sector.

The new Mountain Law aims at protecting and developing the mountain area in an inclusive and sustainable manner

Over the years, Romania has enacted laws and regulations to support mountain development, and notable efforts include the first Mountain Law in 2004, which was revised in 2018. The new Mountain Law (no. 197/2018) is an attempt to develop a holistic approach to mountain development and proposes a long set of priorities around five main pillars: (i) infrastructure and territorial planning/landscaping; (ii) economic and social development; (iii) protection and development of mountain environment and preservation of the biodiversity; (iv) education and professional training, and (v) culture and heritage. Within the framework of EU's Common Agricultural Policy, specific provisions are included to compensate farmers carrying out agricultural activities in mountains area where agricultural productivity is affected by climatic conditions and the limitations related to slopes and altitude (support for mountains area has taken place directly through specific sub-measures in Pillar I that are dedicated exclusively to the disadvantaged mountain areas or through measures with some dedicated budget allocated to the disadvantaged mountain areas) (World Bank, 2023^[9]).

3.1.4. Policy instruments to promote environmental sustainability in the CAP 2014-22

This section provides an overview of all the policy instruments that were implemented over the 2014-22 period to improve the environmental sustainability of Romanian agriculture. As for the other EU Member States, agri-environmental objectives were pursued through the combined and complementary effects of cross-compliance, Green Direct Payment (the so-called greening) and the second pillar voluntary measures. These include agri-environmental and climate schemes, organic farming, Areas of Natural Constraints (ANC), Natura 2000 areas, forestry measures and investments which are beneficial for the environment or climate.

Cross-compliance

The intervention logic of the CAP with respect to the environment is based on a hierarchy of action and compensation based on distinguishing between mandatory minimum requirements and requirements that go beyond the legal minimum requirements. Cross-compliance represents the compulsory basic layer of environmental requirements and obligations to be met to receive CAP funding (OECD, 2023^[10]). In the CAP 2014-22, cross-compliance rules were set out in 13 Statutory Management Requirements (SMRs) and 7 good agricultural and environmental conditions (GAEC) standards. In Romania SMR and GAEC standards were defined in accordance with EU Regulation No. 1306/2013 and transposed into Romanian legislation via a Joint Ministry Order No. 352/636/54/2015, with subsequent amendments and put in force from May 2015. Order No. 352/636/54/2015 defined the specification of each SMR and GAEC. APIA is the Paying Agency responsible for the control of GAEC and SMR standards, verification of some SMR norms being delegated to competent institutions. Table 3.1 provides an overview of the GAEC standards applied in Romania during the 2014-22 period.

Table 3.1. GAEC standards in Romania for the 2014-22

Area of regulation	Cross-compliance standard
Water	GAEC 1 (1) Buffer strips (protection strips) are established on agricultural lands adjacent to watercourse protection zones established by Law no. 107/1996, with subsequent amendments and additions. The minimum width of the buffer strips varies according to the slope of the land, as follows: 3 metres for land with a slope of up to 12% and 5 metres for land with a slope of more than 12%. (2) The buffer strips (protection strips) existing on the agricultural lands adjacent to the water course protection zones established by Law no. 107/1996, with subsequent amendments and additions, in which the application of fertilisers of any kind is prohibited, according to the provisions of art. 14 of the Action Program.
	GAEC 2 Compliance with legislation on the use of water for irrigation in agriculture.
	GAEC 3 It is prohibited to discharge directly into groundwater the hazardous substances listed in list I and list II of the annex to Directive 80/68/EEC in the version in force on the last day of its validity, which are used in agriculture, and preventive measures are taken of groundwater pollution through the indirect discharge of hazardous substances used in agriculture.
Soil and carbon stock	GAEC 4 In winter, the arable land must be covered with autumn crops and / or remain uncultivated after the harvest on at least 20% of the total arable area of the farm.
	GAEC 5 (1) Soil work, including sowing, on arable land with a slope greater than 12% cultivated with weed plants, is carried out along contour lines. (2) The existing terraces on the agricultural land as of 1 January 2007 shall be maintained.
	GAEC 6 1. The sunflower is not grown on the same field parcel for more than 2 consecutive years. 2. It is forbidden to burn stubble and vegetable remains on arable land, as well as the vegetation of permanent meadows.

Area of regulation	Cross-compliance standard
Landscape	GAEC 7 1. The particularities of the landscapes are maintained, including the trees in alignment, in groups or isolated and the existing terraces on the agricultural land. 2. Measures are taken to avoid the installation and expansion of invasive plant species on agricultural land. 3. It is forbidden to cut hedges and trees during the period of reproduction and growth of wild birds.

Source: (MARD, 2015^[11]).

Direct evidence of the effect of cross-compliance on environmental outcomes is lacking, but generally it is not perceived as an effective tool to improve environmental sustainability. Furthermore, the number of inspections is low and the penalties for non-compliance are both not proportional to the potential harm and too low to be dissuasive (OECD, 2023^[10]). The review of the control statistics for cross-compliance carried out by the European Court of Auditors in 2016 showed that some Member States were stricter than others in applying the concept of intentional non-compliance, and in Romania very few farmers were penalised during the period 2011-14 (ECA, 2016^[12]).

All Member States were also required to put in place a Farm Advisory Service (FAS) to provide information to farmers about cross-compliance obligations, greening and the application of rural development measures. “The FAS put in place in Romania was reported as being weak and fragmented particularly in relation to cross-compliance and the agri-environment measures” (EC, 2020^[13]) (Toderiță, 2019^[14]).

A large area was exempt from greening requirements

In addition to cross-compliance, the CAP 2014-22 required that 30% of each Member State's direct payments envelope was used for a greening payment for compulsory “agricultural practices beneficial for the climate and the environment”. In Romania 30% of the national ceiling corresponded to over EUR 480 million in 2015 and to EUR 570 million in 2020 (Ecorys, 2016^[15]). The three greening practices included: 1) crop diversification (the cultivation of a minimum of two or three crops on arable land above a certain size limit primarily to improve soil quality); 2) the maintenance of existing permanent grassland (demanding that the proportion between the total area with permanent grassland and the total agricultural area declared at APIA must not decrease by more than 5% compared to 2015, as well as a requirement to protect the most environmentally sensitive permanent grasslands from ploughing); and 3) a requirement to manage at least 5% of the arable land of farms with more than 15 ha of arable land as Ecological Focus Areas (EFAs), comprising a combination of management practices or landscape features as set out in the regulation and applied by Member States, in order to safeguard and improve biodiversity on farms.

In Romania greening requirements were implemented at national level and were transposed into legislation via OUG no. 3/2015 and MARD Order No. 619/2015. Romania made the following implementation choices concerning the greening payment:

- The permanent grassland ratio and obligation for Romania was applied at the national level.
- No equivalent practices were implemented.
- According to the Guide for applicants for direct payments (APIA, 2016^[16]), farmers with an area of arable land greater than 15 ha must ensure that 5% of the arable land include one or more of the following EFAs: a) terraces; b) landscape features – hedges or wooded/forested strips, isolated trees or in lines, groups/clusters of trees or shrubs, field margins, ponds or ditches; c) buffer strips located along water courses or standing waters; d) areas with short rotation coppice; e) farmland afforested with EAFRD support; f) areas with catch crops or green cover; g) areas with nitrogen-fixing crops.

In March 2022 the European Commission adopted an exceptional and temporary derogation to allow the production of any crops for food and feed purposes on fallow land, while maintaining the full level of

greening payments, but Romania was one of the six Member States – together with Denmark, Germany, Ireland, the Netherlands and Malta – that did not make use of this derogation (ABL, 2023^[17]).

The green direct payment has been criticised because it led to very limited changes in farm practices (Louhichi et al., 2018^[18]). This was partly due to exemptions introduced in the legislation and partly because what was asked of farmers was made less demanding in the legislative process (ECA, 2017^[19]). Furthermore, due to a high presence of small farms, together with Greece, Croatia, Italy, Malta, and Portugal, Romania was among the countries with a large area that was exempt from the greening measures (i.e. above 40% of the total agriculture area) (Alliance Environment and Thünen Institute, 2017^[20]). Nevertheless, the formal evaluation of the greening payment commissioned by the European Commission (Alliance Environment and Thünen Institute, 2017^[20]), also acknowledged that in Romania the greening motivated at least in part the set-up of new national legislation on permanent pasture management. Indeed, national legislation (a total of four legislative acts) was put in place in Romania in 2013 and 2015 regarding the management of all permanent grasslands, including specific provisions for the organisation and administration of those grasslands in public ownership. The motivation for this legislation was partially triggered by the need for transposition of the cross-compliance rules (GAEC 7) and the greening obligations in EU Regulation No. 1307/2013.

Voluntary agri-environmental measures

The agricultural support through National Rural Development Programme (NRDP) 2014-2020 aimed at addressing several environmental sustainability objectives:

- Encouraging farmers and other landowners to adopt or maintain extensive conservation practices in areas of high nature value (HNV) and areas important for wild bird species and butterflies.
- To promote adoption of agricultural practices based on reducing inputs to protect soils and water resources and to adapt to the effects of climate change.
- Encouraging the continuation of agricultural activity in areas facing natural constraints and other specific constraints to address land abandonment.
- Encouraging the adoption of organic farming and the afforestation of agricultural and non-agricultural lands.
- Encouraging the adoption of sustainable forest management practices, for conservation biodiversity and soil protection.
- Investments in machinery, equipment and facilities to improve manure management and reduction of ammonia emissions from livestock farms.

The most important agri-environmental measure adopted in Romania during the 2014-22 period focused on the preservation of permanent grassland with high nature value (HNV) (i.e. the Carpathian foothills and the hill area). However, the farmers' interest for package 1 – permanent grassland HNV – dropped by almost one-third at the beginning of the 2014-20 programming period compared to the 2007-13 programming period. But payments related to package 2 – EUR 100 per hectare under traditional agricultural practices supporting traditional management of permanent grassland – continued to be rather attractive for farmers located in HNV areas (around 28 500 farmers in 2015) (Fienitz, 2018^[21]). Since 2015 Romania also runs two pilot projects on result-based payments for biodiversity, of which one in Transylvania administrated by *Fundatia ADEPT* (see Box 3.1). Encouraged by the success of the support for HNV grasslands, Romanian authorities also introduced a pilot agri-environment-climate package within the agri-environment measure designed to promote adaptation to climate change in areas facing the most extreme effects due to climate change; but this measure failed due to its over-complexity, the excessive requirements applicable to small farms under 10 ha and the lack of farm advisory support (MARD, 2019^[22]; Toma et al., 2021^[23]).

An evaluation study of the National Rural Development Programme (NRDP) 2014-20 (MARD, 2019^[24]) has assessed the programme's effects on biodiversity conservation, water and soil quality management, climate change mitigation and sustainable development. The study examined the contribution of the rural development programme to these environmental sustainability issues using data reflecting the implementation stage of NRDP 2014-2020 at the end of 2019.

As regards biodiversity conservation this assessment shows that there has been a large increase in area supported by NRDP biodiversity measures. NRDP measures have slowed-down population decline of certain bird species and many agri-environmental - climate measures have been implemented in Natura 2000 sites so that conservation efforts have focused on some priority habitats.

The evaluation study demonstrates that NRDP has been successful in promoting soil quality, while evidence on the impact of NRDP measures on water quality has been difficult to reveal. However, expert surveys indicate that the NRDP has contributed to improved water quality. As regards climate change mitigation and adaptation the study shows that the measures related to soil and water management and biodiversity conservation have also contributed to soil carbon sequestration.

Finally, the study shows that NRDP contributed to the maintenance of farming in rural and mountain areas, reducing land abandonment and preserving traditional practices profitable both from a natural and socio-economic and cultural point of view.

Box 3.1. Results-based management of hay meadows in Transylvanian High Nature Value farmland

Two pilot sites to test design, development and use of result-based remuneration schemes

In Romania a pilot scheme trialling a results-based agri-environment scheme (RBAPS) on High Nature Value (HNV) grassland was implemented for the period 2015-19. The pilot took place in two regions, Târnava Mare (TM) and Pogány-havas (PH), both mountainous areas including designated Natura 2000 sites.

The main objective of the scheme was to maintain the high natural value of hay meadows, which benefit from traditional farm management. The commitments required the meadows to be managed to protect a range of flowering plant species that are at the same time indicators for these types of meadow. The project partners decided on three levels of payment linked to 5, 8 and 10 indicator species detected, as follows:

- 5 species = EUR 213/ha/year
- 8 species = EUR 229/ha/year
- 10 species = EUR 259/ha/year

Contracts were signed with 16 farmers in Târnava Mare for 48 parcels (73 ha) and with 56 farmers in Pogány-havas for 157 parcels (91 ha).

Results and challenges compared to management-based schemes

The main challenges were establishing a robust set of species to act as indicators for the results, as well as having a sufficient number of people trained to assess the parcels under contract. At the same time these pilot projects showed that result-based payments have a high level of flexibility for farmers in managing their land. The scheme is highly adaptable to local and weather conditions (wet year/dry year, slope, altitude etc.) and controls are limited to assessing a limited number of species. At the same time 100% of the parcels under contract had to be assessed each year, which increases administrative (transaction) costs for the scheme. Overall, this pilot showed that RBAPS offer higher payments for

HNV hot-spots, are easier to control and have a more defensible control system. Moreover, the pilot also shows that result-based schemes may perform especially well when the objective is to maintain existing high natural value semi-natural habitats and when a robust set of indicators for measuring the results is available.

Source: (Page et al., 2019^[25]).

3.1.5. The new green architecture of the CAP 2023-27

As shown in Chapter 2, the key strategic objectives of Romania's CAP Strategic Plan (CSP) for the 2023-27 period are to develop a resilient and sustainable agricultural sector by increasing the economic viability of farms, reducing income disparities between farms and increasing the market orientation and competitiveness of the agricultural sector as a whole. At the same time, the plan also aims at mitigating and adapting to climate change, promoting sustainable farming practices, efficient management of natural resources (water, soil, air) and conservation of biodiversity and landscapes. This section provides an overview of the environmental and climate ambition of Romania's CSP, followed by a description of the enhanced standards for good agricultural and environmental conditions (GAECs), of the new eco-schemes, and of the voluntary environment-climate intervention financed from EAFRD.

The environmental and climate ambition of Romania's CSP

Each CSP identifies targeted interventions aimed at tangible results tied to national and EU-wide objectives. In particular, Member States were encouraged to set non-binding national targets – referred to as “national targets” – in relation to the EU-level targets from the Farm to Fork (F2F) and Biodiversity strategies. Such national targets indicate national aspirations, and CSP should include details on the role of instruments inside and outside the CAP to achieve them.

Romania has set a national target to increase the area on which organic farming is practiced by a total 6% of utilised agricultural area until 2030. This is part of the National Action Plan for the Development of Organic Production, target contributing to the EU Green Deal target of having 25% of UAA under organic production at EU level in 2030.

Member States were mostly free to allocate funds to the interventions as they judged appropriate, based on their SWOT analysis and needs assessment. However, they had to respect several ring-fencing requirements (i.e. the obligation to devote a determined share of their financial allocations to certain intervention types). This is the case for the share of the direct payments allocation being planned for eco-schemes (25%), as well as the share of the EAFRD envelope being allocated to environmental, climate and animal welfare actions (35%).¹ Romania decided to dedicate the minimum 25% to eco-schemes, and reserved 41% of second pillar funding to environmental and climate objectives, below the EU average (48%) (EC, 2023^[26]).

Enhanced conditionality

The new conditionality in the CAP 2023-27 (the so-called enhanced conditionality) increases the mandatory layer of the CAP, revising and extending standards for GAECs in cross-compliance and including former greening commitments in a strengthened form. Member States have a degree of flexibility to further increase mandatory measures under conditionality. Previous GAECs have been carried forward and modified, while new conditionality rules related to climate have also been introduced to increase the environmental and climate ambitions and represent the new minimal requirements for farmers. To this end farmers will have to implement sustainable crop rotations and to ensure a minimum cover for the soil during the most sensitive climatic period to avoid soil erosion. For biodiversity protection farmers need to follow a

certain proportion of their cultivated land. Table 3.2 presents an overview of GAEC standards in Romania's CSP for 2023-27 and their differences compared to CAP 2014-22.

Table 3.2. GAEC Standards in Romania's CSP

	GAEC	Romania's choices: differences compared to CAP 2014-22
GAEC 1: Maintenance of permanent grassland	New, previously covered under greening.	General clause: the area of permanent meadows is maintained based on the proportional ratio between the area of permanent meadows and the total agricultural area A decrease of no more than 5% at national level of permanent grassland is allowed, compared to the reference year 2018
GAEC 2: Protection of wetland and peatland	New	Restrictions have been extended on all agricultural land in the perimeter of peat and wetlands, including no drainage. There are prohibitions: draining and clearing wetlands and peatlands; exploitation of peat; conversion of wetlands and peatlands; changes in land use and water flow; plowing permanent meadows in wetlands and peatlands; deep soil works, at depths greater than 25 cm.
GAEC 3: Prohibition of stubble burning	Continuation of GAEC 6	n/a
GAEC 4: Buffer strips along water courses	Continuation of GAEC 1	Stricter restrictions on fertiliser use on area as buffer strip widths increased from 1 m to 3 m on land with a slope of up to 12% and from 3 m to 5 m on land with a slope over 12%. The same restrictions are applied on plant protection products (no buffer strips in the previous period vs 3 m, respectively 5 m buffer strips in current period).
GAEC 5: Tillage management	Originates from GAEC 5	The current period introduces new restrictions on tillage practices for lands being poorly fertile (ploughing, work with harrow and rotary hoe, mechanical harrowing scarification, are practices forbidden).
GAEC 6: Minimum soil cover	Originates from GAEC 4	Extended spatial coverage during the most sensitive period for the soil (80% of arable land to be covered now, previously 20%; now applies also to permanent crops)
GAEC 7: crop rotation on arable land	New, integrates elements of greening payments concerning crop diversification	n/a
GAEC 8: agricultural area dedicated to non-productive areas or elements	Originates from GAEC 7 and integrates elements of the greening measure for Ecological Focus Areas.	Does not allow SRC, afforested areas
GAEC 9: Permanent Grassland in Natura 2000 sites	New	It is forbidden to change the destination or plowing permanent grassland designated as ecologically sensitive permanent grassland within the perimeter of Natura 2000 sites

Source: Elaborations on (Ecorys; Metis; Agrosynergy, 2023^[27]).

Romania adopted six eco-schemes, mainly targeting arable land

Eco-schemes are the new Pillar 1 instruments introduced in the CAP 2023-27, which include voluntary measures that go beyond the legal requirements or usual practice in terms of climate and environment. The CAP Regulation requires each eco-scheme to cover at least two areas of action for the climate (mitigation and adaptation), the environment (protection or improvement of water quality, reduction of pressures on water resources, prevention of soil degradation, soil restoration, improvement of soil fertility and nutrition management, protection of biodiversity, conservation, restoration of habitats or species, reduced or sustainable use of pesticides), animal welfare and anti-microbial resistance. Most of the new eco-schemes adopted by the EU countries aim at complementing the multi-annual schemes design as part of the environment-climate intervention under the second pillar. In most cases they have evolved from earlier policy measures of the 2014-22 period.

Romania allocated 25% of the direct payment's envelope (EUR 2 447 million) to six eco-schemes (see Chapter 2). The six eco-schemes focus on (i) soil conservation practices, (ii) landscape and biodiversity,

and (iii) animal welfare. Unlike most of the other Member States, Romanian eco-schemes do not include support for improved fertilisation and for the sustainable use of pesticides (EC, 2023^[28]).

In Romania two-thirds of the eco-schemes' funds will be destined to the first eco-scheme focusing on beneficial practices applicable in arable land (see Table 3.3). This eco-scheme mainly targets medium and large sized agricultural holdings (in this case, only farms larger than 10 ha) and promotes, among others, the cultivation of protein plants, covering soils during the warmest months of the year and reserving arable land for fallow and other non-productive uses. The second eco-scheme targets small traditional farms, encouraging them to adopt similar practices as the first eco-scheme, while the third eco-scheme intends to incentivise farmers to cover with grass rows some parts of land covered with orchards, vineyards, nurseries and hop gardens. Finally, eco-schemes 4, 5 and 6, which concentrate less than 10% of the eco-scheme budget aim at enhancing animal welfare.

Table 3.3. The first eco-scheme on beneficial practices applicable in arable land takes up two-thirds of the budget

Planned budget for 2023-27 (EUR million)

Eco-scheme		Budget	Share
1. Environmentally beneficial practices applicable in arable land	• Reserve 5% of arable land for non-productive and landscape elements (including fallow land), starting in 2024 • Cultivate protein plants on at least 10% of the farm's arable surface in 2023 and 5% starting 2025 • From 15 June to 15 October, arable land must be protected with soil cover on at least 85% of the arable surface.	1 639.3	67.0%
2. Practicing environmentally friendly agriculture in small farms (traditional households)	• Between 0.3 and 1 Livestock Units per hectare for a period of at least 6 months • For farmers exploiting arable land, at least 10% of land must be occupied with leguminous plants rich in vegetable protein.	478.5	19.6%
3. Planting grass in the interval between rows in orchards, vineyards, nurseries and hop gardens	• A minimum of 75% of the area of the orchard, vineyard, nursery and hop plantation must be kept under grass, from 15 June to 15 October. • No tillage is allowed on the grassed areas during the cover period, i.e. 15 June to 15 October.	81.71	3.3%
4. Increasing the level of welfare of dairy cows.	• Milking equipment must undergo at least three verifications every year to avoid traumatic milking. • The sleeves of the milking machines must be changed at a maximum interval of 4 months. • Udder maintenance products must be used before and after milking. • Each adult livestock unit must undergo one additional session of trimming every year compared to the number of trimming sessions it would normally undergo. • The minimum amount of bedding material must be increased by 100%, from 2 kg/head/day to 4 kg/head/day.	80.95	3.3%
5. Measure for the well-being of young cattle for fattening	• Increase by at least 15% the available space allocated to each cattle unit exploited in the semi-intensive and intensive system in stables. • ensuring more comfortable conditions in the animal resting area • providing optimised feed rations to increase welfare and reduce greenhouse gas emissions.	90.4	3.7%
6. Increasing cattle welfare through extensive grazing on grasslands under optimal sustainability conditions	• The area must be grazed extensively with a maximum stocking density of 1.0 LU/ha.	76.6	3.1%
Total budget		2 447.46	100.0%

Source: Authors, based on the CSP of Romania (MARD, 2023^[29]) and on EC (2024), Catalogue of CAP Interventions https://agridata.ec.europa.eu/extensions/DashboardCapPlan/catalogue_interventions.html (accessed 24th February 2024).

Voluntary agri-environmental support

In Romania's CSP environmental, climate-related and other management commitments are financed with EUR 1 705 million for the 2023-27 period, the second most important intervention in financial terms under Pillar 2 after investments (see Chapter 2). Most of this support (43% of the total budget) is targeted to animal welfare measures, followed by measures for sustainable management of permanent grasslands (23%) and for the maintenance of organic farming (9.6%) (see Table 3.4).

Table 3.4. Most of the environmental, climate-related and other management commitments is targeted to animal welfare

Budget for 2023-27 (EUR million)

	Total budget	EAFRD	National co-financing	Share
Animal welfare	736.3	624.5	112.8	43.2%
Sustainable management of permanent grassland	386.3	328.3	58.0	22.7%
Organic farming - maintenance	226.5	192.5	34.0	13.3%
Organic farming - conversion	162.6	138.2	24.4	9.5%
Sustainable management of arable land	104.7	89.0	15.7	6.1%
Sustainable management of forest land	84.8	72.0	12.8	5.0%
Livestock farming of local endangered breeds	1.4	1.2	0.2	0.1%
Afforestation	3	2.55	0.5	0.2%
Total	1 705.6	1 448.3	257.4	100.0

Source: EC (2024), Catalogue of CAP Interventions https://agridata.ec.europa.eu/extensions/DashboardCapPlan/catalogue_interventions.html (accessed 24th February 2024).

Ex-ante impact analysis of the National Strategic Plan (NSP) 2023-2027 has assessed the main expected environmental impacts. Biodiversity, human health and animal welfare, climate change, and water management are expected to be highly positively influenced by the NSP. The most beneficial measures are expected to be those related to organic farming, agri-environmental measures and measures focusing on areas with natural constraints. The effects of eco-schemes are expected to be significant on biodiversity, human health, water, climate change and pesticide pollution, while support to organic farming is expected to have significant positive effects on climate change, biodiversity and water resources. A negative environmental impact is anticipated for investments in infrastructure and coupled support measures (especially related to animals, vegetables and fruit). An ex-post analysis will be required to evaluate these impacts on adopting farms.

3.2. Management of natural resources and ecosystems

3.2.1. Biodiversity and ecosystems, including forest biodiversity and protected areas

Romania is rich in biodiversity and large share of farmland is considered HNV, but significant challenges remain for conservation of forest habitats and species

Romania is one of the most important countries in the European Union in terms of biological diversity. Romania has several bio-geographical regions, including Continental (53% of the country's surface), Alpine (23%), Steppe (17%), Pannonian (6 %) and Pontic (1%).

Protected areas (national and Natura 2000 sites) cover 24% of Romania's terrestrial area, which is higher than the 17% target for 2020 established in Aichi Target 11 but falls short of the 30% target for 2030 set in

Target 3 of the Kunming-Montreal Global Biodiversity Framework. Marine protected areas account for 21% of Romania's Exclusive Economic Zone, which is more than double the 2020 Aichi Target of 10% but short of the 30% 2030 target.

In 2021, 22.7% of the Romanian territory was covered by Natura 2000 (EU average 18.5%). Special protection areas (SPAs) classified under the Birds Directive covered 15.6% (EU average 12.8%) and sites of Community importance (SCIs) designated under the Habitats Directive covered 16.9% (EU coverage 14.2%) (EC, 2022^[4]). About 13% of the utilised agricultural area and 39% of forest area are under Natura 2000. Thirty-six per cent of agricultural land area is classified as high nature value (HNV), but only 3.4% of the utilised agricultural area is covered by fallow land and linear elements, which is below the EU average (4.6%) (EC, 2020^[1]).

The conservation status of habitats and species covered by Article 17 of the Habitats Directive for the period 2013-18 was good for around 68% of the habitats and 46% of species. For the EU Habitats Directive reporting period 2013-2018 about 95% of the Romanian grassland habitat types have a favourable conservation status and the remaining 5% have a declining conservation status (EC, 2020^[30]). Regarding birds, about 19% of the breeding species from the nesting area and 15% of the species from the wintering area showed increasing or stable long term population trends (EC, 2022^[4]).

From the 2007-12 to 2013-18 reporting period the proportion of habitats and species with good conservation status have increased. Agriculture was found to be the greatest source of pressure on habitats, while the development, construction and use of infrastructure were found the main pressures for species (EC, 2022^[4]).

An important contribution to the maintenance of biodiversity in Romania is provided by meadows with high nature value, which in 2014 covered about 2 million ha. In addition, extensive traditional orchards, the mosaic landscapes including meadows, trees, shrubs and small agricultural plots cultivated extensively or grassland located in the vicinity of the forests are important for biodiversity.

The diversity of ecosystems and habitats is complemented by the diversity of species. The following birds are present in Romania's representative areas for the priority species of wild birds (Special Protection Area or SPA), with an important share of the total population at EU level: *Lanius minor* (approx. 77%), *Falco vespertinus* (approx. 55%), *Crex crex* (approx. 7%), and *Aquila pomarina* (approx. 20%). In some of the SPAs there are also endangered, vulnerable or rare birds (NRDP 2014-20, 2014^[31]). In addition, endangered, vulnerable or rare birds are also present in some of the SPAs. The reference value for the calculation of the bird population index specific to agricultural land which was calculated for the first time in 2010 (the base year with index value of 100), shows that in 2015 the index value decreased to 97. Of the 20 species considered, 8 registered a decline, 9 registered an uncertain trend, 1 registered a growth, and 2 species could not be evaluated (MARD, 2019^[24]).

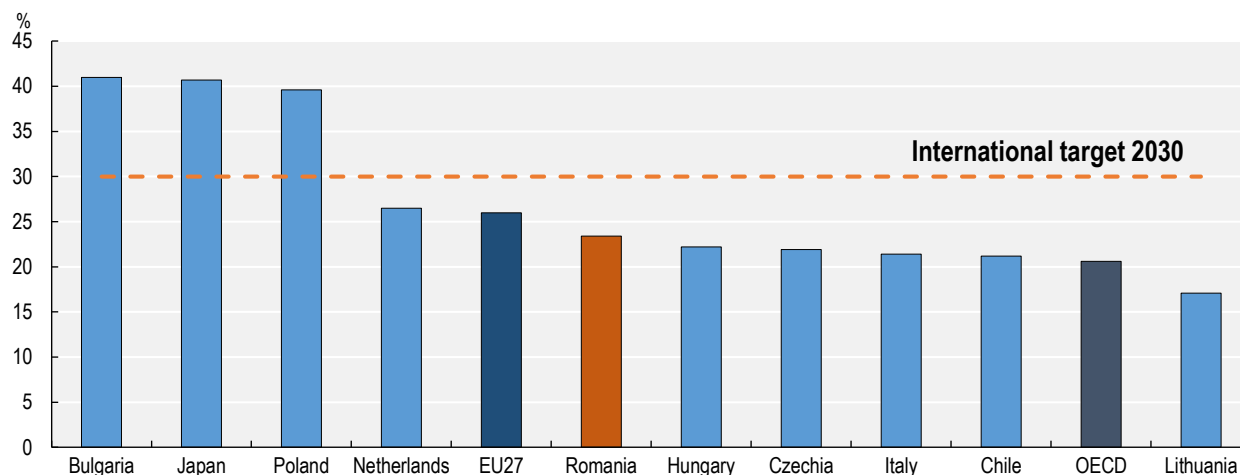
Forest area and other forest vegetation covers 30% of the Romanian total area and is mainly concentrated in the mountain and hilly areas. Romania hosts the largest area of primary forest remaining in the European Union. Biodiversity specific to forests represents an important component of biodiversity in Romania. Of the 106 specific forest habitats about 73% have a high and very high conservation value and only 5% a low conservation value. However, more than 40% of the assessments reveal a bad to poor conservation status (EC, 2021^[32]). Although the sustainable management of the forests is encouraged by the management framework created in Romania, the intensive nature of some applied silvicultural practices, reflected by the large number of interventions, negatively affects biological diversity. Romania has also faced challenges with illegal logging.

About 5.2 million ha or 36% of farmland is recognised as High Nature Value (HNV) in Romania. Romania offers several agri-environmental measures under their rural development programme, including schemes to support HNV grassland, as well as those targeted at specific bird and butterfly species (MARD, 2019^[24]).

The challenge is to maintain rich biological resources in Romanian landscapes associated with agricultural lands. Therefore, it is necessary to encourage the maintenance or adoption of agricultural practices aimed at the maintenance of HNV areas and the protection of priority species, but also of common species and the habitats of these species.

The share of protected terrestrial areas was 23.4% in 2021 (Figure 3.2), which is below the EU average of 26%, as well as below the Kunming-Montreal target of 30% by 2030.

Figure 3.2. Share of protected terrestrial area in 2021 in Romania and selected regions



Source: European Environment Agency (EU countries) and OECD.

3.2.2. Organic farming

Share of organic farming area has not reached 25% target of the EU Farm to Fork strategy

The total area under organic production has more than double in one decade and was about 580 000 ha in 2021, which is the seventh largest area in the European Union. However, the share of organic production in the total agricultural land is relatively low compared with the OECD and the EU27 average (Figure 3.3). Arable crops account for most of the organic area (58% in 2021), followed by permanent grassland (37% in 2021). The rest of the organic land is used for permanent crops and vegetables production. In the case of arable crops cereals and oilseed represent the most important categories with 24% and 20% respectively of total organic land, followed by green fodder (13% in 2021) (MARD, 2023^[3]).

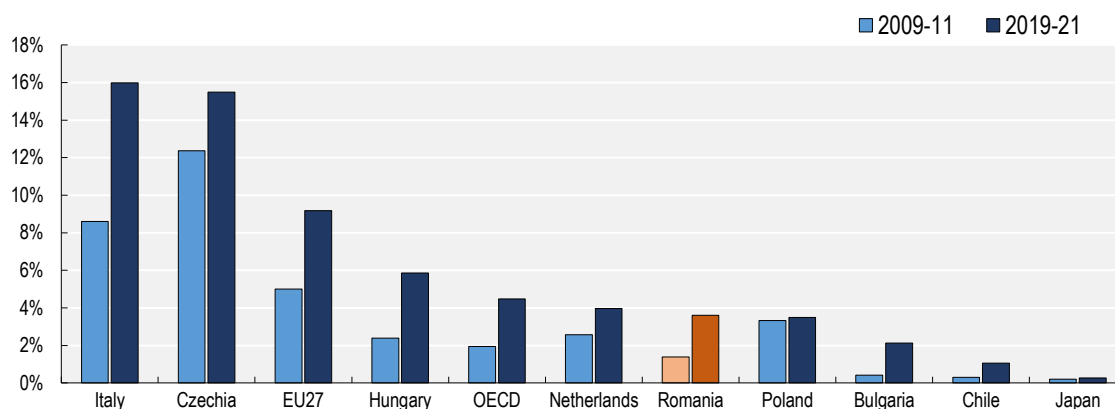
Given the potential benefits of organic farming regarding soil quality and reduction of the use of pesticides and inorganic fertilisers, increase in organic production in Romania could contribute to a more sustainable food production system. The impact or the expansion of organic farming on Romanian agri-environmental performance deserves being monitored and evaluated.

Romania's CSP for CAP 2023-27 includes compensation payments to farmers registered in the organic farming system, both during the conversion period and during the certified period, for the application of organic farming practices, as laid out in Regulation (EU) No. 1848/2018. The objective is to improve water quality, to increase soil fertility and soil organic matter content, to reduce GHG emissions and to enhance biodiversity.

Romania has established, through the National Plan for the Development of Organic Production, the national target for increasing the agricultural area to be destined for organic agriculture by 2030, which will contribute to reaching the EU target of 25% set out in the European Green Deal, respectively in the Farm

to Fork Strategy and the EU Biodiversity Strategy for 2030. To achieve the proposed target, the measures provided in the Action Plan for the Development of Organic Production include granting financial support to operators who join the organic farming system, distribution of certified organic products with the help of the School Programme in Romania, and to increase consumption of organic products through information and advertising campaigns. The plan also includes measures to encourage production through improving the organisation of supply chains for organically certified products and strengthening farmers' position in the supply chain.

Figure 3.3. Share of organic farming in utilised agricultural area of Romania and selected countries



Source: FiBL Statistics.

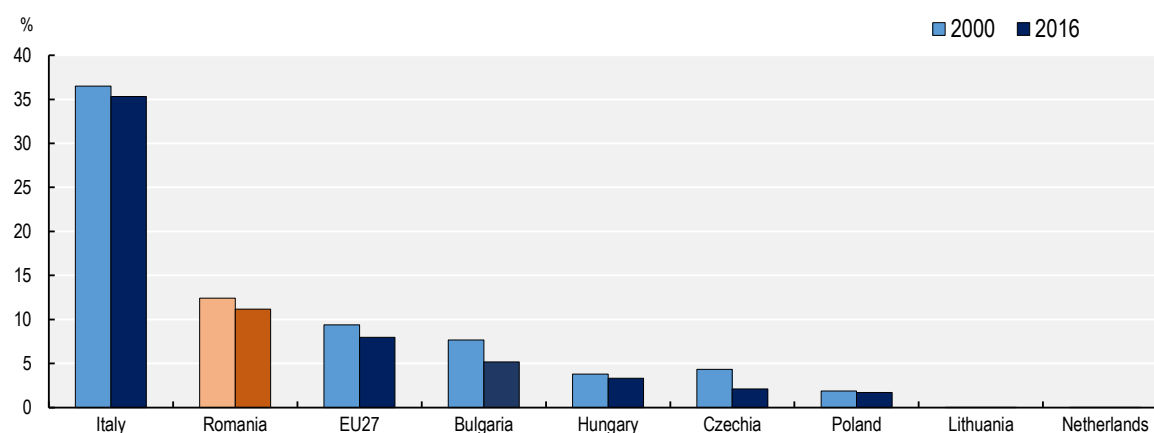
3.2.3. Soil health

Risk of soil erosion by water and wind varies regionally here

With regard to soil erosion, the share of total agricultural area affected by severe water erosion was 11% in 2016 compared with the EU average of 8% (Figure 3.4). With respect to different land use types, 10.1% of arable and permanent crop areas were at a moderate and severe risk of soil erosion by water, whereas for land use types with more permanent soil cover, such as permanent meadows and pasture lands risk of soil erosion is lower and 5.6% of these land use types were at a moderate and severe risk of soil erosion by water. There are regional differences with respect to soil erosion risk by water (Figure 3.5). The risk of wind erosion is the highest in the eastern part of the country.

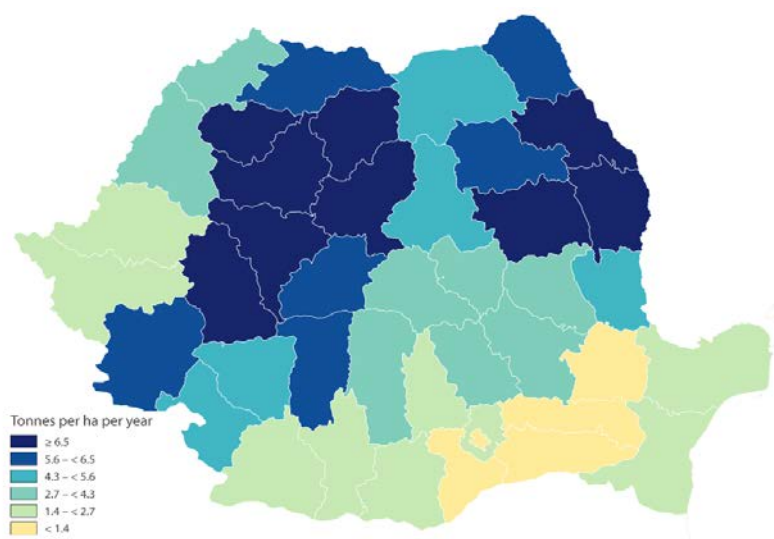
The mean soil organic carbon (SOC) content in arable soils in Romania (20.1 g/kg) is lower than the EU average (43.1 g/kg). As regards the type of cultivated crops and other management practices that can contribute to soil protection, 60% of arable land was subject to crop diversification requirements in 2018 (vs. 77% in the EU) and only 2% of the agricultural land was under Rural Development contracts to improve soil health (EC, 2015^[33]). Moreover, the share of no-till and reduced till practices are relatively low as 86% of cultivated area was tilled conventionally in 2016 (Eurostat, 2016^[34]). And 33% of arable land was left without soil cover during the winter months (Eurostat, 2016^[35]).

Figure 3.4. Estimated soil erosion by water in Romania and selected countries (tonnes/ha/year)



Source: Eurostat (dataset code ae_i_pr_soiler).

Figure 3.5. Estimated soil erosion by water in Romania at NUTS 3 regional level, 2016



Note: Estimated soil erosion by water, by erosion level, land cover and NUTS 3 regions (source: JRC). The unit of measurement is expressed in tonnes per hectare being 8.5 the highest rate of erosivity caused by water.

Source: © EuroGraphics ©UN-FAO.

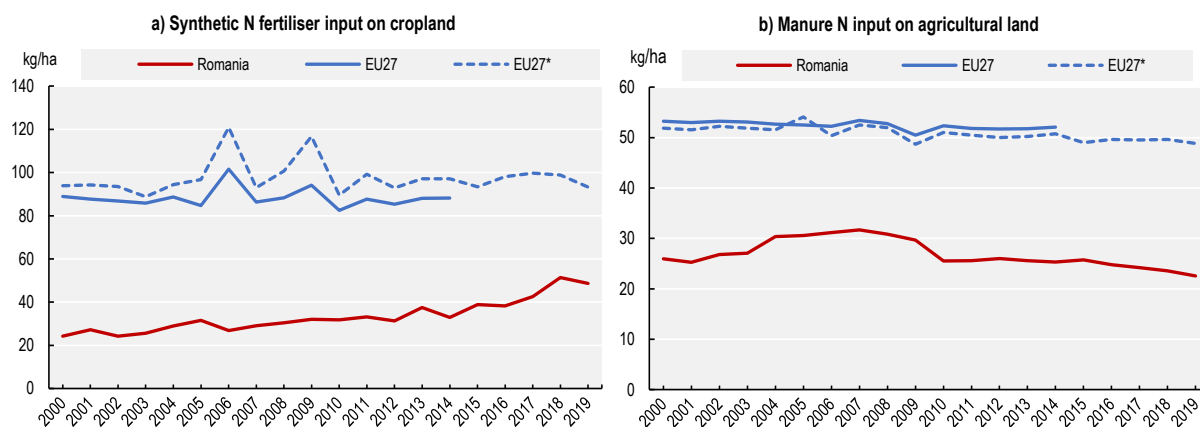
As regards measures aiming at reducing soil erosion Romania's agri-environmental compensation payments granted through NRDP 2014–20 and CSP 2023–27 promote the implementation of the green crops commitments – crops sown in autumn after harvesting the main crop – in order to protect the soil by covering it with vegetation. In addition to reducing soil erosion the aim of the green crop package is also to achieve water resources conservation and increasing water quality objectives in order to contribute to the objectives of the Water Framework Directive.

3.2.4. Fertiliser input and nutrient balances

The input of synthetic and manure fertilisers remains below EU averages

Synthetic nitrogen fertiliser input per hectare of cropland has increased from 24 kg/ha in 2000 to 49 kg/ha in 2019. During the same period manure nitrogen input per hectare of agricultural land has decreased from 26 kg/ha to 23 kg/ha. Both synthetic and manure nitrogen input intensities in Romania are clearly below the EU27 averages (Figure 3.6).

Figure 3.6. Synthetic and manure nitrogen (N) inputs in Romania and selected regions

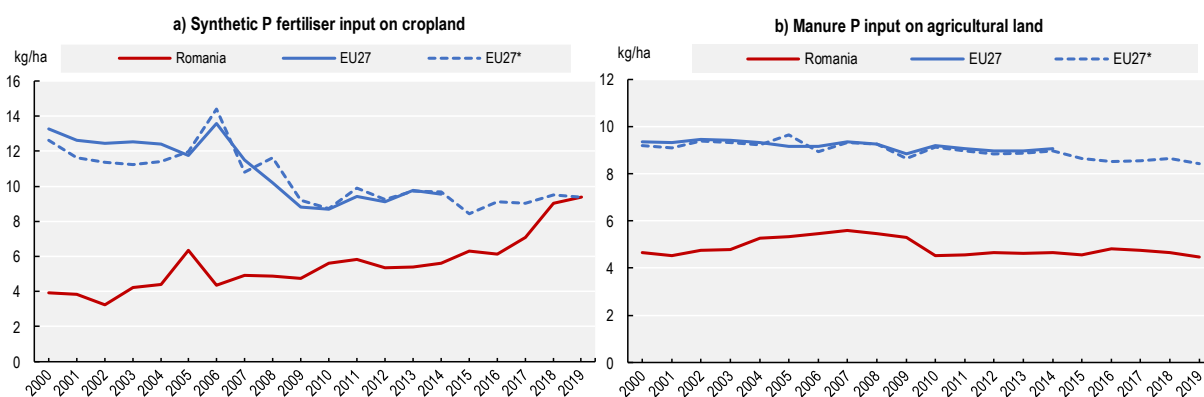


Note: *EU27 extended series (benchmark) is based on 16 EU Member states with data available for the full period: Austria, Bulgaria, Croatia, Czechia, Germany, Finland, France, Latvia, Lithuania, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia and Sweden. These represent around 67% of the nitrogen input, and 65% of the applied synthetic phosphorus in the EU.

Source: OECD Agri-environmental indicators.

Synthetic phosphorus fertiliser input per hectare of cropland has increased from 4 kg/ha in 2000 to 9 kg/ha in 2019 and is close to the EU27 average. During the same period manure phosphorus input per hectare of agricultural land has slightly decreased and is clearly below the EU27 average (Figure 3.7).

Figure 3.7. Synthetic and manure phosphorus inputs in Romania and selected regions



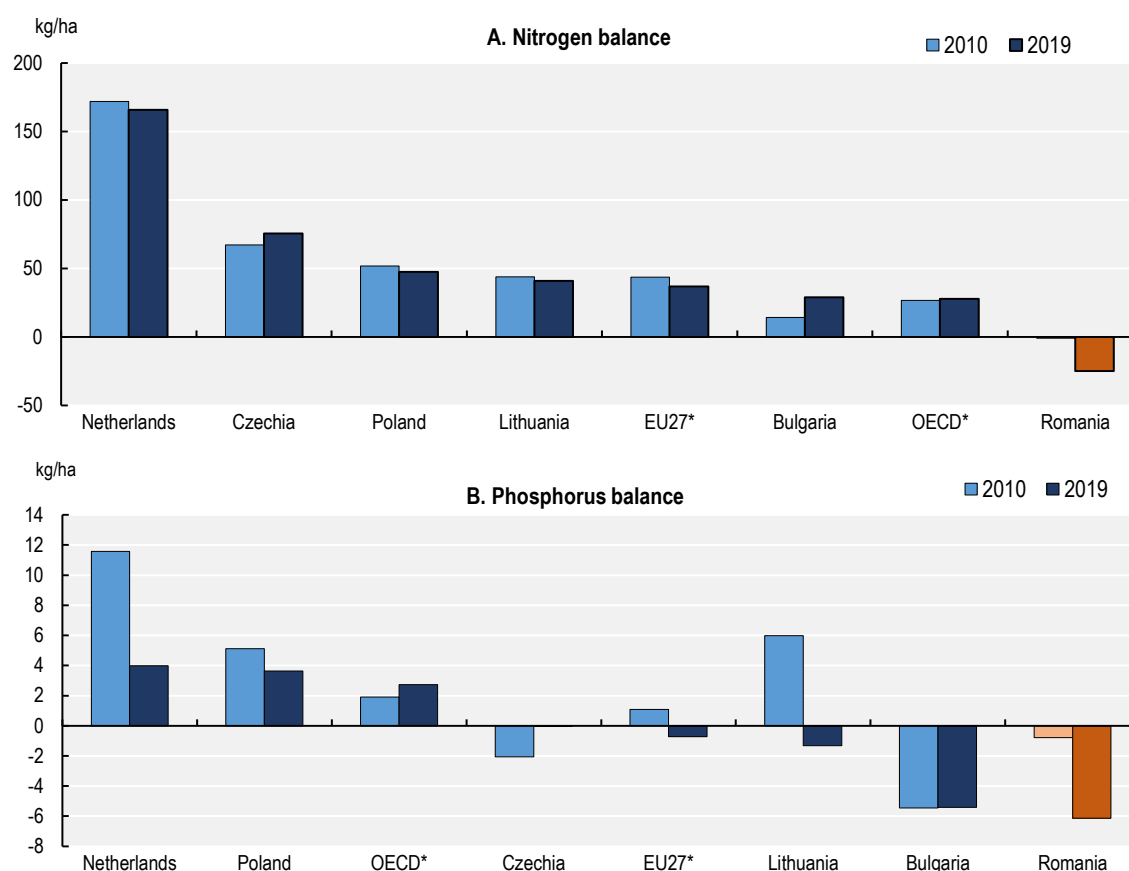
Note: *EU27 extended series (benchmark) is based on 16 EU Member states with data available for the full period: Austria, Bulgaria, Croatia, Czechia, Germany, Finland, France, Latvia, Lithuania, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia and Sweden. These represent around 67% of the nitrogen input, and 65% of the applied synthetic phosphorus in the EU.

Source: OECD Agri-environmental indicators.

Nutrient balances in Romania are negative

The nutrient balances (kg/ha of agricultural land) for both nitrogen and phosphorus have been negative in both 2010 and 2019 (see Figure 3.8). For both nutrients the deficit has increased so that for nitrogen deficit was -25 kg/ha and for phosphorus it was -6 kg/ha in 2019. Given the negative nutrient balances environmental pressures from nutrient use with respect to water quality, emissions to air and climate change can be considered very low, but soil fertility can worsen in the long run.

Figure 3.8. Nutrient balances in Romania and in other selected regions



Note: The EU benchmark is calculated based on 16 EU Member states with data available for the full period: Austria, Bulgaria, Croatia, Czechia, Germany, Finland, France, Latvia, Lithuania, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia and Sweden. These represent around 67% of the nitrogen input, and 65% of the applied synthetic phosphorus in the EU.

Source: OECD Agri-environmental indicators.

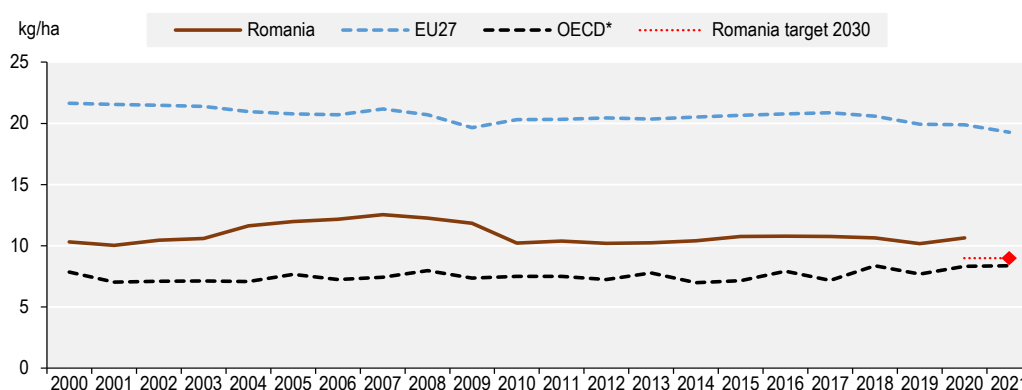
3.2.5. Ammonia emissions

Ammonia emissions intensity is among the lowest in the European Union, but higher than the target required by National Reduction Commitments Directive

The total ammonia emissions from agriculture in Romania have been relatively stable since 2010 (around 145 kilotonnes). The relative contribution of agricultural ammonia emissions, about 85% of total national emissions in 2015 is among the lowest in the European Union (Eurostat, 2018^[36]). Also, emission intensity, about 11 kg of ammonia emissions per hectare of UAA in 2020 is among the lowest in the European Union, but higher than the OECD average (Figure 3.9).

Despite low ammonia emissions intensity of agriculture in Romania, there is a risk of non-compliance with their National Emission Reduction Commitments Directive (NECD) emission reductions for ammonia: reduction of 13% by 2020 and 25% by 2030 as compared with the 2005 levels, but according to the national inventory reported in March 2024 has recently fulfilled the commitment of reducing emissions by 13% compared to 2005. Target reduction of 25% would require that ammonia emissions intensity would be 8.9 kg/ha by 2030 (Figure 3.9). In 2018 the share of livestock sector from ammonia emissions was about 69%, while crop production represented 31% of agricultural emissions (EEA, 2022^[37]).

Figure 3.9. Agricultural ammonia (NH₃) emissions intensity (kg/ha) in Romania and selected regions



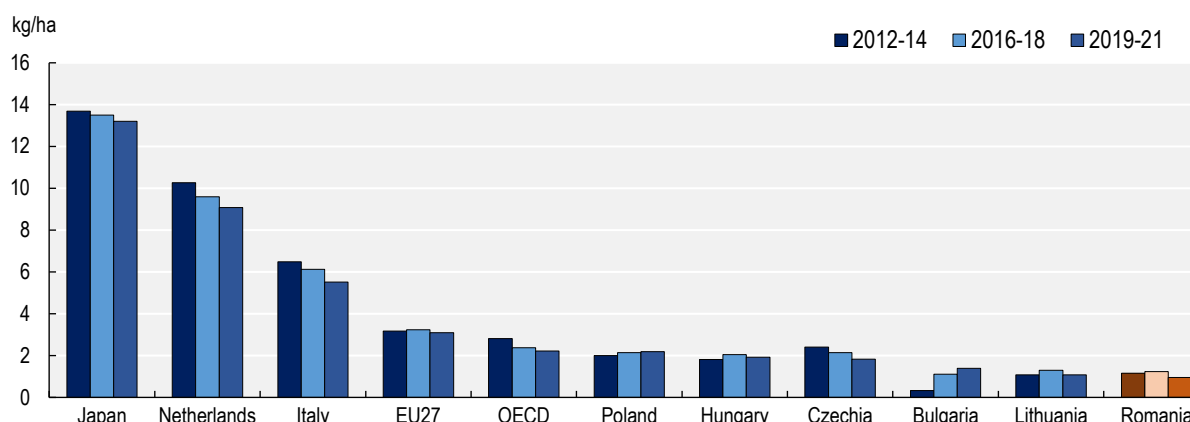
Note: * OECD average here excludes Chile, Colombia, Costa Rica, Japan, Mexico and New Zealand due to data gaps. The red level marked in 2021 correspond to the EU maximum ceiling set for the country as from 2030.

Source : OECD Agri-environmental indicators.

3.2.6. Plant pests and diseases control

Pesticide use is low and has decreased over the past decade

Pesticide use (active ingredients per ha of cropland) is low compared with EU27 and OECD averages (Figure 3.10). Pesticide sales have decreased over the past decade in Romania slightly faster than in the rest of the EU27 and on average in the OECD. The purchases in 2019-21, at 1.0 kg of active substance per hectare, were 22% below their 2016-18 level. This is also 57% below the average OECD level, and 69% below the average observed level in the EU27. Pesticides sold Romania in 2021 were mainly herbicides (47%), fungicides (47%) and insecticides (6%).

Figure 3.10. Pesticide sales per area of arable land in Romania and selected regions

Source: OECD Agri-environmental indicators.

3.3. Water management policies

3.3.1. Water availability for agriculture

Current water withdrawals below international benchmark, but climate change increases demand of water for irrigation

Water availability in Romania is about 2 000 cubic meters per capita per year, which is slightly above the international threshold for water stress (1 700 m³) and more than twice below the European Union's average water availability of 4 500 m³ (World Bank, 2023^[38]). Although water withdrawals are below the international benchmark for pressure on available water resources, climate change – through decreased river runoff – is increasing the gap between demand and supply of water. Water availability for agriculture will be reduced during the primary growing season, while demand for irrigation will be higher due to rising temperature and decreasing and more variable precipitation (World Bank, 2016^[39]). Some river basins are water scarce (for example, Dobrogea-Litoral, Prut, Vedeia and Banat Rivers), and worsened by climate change.

Climate and adaptation modelling analysis conducted in (World Bank, 2016^[39]) shows that improved and increased irrigation would provide substantial crop yield benefits through removing water stress. Thus, moving from rainfed to irrigated agricultural land would increase resilience to climate change driven impacts. Without irrigation some of the crops could experience up to 35% yield reductions, especially in the southern part of Romania. A transition to irrigated agriculture would require robust water demand management practices, which could build on the Water Use Plans issued by Romanian Waters.

3.3.2. Water quality and agriculture

Agriculture is the second most important source of pressure on water quality

Based on the National Management Plan updated in 2021, approved by the G.D. 392/2023, 66% of all surface water bodies reach good ecological status and/or good ecological potential and 98% have good chemical status in Romania. In the case of groundwater bodies, 8% failed to achieve good chemical status but 100% are in good quantitative status (WISE, 2020^[40]). Regarding the Water Framework Directive, the assessment report for Romania shows that the Programme of Measures included 13 343 planned measures for the period 2016 to 2021, and 4 822 measures (which corresponds to 36% of total measures)

were planned to be implemented up to 2018. However, only 60% out of the latter planned measures were implemented by 2018 (EC, 2022^[5]). The highest percentage of measures implemented were measures tackling pressures from agricultural activities.

Although nitrogen and phosphorus surpluses are negative in Romania, diffuse source pollution from agriculture is the second most significant pressure on water bodies. Nutrient and organic pollution has the highest impacts on surface water bodies and chemical (nitrates) pollution has the highest impact on groundwater bodies. Nitrate was the top pollutant causing failure of good chemical status (EC, 2020^[1]). Under the 2014-22 RDP, in 2016 about 12% of agricultural land in Romania was under the contracts to improve water management.

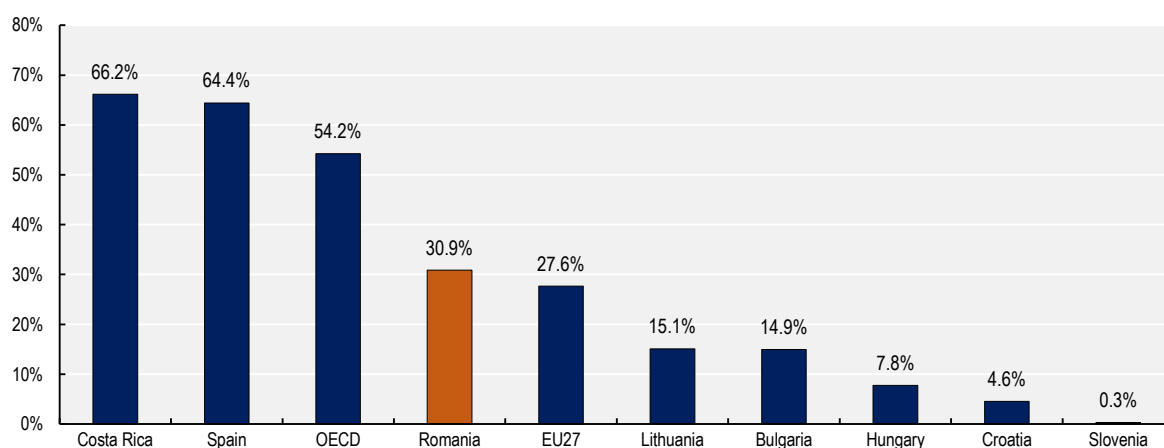
3.3.3. Water abstractions for agriculture

On-farm irrigation systems require modernisation

In Romania, the share of water abstraction for agriculture is 30.9% (Figure 3.11) and other main users of freshwater are public water supply, electricity cooling, and manufacturing. Romania uses a register to control water abstractions, although small abstractions do not require permits in Romania and not all are registered (EEA, 2022^[41]). According to the Water Exploitation Index plus (WEI+),² which measures total freshwater use as a percentage of the renewable freshwater resources, Romania's WEI+ was 4.4% (EU27 8.9%) in 2017 indicating conditions of low water scarcity (EEA, 2022^[41]).

The share of irrigable agricultural areas in Romania has increased since 2010 reaching 1.9% of the total utilised agricultural area in 2016. Similarly, there is an increase in the volume of water used for agriculture for irrigation purposes (2012: 371 million m³; 2017: 440 million m³) (EC, 2022^[42]). However, reliable data for water use in agriculture is very difficult to obtain since many farmers use water from streams, wells and ponds. Moreover, deteriorating irrigation infrastructure contributes to water losses.

Figure 3.11. Share of freshwater abstraction for agriculture in Romania and selected regions in 2020



Note: For OECD countries not reporting data for 2020, closest year was used to estimate the average.

Source: European Environmental Agency (for EU countries) and OECD Stat.

Increasing rainfall variability due to climate change will affect non-irrigated agriculture, which constitutes the majority of Romania's agricultural production, and elevate the need for rehabilitation of existing irrigation systems and investment in green irrigation infrastructure. This is particularly important in vulnerable areas like in the south, south-east and east, where climate models predict drought will be most

frequent and the most severe (World Bank, 2023^[38]). The Irrigation Strategy calls for the rehabilitation and expansion of the irrigation infrastructure to reach 2.87 million ha with functional infrastructure, including development of 123 500 ha of new gravity fed irrigation. Currently, gravity supplied schemes (about 250 000 ha) are less than 15% utilised, which is the main hurdle to fighting drought and addressing weather-variability of yields (World Bank, 2023^[38]).

Under the 2023-27 CSP, the government has allocated EUR 400 million for the modernisation of existing on-farm irrigation infrastructure and EUR 85 million for the establishment of new, small irrigation systems at the farm level. To support these investments in irrigation, the adoption of agricultural practices that conserve soil moisture will be essential to enhance the overall productivity of water management, reducing water requirements and increasing water productivity in both rainfed and irrigated conditions.

3.4. Climate change mitigation efforts

3.4.1. GHG emissions from agriculture

GHG emissions from agriculture have decreased significantly, but the share of agriculture of total emissions has increased

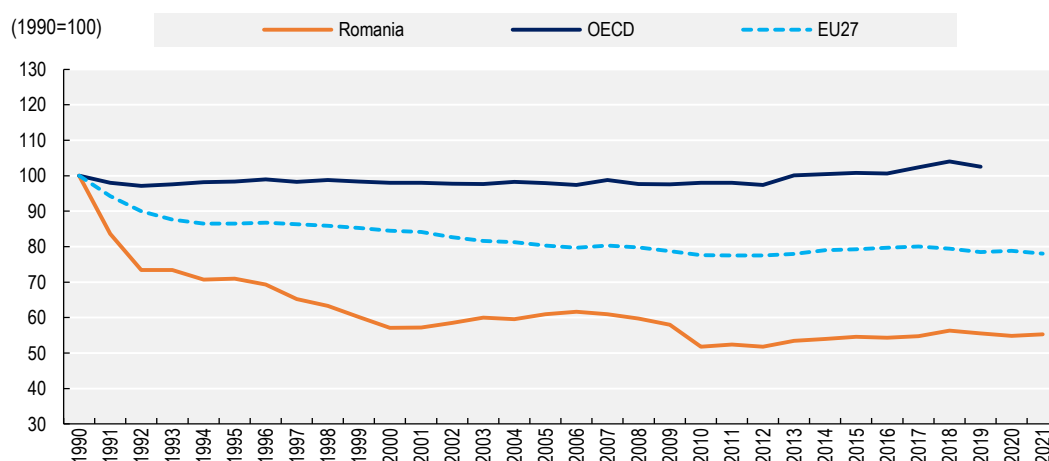
Romania's total greenhouse gas (GHG) emissions have considerably decreased compared to 1990. Economy-wide GHG emissions decreased by 59% between 1990 and 2020. Emissions per capita are lower than the EU average. However, Romania's emission intensity (0.61 kg CO₂-eq/EUR of value-added) is almost 2.5 times higher than the EU27 average, because the production of goods and services in Romania remains very carbon and energy intensive (EC, 2022^[4]).

GHG emissions from agriculture have been trending downwards, associated with the economic decline of agriculture since 1989, including reduced animal numbers and decreased use of mineral fertilisers. However, GHG emissions from manure storage and land application are still high in Romania due to inadequate storage facilities and outdated equipment used for manure land application. To maintain a low level of GHG emissions from agriculture, it is necessary to support farmers to keep the soil covered, to use land management techniques that help to keep carbon in the soil, to use precision agriculture, as well as to build storage facilities and use of modern equipment for manure application.

In 2018, agricultural GHG emissions (including cropland and grassland) amounted to 17.5 million tonnes of CO₂ equivalent, representing 3.9% of the total EU GHG emissions from agriculture. The total emissions of GHG from agriculture decreased between 1990 and 2021 by 44.7% (-21.9% in EU27) (Figure 3.12). The share of agriculture in the total net emissions increased from 17% in 2009 to 19% in 2017, compared with 10% of the total GHG emissions at the EU level. In 2016, the emissions of methane (CH₄) and nitrous oxide (N₂O) per hectare of UAA were at 1.29 kilotonnes CO₂ equivalent/1 000 ha, being among the lowest in the EU27 (EC, 2020^[1]).

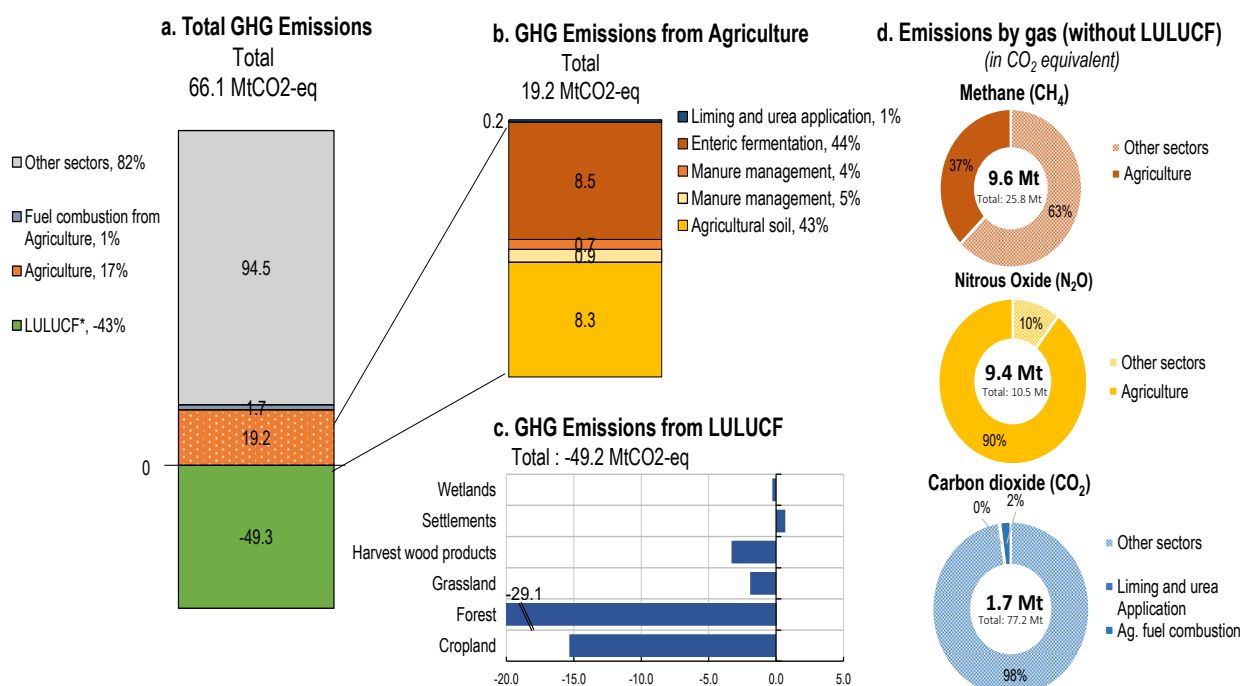
In 2018, the main source of agricultural GHG emissions was enteric fermentation accounting for 54.6%, compared to an EU average of 43.8%, followed by agricultural soils (with 32.7%, lower than the EU average of 38.4%) and by manure management (13.7%) which is close to the EU average (14.2%) (EC, 2020^[1]). Figure 3.13 provides a snapshot of total GHG emissions in Romania in 2021.

Figure 3.12. Relative change in GHG emissions from agriculture in Romania and selected regions



Source: OECD Stat.

Figure 3.13. Total and AFOLU GHG emissions in Romania in 2021



Note: Agricultural GHG emissions by gas and source. Unit measure: Million tonnes of CO₂ equivalent. Fuel combustion for agriculture/forestry/fishing comes from UNFCCC. The sources considered are Stationary, Off-road vehicles and other Machinery, and Fishing. For circular graphs, the number in the centre of the circles represent the total emissions from the corresponding gas coming from agriculture and fuel combustion for the case of carbon dioxide (CO₂), while the small one represents total GHG emissions (without LULUCF).

Source: OECD Stat (2024) Agri-environmental indicators for AFOLU emissions, OECD GHG emission database, for total and sectoral emissions and UNFCCC (2024) for fossil fuel emissions from agriculture, fisheries and forestry.

3.4.2. Climate mitigation measures in agriculture

Climate change mitigation commitments

Romania has an integrated National Energy and Climate Plan (NECP) for 2021-30. The work builds on long-term energy and climate plans. Under EU legislation, Romania has a target of limiting the increase of GHG emissions in the non-ETS sectors (buildings, road and domestic maritime transport, agriculture, waste, and small industries) to +19% by 2020 and reducing emissions by 2% by 2030 compared to 2005 levels (EC, 2022^[4]).

In the Land Use, Land Use Change and Forestry (LULUCF) sector, Romania is projected to see decreasing net removals by 2030. Reported quantities under the Kyoto Protocol for LULUCF sector in Romania show net removals of -32.2 MtCO₂-eq on average for the period 2013 to 2019. With this, Romania accounts for 9.3% of the annual average sink of -344.9 MtCO₂-eq of the EU27. Accounting for the same period depicts net credits of -6.3 Mt CO₂-eq on average, which corresponds to 5.4% of the EU27 accounted sink of -115.0 MtCO₂-eq (EC, 2022^[4]).

The total production of renewable energy from agriculture and forestry reached 3 632 kToe in 2018, representing 61% of the total Romanian renewable energy production, which is a higher proportion than in the European Union on average. Forestry is the main contributor with more than 50% of the Romanian renewable energy production. Romania is 0.1 percentage point away from its national 2020 objective regarding the share of renewable energy in gross energy final consumption (EC, 2020^[1]).

Programmes and measures recently adopted

In November 2023, Romania approved the long-term strategy (LTS) for reducing GHG emissions (Government of Romania, 2023^[43]). Romania's LTS includes the target to become climate neutral in 2050, reaching 99% net emission reduction in 2050, compared to the 1990 level. According to the strategy, in agriculture and LULUCF sector emissions will be reduced by applying the following measures:

- Emissions from enteric fermentation will be reduced by introducing a proper diet.
- Agricultural residues will no longer be burnt on the agricultural lands starting in 2030.
- Reduction in the use of inorganic fertilisers.
- In order to reduce the emissions from the manure management, CH₄ recovery is envisioned. The amount of CH₄ emissions recovered will be used as biogas. At the same time, methane capture will lead to manure management emission reduction.
- The share of solar energy will be increased to 15% in 2050, while diesel consumption will be reduced to zero in agriculture.
- Regarding LULUCF, it is assumed that the annual average forest burnt area by 2050 will be equal to the average forest burnt area during 2010-19.

In addition to the National Recovery and Resilience Plan (NRRP) (see Chapter 2), Romania has created other legal, policy and institutional frameworks for implementing climate action aimed at achieving its targets under international commitments. As for agriculture, the LTS acknowledges the key role of the CSP 2023-27 to support the farming sector to reduce GHG emissions. The main types of interventions that adequately respond to national objectives, included in the LTS are:

- Supporting investments in the livestock sector that include new investments and/or modernisation of livestock farms, namely investments in equipment, adaptation to standards, connections to utilities, procurement of equipment and building modern facilities, for the proper manure management including manure and sewage sludge storage and application, procuring employed for reducing GHG and ammonia footprint, as well as technologies that contribute to a low-carbon economy, etc.

- Investments in the agri-food sector (vegetables, potatoes, fruit trees, table grapes, flowers, aromatic, medicinal and ornamental plants) to produce energy from renewable sources (solar, wind, geothermal, aerothermal, hydrothermal, etc.) and use it exclusively for self-consumption purposes.
- Investments made in small farms will contribute to implementing proper manure management and obtaining organic fertilisers from the utilisation of biomass.
- Regarding the investments carried out by young established and recently established farmers, actions that contribute to reducing GHG emissions, acquisition of organic fertilisers, production and use of renewable energy from the utilisation of biomass.
- Non-productive investments carried out at the farm level, such as planting forest protection curtains, will also contribute to mitigating and adapting to climate change, by reducing GHG emissions and improving carbon capture and sequestration.

3.5. Climate change impacts and adaptation efforts

3.5.1. Climate change impacts on Romanian agriculture

Overall, the agricultural sector appears highly vulnerable to the impacts of climate change and it is expected that many rural areas will be increasingly affected by the changing climatic conditions. However, there are regional differences in the likelihood of negative impacts such as drought and extreme rainfall events, as well as differences in the vulnerability, resilience and adaptive capacity of different rural areas and farmers to climate change. These differences are further heightened by the vast duality in farm size and structure, which are characteristic of the agricultural sector in Romania (EC and EEA, 2023^[44]).

Romania is already increasingly encountering the negative impacts of climate change (including extreme events) and the modelling of future climate trends suggests that these negative impacts will continue to become more severe. These impacts include: (i) increased incidence of severe flooding with the associated social and economic disruption and costs; (ii) increased frequency and intensity of drought; (iii) increased risk of soil erosion by wind and water; (iv) risk of desertification and associated land degradation, notably in southern and eastern Romania; and (v) reduced agricultural productivity. Overall, the possible consequences of climate change will increase significantly the risk of natural disasters in the agricultural sector. Depending on the duration and severity of the extreme weather events, the negative effects could also contribute at the reduction of the financial security for farmers in many regions, especially in the south and southeast of the country (EC and EEA, 2023^[44]).

Since the 1980s the incidence of extreme drought has steadily increased and since 2000 there have been six growing seasons with large rainfall deficits which significantly diminished crop yields. Significant droughts occurred in both 2007 and 2012. In 2007, the gross added value of the agricultural sector decreased by 15.3%, while in 2012, the decrease reached 21.2%. Droughts occurring during the period of 2007-13, have reduced Romania's production per hectare by over 50%. Crops most impacted by droughts include maize, wheat, barley, potatoes, sunflower, and rape (World Bank, 2018^[45]).

Flooding has also significantly impacted Romanian agriculture and has increased in the last few decades. Flood events between 2005 and 2010 caused damages estimated at EUR 6 billion, with 142 people killed, and 27 000 homes damaged. Flooding in the Timis region in April 2005 covered about 100 000 ha and suspended agricultural production for the rest of the year. The same year, the Siret River flooded 40 000 ha, while the Danube flooding in 2006 covered about 30 000 ha (World Bank, 2018^[45]).

3.5.2. Adaptation strategies

Investments in irrigation and the adoption of conservation agriculture practices are important adaptation strategies for the Romanian agricultural sector. Increasing rainfall variability will threaten non-irrigated agriculture and elevate the need for rehabilitation of existing irrigation schemes and investment in green irrigation infrastructure (World Bank, 2023^[38]). This is particularly important in most vulnerable areas, such as the south, south-east and east of Romania, where droughts are predicted to be the most frequent and severe. The updated Irrigation Strategy calls for the rehabilitation and expansion of the irrigation infrastructure to reach 2.87 million ha with functional infrastructure, including development of 123 500 ha of new gravity fed irrigation (World Bank, 2023^[38]).

The National Strategy for Rehabilitation and Expansion of Irrigation Infrastructure (MARD, 2019^[46]) is a multi-sectoral policy document, supporting and complementing the measures previously adopted in the agricultural sector on adapting to climate change and reducing its effects, as well as measures taken to increase energy efficiency through application of irrigation. The general objective of this strategy is to increase the irrigated agricultural areas to capitalise the agricultural potential of high fertility land subject to the effects of drought, especially in the south and east of Romania. The specific objectives set out in the strategy include both the completion of the rehabilitation of the main irrigation infrastructures, but also the development of new irrigation systems.

Less than 1% of Romanian farmers have adopted EU CAP risk management tools and those that do are large farms. The most vulnerable producers – the small farms – do not take out insurance either due to a lack of knowledge about them or lack of ability to pay for the premiums. With risks increasing under climate change, development of risk management products and strategies and skills suitable for and attractive to small farmers is essential. The current CSP has prioritised the creation of a risk management instrument to complement the agricultural insurance system and ensure the compensation of all farmers for losses due to climatic and environmental effects (World Bank, 2023^[38]).

3.6. Forest lost/deforestation situation and policies

Romania's forests cover about 30% of the country's territory. Annual forest cuttings have been 13-15 million m³, which is less than the annual allowable cut approved by the government. The forestry sector's contribution to the GDP is about 4.5% and it employs about 28 000 people. Forestry sector exports have exceeded USD 1 billion per year (FAO, 2003^[47]). The share of protected forests increased from 42% to 52% in the period 1990-2003. The Romanian Network of Protected Areas covers 5.2% of the country's area, most of which consist mainly of forest (FAO, 2003^[47]). In Romania, forest cover accounts for 29% of the land, while the government's target is 40% (Government of Romania, 2022^[6]).

Of the 106 specific forest habitats about 73% have a high and very high conservation value and only 5% a low conservation value. However, more than 40% of the assessments reveal a bad to poor conservation status for forest habitats (EC, 2021^[32]). A negative impact on forest health and management is also the result of the changes of ownership occurring in the country since 1989 (Scriban et al., 2019^[48]).

Although Romania has a management framework for the sustainable management of the forests, the intensive nature of some applied silvicultural practices and the large number of interventions, create the premise for negatively affecting biological diversity. In fact, the European Commission launched in July 2020 an infringement procedure against Romania for systemic breaches of the EU environmental law in relation to forestry activities, because the Commission found that Romania had failed to carry out efficient and adequate checks to verify operators' compliance with the obligations imposed by the Timber Regulation and to apply appropriate penalties (EC, 2022^[4]). Furthermore, forest management plans have been adopted and implemented prior to the completion of the assessments required under the Habitats Directive and Strategic Environmental Assessment Directive (EC, 2022^[4]).

The National Recovery and Resilience Plan (NRRP) (Government of Romania, 2022^[6]) is considered a strategic tool to restore forests that have been degraded mainly due to illegal logging and climate change. The plan includes restoration and afforestation measures, combined with actions to improve forest health and adapt to climate change.

The Romanian Government is addressing illegal logging with several measures:

- Establishment of a National Forest Guard with nine regional Forest Guards, which work closely with the police and gendarmerie.
- Development in 2014 of the Integrated National Information System for Tracking Wood (SUMAL), which has been upgraded several times, most recently in 2021.
- Introduction in 2016 of the Forest Inspector mobile app, which is linked to SUMAL and allows civil society to monitor logging and timber transportation and report illegal activities.
- Revisions to the Forest Act in 2020 that tighten restrictions on forestry and increase sanctions for illegal activities.
- Ongoing procurement of satellite data to support monitoring and evaluation.
- Allocating EUR 46 million from the Recovery and Resilience Fund to digitalisation of environmental protection, including strengthening the timber tracking system.
- A draft Forest Habitat Restoration Plan has been developed to improve the status of degraded forests habitats, and these restoration activities have begun.

3.7. Moving towards an energy-efficient and low-carbon economy

Under EU Effort Sharing Legislation, Romania has a target of limiting the increase of GHG emissions in the non-ETS sectors (buildings, road and domestic maritime transport, agriculture, waste, and small industries) to +19% by 2020 and reducing emissions by 2% by 2030 compared to 2005 levels (EC, 2022^[4]). The same reduction target of -2% for 2030 is reflected in Romania's National Energy and Climate Plan.

Romania is on track to become “fit for 55”, that is reducing its absolute emissions by 55% (relative to 1990) by 2030, which is consistent with the European Green Deal. Carbon-neutrality target by 2050, however requires increased decarbonisation path for transport and building sectors that are projected to increase Romania's carbon footprint over time (Panton, 2023^[49]).

Decarbonisation of emission intensive sectors in Romania, such as transport, electricity, and buildings are expected to require significant investments that may amount to over 3% of cumulative GDP by 2050 (World Bank, 2023^[38]).

3.8. Conclusions

The environmental performance of agriculture in Romania is generally positive: 95% of the grassland habitat types have favourable conservation status, nitrogen and phosphorus surpluses are below the EU average and water resources are generally in good condition. However, ongoing and future structural changes in the sector could create additional pressures on natural resources, particularly concerning water quality, biodiversity, and greenhouse gas (GHG) emissions. Romania is recognised as one of the most biologically diverse countries within the European Union, with numerous habitats enjoying favourable conservation status.

Environmental policies in Romania are primarily shaped by EU directives and regulations, which are usually implemented in time. Romania has aligned its agri-environmental policies with the broader framework established by the EU CAP since 2007. Under the new 2023-27 CAP Strategic Plan (CSP),

Romania has allocated the minimum compulsory 25% of direct payments to six eco-schemes, which focus on soil conservation, biodiversity, and animal welfare. Notably, two-thirds of these funds are directed toward a specific eco-scheme that promotes environmentally beneficial practices on arable land.

Despite Romania having the seventh largest area under organic production within the European Union, the proportion of organically farmed land remains relatively low (less than 4%) compared with the OECD and the EU27 average. Romania's CSP for CAP 2023-27 aims to enhance water quality, soil fertility, GHG emission reductions, and biodiversity through compensation payments to organic farmers. The country has also set a national target through the National Plan for the Development of Organic Production to expand organic agriculture to 6% of its total land area by 2030.

Agricultural GHG emissions in Romania have risen, from 17% of total emissions in 2009 to 19% in 2017. Romania's long-term strategy (LTS) for reducing GHG emissions identifies the CSP 2023-27 as crucial in supporting agricultural emission reductions. GHG emissions from manure storage and land application are still high in Romania due to inadequate storage facilities and outdated equipment used for manure land application. To maintain a low level of GHG emissions from agriculture, it is necessary to give incentives to farmers to keep the soil covered, to use land management techniques that help to keep carbon in the soil, to use precision agriculture, as well as to build storage facilities and use of modern equipment for manure application.

Water resources in Romania are currently in good condition, but future challenges loom due to climate change and the intensification of agricultural production, which may heighten the risk of nitrate pollution. The transition to irrigated agriculture needs more effective water management strategies.

High nature value (HNV) farming plays a vital role in sustaining biodiversity within Romanian landscapes, particularly in preserving species-rich semi-natural grasslands. However, maintaining the biodiversity associated with agricultural landscapes is challenging. Therefore, it is necessary to encourage the maintenance or adoption of agricultural practices aimed at the maintenance of HNV areas and the protection of priority species, but also of common species and the habitats of these species.

Challenges remain in mainstreaming biodiversity, particularly in the implementation of policies and enforcement of laws. More than 40% of forest habitats are in poor conservation status. However, Romania has taken important steps to address illegal logging, and efforts are ongoing. Key measures include, among others, the establishment of a National Forest Guard, revisions to the Forest Act in 2020 that tighten restrictions on forestry and increase sanctions for illegal activities and ongoing procurement of satellite data to support monitoring and evaluation. Additionally, a draft Forest Habitat Restoration Plan has been developed to improve the status of degraded forests habitats.

Adaptation strategies, including investments in irrigation and conservation agriculture, are critical for Romania's agricultural sector. The National Strategy for Rehabilitation and Expansion of Irrigation Infrastructure aims to increase the irrigated agricultural areas, especially in the south and east of Romania. Currently, less than 1% of Romanian farmers utilise EU CAP risk management tools, and those who do are typically large farms, leaving small and vulnerable farmers exposed. As climate change escalates risks, developing tailored risk management strategies for small farmers will be essential.

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Notes

¹ This ring-fencing requirement is not solely linked to environmental and climate interventions, but also takes into account the financial allocations to areas with specific disadvantages, Areas with Natural Constraints (50%), and investment support allocated for these purposes.

² The Water Exploitation Index plus (WEI+) is a measure of total fresh water use as a percentage of the renewable freshwater resources (groundwater and surface water) and quantifies how much water is abstracted and how much water is returned after use to the environment.

4 Agriculture innovation system

Romania's agriculture innovation system performance remains below that than in peer countries and the system suffers from fragmentation and strong regional disparities. While agricultural innovation has gained visibility in recent policy documents, prioritising implementation remains challenging. This chapter examines Romania's Agricultural Knowledge and Innovation System (AKIS), focusing on the key actors, institutions, governance arrangements, and funding sources. The chapter examines research and development performance, discusses policies that facilitate innovation and knowledge transfer, and showcases projects contributing to agricultural sustainability through innovation.

Key messages

- Romania's overall innovation system displays a low performance and significant regional disparities compared to peer countries. While agricultural innovation is gaining traction in strategic plans and policies, their implementation remains challenging.
- The Agricultural Knowledge and Innovation System (AKIS) in Romania is generally weak and fragmented, with limited co-operation between the different AKIS actors. Romania's Common Agricultural Policy (CAP) Strategic Plan 2023-27 and other EU-level initiatives offer an opportunity to strengthen co-operation and knowledge flows for the benefit of agricultural innovation.
- Agricultural knowledge and innovation are primarily financed through public expenditures, but these investments are relatively limited compared to the needs of the sector, notably in areas such as farm advisory services and research and development.
- Romania's AKIS relies heavily on the EU funding and instruments, but low levels of uptake of CAP measures supporting innovation suggests a limited capacity of the sector to absorb innovation funding.
- Romania's farmers have the lowest level of education in the European Union, with only 5% having completed agricultural secondary or tertiary education. This poses a significant challenge for the future of the agricultural sector and suggests significant scope for agricultural counselling.
- Farm advisory services are unable to meet the diverse needs of farmers to facilitate the transformation of the sector. Despite some recent initiatives, such as investments in the modernisation of agricultural schools and the upgrade of their practical and IT laboratories, addressing the existing gaps in agricultural training and education remains challenging.
- Romania has made notable progress in connectivity, significantly closing the broadband access gap between rural and urban areas. However, the low level of digital literacy may hinder the development and adoption of agricultural innovations.

4.1. Introduction

Agricultural innovation serves as a crucial tool in addressing the multifaceted challenges and opportunities encountered by the sector. It not only drives productivity growth through the adoption of more efficient tools and processes, but also enhances environmental sustainability by introducing novel techniques and technologies to mitigate the negative impacts of certain farming practices.

In this context, the Agricultural Knowledge and Innovation System (AKIS), which links all relevant actors, resource flows, and institutions in this area, constitutes a cornerstone in fostering the generation of relevant research and developments (R&D), facilitating knowledge flows among stakeholders, and enabling the diffusion of innovative practices and technologies.

This chapter analyses the Romanian agricultural innovation system. Section 4.2 provides a snapshot of the main characteristics of the country's innovation system and outlines the main strategies defining the framework. Section 4.3 presents the main AKIS actors and institutions, as well as funding sources for innovation activities. Section 4.4 discusses policies that facilitate innovation and knowledge transfer, while Section 4.5 looks at R&D performance and showcases examples of innovation for agricultural sustainability. Finally, Section 4.6 provides conclusions.

4.2. General innovation system

4.2.1. Performance of the Romanian innovation system

Romania's innovation system exhibits relatively low performance and significant regional disparities

The Romanian innovation system comprises four types of research and development (R&D) institutions: national institutes; research units of the Romanian Academy; branch academies of the different ministries; and higher education research institutions. These institutions operate with a certain degree of autonomy, each with its own funding mechanisms, and oversight from different ministries.

The report of the Horizon Policy Support Facility (EC, 2022^[1]) identified several areas where improvements could enhance Romania's R&D performance. Institutional instability and fragmentation, along with unpredictable funding, pose significant challenges for research and innovation, leading to a weak public science base. Additionally, working conditions vary greatly between different institutions and the system struggles to attract and retain young researchers. Moreover, despite some progress, the operationalisation of the governance framework of research, development and innovation (R&D&I) strategies remains weak, negatively influencing the elaboration and implementation of R&D&I policies (EC, 2021^[2]). Currently, reforms are underway to reduce the fragmentation of the national R&D system by merging research institutions.

The Romanian innovation system is rated among low performers with regional disparities though with a positive perspective. In terms of innovation capacities measured by the Global Innovation Index (GII), Romania ranked 49th among the 132 economies featured in 2022, and 31st among the 39 European economies (WIPO, 2022^[3]). The European Innovation Scoreboard categorises Romania as an “emerging innovator”,¹ with an overall innovation index (35.9) ranking it at the bottom of the EU in 2023 (EC, 2023^[4]). Moreover, Romania's innovation performance is advancing at a slower pace than the EU average, further exacerbating the gap with other European countries (EC, 2023^[5]). According to the Regional Innovation Scoreboard (EC, 2023^[6]), all eight Romanian development regions are “emerging innovators”. However, regional disparities are notable, with the best-performing region, Bucuresti – Ilfov (RO32), scoring more than three times higher than the lowest-performing region, Sud-Est (RO22).

4.2.2. Policy approach and framework: National and regional strategies

The National Strategy for Research, Innovation and Smart Specialisation 2021-2027 (SNCISI) outlines a broad vision for innovation and digitalisation with limited focus on agriculture. Innovation in agricultural is shaped by the Romania's Strategy for Research and Development and Innovation in Agriculture and Rural Development 2014-20, and by Romania's CAP Strategic Plan (CSP) for 2023-27 (see Chapter 2), which specifically targets agriculture and includes elements relevant to enhancing knowledge and innovation within the sector.

Bioeconomy and digital economy are at the heart of the National Strategy for Research, Innovation and Smart Specialisation

The **National Strategy for Research, Innovation and Smart Specialisation 2021-2027 (SNCISI)** is a comprehensive policy document crafted by the Ministry of Research, Innovation and Digitisation (MRID) and adopted by the Romanian Government in 2022 through Government Decision no. 933/2022. This strategy provides a long-term vision for the overall innovation system in Romania, superseding the previous National Research, Development and Innovation Strategy 2014-2020 (SNCDI). Structured around four overarching objectives, the SNCISI aims to advance the R&D&I system; foster innovation ecosystems associated with smart specialisations; mobilise resources towards innovation; and intensify

collaboration at European and international level. Each general objective corresponds to several specific goals, as well as actions and expected impacts. The SNCISI incorporates also regional smart specialisation strategies (S3s), with the overall objective of building competitive advantage and preparedness by aligning research strengths with business demands, as well as promoting an innovative economic transformation and regional connectivity through Information and Communication Technology (ICT) (Guvernul României, 2022^[7]).

In addition to providing a global vision for the broader innovation ecosystem, the SNCISI also delineates specific focus areas. The Strategic Research Agenda laid out in this document encompasses critical domains such as “Food, bioeconomy, natural resources, biodiversity, agriculture and environment” alongside “Digitisation, industry and space”. Both National and Regional Smart Specialisations Strategies incorporate elements pertinent to the agricultural sector, with areas for smart specialisation determined through entrepreneurial discovery process and online exploratory consultations.

At the national level, the SNCISI identifies “bioeconomy” and “digital economy” among its seven target areas for smart specialisation, highlighting their significant potential for economic and social spillovers and potential significant benefits from intranational collaboration. While the “bioeconomy” encompasses agriculture-related domains like breeding of seeds and breeds; technologies for organic farming, agro-ecology and forestry; and agriculture 4.0, as well as safe and sustainable food for a healthy diet; the “digital economy” focuses rather on enabling technologies, such as applications based on intelligent sensor networks, traceability enabling technologies or cognitive robotics.

At the regional level, smart specialisation areas were tailored to local needs. All eight development regions referred in their strategies to agriculture or food:

- The North-east Region intends to create and transfer systematic, sustainable innovation with societal benefits in the key areas, including the agro-food and wood industry.
- The Bucharest-Ilfov Region prioritises digital monitoring and control solutions for environmental and agricultural purposes.
- The South-Muntenia Region recognises precision agriculture and functional food (new healthy and nutritionally enriched food products) as important niches.
- The West Region identifies various aspects of agro-food industry, including biotechnology, crop and animal breeding, biosecurity and variety certification, processing of local and value-added products, as well as biofuel production (Guvernul României, 2022^[7]; MARD, 2023^[8]).

The implementation of SNCISI is carried out through plans and programmes at national and regional level, with a wide range of ministries involved in this process (Section 4.3.2). Key implementation instruments include: the National Research, Development and Innovation Plan IV (PNCDI IV); sector-specific R&I plans developed by other ministries; and the R&D Plan of the Romanian Academy and its branches. Additionally, several programmes funded under the EU Cohesion Policy for the periods 2014-22, and 2023-27, such as the Smart Growth, Digitalization and Financial Instruments programme (POCIDIF), Regional Operational Programmes, and the National Recovery and Resilience Plan, contribute significantly to financing Romanian R&I initiatives (Section 4.3.6).

Agricultural innovation is gaining prominence in strategic plans and policies, but operationalisation remains challenging

Romania endeavoured to incorporate innovation aspects into their Rural Development Programmes (RDPs) for both 2007-13 and 2014-22. However, as analysed in the subsequent sections, the level of education among Romanian farmers remains relatively low, the presence of agricultural advisors is quite limited, and though relevant funding is available, it does not always reach AKIS actors promptly.

More recently, the strengthening of knowledge exchange, innovation and digitalisation has been set as a horizontal goal of the CAP 2023-27. EU Member States are required to integrate their AKIS strategies into their CSPs (OECD, 2023^[9]). **Romania's CSP** (see Chapter 2), outlines the envisaged approaches to modernising the AKIS in Romania by changing the organisational configuration of the system around four key components (MARD, 2022^[10]).

1. The establishment of the AKIS Coordination Body, tasked with developing strategy, overseeing and co-ordinating AKIS activities and gathering information on emerging needs in terms of training, advice and innovation topics.
2. The creation of the AKIS Support Unit to facilitate interactions between relevant actors (see next section) and endorse topics proposed by the Coordination Unit.
3. The implementation of the AKIS Digital Platform, serving as a HUB, to integrate relevant entities, facilitate information flows on proposals for research topics, research results, or available training opportunities.
4. The improvement of agricultural business counselling by strengthening its connections within AKIS and catalysing knowledge exchange, particularly in addressing local thematic needs.

The implementation of the above components began with the procurement process for the design and development of the AKIS Digital Platform, which will serve as the main tool for the AKIS Coordination Body and support other CSP objectives.

While the CSP provides support for knowledge transfer and innovation development, Romania's **Strategy for Research-Development-Innovation in the agri-food sector for medium and long term 2014-2020/2020-2030** (*Strategia Pentru Cercetare-Dezvoltare-Inovare În Domeniul Agroalimentar Pe Termen Medium Și Lung 2014-2020 / 2020-2023*) aims at adopting a holistic approach and providing strategic direction to bolster R&D&I in agriculture and create a conducive environment for sustainable agriculture growth along the direction set by agricultural policies (MARD, 2015^[11]). The objectives incorporated in these strategies are reflected in the Agricultural and Rural Development (ADER) Sectorial Plan of the Ministry of Agriculture and Rural Development (MARD).

The proposed set of initiatives includes restructuring the agricultural research system; increasing the national funding for multi-annual research programmes to 2% of GDP; attracting private sector investments; integrating national and sectoral research programmes; focusing on thematic priorities related to the EU convergence policy objectives and global challenges such as climate change mitigation and adaptation; fostering technical progress and developing infrastructure; boosting the appeal of scientific careers in agriculture; and strengthening agricultural education through collaboration with the Ministry of Education (Academy of Agriculture and Forestry Services, 2011^[12]).

4.3. Actors, institutions, and governance of the Agricultural Knowledge and Innovation System (AKIS)

The Agricultural Knowledge and Innovation System (AKIS) encompasses a diverse array of stakeholders crucial for enabling, guiding, funding and implementing innovation within the agricultural sector. The key participants include policy-makers, researchers, teachers, advisors, farmers, private companies, consumers and non-profit organisations (OECD, 2020^[13]). In Romania, the AKIS includes, among others, research and extension providers, as well as educational institutions, which are structured and governed through agricultural, science and educational policies. The main actors are presented in Figure 4.1.

4.3.1. Main actors of the AKIS and their role in agricultural innovation

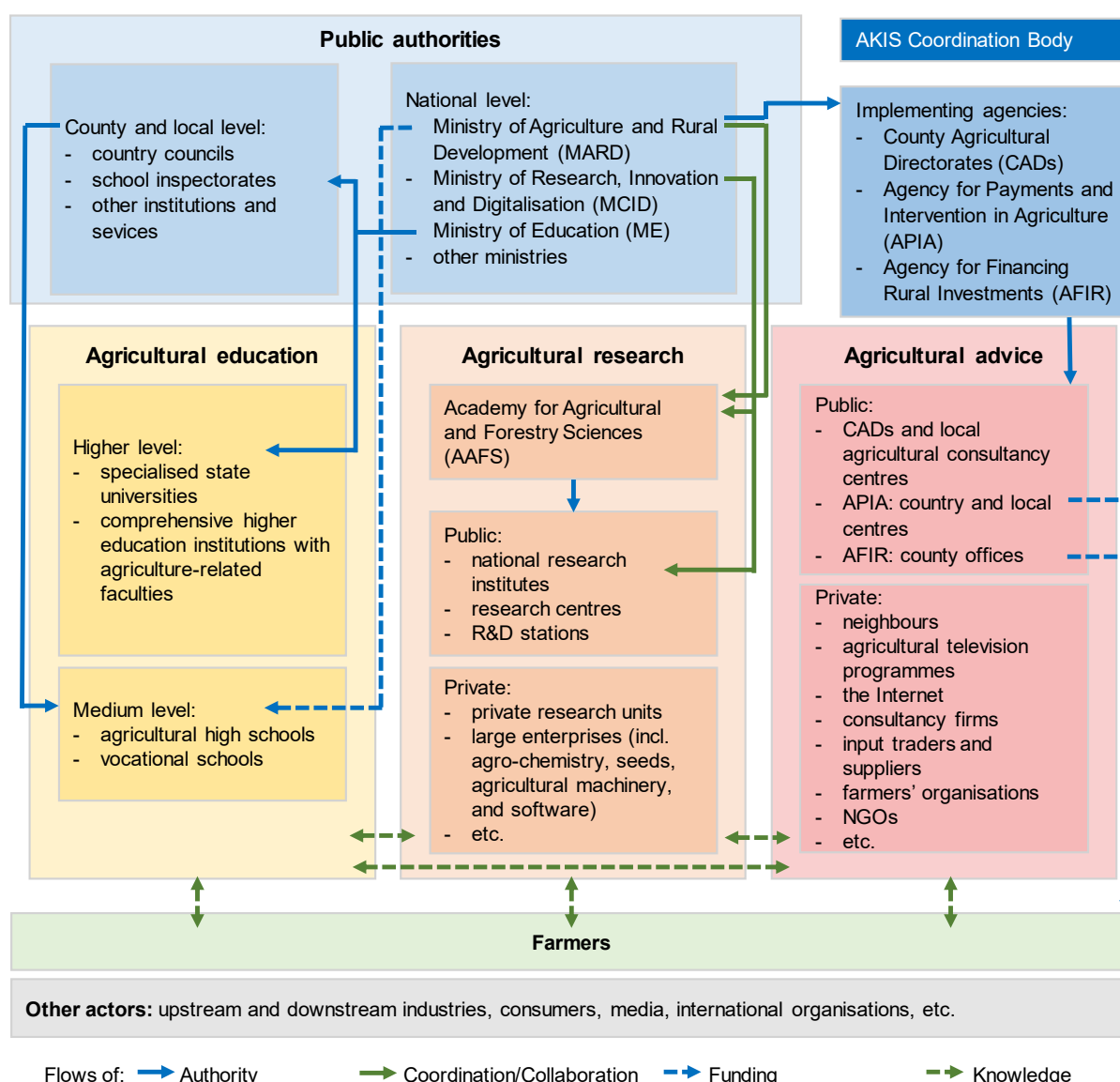
Strengthening co-operation between actors will open opportunities for the Romanian AKIS

The AKIS in Romania is relatively weak and fragmented. The system is marked by a history of frequent and not always consistent modifications. Policies have not been able to consistently improve the coherence and functioning of the AKIS, which is still characterised by isolated subsystems heavily influenced by sectoral policies and weak linkages among actors. For instance, agricultural higher education institutions and agricultural research institutes operate separately, and they rarely integrate agricultural consultancies and training to farmers (EC, 2020^[14]; Rusu, 2014^[15]). Co-operation between farmers and research entities is also lean, making it difficult to identify research-based solutions tailored to farmers' needs (MARD, 2023^[8]) and hindering the adoption of solutions on the ground (EC, 2020^[14]).

The modernisation of AKIS has been on Romania's agenda for a long time, with several projects, including in co-operation with the International Bank for Reconstruction and Development (IBRD) and the World Bank (Rusu, 2014^[15]). More recently, the National Rural Network organised activities to connect research actors, such as universities and Horizon 2020 projects partners, with farmers, advisors and rural businesses. Despite these efforts, the Romanian AKIS still has ample room for development to maximise benefits for farmers.

This state of affairs may improve, however, if Romania seizes the opportunity and implements with more ambition its CSP provisions to create a modern, well-functioning AKIS, Romania's CSP aims to create bridges between farmers and institutions and organisations specialised in agricultural knowledge and innovation, as well as to strengthen knowledge transfers and agricultural advisory services through dedicated funding (Section 4.4.1) (CRPE, 2023^[16]). Moreover, Romania is exploring avenues to better integrate local action groups (LAGs),² co-operatives, non-governmental organisations (NGOs), innovation and technological transfer entities of the National Network for Innovation and Technological Transfer, clusters and poles of competitiveness, and Digital Innovation Hubs (DIH) (MARD, 2023^[8]).

Figure 4.1. Actors and knowledge flows in the Romania's AKIS



Note: This is a schematic representation of the main actors and knowledge flows within Romanian AKIS. The categories of actors are not always sharply distinguishable and overlaps between their boundaries and roles may occur. For example, universities may conduct research alongside their educational activities. The indication of knowledge and collaboration flows is not exhaustive, i.e. only the most important ones are depicted. As of June 2024, the AKIS Coordination Body is in the process of being established.

Source: Authors, based on MARD (2023^[8]).

4.3.2. Main public authorities

National authorities play a key role in AKIS policy development as well as in its implementation through subordinate institutions

Romania's institutional framework supporting research, development, and innovation (R&D&I) in general, and those specific to the agro-food sector, has undergone many changes over recent decades. As a result of governmental changes, new entities were replacing old ones and responsibilities were shifting among existing entities (EC, 2022^[17]).

The AKIS governance structure is based on two territorial levels. At the national level, a pivotal role is held by the Ministry of Agriculture and Rural Development (MARD), the Ministry of Research, Innovation and Digitisation (MCID) and Ministry of Education (ME), which collectively steer the strategic direction for innovation in the agro-food sector. Other ministries also contribute to creating a conducive environment for R&D&I. At the county level, County Agricultural Directorates (CADs) are currently responsible for implementing agricultural policies, while payment agencies manage the financial resources.

The **Ministry of Agriculture and Rural Development (MADR)** holds primary responsibility for innovation systems within the agricultural sector. The MARD manages the R&D Sector Plan for Agriculture, the National R&D Strategy for the agro-food sector, and the CSP, which includes measures for agricultural knowledge and innovation, and R&D&I co-operation. The implementation of agricultural policies and strategies is delegated to the 42 **County Agricultural Directorates (CADs)**, decentralised public service under the purview of the MARD.³ CADs are mandated by legislation⁴ to engage in activities such as statistics and the Farm Accounting Data Network (FADN); provision of technical assistance; offering information, guidance and counselling for farmers on accessing European and national funds; as well as carrying out monitoring, inspections and controls within specified areas (MARD, 2023^[8]).

The **Ministry of Research, Innovation and Digitalisation (MCID)** serves as the primary authority responsible for overseeing general R&D efforts in Romania. It sets strategic objectives, which are enshrined among others in the National Strategy for Research, Innovation and Smart Specialisation (SNCISI), and introduces specific instruments for implementing the strategies, such as the National Plan for Research, Development and Innovation. Moreover, the MCID co-ordinates government policy at the national level, oversees most of the national R&D institutes, monitors R&D activity levels, and occasionally independently implements programme components (EC, 2022^[17]). In 2020, the Authority for the Digitisation of Romania was established, first under the co-ordination of the prime minister and later under the MCID, to oversee the implementation of strategies and public policies in the area of digital transformation of Romanian society (Government of Romania, 2020^[18]). Additionally, the [Digital Policy Lab \(DPL\)](#) was created as a testing ground for the strategic approach and process of public policy making. It aims to facilitate the development of an ecosystem of infrastructures, processes, tools and networks that generate innovation in the process of formulating public policies (MARD, 2023^[8]).⁵

The **Ministry of Education (ME)** assumes the responsibility for overseeing public education, training and scientific research at the universities in Romania. It has developed a strategic framework for education, the “Educated Romania 2030” vision, and monitors the application of the package of associated education laws. Moreover, the ME allocates state funds to public universities and supervises the Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI). The agency implements and co-ordinates some of the programmes and subprogrammes of the National Research, Development and Innovation Plan (PNCDI IV), including “Partnerships for innovation”, “European and international co-operation”, and “Research in areas of strategic interest” (EC, 2022^[17]; MIPE, 2024^[19]).

While other ministries are not entrusted with direct responsibilities in R&D&I, they play a role in creating an enabling environment for innovation. For example, the **Ministry of Economy, Entrepreneurship and Tourism** is tasked with formulating policies in fields such as the economy, industry, competitiveness, intellectual property, inventions and trademarks, SMEs, entrepreneurship, trade, and foreign direct investment (EC, 2022^[17]). Meanwhile, the **Ministry of Finance** oversees R&D tax incentives, which may be available to all taxpayers and legal entities, including farmers carrying out R&D activities (MARD, 2023^[8]).⁶

4.3.3. Agricultural research

Agricultural research efforts, mainly spearheaded by top-down steered public institutes, are hampered by insufficient funding

In Romania, agricultural research is mostly carried out by the public research institutes (see Box 4.1). In addition to research activities, some public research centres also offer demonstration activities or professional retraining courses for agriculture and animal husbandry workers. In contrast, the private sector's involvement in agro-food research is less extensive. Independent, private research suppliers usually focus on applied research, funded by their own financial resources from various projects. A number of large enterprises in the field of agro-chemistry, seeds, agricultural machinery, and software also conduct their own R&D&I activities (Rusu, 2014^[15]).

While the number of public research institutions remained relatively constant in the 2010s, the number of private companies active in agricultural research decreased by more than half (EC, 2020^[14]), implying a notable consolidation of private research efforts. Currently, 315 private and 256 public research and development units operate in Romania, collectively covering a wide thematic spectrum of agro-food innovation and technology transfer activities (MARD, 2023^[8]).

Box 4.1. Public research institutes in Romania

Romanian public institutes, research centres and stations relevant to the agro-food sector cover a wide range of research topics and are financed through governmental grants and income generated from national and international competition-winning projects; service and research contracts; royalties from biological creations; sales of agricultural products, such as seeds, planting stock, breeding animals, obtained in the development departments; or consulting services.

Research themes range from broad areas such as food safety and nutrition, consumer science and food (bio)technologies (e.g. National Institute for Research and Development in Food Bioresources – IBA) to more specialised areas such as field crop cultivation (e.g. INCDA Fundulea); vegetable growing (Research and Development Institute for Vegetable and Flower Growing – Vidra); potatoes and sugar beet cultivation (e.g. National Research and Development Institute for Potatoes and Sugar Beet Brasov – INCDCSZ); horticulture, including fruit growing (e.g. Institute for Research and Development in Pomiculture – Pitești, Mărăcineni), viticulture (e.g. Research and Development Institute for Viticulture and Winemaking, Valea Călugărească) and horticultural biotechnologies (e.g. National Research and Development Institute for Biotechnology in Horticulture Ștefănești – Argeș); sand plant cultivation (Research and Development Station for Sand Plant Cultivation – Dăbuleni); meadows (e.g. Research and Development Institute for Meadows Brasov); zootechnics (e.g. Research and Development Institute for Sheep and Goat Breeding – Palas); soil science (e.g. National Research Institute for Pedology and Agrochemistry and Research and Development Station for Combating Soil Erosion “Mircea Moțoc”, Perieni); and sericulture (Băneasa Sericulture Research Station).

An interesting example of a specialised technical body within the CADs are the Offices of Pedological and Agrochemical Studies (OSPA).¹ These offices are under the scientific co-ordination of the National Research Institute for Pedology and Agrochemistry (ICPA). ICPA and OSPA are expected to contribute to soil conservation at county level through research, with activities ranging from monitoring the quality of agricultural land to studying the economic and ecological effects of land improvement and degradation, as well as possible restoration projects. ICPA, together with OSPA, is also conducting research on the appropriate use of manure and chemical fertilisers to prevent pollution, studies on soil

quality classes, and deficiencies in certain nutrients necessary for good plant growth on agricultural land.

Moreover, there are two gene banks in Romania: the [Bank of Genetic and Plant Resources of Suceava](#) and the [Bank of Plant Genetic Resources - for Vegetables, Flowers, Aromatic and Medicinal Plants of Buzau](#), each with a research unit hosting germplasm collection.

1. OSPA operates as a state institution of public interest within CADs, but is fully self-financed from extrabudgetary sources.

Source: (MARD, 2022^[10]).

Research and development plans for the agricultural, forestry and food sectors are developed top-down by the **Academy for Agricultural and Forestry Sciences (AAFS)**. This public institution also co-ordinates the relevant activities of various institutes and research units. AAFS operates on the basis of its own statute, while co-ordinating with the MARD and co-operating with the Ministry of Education. Four national institutes, 13 branch institutes and 45 agricultural research and development stations scattered throughout the country are subordinated to the AAFS. Additionally, the AAFS provides scientific co-ordination for three other institutes and private research units.⁷ The R&D activities of the AAFS units were carried out in 2019 by approximately 800 scientists and financially supported by its own revenues and the state budget through the MARD (EC, 2022^[17]).

Public agricultural research is constrained by limited funding, leading to low wages and little attractiveness for researchers and technicians. This underinvestment also hampers the upgrading of research facilities and the efficient implementation of funded projects. Consequently, Romania's presence in international agricultural research initiatives is limited (Rusu, 2014^[15]).

4.3.4. Agricultural education

Agricultural education and training confront challenges in adapting to evolving needs

In Romania, agricultural education encompasses vocational training, agricultural high-school and universities, which are spread throughout the entire country. Many of these educational units feature demonstration farms and plots for hands-on activities and other teaching purposes. As part of the traditional education system, they fall under the coordination of the Ministry of Education, which shapes education programmes for secondary education level, while being administered at the local level.

Initial vocational education and training (VET) is provided by vocational schools, which are a subcategory of secondary education. They can operate as independent units or be affiliated with state or private technological high schools (Zaalmink and de Groot, 2022^[20]). The education programmes of these schools adhere to the Training Standards of the European Qualifications Framework (EQF),⁸ but their offer of vocational training programmes remains relatively limited (Ministry of Education, 2016^[21]; Ministry of Education, 2016^[22]; MARD, 2023^[8]). In the field of agriculture, the offer includes eight professional qualifications at EQF level 3: field crop farmer, beekeeper-sericulturist, mountain farmer, horticulturist, organic worker, agro-tourism worker, zootechnician and agricultural mechanic. Additionally, there are eight qualifications at EQF level 4 covering technician role in general agriculture, agronomy, organic farming, mountain agriculture, horticulture, agro-tourism, veterinary care and animal husbandry (Autoritatea Nationala pentru Calificari, 2024^[23]). The number can be potentially expanded according to the labour market needs, based on requests from potential future employers or professional associations. However, no such request has been registered so far.

There are 116 high schools in Romania offering at least partial qualifications in agriculture. Of these, 59 are predominantly agricultural high schools (Ministry of Education and Ministry of Agriculture and Rural Development, 2023^[24]), making them eligible for support from the Ministry of Agriculture and Rural

Development. Moreover, dedicated funds from the Education chapter of the National Recovery and Resilience Plan (NRRP) can be allocated to modernise these high schools; expand their laboratories; procure biological materials, agricultural equipment and machines for agricultural operations; as well as provide specialised training for teachers (Zaalmink and de Groot, 2022^[20]; MARD, 2023^[8]).

Tertiary education in agriculture or veterinary medicine is provided by four specialised state universities (University of Agronomic Sciences and Veterinary Medicine in Bucharest, University of Agricultural Sciences and Veterinary Medicine in Cluj-Napoca, University of Life Sciences “Ion Ionescu de La Brad” in Iasi, and “King Mihai I” University of Life Sciences in Timișoara) and one private university with study programmes in the field of veterinary medicine (“Spiru Haret” University in Bucharest). Additionally, 11 comprehensive higher education institutions (9 public and 4 private)⁹ have agricultural faculties (Zaalmink and de Groot, 2022^[20]; Government of Romania, 2024^[25]). Their fields of study encompass agronomy, horticulture, forestry, animal husbandry, veterinary medicine, biotechnologies, food engineering, and engineering and management in agriculture and rural development (Government of Romania, 2024^[25]). Agricultural universities are involved in research activities through their research departments (ARACIS, 2017^[26]), although their collaboration with other AKIS stakeholders is limited (EC, 2020^[14]). According to quality assurance standards, their curricula, besides being theory-oriented, also offer a significant share of practical activities (ARACIS, 2017^[26]). To address difficulties in adapting to emerging needs in the sector, Romania aims to pursue dual higher education.

The development of a life-long vocational training system in Romania is in its infancy (EC, 2020^[14]). The offer of vocational training programmes – ad-hoc courses and lifelong training – for new farmers is limited (MARD, 2023^[8]). The reforms currently being implemented at national level aim to establish the necessary legal conditions for the deployment of a complete learning pathway in dual professional education, from upper secondary through higher technical education. This legal reform is accompanied by investment from Romania’s National Resilience and Recovery Plan in 29 integrated regional campuses for dual education, managed by 29 regional consortia. Four of these consortia have pilot higher VET qualifications in agriculture as one of their fields of study. Each regional consortium will involve all four types of regional partners: accredited state or private higher education institutions, accredited state or private pre-university education entities, administrative territorial authorities, as well as private sector.

4.3.5. Farm advisory services

Extension and advisory services can facilitate the knowledge transfer to farmers and the successful adoption of innovation on farms (OECD, 2020^[13]). This role becomes especially vital in countries with a high portion of small-scale farms, such as Romania, where farmers often rely on ad-hoc information sources like the media, the internet or community networks (Zaalmink and de Groot, 2022^[20]).

Reforms of the agricultural advisory services in Romania have led to a highly fragmented system...

Over the past three decades, the public advisory system in Romania has experienced frequent and not always consistent changes and reforms, which is reflected in the varying visibility of such services from one period to another, as presented in Box 4.2. This has resulted in a fragmented system with numerous actors offering farmers various, disjointed services. These actors often fail to co-ordinate their activities and are not always able to respond to farmers’ needs (CRPE, 2023^[16]; Rusu, 2014^[15]).

Box 4.2. Brief history of agricultural advisory services in Romania

The evolution of agricultural advisory services in Romania has been shaped by political, economic, and institutional changes, reflecting broader shifts in agricultural development and rural policy.

Pre-1989 agricultural consultancy primarily focused on technical aspects of production, often neglecting economic and commercial issues. Training in agrarian management was limited and mainly conducted through courses organised by government agencies, i.e. County Agricultural Directorates and the Agronomist's House. Following the collapse of communism, Romania experienced dramatic changes in agriculture, including land restitution to former owners and the emergence of numerous small farms. This period saw a decline in production means and expertise, leading to reliance on traditional farming methods and informal networks for advice and support such as friends and neighbours.

The public agricultural advisory services were established in 1998 with the creation of the National Agency of Agricultural Consultancy (NAAC) at the national level, along with County Agricultural Consultancy Offices (CACO) and Local Agricultural Consultancy Centers (LACC) at the county and local level. This centralised publicly-funded system under the responsibility of Ministry of Agriculture and Rural Development (MARD) was designed to support agricultural reform and promote modern farming practices through advisory, extension, and vocational training activities. Three years later, the agricultural consultancy system was decentralised, with local offices coming under local administration control while remaining under the technical and methodological co-ordination of NAAC. During this period, the quality of advisory services became questionable due to staff diversion to other activities. In 2005, on the eve of Romania's accession to the European Union, the agricultural consultancy services were centralised again under NAAC and MARD. NAAC broadened its objectives, emphasising farmer training, sharing information on EU funding sources and requirements, and assisting farmers with agricultural business planning.

In subsequent years, consultancy services in Romania underwent further transformations. In 2009, County Agricultural Chambers (CACs) replaced CACOs and became subordinated to county councils, separating from NAAC, which retained only a technical consultancy role. Emphasis was placed on promoting rural development programmes under the Common Agricultural Policy, and increasing the absorption rate of European and governmental funding. In 2010, amid financial crisis, NAAC was dissolved, and its functions were transferred to newly established MARD's Consultancy, Extension, and Vocational Training Department. In 2016, County Agricultural Directorates (CADs) took over responsibilities as well as staff and assets from CACs. During this time, Romania witnessed a return to a situation resembling "invisible" agricultural consultancy, marked by challenges related to funding, delays, and disruptions in existing advisory structures.

Source: (Rusu, 2014^[15]) (CRPE, 2023^[16]).

...leading to an advisory system which does not fully respond to the diverse needs of farmers

Currently, the agricultural advisory system in Romania leans heavily towards public services, particularly due to the prevalence of small- and medium- sized farms. As discussed in Chapter 2, most of Romanian farms (around 90%) are under 5 ha, with many of them predominantly focused on subsistence agriculture, highlighting a reliance on farming for basic needs within the local community. While larger, commercial farms typically opt for fee-based personalised services from private providers or information gathered at the agricultural fairs, smaller farms rely on less costly options, i.e. public services or alternative sources of information, including family, neighbours, agricultural television programmes or the Internet. The differing needs for advice between these groups are notable (CRPE, 2023^[16]; Toma et al., 2019^[27]; MARD, 2023^[8]).

The general structure of the public agricultural advisory system is currently organised on two territorial levels. The MARD develops the strategic direction, while advisory services are provided by the county and local structures, i.e. the County Agricultural Directorates (CADs), and local agricultural consultancy centres (CRPE, 2023^[16]). The public farm advisory system is tasked with fulfilling a diverse set of objectives and addressing needs not covered by the private sector. On one hand, public counselling and consulting

services aim to offer technical assistance to farmers and rural communities in areas such as agronomy, animal husbandry, or access to new technologies. On the other hand, public consultants are expected to provide guidance on development of business plans and facilitate access to European funds. Additionally, they may provide professional training courses, which are essential to enhancing competences within the sector (CRPE, 2023^[16]; EC, 2020^[14]; Rusu, 2014^[15]). However, due to resource constraints, their actual focus remains on assisting farmers for a fee in accessing funding through RDP measures or providing free advice on how to comply with EU agri-environmental requirements and standards, mainly targeting small and medium-sized farmers. This leaves the remaining needs of farmers and the active promotion of innovation in agriculture mostly unaddressed (Toma et al., 2019^[27]).

Other institutions subordinated to the MARD may also provide specific advisory services, alongside their primary activities. For instance, the Agency for Payments and Intervention in Agriculture (APIA) and the Agency for Financing Rural Investments (AFIR) (see Box 2.2 in Chapter 2) offer consultancy and assistance services for farmers regarding the available financing schemes and the necessary procedures for accessing them. For this purpose, APIA, together with CADs, holds annual sessions to promote new RDP measures, and occasional sessions to enhance farmers' understanding of Agri-Environmental Measures and their relevant requirements. The National Agency for Land Improvement (NALI), a government institution responsible for the coordination and implementation of irrigation and land improvement policy in Romania, provides farmers with guidance on irrigation systems and water resource management. Additionally, some agricultural research institutions can provide consulting services alongside their primary activities.

In addition to the public advisory services, Romania also features private agricultural consultancy entities such as consultancy firms, input traders and suppliers, as well as farmers' organisations and NGOs. Private consultants primarily specialise in drawing up financial applications for EU funding and offering support across large-scale projects for a fee (EC, 2020^[14]; Rusu, 2014^[15]). Input suppliers frequently integrate advice within their specialised field with the sale of their products, such as animal feed, seed, fertilisers or pesticides, incorporating consultation fees into the produce prices (Rusu, 2014^[15]). Other private companies like machinery and equipment sellers and resellers play an important role in raising farmers' awareness of "new" technologies and encouraging their adoption. However, they lean towards commercial farmers who are better able to afford their products and services (Toma et al., 2019^[27]). The producers' organisations and the farmers' associations strive to improve their members' access to production, market and managerial knowledge (Rusu, 2014^[15]), but their strategy is not always clearly defined, discouraging farmers from participating. NGOs can contribute to sustainable productivity growth in the sector. For example, in Brasov region, ADEPT organises farmer meetings and seminars that showcase combined economic and social benefits with biodiversity conservation efforts. Nevertheless, the frequency of training sessions highly depends on the availability of financial resources (Toma et al., 2019^[27]).

Farm advisory services are undersized and uptake of related CAP measures is low

Challenges persist within Romania's advisory services due to constrained funding impeding their availability and effectiveness (Rusu, 2014^[15]; MARD, 2023^[8]). Approximately 500 public consultants operate in Romania, of which around 200 at the county level and the rest at local level. This number is considered highly insufficient, as each agricultural consultant serves on average over 4 000 farmers (including the subsistence farmers), well above the recommended ratio of 1 to 65 (maximum 100) farmers (CRPE, 2023^[16]). Additionally, non-competitive wages pose challenges in attracting and retaining qualified staff, which is essential for effectively disseminating knowledge about novel technologies and practices to farmers. Insufficient financial resources for material provisions and consultant mobility also create a risk of isolating advisors from valuable knowledge sources and clients, i.e. farmers, impacting the quality of advisory services (Rusu, 2014^[15]).

This coincides with underutilised CAP funding that could bolster farm advisory services, as discussed further in Section 4.4.1. Access to farm advisory services and training is fragmented and participation rates remain low (EC, 2020^[14]). During the 2014-20 programming period, around 0.3% of Romanian farmers (10 032 people) benefited from advisory services under Measure 2 (M2) “Advisory services, farm management and farm relief services” of the CAP. The measure was primarily utilised to establish associative forms aimed at providing advice in the areas of improving competitiveness, farm restructuring and modernisation. However, other purposes within M2 were underutilised due to complex procurement procedures and insufficient linkage with activities of the final beneficiaries, i.e. farmers, hampering broader use of farm advisory services (MARD, 2023^[8]).

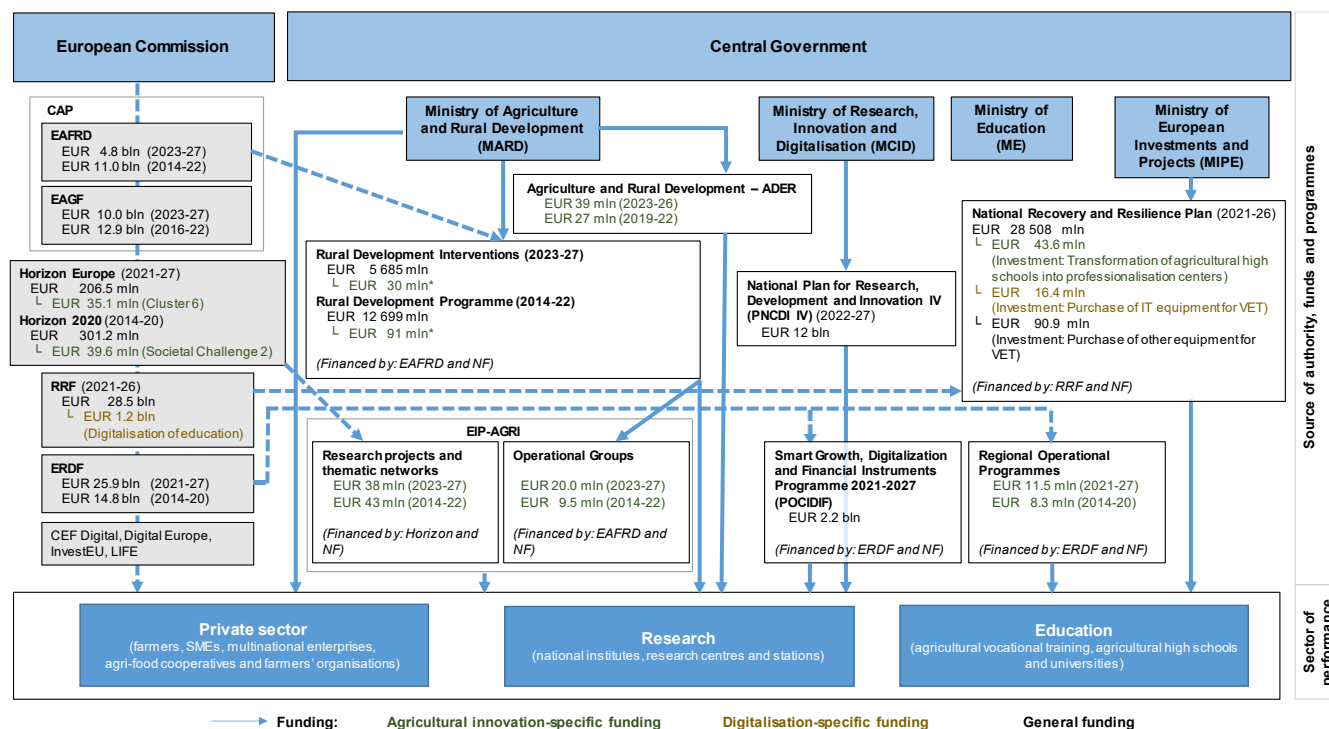
4.3.6. Funding of the AKIS

The Romanian government sets relevant AKIS strategies, policies and institutional frameworks, implements and monitors innovation programmes, as well as attempts to foster an enabling environment. National public authorities also significantly contribute to financing agricultural R&D and education, and provide innovation support to businesses. They strongly leverage European funds in addition to their own resources to bolster these efforts.

EU instruments constitute the financial foundation for Romania’s AKIS

Fostering knowledge and innovation in the Romanian agricultural sector is financed from both the EU and national budgets through various instruments, as illustrated in Figure 4.2. While some of these funds are directly linked to agriculture and to agricultural research, development and innovation (R&D&I), the majority are not sector-specific. The main EU funding sources for agricultural innovation include Horizon Europe (2021-27), the successor of Horizon 2020 (2014-20), and the European Agriculture Fund for Rural Development (EAFRD). Other instruments such as the Recovery and Resilience Facility (RRF), the European Regional Development Fund (ERDF), the Digital Europe Programme, Connecting Europe Facility (CEF Digital), the Programme for Environment and Climate (LIFE), InvestEU, Just Transition Fund or European Social Fund can also contribute to modernising the agricultural sector, albeit less directly. Therefore, they are discussed here to a much lesser extent (OECD, 2023^[9]). Relevant national instruments include the National Research, Development and Innovation Plan 2022-2027 (PNCDI IV), as well as a sectoral plan, Agriculture and Rural Development (ADER).

Figure 4.2. Funding of the Romanian System of Agricultural Research and Innovation



Note: This is a stylised, not fully comprehensive diagram illustrating the flows and magnitude of funds and institutional arrangements. The figures on funding might correspond to different periods and are only indicative. The data for the EAFRD and EAGF reflect only EU contributions, while those for the RRF and ERDF include the corresponding national contributions, the Horizon refers to net EU contributions.

* Total updated planned budget for measures 01, 02 and 16 under the Rural Development Programme (RDP) for 2014-22, and interventions DR-34, DR-37, DR-38 under the 2023-27 CAP Strategic Plan. Abbreviations: CAP: Common Agricultural Policy, CEF: Connecting Europe Facility, EAFRD: European Agricultural Fund for Rural Development, EAGF: European Agricultural Guarantee Fund, EIP-AGRI: European Innovation Partnership for Agricultural Productivity and Sustainability, ERDF: European Regional Development Fund, LIFE: Programme for Environment and Climate, NF: national funds, SMEs: small and medium-sized enterprises, RRF: Recovery and Resilience Facility, VET: vocational education and training.

Source: Authors, based on official sources, information from meetings with public authorities, and secondary sources, including: EC (2024^[28]; 2023^[29]; 2024^[30]; 2024^[31]), EP (2023^[32]; 2024^[33]), Government of Romania (2024^[34]), Ministry of European Investment and Projects (2024^[35]).

The scale of the R&D&I investments seems inadequate compared to the size and needs of the agricultural sector

The European Union's Research and Innovation Framework Programme for 2014-20, **Horizon 2020**, saw Romania's participation in projects falling below expectations. Throughout the duration of Horizon 2020, Romanian entities received EUR 301.2 million, accounting for only 0.44% of Horizon 2020 funding and ranking Romania 20th out of the then 28 EU Member States. Out of this funding, EUR 39.63 million was channelled through the societal challenge "Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy". The situation becomes even more apparent when taking into account the size of the country, with Romania ranking last among EU countries in terms of total Horizon 2020 funding per inhabitant. This contrasts strongly with the high relative weight of the agricultural sector in Romania in economic, social and environmental terms (as presented in Chapter 2), as well as the pressing need for modernising and transforming the sector. Moreover, the distribution of Horizon 2020 funding within Romania was highly skewed, with the Bucuresti – Ilfov region receiving two-thirds of the total funding, highlighting the concentration of resources, such as researchers and infrastructure, around the capital (EC, 2024^[28]; EC, 2024^[36]).

The distribution of funding from Horizon 2020 across European regions also exhibits notable disparities. Despite efforts to strengthen research in formerly communist eastern Europe, a gap persists between these countries and western Europe. Poland, the Slovak Republic, Bulgaria and Romania were among the least successful participants in Horizon 2020, collectively receiving just over EUR 1 billion out of approximately EUR 60 billion (Schiermeier, 2020^[37]). Common factors contributing to low success rates of these countries in securing Horizon 2020 funding include insufficient national funding, re-prioritisation processes, a shortage of skilled researchers, and unforeseen obstacles hindering the efficient use of allocated resources. The relatively low level of national research funding in eastern European countries could be one of the primary explanations for their limited success in obtaining Horizon funding (Schiermeier, 2020^[37]; EC, 2022^[38]).

Under **Horizon Europe** (2021-27), Romania has been awarded a total funding of EUR 206.5 million, positioning it 18th out of 27 EU Members States in terms of budget share. Most of the funding for the agro-food sector is provided under Cluster 6 "Food, Bioeconomy, Natural Resources, Agriculture and Environment", whose budget obtained by Romania amounts to EUR 35.1 million. This cluster was designed among others to foster knowledge, build capacity and develop novel solutions to promote sustainable land use and a more sustainable, resilient and inclusive agricultural sector (EC, 2024^[28]).

CAP measures supporting co-operation and knowledge transfer deserve higher priority

The **European Agricultural Fund for Rural Development (EAFRD)**, one of two funds under the Common Agricultural Policy (CAP) (Box 2.1), serves as another crucial avenue for financing agricultural R&D&I activities. Alongside national co-financing, the EAFRD provides financial resources for the implementation of Member States' Rural Development Programmes (RDPs), which include measures dedicated to knowledge transfer, advice and innovation through co-operation (see Section 4.4.1). Romania's RDP 2014-22 allocated EUR 91 million to three knowledge and innovation-related measures (Measures 1, 2 and 16),¹⁰ while the equivalent measures under the 2023-27 CSP (Interventions: DR-34, DR-37, DR-38) will only receive EUR 30 million. Certain other CAP instruments may contribute to fostering knowledge and innovation. For example, the requirement of a minimum qualification level or training to access certain CAP aids, such as farm modernisation investment or young farmer support, may incentivise farmers to upgrade their skills. Furthermore, knowledge transfer, as well as research and innovation activities, can also receive support through "Sectorial interventions" under the European Agricultural Guarantee Fund (EAGF) (OECD, 2023^[9]; OECD, 2023^[39]).

Part of the rural development funding of the CAP and Horizon Europe funding are channelled into the **European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI)**. This flagship policy tool of the European Commission aims to strengthen the AKIS and bridge the gap between research and farming in practice through various multi-actor innovation projects (EC, 2012^[40]). These projects take two forms: operational groups' innovation projects, supported under the RDPs, which primarily function within a country or a region (Section 4.4.2); and multi-actor research projects and thematic networks, funded by the Horizon programme, which operate on a transnational level (OECD, 2023^[9]).

Additional EU instruments such as the Recovery and Resilience Facility can contribute to agricultural innovation, particularly through investments in education and digitalisation

The **Recovery and Resilience Facility (RRF)** is a temporary instrument of the European Union, in force since 2021, designed to help Member States to strengthen their economies recovering from the COVID-19 crisis. It provides performance-based support based on their submitted **National Recovery and Resilience Plans (NRRPs)**. Romania's NRRP has a budget of EUR 28.5 billion, equivalent to 13% of Romania's 2019 GDP, in the form of grants and loans (see Chapter 2). The NRRP encompasses reforms and investments aimed at bolstering sustainable socio-economic growth, facilitating the country's green and digital transition, as well as enhancing education (EP, 2023^[32]; EP, 2024^[33]; EC, 2024^[30]).

Romania's NRRP contributes to fostering agricultural innovation, particularly through its Component 15 "Education". This component earmarks funds, among others, for transforming agricultural high schools into professionalisation centres (EUR 43.6 million) and acquiring equipment for vocational education and training (EUR 107.3 million), including agricultural high schools. These funds will enable the renovation and modernisation of workshops, research and IT laboratories. Schools will be able to purchase biological material, agricultural equipment and machines, as well as IT aids and equipment. Furthermore, teachers will receive training based on agriculture-related curricula. Thus, these funds should help equip schools to deliver higher quality education (EC, 2021^[41]; Government of Romania, 2024^[34]).

Other components of Romania's NRRP outline reforms and provide support that may indirectly benefit innovation in the agricultural sector. For instance, Component 9 "Business support, research, development and innovation" aims to boost overall research and development in Romania by encouraging the creation of public-private partnerships investing in R&D&I, supporting the integration of Romanian R&D&I organisations into the European Research Area, or ensuring harmonised design and implementation of R&D&I policies across ministries and agencies. Furthermore, it seeks to address the institutional fragmentation by introducing a regular evaluation mechanism and encouraging research institutions to merge. In turn, reforms and investments under Component 7 "Digital transformation" are to contribute to establishing a coherent and integrated digital infrastructure for public administration and enabling lifelong digital education for citizens (Council of the European Union, 2021^[42]; EC, 2021^[41]).

Other European funds may also play significant roles in fostering enabling environment for agricultural innovation and knowledge exchange through digitalisation. The **European Regional Development Fund (ERDF)** contributes to financing the Smart Growth, Digitalization and Financial Instruments programme ([POCIDIF](#)) and [Regional Operational Programmes](#), thereby supporting smart specialisation and the development of digital technologies at national and local levels respectively. The **Digital Europe Programme** provides strategic funding to a broad portfolio of digital technology projects, and finances Innovation Hubs. Furthermore, the **Connecting Europe Facility (CEF Digital)** supports and channels both public and private investment in digital connectivity infrastructure (EC, 2023^[43]).

National instruments play a secondary role in supporting agricultural research, development, and innovation

In parallel, the **National Research, Development and Innovation Plan 2022-2027 (PNCDI IV)** serves as the primary instrument for implementing Romania's National Strategy for Research, Innovation and Smart Specialisation (SNCISI, Section 4.2.2), which is not agriculture-specific. This plan, endowed with a budget of RON 60 billion (approx. EUR 12 billion), is structured around ten R&D&I programmes aimed at strengthening Romania's research standing on the international stage and addressing societal challenges outlined in the Strategic Research Agenda (Ministry of European Investments and Projects, 2024^[44]).

Within the agricultural domain, the **Agriculture and Rural Development (ADER)** plans are managed by MARD since 2011. With a budget of RON 195 million (approx. EUR 39 million) for the period 2023-26 and RON 133 million (approx. EUR 27 million) for 2019-22, ADER finances research themes that contribute to building a smart, resilient and diversified agricultural sector and ensuring food security. The range of research areas includes, among others: adaptation to the effects of climate change, efficient management of natural resources and inputs, biodiversity conservation, use of environmentally friendly practices, implementation of innovative technologies and processes, reduction of greenhouse gas emissions from agricultural and forestry activities, ensuring healthy agri-food products, bioeconomy, circular economy, and digitisation (MARD, 2019^[45]; MARD, 2023^[46]; Government of Romania, 2022^[47]).

4.4. Policies facilitating innovation and knowledge transfer

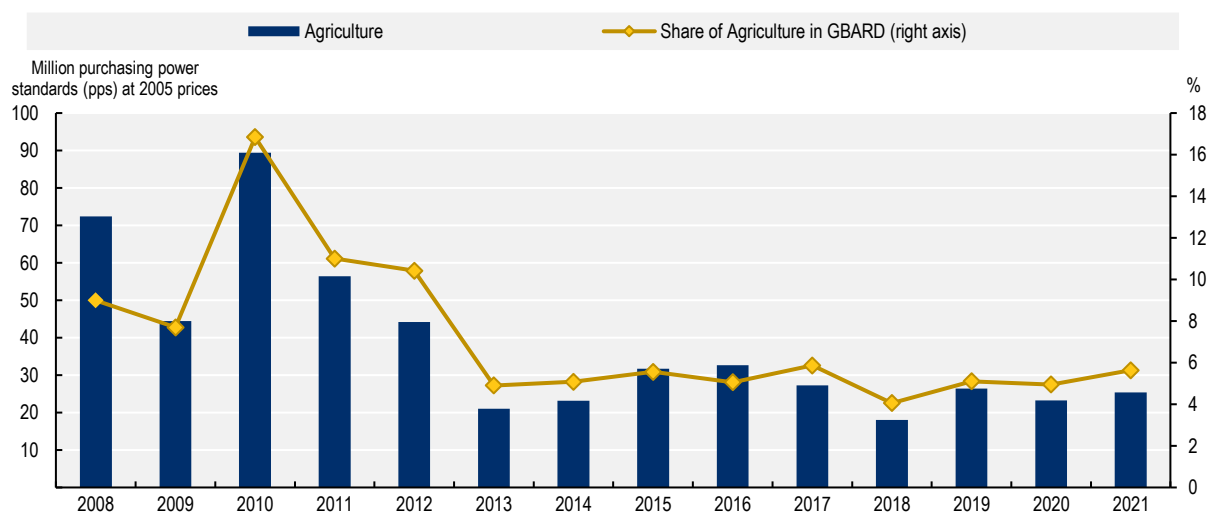
4.4.1. Public and private investments in R&D

Both private and public resources invested in R&D serve as indicators of a country's efforts to innovate. Romania set the target for total gross domestic expenditure on R&D (GERD, which covers public and private expenditure on R&D carried out by all residents in a country) at the level of 2% of gross domestic product (GDP) for the whole innovation system by 2020 (Rakic, 2021^[48]). However, the target was not achieved, and overall R&D intensity¹¹ stagnated at around 0.5% over the last decade, significantly below the EU27 average (2.2% in 2021; see section below, Table 4.1).

Unlike in other sectors, governmental expenditures primarily drive agricultural R&D

Romania allocates one of the lowest research budgets in the European Union for agricultural research, at just EUR 1.1 per capita, compared to EUR 6.4 in the EU27 (EC, 2020^[14]). According to the National Institute for Statistics (2023^[49]), Romania's overall R&D budget has decreased by 35% over the last decade. The agricultural R&D budget activities has also experienced a decline, albeit to a lesser extent (EC, 2020^[14]). Consequently, inadequate funding for the agricultural research and innovation system constrains Romania's capacity to undertake projects and achieve results (MARD, 2023^[8]).

Public investments play a crucial role in financing agricultural research and innovation, as they not only directly provide means for relevant activities but also attempt to spur private investments (Heisey and Fuglie, 2018^[50]). In 2021, the government of Romania allocated a total of EUR 22 million (in current prices) to agricultural R&D activities carried out in government establishments, higher education, business enterprises, private non-profit organisations, as well as abroad. This marked a significant decline from much higher levels observed a decade earlier. Consequently, the share of agriculture in government budget allocations fell from 17% in 2010 to shares fluctuating around 5% between 2013 and 2021 (Figure 4.3), although it remained above the EU27 average of 3% (OECD, 2023^[9]).

Figure 4.3. Government budget allocation for R&D in Romanian agriculture, 2008-21

Note: 1. Government budget allocation for research and development (GBARD) is a funder-based approach for reporting R&D, which involves identifying all the budget items that may support R&D activities and measuring or estimating their R&D content. It allows linking these budget lines to policy considerations through classification by socio-economic objective. However, it only provides a partial indicator of investment in public agricultural research, since it refers to research funding instruments dedicated specifically to agriculture.

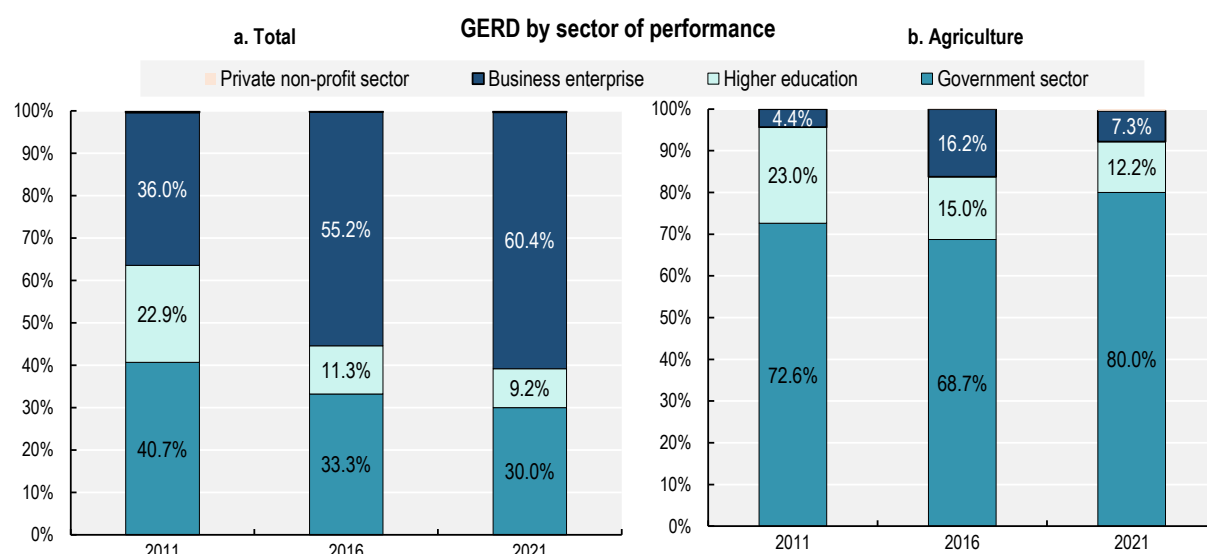
2. Because of changes in methodology, data from 2022 onward have not been included.

3. The purchasing power standard, abbreviated as PPS, is an artificial currency unit. It is the technical term used by Eurostat for the common currency in which national accounts aggregates are expressed when adjusted for price level differences using PPPs. Thus, PPPs can be interpreted as the exchange rate of the PPS against the euro.

Source: Authors' calculations based on Eurostat/OECD (2023).

In terms of performance, the government sector also plays a leading role for agricultural R&D. While for overall R&D activities the private sector has largely taken the leading role previously played by the government, in agriculture, the government is still the main actor in performance, accounting for four-fifths of the expenditure in 2021. The private sector increased its participation in agricultural R&D activities from 4.4% to 7.3% between 2011 and 2021, while the higher education sector saw a decrease from 23.0% to 12.2% in the same years (Figure 4.4).

Figure 4.4. Gross domestic R&D in Romania by sector of performance



Source: Eurostat, GERD by sector of performance and fields of R&D [RD_E_GERDSC].

Agricultural R&D intensities signal severe underfinancing

Public expenditure on R&D in Romania has been on the decline in recent years, with the overall R&D intensity, defined as the R&D investment relative to GDP, standing at just 0.47% in 2021, a mere quarter of the EU average, indicating profound underfunding (EC, 2023^[51]). For the agriculture sector, the public gross domestic R&D expenditure, encompassing government and higher education, amounted to only 0.41% of the sector's value added in 2021, marking the lowest among OECD countries with available data. Moreover, the intensity of Romanian agricultural R&D, as measured by government budget allocation (GBARD) relative to the size of the sector, has been consistently low and decreasing over time, dropping from 0.54% in 2008 to 0.19% in 2021 (Table 4.1).

Investment from all sources for private R&D (BERD) as a percentage of GDP rose from 0.17% in 2008 to 0.29% in 2021. Conversely, investments from all sources in business R&D as a percentage of the sector's value added were consistently very low in the agricultural (0.03%) and food and beverages (0.02%) sectors. This participation was well below that of most EU Member States and other OECD countries, contradicting global trends where the private sector has been increasing its involvement in agricultural R&D (Fuglie, 2016^[52]; Ruane and Ramasamy, 2023^[53]).

Table 4.1. R&D expenditure intensities

Field of R&D	All		Agriculture		All		Agriculture		All sectors		Agriculture		Food and beverages	
Sector of performance	All sectors		Public (Government and Higher education)		All sectors		All sectors		Business		Business		Business	
Source of funds	All sources		All sources		Government		Government		All sources		All sources		All sources	
Indicator	GERD ¹ total as a % of GDP		Public GERD on Ag. science ² as a % of sector's value added		GBARD ³ total as a % of GDP		GBARD on Agriculture ⁴ as a % of sector's value added		BERD ⁵ total as a % of GDP		Agriculture BERD ⁶ as a % of sector's value added		Food and beverage BERD ⁷ as a % of sector's value added	
	2011	2021	2011	2021	2008	2021	2008	2021	2011	2021	2011	2021	2011	2021
Romania	0.47	0.47	0.46	0.41	0.38	0.16	0.54	0.19	0.17	0.29	0.02	0.03	0.02	0.02
Bulgaria	0.53	0.77	0.81	...	0.29	0.23	1.14	0.94	0.28	0.51	0.02	0.00	0.02	0.28
Poland	0.75	1.43	0.51	1.55	0.30	0.46	0.23	0.03	0.23	0.90	0.05	0.13		0.99
Hungary	1.18	1.64	1.07	0.63	0.42	0.45	1.13	0.78	0.74	1.24	0.35	0.30	0.83	0.83
Lithuania	0.90	1.11	1.10	1.34	0.47	0.31	0.80	0.48	0.24	0.55		0.11	0.15	0.47
Czechia	1.54	2.00	1.97	2.38	0.51	0.63	1.40	1.43	0.84	1.25	0.14	0.20	0.40	0.36
Italy	1.20	1.45	1.82	1.94	0.61	0.64	1.44	0.87	0.66	0.88	0.01	0.07	0.60	0.94
Netherlands	1.88	2.27	5.25	4.06	0.71	0.79	2.24	1.66	1.06	1.50	1.72	1.32	3.20	3.04
Japan	3.21	3.30	5.64	5.23	0.68		2.37	4.78	2.47	2.59	0.06	0.08	1.88	2.13
EU27	1.91	2.16	...	...	0.70	0.76	1.58	1.42	1.19	1.41	0.31	0.32	0.87	0.88
EU27(median)	1.42	1.46	2.18	1.75	0.50	0.60	1.13	1.04	0.74	0.90	0.05	0.07	0.27	0.18
OECD	2.31	2.72	...	...	...	...	...	...	1.56	1.99	...		...	

Note: 2011, and 2021,2022, or the nearest available year.

1. Gross domestic expenditure on R&D (GERD) is defined as the total expenditure (current and capital) on R&D carried out by all resident companies, research institutes, university, and government laboratories, etc., in a country. It includes R&D funded from abroad but excludes domestic funds for R&D performed outside the domestic economy.

2. Gross domestic expenditure on R&D (GERD) for agricultural and veterinary.

3. Government budget allocation for R&D (GBARD) is a funder-based approach for reporting R&D, which involves identifying all the budget items that may support R&D activities and measuring or estimating their R&D content. It enables linking these budget lines to policy considerations through classification by socioeconomic objectives.

4. Government budget allocation for R&D (GBARD) on Agriculture covers all R&D aimed at the promotion of agriculture, forestry, fisheries and foodstuff production, or furthering knowledge on chemical fertilisers, biocides, biological pest control and the mechanisation of agriculture, as well as concerning the impact of agricultural and forestry activities on the environment. This also covers R&D aimed at improving food productivity and technology. It does not include R&D on the reduction of pollution; on the development of rural areas; on the construction and planning of buildings; on the improvement of rural rest and recreation amenities and agricultural water supply; or on energy measures.

5. Business Expenditure on R&D (BERD) is the measure of intramural R&D expenditures within the business enterprise sector (regardless the sources of R&D funds).

6. Business Expenditure on R&D (BERD) on Agriculture, forestry and fishing.

7. Business Expenditure on R&D (BERD) on Manufacture of food products, beverages and tobacco products.

8. The European Union (27 countries) aggregate was estimated for the BERD, sectors Agriculture, and Food and beverage.

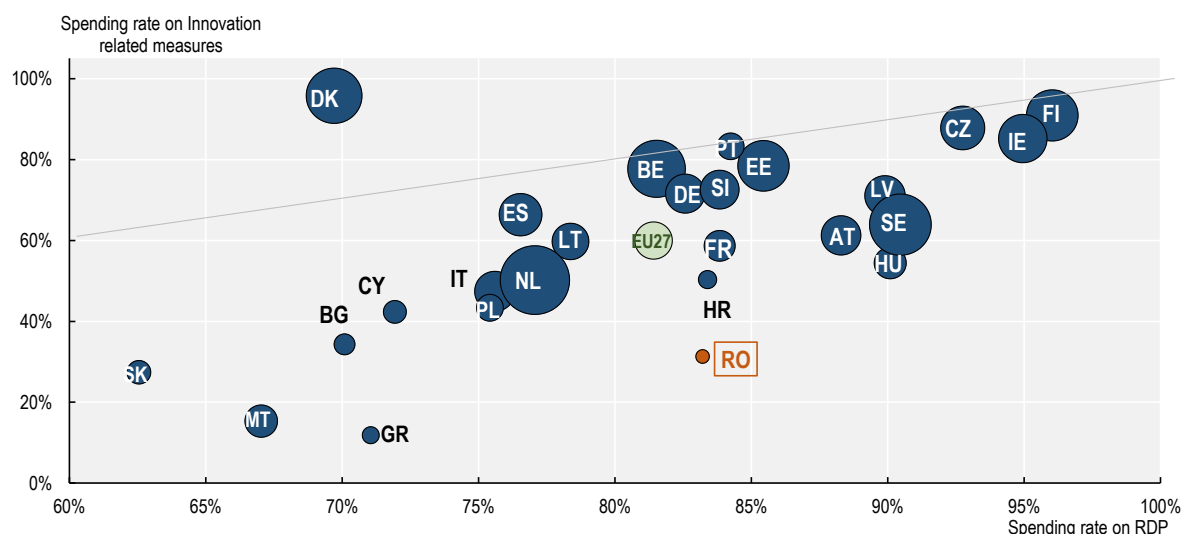
Source: Authors' calculation based on OECD (2023), *Research and Development Statistics* (database), [Gross domestic expenditure on R&D by sector of performance and field of R&D (FORD); Government budget allocations for R&D; Business enterprise R-D expenditure by industry (ISIC 4)]; STI Main Science and Technology Indicators (database), [BERD as a percentage of GDP]; and National Accounts (database), [Gross domestic product (GDP) - Gross value added at basic prices by activity, ISIC rev4; Value added and its components by activity, ISIC rev4], <https://stats.oecd.org/> (accessed August 2023); Eurostat (2023), BERD by NACE Rev. 2 activity (database), [RD_E_BERDINDR2], GBARD by socioeconomic objectives (NABS 2007) (database), [GBA_NABSFIND07], GDP and main components (database) [NAMA_10_GDP], National accounts aggregates by industry (up to NACE A*64) (database) [NAMA_10_A64], <http://ec.europa.eu/eurostat/data/database> (accessed August 2023).

The low levels of uptake of CAP innovation measures shows a limited capacity of the sector to absorb innovation funding

Under the CAP 2014-22, knowledge and innovation were mainly supported through three Rural Development (RD) measures: knowledge transfer (M1), advice (M2) and co-operation (M16). Unlike for most other RD measures, farmers were not the direct beneficiaries of these measures. For example, M1 aimed at service providers such as those offering formal training outside regular education programmes, conducting demonstration activities, organising information campaigns, or facilitating exchanges and visits. M2 primarily targeted entities providing advice to farmers and training to advisors. In contrast, M16 was dedicated to so-called “co-operation groups” encompassing networks, clusters and EIP Operational Groups (see Section 4.4.2).¹²

As of 2023, data reveals that the share of expenditure planned on M1, M2 and M16 in the entire RDP was the lowest in the European Union: 0.7% compared to 2.6% for the EU27. Furthermore, part of the budget initially allocated for these measures was diverted towards other RDP activities that met with greater interest from beneficiaries, such as supporting areas with natural constraints (M13), or helped to meet urgent needs resulting from the COVID-19 pandemics (M21) (EC, 2023^[29]).

Figure 4.5. Spending rates on knowledge and innovation measures under the rural development funding of the CAP 2014-22, as of 2023



Note: The spending rate refers to the ratio of the total amount spent to the initially planned budget. Knowledge and innovation-related measures encompass knowledge transfer (M1), advice (M2) and co-operation (M16). The funding shown for M16 also includes sub-measures that do not target innovation or knowledge exchange. The values include both EU and national components. The size of the bubble indicates the share of knowledge and innovation-related measures in the Rural Development Programme (RDP) eligible spending. The position of each bubble corresponds to the relation between the spending rates on innovation-related measures (y-axis) and on overall Rural Development measures (x-axis).

Source: Authors' calculations based on EC (2023^[29]), ESIF 2014-2020 Finance Implementation Details (database).

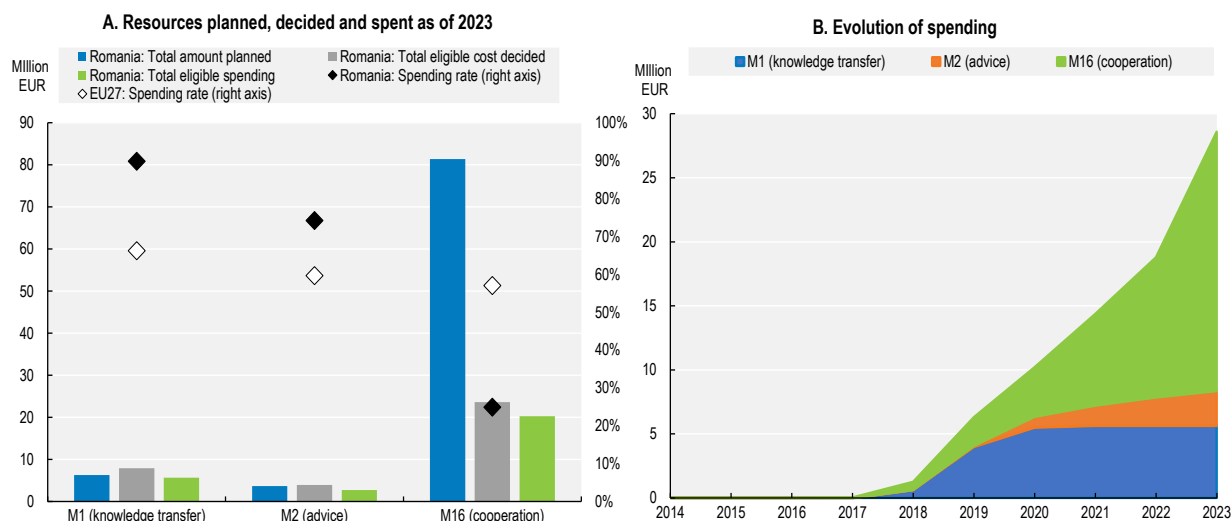
Romania planned a very small amount of financial resources to knowledge and innovation-related measures and did not take full advantage of the available funding. The spending rate on measures supporting innovation and knowledge exchange, calculated as the ratio of the total amount spent on projects implemented to the amount planned (an initial budget allocation), was among the lowest in the European Union. Only Greece, Malta and Slovakia recorded lower spending rates for these measures (Figure 4.5). In contrast, Romania had a higher spending rate for the entire RDP (83%), which was close to the EU average of 81%. This may suggest a lack of absorptive capacity among potential beneficiaries

of innovation and knowledge-related measures, highlighting the need to strengthen the presence of innovation brokers, that are the target of these measures, and build capacity to design and implement complex projects.

Analysing individual measures, the resources intended for knowledge (M1) and advice (M2) were notably low – EUR 6 million and EUR 4 million, respectively (Figure 4.6, panel A) – a stark contrast with the significant needs of the agricultural sector in terms of upskilling both farmers and agricultural advisors (Sections 4.4.5 and 4.3.5). For M16, the budget planned was over EUR 81 million, but the amount spent was only EUR 11 million (Figure 4.6, panel A). Such a low level of uptake of the co-operation measure may indicate either the lack of potential beneficiaries or their inability to access available funds. However, considering that the co-operation measure was a novelty under the CAP 2014-22, it could be expected that, as potential beneficiaries and implementing agencies become more familiar with this measure, its implementation should become easier and uptake higher in the future.

The implementation of the innovation and knowledge-related measures proceeded slowly, with the first expenditure occurring three years after the start of the programming period. The uptake of advice-related measure was particularly delayed, with the first payments reaching beneficiaries only in 2019 (Figure 4.6, panel B). Due to greater political attention to co-operation, the uptake of M16 has accelerated in recent years. Initial difficulties in implementing M1, M2 and M16 may have arisen due to various factors, including: a delayed call calendar; changes of implementation mechanisms; administrative burdens; stringent technical and financial conditions imposed on trainers and advisors; time needed to improve the clarity of the guidelines; and weak connection to other CAP measures (MARD, 2019^[54]) (EC, 2020^[14]).

Figure 4.6. Resources planned, decided, and spent on knowledge and innovation measures under the rural development funding of the CAP 2014-22 in Romania



Note: The funding shown for measure 16 also includes sub-measures that do not target innovation or knowledge exchange. National and regional programmes report financial data to the Commission on their progress as follows: “Planned”: Total budget of the programme; “Decided”: Financial resources allocated to selected projects (project pipeline); “Spent”: Expenditure reported by the selected projects. The financial data reporting is expressed in total costs including both EU and national components.

Source: Authors’ calculations based on EC (2023^[29]).

4.4.2. International co-operation in agricultural R&D and partnerships for agricultural innovation

Romania strives to foster agricultural innovation and knowledge transfers through both international and domestic partnerships. Like other European countries, it strongly leverages EU's programmes, notably the Research and Innovation Framework Programme "Horizon" (Section 4.3.6). Romania's involvement encompasses joint research projects, knowledge exchange initiatives, and capacity-building programmes.

The participation of Romanian researchers in international agricultural R&D projects is limited

Romanian research units and universities engage in R&D projects with EU Member States as well as with selected non-EU countries. Co-operation primarily occurs within the European Research Area facilitated by initiatives under Horizon Europe and its predecessor, Horizon 2020. Additionally, Romania participates in various European and international R&D and smart specialisation co-operation frameworks, as well as joint bilateral and multilateral thematic calls. For example, Romania participates in the Central-Eastern European Initiative for Knowledge-based Agriculture, Aquaculture and Forestry in the Bioeconomy ([BIOEAST](#)).

Under Horizon 2020, Romania's involvement in the projects addressing "food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy" was somewhat limited, with only 127 proposals, corresponding to 1.14% of all applications within this societal challenge (EC, 2024^[28]). However, the success rate of Romanian applications¹³ (96.9%) shows the high capacity of a limited numbers of universities and research institutions to obtain EU funding.

Romania intends to bolster its participation in the intra- and extra- European R&D&I collaboration. With this objective in mind, the National Strategy for Research, Innovation and Smart Specialisation (SNCISI, Section 4.2.1) advocates for enhancing the competitiveness of the system by fostering integration within the European scientific community, attracting resources from abroad (human, financial, know-how), as well as bolstering Romania's contribution to addressing global challenges through collaboration at both European and international levels. The priorities outlined in the SNCISI are implemented through the National Research, Development and Innovation Plan (Section 4.3.6), with agriculture-related themes embedded in several key research areas (MARD, 2023^[8]).

The potential of using EIP-AGRI Operational Groups to foster collaboration for sustainable agricultural innovation remains underused

The EU's European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI) (see also Section 4.3.6) is a key tool for Romania to foster collaboration among AKIS actors. The so-called Operational Groups (OGs) apply the principles of the interactive innovation model, and bring together farmers and researchers, as well as innovation brokers and advisors to tackle practical problems or explore emerging opportunities that may lead to innovative solutions and increased innovation in the agricultural sector (OECD, 2023^[9]).

The set-up of the EIP-AGRI Operational Groups in Romania is in its early stage and progresses slowly. The first call for projects for OGs were launched only in 2018/19. By September 2023, 26 OG projects, with a total value of EUR 9.5 million, qualified for financing under sub-measure 16.1 (support for the establishment of OGs and project implementation) of the CAP 2014-22 (MARD, 2023^[8]). This represented just 1% of all OGs in the European Union that reported on their activities or completed their projects (EC, 2023^[55]). This may suggest challenges with the initial implementation of the sub-measure in question as well as a potential lack of demand among beneficiaries or high administrative burden.

Most of the OG projects in Romania focus on sustainable farming practices and agricultural production systems, in line with the priorities of the European Union. These initiatives include: developing a “precision agriculture” solution for organic fruit growing; developing an integrated pest management (IPM) using low-chemical solutions for orchards and fruit production; developing innovative tools for prevention and control of pests in beekeeping (discussed in more detail in Section 4.5.2) (EC, 2023^[55]; MARD, 2023^[8]).

4.4.3. Digitisation, connectivity, deployment and use of digital technologies

Romania’s digitalisation, both in the general economy and agriculture, lag behind other EU Member States, as evidenced by the fewest public Internet services and the lowest adoption rate, i.e. only 17% of Romanian Internet users utilise e-government services, compared to 65% for the EU average (EC, 2020^[14]; EC, 2022^[56]). While 50% of farmers in Romania use GPS navigation and yield measurement systems, only 10% use precision farming equipment (EC, 2020^[14]). Moreover, the disparities in technological endowment and digitalisation between large and small/medium-sized farms are exacerbating (MARD, 2023^[8]).

In the 2022 Digital Economy and Society Index (DESI), Romania ranked last among EU Member States. Connectivity is the area where the country preforms best, with some indicators, such as fixed-line connectivity, surpassing the EU27 average. However, in terms of human capital, integration of digital technology and digital public services, Romania lags behind its EU counterparts. Furthermore, the overall gap in DESI has been widening, as Romania’s relative annual growth was weaker than of its peers (EC, 2022^[56]).

Despite notable progress in connectivity, low digital literacy in Romania hinders the adoption of agricultural innovation

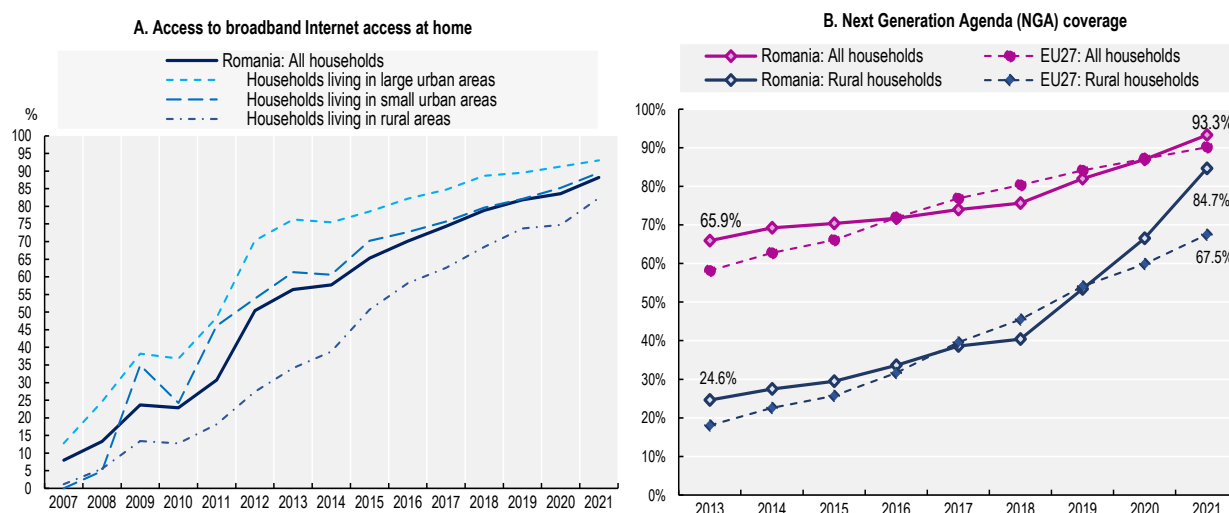
The National Strategy for Digital Agenda (NSDAR) for Romania 2020, building on the Digital Agenda for Europe, delineates Romania’s broadband strategy and sets targets, including achieving at least 80% of coverage with broadband communication networks of over 30 Mbps (Government of Romania, 2015^[57]). The Romanian Digital Decade Roadmap, currently awaiting approval by the Romanian Government, will further redefine the national trajectory and could become an important tool to monitor Romania’s digital progress (EC, 2023^[58]). Additionally, as discussed, the Romania’s Recovery and Resilience Plan (NRRP) outlines reforms and investments aimed at ensuring high-speed Internet access in unserved areas unlikely to develop such infrastructure independently (Council of the European Union, 2021^[42]). The strategic RO-NET project is a notable example of investment in connectivity. Leveraging EU Structural Funds, Romania invested EUR 85 million in the construction of high-standard ICT infrastructures in unserved rural areas (EC, 2023^[58]).

Policy efforts have yielded significant results, with Romania making notable strides in narrowing the broadband access gap in rural areas. In 2021, 82% of rural households in Romania had access to broadband Internet at home, compared to 88% for all households. This represents a substantial leap from just 13% of with Internet access in 2010 (Figure 4.7, panel A), with continued rapid progress. These efforts significantly closed the disparity between rural and urban areas, bringing Romania closer to the EU27 and OECD averages of 86% and 89%, respectively (OECD, 2023^[59]).

The coverage of Next Generation Agenda (NGA), encompassing fixed-line broadband access technologies capable of achieving download speeds meeting the Digital Agenda objective of at least 30 Mbps coverage like VDSL, DOCSIS 3.0 and FTTP, has also seen considerable improvements in Romania. In 2021, NGA coverage in rural areas reached 85% surpassing the EU average of 68% (Figure 4.7, panel B). These developments not only underscore Romania’s commitment to enhancing connectivity and reducing the digital divide across the country but also represent a step forward in advancing the digitalisation of Romanian agriculture.

Figure 4.7. Households with broadband Internet access at home and NGA coverage

As share of all households



Note: Next Generation Access (NGA) coverage includes fixed-line broadband access technologies capable of achieving download speeds meeting the Digital Agenda objective of at least 30 Mbps coverage, such as combination of VDSL, DOCSIS 3.0, and FTTP.

Source: Panel A: OECD (2023), Information and Communication Technology database (ICT Access and Usage by Households and Individuals table), <http://stats.oecd.org/> (accessed July 2023); Panel B: Broadband Coverage in Europe 2021, *Mapping progress towards the coverage objectives of the digital agenda*.

The Romanian farming sector is predominantly composed of small-scale farms which are less inclined to innovate and adopt scale-dependent innovation, such as GPS equipped precision agriculture technologies that optimise input use. This reluctance among small farm-holders may stem from factors such as comparatively more limited financial resources and access to know-how.

Despite progress in connectivity and the existence of funds that potentially could drive modernisation of the agricultural sector, Romania faces challenges in human capital development, hindering the advancement and uptake of innovations. With only 28% of residents possessing basic digital skills in 2021, well below the EU average of 54%, and a significant portion having never used the Internet (one in five), the country grapples with low rates of digital literacy (EC, 2020^[14]; EC, 2022^[56]). Furthermore, rural-urban disparities persist, with only 52% of rural households owning computers compared to 76% in urban areas (EC, 2020^[14]). Recently, several important measures have been implemented to develop digital skills, including reforms and investments outlined in Romania's NRRP (Section 4.3.6). However, it is still too early to observe their impacts and the low level of digitalisation continues to pose a significant hurdle.

Romania is actively pursuing initiatives to digitalise its administration and improve the availability and accessibility of policy relevant data

Romania is pursuing government digitalisation by modernising institutional operations and giving more attention to data. The country is also engaging in EU initiatives focused on adopting new technologies for CAP administrations (EC, 2020^[14]). Embracing satellite-based means to monitor CAP implementation, Romania is to roll out the "area monitoring system" for every parcel applying for support starting from the 2023 claim year.

Moreover, a new on-line module was launched enabling potential beneficiaries to submit application for financing under the NRDP (MARD, 2023^[8]). The Agency for Payments and Intervention in Agriculture (APIA), discussed in Chapter 2, gathers farm-level yearly data via subsidy applications. Collaborating with

public and private entities on data sharing, APIA ensures accurate implementation of payment measures and schemes. These data exchange practices adhere to co-operation agreements and protocols, which are guided by the EU General Data Protection Regulation (MARD, 2023^[8]).¹⁴

While Romania lacks a comprehensive framework governing data use, it has initiated several relevant efforts. These include co-operation agreements between institutions for data sharing, notably involving the Ministry of Agriculture and Rural Development in the field of agricultural data. Legislation like [Law no. 226/2009](#) defines the organisation and functioning of official statistics. An official [governmental portal](#) houses open datasets generated by public administration authorities and institutions (MARD, 2023^[8]). Moreover, the Ministry of Research, Innovation and Digitalisation is currently developing a platform to monitor implementation of the “National Strategy for Research, Innovation and Smart Specialisation 2022–2027” (see Section 4.2.2). This platform aims to replace existing systems,¹⁵ channelling data on public funding for R&D&I from various national sources, and provides a link to the European Commission’s e-Corda platform, hence allowing for future statistical comparisons. Some features of the platform will be accessible to the general public (MARD, 2023^[8]).

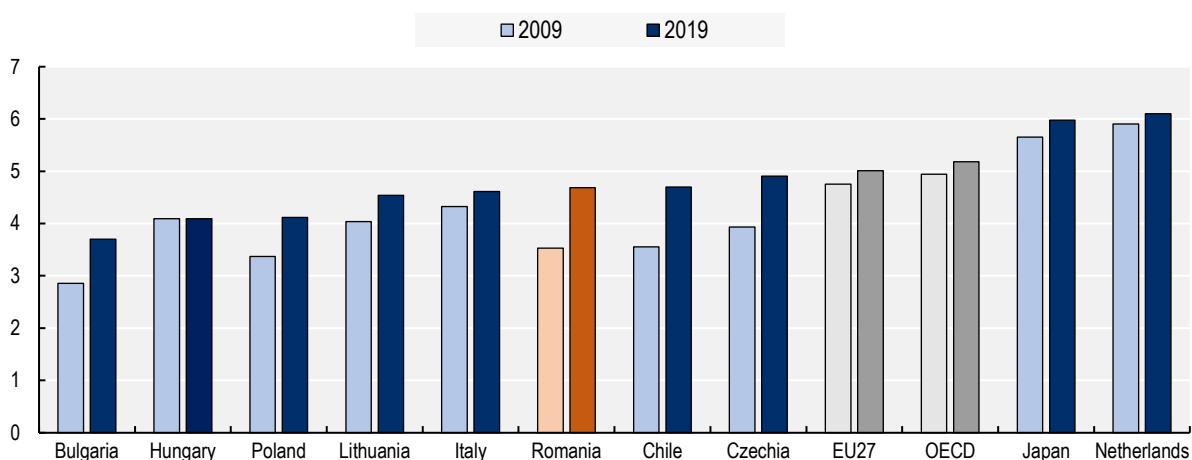
4.4.4. Protection of intellectual property rights

Romania provides a relatively low, though increasing, level of IPR protection compared to OECD countries

Intellectual property rights (IPRs) in Romania are governed by national and international legislation. While the European Union provides a common framework and supranational institutions governing the protection of IPRs, each EU Member States, including Romania, has its own national intellectual property protection system. Romania has been a member of the European Patent Organisation (EPO) since 2003. According to the intellectual patent protection index of the World Economic Forum, Romania provides a relatively low but increasing level of IPRs protection compared to other EU Members and OECD countries (Figure 4.8), indicating ongoing efforts to enhance IPR protection in the country. Notably, Romania experienced the highest increase in the index score among OECD countries between 2009 and 2019, surpassing some EU peers such as Hungary, Lithuania and Italy. However, Romania’s index score (4.7) in 2019 remained lower than the OECD and EU averages.

Figure 4.8. Intellectual property protection index

Scale from lowest (1) to highest (7) protection



Note: OECD and EU27 are the simple average of member countries' indices.

Source: WEF (2019^[60]).

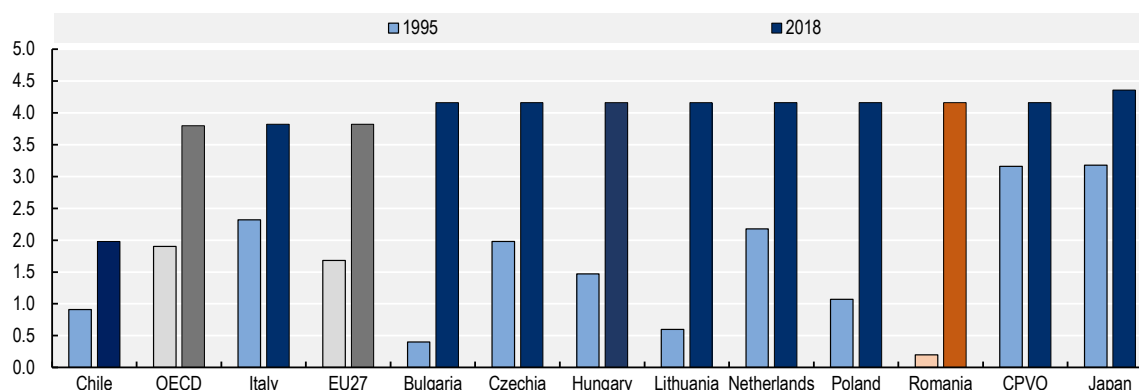
Legal intellectual property protection for plant varieties has increased, bringing Romania up to the protection level of peer EU countries

EU Member States have national IPRs systems protecting their plant varieties and agricultural-related innovations. These nationally defined systems adhere to common standards outlined by international conventions, such as the International Union for the Protection of New Varieties of Plants (UPOV) and the Agreement on Trade-Related Aspects of Intellectual Property Rights. Moreover, the entry into force of the World Trade Organisation (WTO) TRIPS agreement has made IPRs systems worldwide more homogeneous and stronger (Figure 4.9).¹⁶

Romania has demonstrated a commitment to enhancing legal IP protection for plant varieties. The country adhered to the UPOV convention in 2001 and became a member of the latest UPOV convention of 1991 in the same year. Over the years, Romania made substantial strides in increasing its level of IP protection for plant varieties, including giving the State Institute for Variety Testing and Registration a mandate to grant legal protection to new plant varieties (Box 4.3). This advancement is reflected by the rise of the index of legal protection for plant varieties from 0.2 to 4.2 between 1995 and 2018 (Figure 4.9). This upward trend aligned Romania's level of protection with that observed in other EU Member States.

Figure 4.9. Index of legal intellectual property rights protection for plant varieties

Score from lowest (0) to highest (5) protection



Note: CPVO: Community Plant Variety Office. EU27 is the simple average of member countries' indices, which are built using national legislation. Source: Campi and Nuvolari (2021^[61]), Data: www.openicpsr.org/openicpsr/project/121001/version/V1/view.

Box 4.3. Testing and registration of new plant varieties in Romania

The State Institute for Variety Testing and Registration (ISTIS) is responsible for providing legal protection to new plant varieties in Romania. Through 24 Variety Testing Centers, ISTIS conducts the technical examination of plant varieties for registration in the National Variety Register and the Official Catalogue. The registration of varieties of agricultural and horticultural species allows their cultivation and commercialisation in the territory of Romania and of the EU Member States.

ISTIS was established under Law No. 75/1995 concerning the production, quality control, marketing, and use of seeds and planting material, as well as the registration of agricultural plant varieties. It was reorganised from the State Commission for Variety Testing and Approval, originally set up in 1953, and

now operates under Law No. 266/2002, under the Ministry of Agriculture and Rural Development (MARD). ISTIS main duties include:

- Developing examination methodologies and presenting new varieties for registration and publication.
- Examining varieties for registration.
- Preventing unauthorised use of biological material under examination and maintaining confidentiality upon request.
- Storing seed samples of registered varieties.
- Annually verifying the varietal purity of multiplied varieties.
- Maintaining the Variety Register and annually publishing the Official Catalogue.
- Liaising with international organisations in variety testing and registration.

To fulfil its duties, ISTIS collaborates with various departments within the MARD, research institutes, foreign companies, the National Seed Quality Inspection, the Central Laboratory for Seed and Planting Material Quality, territorial inspectorates, the Central Laboratory for Phytosanitary Quarantine, agricultural universities, and other entities both domestic and international.

Source: <https://istis.ro/en/misiunea-i-s-t-i-s-2/>.

4.4.5. Education and training

The agricultural sector is struggling with a shortage of adequately qualified labour to meet the sector's evolving demands, which is primarily due to the aging workforce, low educational attainment, and skills mismatches. Additionally, skilled labour migration from rural areas to urban centres or abroad, driven by low agricultural income, exacerbates this issue (MARD, 2023^[8]).

The low level of education, including of young farmers, poses a significant challenge for the future of the agricultural sector

The education level among Romanian farmers remains notably low, with a significant majority (94.5%) possessing only practical experience and no formal education or training as of 2020, with only a slight decrease from 97.5% in 2010. This percentage is the highest in the European Union, standing significantly above the EU average of 72.4% for the same year. Other EU Member States with high shares of farmers relying only on practical experience include Greece (94.1%), Croatia (91.7%) and Bulgaria (83.5%). Furthermore, despite the existence of educational institution offering secondary and tertiary education in agriculture (see Section 4.3.4), just 5% of Romanian farm managers had basic training and a mere 0.7% received full agricultural training, which is one of the lowest shares in the European Union, comparable to Greece. This trend is particularly pronounced among farmers aged 55 and above, where virtually no Romanian farmers had formal education (97.6% lacked any training, Table 4.2).

Table 4.2. Training level of farm managers, 2010 and 2020

Training level of farmers	Romania			European Union (EU27)	
	2010	2020	2020	2020	2020
	All farmers		Young farmers	All farmers	Young farmers
	<i>Thousands of farmers (%)</i>				
Practical experience only	3 762	2 728	158	6 560	346
	(97.5%)	(94.5%)	(94.8%)	(72.4%)	(58.8%)
Basic training	82	137	5	1 584	117
	(2.1%)	(4.8%)	(3.1%)	(17.5%)	(19.8%)
Full agricultural training	16	21	4	923	126
	(0.4%)	(0.7%)	(2.1%)	(10.2%)	(21.4%)

Note: “Young farmers” refers to farmers aged up to 35.

“Basic agricultural training” is any training course completed at a general agricultural college and/or an institution specialising in certain subjects (including horticulture, viticulture, silviculture, pisciculture, veterinary science, agricultural technology and associated subjects); a completed agricultural apprenticeship is regarded as basic training.

“Full agricultural training” refers to any training course continuing for the equivalent of at least two years’ full-time training after the end of compulsory education and completed at an agricultural college, university or other institute of higher education in agriculture, horticulture, viticulture, silviculture, pisciculture, veterinary science, agricultural technology and associated subjects.

Source: Author’s calculations based on (Eurostat, 2023^[62]), Agricultural holdings and utilised agricultural area by training, age and sex of farm managers [ef_mp_training], (accessed October 2023).

Generational renewal in Romania’s agriculture has shown encouraging trends over the last decade (see Chapter 1). Nevertheless, this does not seem to be injecting so much-needed human capital into the sector, as the share of younger farmers (below 35 years old) with only practical experience (94.8%) closely aligns with the sector average. While younger Romanian farmers show a slightly higher tendency towards full agricultural education (2.1%), this proportion remains substantially below the EU average of 21.4% (Table 4.2).

Young people’s interest in agricultural education seems relatively low. This is evidenced by the decreasing number of graduates from agricultural schools, which dropped from 2 302 in 2014 to 1 650 in 2017, contributing to the overall low level of education among farm managers (EC, 2020^[14]). In tertiary education, while the number of students enrolled in vegetal and animal resources engineering programmes saw a slight decrease at bachelor’s level, relative stability at master’s level, and an increase at doctoral level from the 2018/19 to the 2022/23 school years (MARD, 2023^[8]).

Addressing the gap in agricultural education and training remains a fundamental challenge

The current agricultural curriculum lacks alignment with the diverse needs and interests of farmers, often prioritising theoretical aspects over practical projects and replication of successful solutions. Moreover, existing curricula require better adaptation to modern labour market .

Participation in vocational life-long learning programmes is scarce, with only 1.4% of the population aged 25-64 engaging in formal education over the previous 12 months, and even lower rates in rural areas at 0.7%, according to 2022 data (Eurostat, 2024^[63]). While the Ministry of Agriculture and Rural Development (MARD) offers relevant courses through its County Agricultural Directorates, their availability remains limited. Nonetheless, over the last seven years, participation in the “Second Chance Programme”, which provides opportunities for individuals who missed or did not complete primary or secondary education to join classes organised on a flexible schedule, has nearly doubled (Ministry of Education, 2022^[64]; MARD, 2023^[8]).

Public authorities are actively working to enhance the educational and training offer to attract new students. Notably, through the National Recovery and Resilience Plan (NRRP, Section 4.3.6), the MARD is investing in the modernisation of technical high schools with a predominantly agricultural profile. The plan also includes integrated dual consortia covering the full professional pathway at qualifications level 3-8, with training in agriculture and food subjects. Additionally, in the medium- to long-term, collaborative efforts of the MARD and the Ministry of Education aim to improve agricultural education through curriculum enhancements and triangular partnerships between secondary schools, business and public administration in the area of student's internships. Furthermore, the "ReCONNECT – Adaptation to Change – Integrated Mechanism for Anticipation, Monitoring, Labour Market and Education Assessment" project seeks to develop mechanisms to anticipate the skills demand in VET, monitor the socio-professional integration of initial VET and university graduates into the labour market, and examine relevant public policies. This will be achieved through a digital application enabling the collection and analysis of education and employment data (MARD, 2023^[8]).

4.5. Adoption of innovations and R&D performance

4.5.1. Outputs of R&D investment in agro-food science (publications and patents)

The performance of agricultural innovation systems can be monitored by proxy measures such as the number of patents or scientific publications (Table 4.3). While these metrics only provide a partial picture of the overall innovation performance, they can offer some insights into the country's specialisation in agro-food research and its global relevance (OECD, 2023^[9]).

Despite their limited number, R&D agro-food outputs exhibit a notable visibility and international collaboration

Between 2011 and 2020, Romania's inventors filed on average three patents on agriculture and food science per year, accounting for 3.8% of all patents filed during this period. This share is lower than both the OECD (4.1%) and EU27 (5.0%) averages. Furthermore, the low specialisation level is even more pronounced in terms of scientific publications, with only 2.8% of publications devoted to agro-food topics, which is below the OECD and EU27 averages of 4.7% and 4.9%, respectively.

The importance of Romania's agro-food science outputs on the international arena is limited, with Romania contributing 0.03% and 0.3% respectively to world agro-food patents and publications. While this aligns with countries such as Bulgaria and Lithuania, Romania stands out with a higher share of outstanding publications in this field, defined as belonging to the top 10% of most cited publications, accounting for 5.1%. Nonetheless, this figure remains below the OECD (11.9%) and EU27 (12.0%) averages.

Moreover, Romania demonstrates a relatively high level of collaboration with foreign partners on agro-food outputs, with 22.9% of total patents and 20.9% of publications involving foreign collaborators, surpassing the OECD and EU27 averages. However, this must be viewed in light of a low number of agro-food outputs, in particular in the case of patents.

Table 4.3. Agriculture and food science R&D outcomes

Agriculture and food science R&D outcomes, 2011-20

	Specialisation: Agri-food science outputs as a share of country's total (%)		Contribution: Country's share of world agri-food science output (%)		Collaboration: Agri-food outputs with foreign partners as a share of country's total agri-food outputs (%)		Importance/visibility: Outstanding agricultural/biological science publications as a share of the country's total in this field (%)
	Patents ¹	Publications ²	Patents ¹	Publications ²	Patents ¹	Publications ²	Publications (top 10% most cited)
Romania	3.8	2.8	0.03	0.3	22.9	20.9	5.1
Bulgaria	7.0	7.9	0.03	0.2	33.8	25.3	2.4
Poland	7.0	6.4	0.36	1.8	16.6	16.9	5.8
Hungary	5.8	7.3	0.12	0.4	39.7	32.1	5.0
Lithuania	16.7	6.5	0.06	0.1	27.9	24.5	4.4
Czechia	3.6	8.2	0.12	1.1	23.8	26.8	5.2
Italy	5.9	4.8	2.61	3.0	16.9	31.0	13.1
Netherlands	9.4	3.9	2.98	1.1	24.1	53.8	18.3
Chile	21.1	9.8	0.16	0.6	18.4	39.6	6.5
Japan	2.2	4.0	14.54	3.5	3.7	22.7	6.1
EU27	5.0	4.9	27.34	23.3	14.7	38.7	12.0
OECD	4.1	4.7	86.70	60.0	10.8	33.8	11.9

1. Patents field under the Patent Co-operation Treaty (PCT) by earliest filing date and location of inventors using fractional counts for Specialisation and Contribution and using whole counts for Collaboration. Agro-food includes patents from IPC classes: A01, A21, A22, A23, A24, B21H 7/00, B21K 19/00, B62C, B65B 25/02, B66C 23/44, C08b, C11, C12, C13, C09K 101/00, E02B 11/00, E04H 5/08, E04H 7/22 and G06Q 50/02.

2. Publications in the field of agricultural and biological science refer to the SCOPUS 2-digit All Science Journals Classification (ASJC) and include the following categories: agronomy and crop science, animal science and zoology, aquatic science, ecology/evolution/behaviour and systematics, food science, forestry, horticulture, insect science, plant science, soil science, and miscellaneous agriculture/biological sciences. Data are based on the fractional counts.

3. Top 10% of the world's most cited publications in the field of the agricultural and biological science.

4. EU27 values are the averages of EU Member States, except in the case of Collaboration, where the figures represent collaboration between EU countries and non-EU countries only.

Source: Authors' calculation based on OECD (2023), STI Micro-data Lab: Intellectual Property Database, <http://oe.cd/ipstats> (accessed August 2023); and OECD (2023), OECD STI calculations based on Scopus Custom Data, Elsevier, Version 1.2018; and 2018 Scimago Journal Rank from the Scopus journal title list (accessed August 2022).

4.5.2. Innovation for sustainability (successful cases of innovation for environmental sustainability)

This section showcases various agro-food innovation initiatives in Romania that contribute to environmental sustainability, productivity, and resilience.

“Robo-Fermier”: Developing precision agriculture for organic horticulture

Cultivating organic fruits is labour-intensive and involves repetitive tasks and moves. The “Robo-fermier” project aims to tackle the challenge of agricultural workforce availability in Romania while providing environmental benefits, including reduced emissions due to a photovoltaic charging solution and decreased pollution thanks to localised application of phytosanitary treatment.

The “Robo-Fermier” is a [research and innovation project](#) implemented by an Operational Group and funded under sub-measure 16.1a of the National RDP 2014-20. Its primary objective is to design and test a robotic platform capable of monitoring the phytosanitary status in plantations and applying disease and pest

control solutions. Additionally, the “Robo-Fermier” can mow and shred weeds between rows and fruit trees, simplifying plantation maintenance. It moves autonomously around the plantation thanks to the application used to control the robot and batteries charged in the photovoltaic station.

The project brings together an organic fruit-producing company (project leader), a research and development station for fruit growing ([Research and Development Station for Fruit Tree Growing Băneasa](#)), a robotics spin-off company, and a consulting firm in the field of organic farming to develop precision agriculture solutions for ecological horticulture. Key project activities include designing and testing the robotic platform, developing software for disease and pest recognition, and creating a mechanised harvesting solution. Additionally, the project will include demonstration activities regarding the technology’s functionality, assessment of the economic efficiency of such a solution, and dissemination of the results.

“Eco-Fruct-BN”: Developing eco-friendly techniques for pest management in orchards

Pests like the apple worm, apple stem borer, plum worm, and plum fly pose significant challenges in orchards. The “Eco-Fruct-BN” project aims to develop and implement an economically viable strategic plan for integrated pest management (IPM). This initiative seeks to advance the adoption of low-chemical technologies in orchards and post-harvest fruit production, with the goal of minimising pesticide use, ensuring high quality fruits that meet market demands, and reducing the environmental impact.

The “Eco-Fruct-BN” project, funded under sub-measure 16.1a of the National RDP 2014-20, allowed specialists in ecological chemistry from Babeş-Bolyai University (researchers) and four farmers from the Bistrita-Năsăud county to join forces within the Operational Group (OG) to develop new eco-friendly techniques for pest management in orchards. Researchers bring the necessary expertise in implementing the IPM strategies to control pest without eradicating beneficial fauna, hence reducing pest populations to levels below the economic damage threshold. Farmers contribute with their experience and actively participate in implementing field experiments.

The research unit prepares the materials (including synthesized pheromones, dispensers, and traps) for field tests, while farmers conduct specific orchards maintenance activities incorporating innovative mating disruption biotechnologies. Indicators such as trap catches and fruits damage are monitored, and the effectiveness of eco-technics is evaluated. Experiments also attempt to assess the ability of ozone technology to preserve apples over the winter. Results from these experiments will be disseminated through conferences, workshops, and webinars with the partners, and encouraging other farmers to join the OG.

“Bee Smart, Bee Healthy”: Developing innovative tools for prevention and control of pests in beekeeping

Climate change negatively impacts beekeeping by reducing the availability of raw materials like nectar and pollen, while increasing the risks of diseases and pests. The globalisation has further exposed bee populations to new pathogens. Inadequate monitoring and poor practices also threaten bee welfare and the economic sustainability of beekeeping. Therefore, early identification and efficient combat of threats are essential for the well-being of honeybees and for achieving richer harvests.

The “Bee Smart, Bee Healthy” project, nominated for the EIP-AGRI Innovation Awards 2024, aims to enhance beekeeping efficiency through innovative tools designed to prevent and detect pests in bee colonies. Led by the Napoca Porolissum LAG Association, the project involves collaboration through the Operational Group and the Living Lab, among beekeepers, several Local Action Groups (LAGs), and other stakeholders.

At the centre of this project are the Smart Hives (SHs), which monitor bee colony behaviour and detect anomalies. These SHs will form the basis of an early warning system for infestations or hive anomalies.

Plant extracts with biologically active components from api-/phyto-products will stimulate bee colony growth, indirectly boosting honey production, and effectively combat infections and invasions in hives. A Smart Sensory Network, consisting of all Smart Hives, will monitor bee colony welfare across a large territory. This network will continuously collect and analyse data to identify patterns of bee pathology over time and space. Analysing these trends and forecasts will not only help proactively address issues but also produce results that can be applied to conventional hives in selected areas.

4.6. Conclusions

The agricultural knowledge and innovation system (AKIS) in Romania must respond to the needs of a large number of small farmers with relatively low levels of formal education. Ninety-five per cent of the 2.8 million Romanian farmers have not received formal training and rely solely on practical experience. Despite recent positive developments in generational renewal, farmers under 35 years old also have low educational attainment and do not bring sufficient new capacities and skills to transform the sector.

Agricultural knowledge and innovation are gaining more importance in strategic plans and priorities in Romania, including in the CAP Strategic Plan for 2023-27 and in the National Strategy for Research, Innovation and Smart Specialisation 2021-27. However, given the heavy reliance on EU funds, it is crucial to take full advantage of these plans adapting their implementation to local needs. Additionally, the participation of CAP beneficiaries in professional training courses should be strengthened.

Over the last 30 years, the landscape of AKIS institutions has experienced frequent changes in different directions, resulting in the fleeting presence and activity of different actors, and fragmented collaboration among them. Limited resources remains a serious issue, especially in areas such as farm advisory services or research and development. The AKIS remains under the influence of several sectoral policies that need stronger coordination to contribute more effectively to the modernisation of Romanian agriculture and attract private sector funding.

Agricultural research efforts are largely driven by public institutes, with limited funding to upgrade research facilities and attract and retain the best researchers and technicians. Being part of the European Research Area, Romania has a great opportunity to leverage the research capacity of other Member countries and benefit from the exchange of experiences. As evidenced by the relatively large share of agro-food publications and inventions with foreign co-authors, Romania is already moving in this direction.

Recent initiatives, such as the legal framework for the introduction of a complete vocational education pathway, and investments in the modernisation of agricultural schools are promising steps. However, despite some important steps, the current level of education of Romanian farmers is still inadequate for the challenges and needs of the sector, requiring consistent efforts to upskill agricultural producers.

Raising the education level of Romanian farmers is a long-term goal, but other measures may be needed in the short term, notably in view of the limitations of existing agricultural advisory services. While the current focus of advisors on providing information on EU funding requirements helps farmers navigate administrative procedures, their assistance to farmers on the ground is still limited (e.g. on novel technologies and sustainable farming practices) due to high farmer-to-advisor ratio. Advisors' availability for their direct interactions with agricultural producers on-the-ground is essential, as they have the potential to help identify research and education needs, thereby helping to drive agricultural innovation.

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Notes

¹ “Innovation Leaders” have a relative performance above 125% of the EU average; “Strong Innovators” have a relative performance between 100% and 125% of the EU average; “Moderate Innovators” have a relative performance between 70% and 100% of the EU average, while “Emerging Innovators” have a relative performance below 70% of the EU average.

² Local Action Groups (LAG) refers to local partnerships within the CAP LEADER approach.

³ Romania is divided into 41 counties and the municipality of Bucharest and the 42 CADs mirror Romania’s territorial organisational structure (MARD, 2023^[65]).

⁴ The organisation and operation of CAD's is regulated by Law no. 157/2016.

⁵ The creation of the Digital Policy Laboratory was a response to the results of the project "Strategic framework for the adoption and use of innovative technologies in public administration 2021-2027" conducted in partnership between the Authority for Digitalisation of Romania and the Technical University of Cluj-Napoca (MARD, 2023^[65]).

⁶ The provisions of art. 20 of Law no. 227/2015 on the Fiscal Code.

⁷ See <https://www.asas.ro/en/academy/academy%2btoday.html>.

⁸ The revision process involved the development of professional standards by labour market representatives, their implementation by the Sectoral Committees and their approval by the National Qualifications Authority (MARD, 2023^[65]).

⁹ Nine comprehensive public higher education institutions: National University of Science and Technology Politehnica Bucharest, "Transilvania" University of Brasov, "Ovidius" University in Constanta, University of Craiova, "Dunărea De Jos" University in Galati, University of Oradea, "Lucian Blaga" University in Sibiu, "Ștefan Cel Mare" University in Suceava, "Valahia" University in Târgoviște, and 2 comprehensive private universities: Western University "Vasile Goldiș" in Arad and "Sapientia" University in Cluj-Napoca.

¹⁰ Measure 16 also includes sub-measures that do not target innovation or knowledge exchange. As a result, the funds allocated for agricultural R&D&I under the CAP 2014-22 might be overestimated compared to the CAP 2023-27.

¹¹ R&D intensity is defined as expenditure for R&D in the agricultural, and food and beverages sectors, or in the economy as a whole, in relation to the size of the sector or the economy.

¹² M16 can also benefit recipients whose primary goal is not innovation or knowledge exchange, e.g. "small" operators in rural areas collaborating to achieve economies of scale.

¹³ Ratio of retained proposals to the total number of eligible proposals received.

¹⁴ The General Data Protection Regulation imposes obligations concerning data privacy and security. While the Regulation intends to protect personal data, it may have adverse effects on research as it creates barriers to data processing necessary for scientific research (Regulation (EU) 2016/679).

¹⁵ Currently, the data are primarily hosted on two national platforms: the MySmis platform, which encompasses data on investment and structural funds at the national level; and platform developed by UEFISCDI, the main executive agency for R&D&I programmes (MARD, 2023^[65]).

¹⁶ The TRIPS made compulsory the protection of plant varieties either by patents or by a sui generis system. Moreover, it made the patentability of microorganisms and non-biological and microbiological processes for the production of plant varieties compulsory for WTO members.

5 Food systems

Romania has introduced a broad set of policies to tackle the “triple challenge” facing food systems. Food markets in Romania are functioning well, although farmer cooperation and integration into global value chains is relatively low. This chapter explores the agro-food supply chain and selected food system related policy areas, including market regulation and competition, food assistance programmes and food waste. The chapter also examines Romania’s policies for encouraging healthy diets and consumption choices and the approach for promoting policy coherence and ensuring stakeholder involvement in the regulatory process.

Key messages

- Romania, as for most OECD countries, does not have a co-ordination body or mechanism that comprehensively covers food systems policies. Inter-ministerial co-ordination for food systems-related policies is key to facilitate the identification of potential synergies and trade-offs and to offer an opportunity to discuss the best way to address them.
- Low farmer cooperation and weak participation in producer organisations are missed opportunities. Enhancing cooperation and participation in associative forms could increase agricultural competitiveness, especially for small and medium-sized farms.
- One-fourth of all deaths in Romania annually can be attributed to dietary risks. Daily consumption of fruits and vegetables is the lowest in the European Union and is decreasing. Various policies to encourage healthier food choices exist, but recent trends call for strengthening this policy mix, maximising potential synergies, and improving co-ordination among actors.
- Romania lacks reliable data on food waste levels, limiting the capacity of public authorities to monitor goals and evaluate its performance. Based on existing data, food waste treatment is low and decreasing.
- Despite notable improvements in its regulatory policy since the early 2000s, the use and quality of regulatory impact assessments (RIAs) is uneven and there is no requirement for the periodic review of existing regulations. When it comes to negotiating and transposing EU directives and regulation, Romania relies solely on the EC's RIA and stakeholder engagement.

5.1. General landscape of generic agricultural and livestock supply chain, including market concentration

Food systems cover all the elements and activities related to producing and consuming food, as well as their effects (OECD, 2021^[1]). They comprise all the institutions, people, places and activities that participate in growing, processing, transporting, selling, marketing, and consuming food (Food Systems Dashboard, n.d.^[2]). In this spirit, this section will describe the landscape of the agricultural supply chain to provide context for the rest of the chapter.

While it does address policies, this section has a more descriptive nature. It looks into the distribution of value added across the agro-food supply chain (5.1.1), market concentration in processing and retail (5.1.2), co-operation (5.1.3), integration into global value chains (5.1.4) and responsible business conduct in agricultural supply chains (5.1.5).

5.1.1. Distribution of value added across the agro-food supply chain

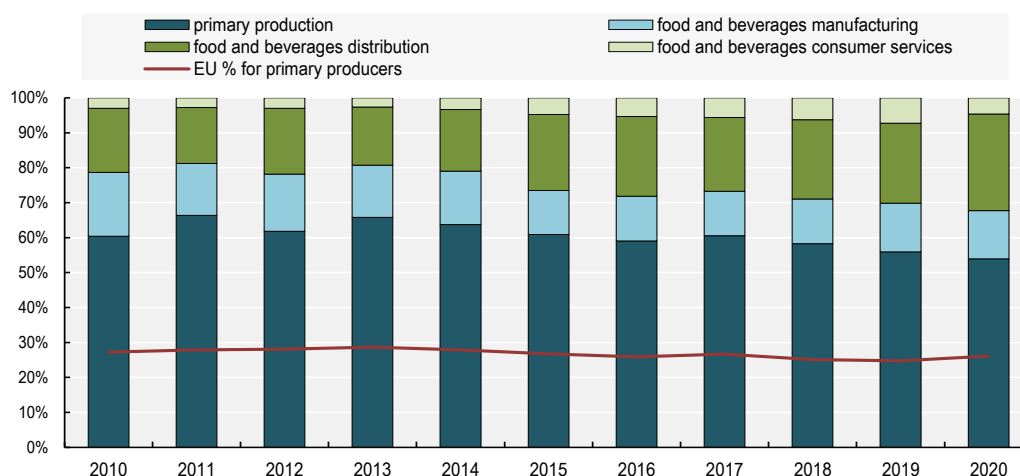
Primary production accounts for more than half of the food value added in Romania

As explained in Chapter 1, the contribution of agriculture to Romania's total value added (4.2%) is significantly higher than EU (1.8%) and OECD (2.8%) averages. The importance of primary production is equally seen in the whole food value chain, where it accounted for 54% of the total food value added in 2020 (down from 60% in 2010). This is the highest share among EU member countries and well above the EU average (26%). The remaining value added was distributed among food and beverages distribution services (28%), food and beverages manufacturing (14%) and consumer services (5%) (Figure 5.1). In the

2010-20 period, the segment with the highest growth was distribution services with a 10 percentage points increase (from 18% in 2010 to 28% in 2020).

Figure 5.1. Primary production contributes more than half of the food value added

Share in total food value added, by segment



Source: European Commission (2023), CAP Result indicator RPI_03 Value for primary producers in the food chain, https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorer.html?select=EU27_FLAG_1.

5.1.2. Market concentration in processing and retail

Market concentration is relatively low in the food and beverages processing and retail sectors

Market concentration in the food and beverages processing sector is low for food products.¹ In 2018 the four main players (CR4) in food manufacturing controlled 12% of the market (4 percentage points higher than in 2009). The main player was Groupe Lactalis with a market share of 5%. There were 16 other companies with at least 1% market share, three of which were only present in the Romanian market (Van Dam et al., 2021^[3]). Market concentration in soft drinks is higher but moderate, with the four main players (CR4) having 44% of the market share in 2018 (9 percentage points lower than in 2009). The market leader was The Coca-Cola Co. with 23% market share, while there were 11 more companies having at least 1% market share. Of these eleven companies, six were exclusively present in the Romanian market (Van Dam et al., 2021^[3]).

Romania had 41 modern grocery retailers per 100 000 inhabitants in 2021, which is below the average for eastern Europe (Food Systems Dashboard, n.d.^[4]).² In 2018, market concentration in the grocery retail sector was low (CR4 of 37%) and the market leader was Schwarz Beteiligungs with an 18% share. Seven other companies had more than 1% market share, one of which works exclusively in the Romanian market (Van Dam et al., 2021^[3]).

5.1.3. Co-operation and other interventions to improve farmers' position in the value chain

Participation in producer organisations and other associative forms is low, despite a recent increase in the number of agricultural co-operatives

Similarly to other post-socialist economies, co-operation among farmers in Romania is very low (see Section 1.3.1) and only 1% are part of any type of associative structure (Dobay, 2022^[5]). Regarding associative forms recognised by the EU common organisation of agricultural products (see Box 5.1), in May 2024 there were 23 recognised associations of producer organisations (APOs/POs), all of which operate in the fruit and vegetable sector, and five inter-branch organisations (IBOs) (MARD, 2022^[6]). In relative terms this means that in 2020 Romania had around 12 recognised POs per one million holdings, while the EU average for the same year was 410.³ Romania also has 226 producer groups (PGs).

Despite the low participation of farmers in POs and other associative forms, the recent increase in the number of co-operatives is a positive signal. Indeed, 737 new co-operatives were established in 2021, which is significantly higher than previous years, as only 1 749 co-operatives were created in the 2005-20 period (Dobay, 2022^[5]).⁴ Key enablers for this increase include an improved legal framework, the possibility to access EU and national funds, and special fiscal benefits (Dobay, 2024^[7]) (Tudor and Roşu, 2022^[8]).⁵

Box 5.1. Associative forms in the EU common organisation of markets in agricultural products

Producer organisations (POs), associations of producer organisations (APOs) and inter-branch organisations (IBOs) are the main associative structures recognised by the common organisation of markets in agricultural products contained in Regulation (EU) No. 1308/2013 and Regulation (EU) No. 2021/2017 (CMO Regulation). Producer organisations can be defined as any entity, including co-operatives, that has been formed and is controlled by producers in a specific sector to jointly pursue one or more of the objectives set forth in the CMO Regulation. APOs are associations of POs, while IBOs are groups composed of farmers and processors and/or traders.

When POs, IBOs and APOs meet certain characteristics, they can be recognised by the EU Member States, which allow them to receive EU financial support and benefit from certain derogations from competition rules. CAP regulations have long provided for derogations from EU competition rules for some sectors (e.g. dairy, pork, sugar, fruit and vegetables, wine) to allow farmers to co-operate through POs, APOs, and IBOs. The Omnibus Regulation (EU) No. 2017/2393 extended to all production sectors the possibility for these groups to collectively negotiate contracts for the supply of agricultural products, including price contracts.

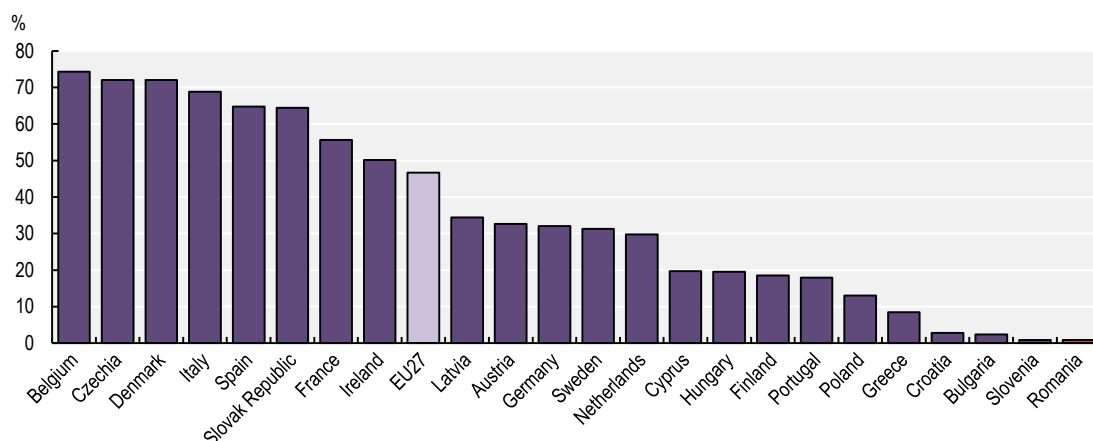
Source: (EC, 2018^[9]), (OECD, 2023^[10]).

The contribution of producer organisations to the economy is remarkably low

Across the European Union, recognised POs play an important role in the fruit and vegetables sector, as can be seen in the high percentage of the total production that they market. While the EU average was 46.7% in 2021, in Romania it was less than 1% (Figure 5.2). Romania's CSP has set the goal of increasing the share of production marketed by POs in total fruit and vegetable production to 1% by 2027 (MARD, 2022^[6]).⁶

Figure 5.2. POs are important for marketing fruit and vegetables in most EU countries

Share of production marketed by POs in total fruit and vegetables production



Note: Data unavailability for Estonia, Lithuania, Luxembourg, and, Malta.

Source: European Commission (2023). CAP indicators, Adding Value. https://agridata.ec.europa.eu/Qlik_Downloads/Adding-Value-sources.

The potential of greater co-operation is seen as a key opportunity under the CSP

Participation in POs, co-operatives and other associative forms could have multiple benefits. A recent EU-wide study suggests that the more straightforward impact of PO membership is on soft factors, e.g. access to market, improvement of marketing procedures, stability and security (Ecorys et al., 2023^[11]). Romania's CSP sees POs as a tool for farmers to improve and adapt their production to market requirements, perform marketing activities, optimise costs, and access EU funds⁷ (MARD, 2022^[6]). There is also evidence suggesting that agriculture co-operatives in Romania were generally profitable and more resilient to the shocks generated by the Covid-19 pandemic (Dobay, 2022^[5]) (see Section 1.3.1). Under this premise, strengthening co-operation among farmers is seen as key to achieving the 2023-27 CAP's objective of improving the position of farmers in the value chain.

Various interventions under Romania's CSP aim at improving co-operation, but similar measures have had very low uptake in the past

As discussed in Chapter 2, key objectives of Romania's CSP are increasing the viability of farms as well as strengthening their market orientation, by intensifying co-operation, encouraging collective investment, modernisation of farms, investment to improve productivity while developing, and modernising the food industry. Key interventions focusing on improving the position of farmers in the value chain include setting up PGs in the agricultural/fruit sector (EUR 15 million), diverse measures for the fruit and vegetable sector (EUR 8.6 million) and developing co-operation in the value chain through short supply chains (EUR 20 million) (see Section 2.4.5). The objective is that 63 producer groups, representing 922 agricultural holdings, to benefit from these interventions during the current programming period. This goal seems very low and represents only 0.03% of all farmers.

EUR 20 million has been planned to support 71 EIP operational groups (OGs), which bring together farmers and researchers, as well as innovation brokers and advisors to tackle practical problems or explore emerging opportunities that may lead to innovative solutions and increased innovation in the agricultural sector (MARD, 2022^[6]). These Operational Groups are a key tool to foster collaboration among AKIS actors (see Section 4.4.2). Furthermore, 206 local development strategies will be put in place (with a support of EUR 500 million) under LEADER, the community-led local development approach bringing together public, private and civil-society stakeholders to find shared solutions for rural areas (see Section 2.3.5). The

Romanian Government has also supported other innovative community-led approaches to increase the value added of primary production, foster co-operation and diversify the rural economy, such as the local gastronomic points (Box 5.2).

Box 5.2. Local gastronomic points in Romanian rural areas

Local gastronomic points have emerged as a way for farmers and rural communities to benefit from the opportunities that tourism and local gastronomy offer

Local gastronomy has always been important for rural areas, but small-scale units have traditionally operated informally, with limited visibility, no sanitary requirements and without access to government support. Since 2016, and as a response to community demands, local gastronomic points (LGP) emerged as a way to formalise existing catering activities and allow rural communities to benefit more from the opportunities that tourism offers. In 2019, the concept was formally created by Order no. 106/2019 of the National Sanitary Veterinary and Food Safety Authority (NSVFSA).

LGPs are small catering units in rural areas which serve traditional culinary products to up to 12 people, using raw materials predominantly from primary production at the level of own holding, as well as from local producers. LGPs must comply with sanitary and phytosanitary regulation issued by NSVFSA and source from authorised producers. Unlike restaurants, LGPs offer tourists the opportunity to benefit from traditional local dishes, produced and served directly by family members in their own household.

The National Agency of Mountain Areas and MARD have organised an information and educational campaign to encourage participation in LGPs and multiple LGP projects have benefitted from EU resources. Increasing educational measures and improving the regulatory of fiscal framework could strengthen the development of LGPs.

In 2022, there were 542 registered LGPs and feedback from producers, rural communities and consumers has generally been positive.

Source: (World Bank, 2023^[12]), (Ungureanu, Țaran Baci and Candrea, 2022^[13]), (Dobay and Apetroaie, 2023^[14]), information provided by MARD.

Experience shows that interest for these measures has been low in the past. Among the 21 measures of the 2014-2022 Rural Development Programme, those aiming at fostering POs and co-operation had the lowest uptake (see Section 2.3.2). In the case of measures for the establishment of PGs and POs (M09), EUR 40 million had been budgeted, but only EUR 17 million was spent. This could be linked to broader limitations that POs face for the implementation of their operational programmes (OPs), such as administrative burdens, low managerial skills, and lack of knowledge and awareness among POs about OPs (Ecorys et al., 2023^[11]). The fact that beneficiaries must be recognised PGs can also explain the low uptake. Similarly, for co-operation (M16),⁸ only EUR 20 million was spent out of a EUR 81 million planned budget.

5.1.4. Integration of the food industry into global value chains

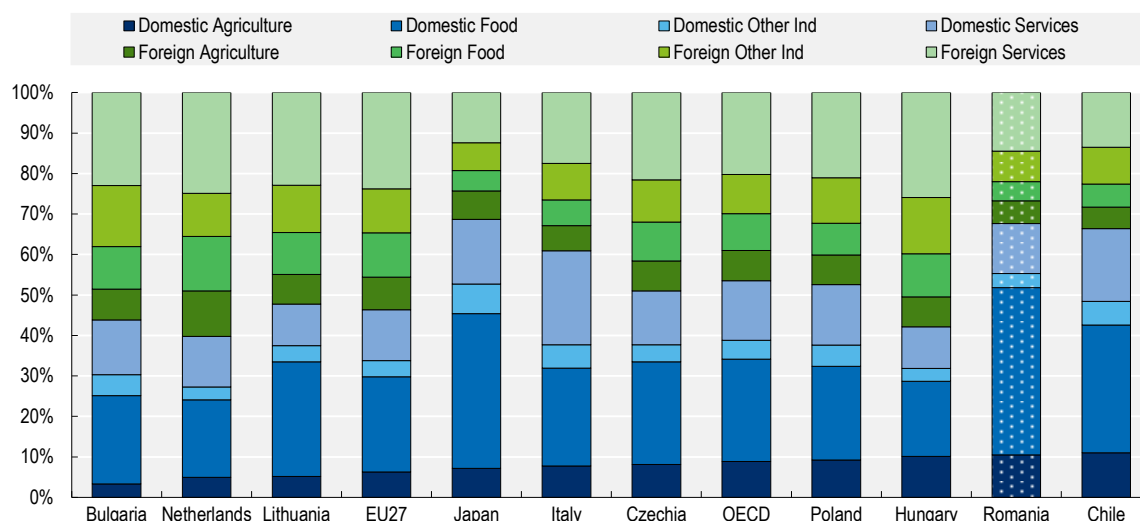
The integration of Romania into global value chains is relatively low

As shown in Chapter 1, the food, beverages, and tobacco industry in Romania has achieved a slightly higher integration into global value chains (GVCs) than primary agriculture, although its GVC participation is lower than in most peer countries. The indicators of participation of the food industry in GVCs have increased since 2000, as has the content of foreign services value-added in food exports.

Almost one-third (32%) of the value added in Romania's domestic demand for food, beverages and tobacco comes from foreign sources (Figure 5.3). This is below the shares recorded in most peer countries and lower than the EU and OECD averages. Services was the most important foreign source industry, accounting for 14% of the value added in the food sector's final demand. Considering the performance of OECD economies of similar size, there is ample room for Romania to deepen its integration in global value chains (OECD, 2022^[15]).

Figure 5.3. Foreign industries account for one third of the value added in the food domestic demand

Origin of value added in the domestic demand for food, beverages, and tobacco, 2020



Note: The values for EU and OECD are simple averages of the values of their members. In TiVA indicators, aggregates (in this case the EU and the OECD) are treated as a single economy (intra-region flows of value added are considered as domestic flows).

Countries are sorted according to Domestic Agricultural value in 2020.

Source: OECD (2023), Trade in Value Added (TiVA) [database], <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (consulted in December 2023).

5.1.5. Responsible Agricultural Supply Chains

Romania promotes the use of the OECD-FAO Guidance for Responsible Agricultural Supply Chains, but has not yet adhered to the Recommendation of the Council

Romania is an adherent to the Council Recommendation on the OECD Due Diligence Guidelines for RBC (Guidelines) and established its National Contact Point⁹ since 2005. Romania has also adhered to other RBC-related instruments, including Recommendations related to sector-specific guidance. Romania is not an adherent to the Recommendation of the Council on the OECD-FAO Guidance for Responsible Agricultural Supply Chains (OECD-FAO Guidance).

Despite not being an adherent, Romania has undertaken promotional activity to encourage the use of the OECD-FAO Guidance. Beyond these types of promotional activities, some adherents to the OECD-FAO Guidance Recommendation have undertaken additional actions, including incentivising the use of the OECD-FAO Guidance in company management systems, and conditioning public procurement on demonstrated implementation of the Guidance (OECD, 2022^[16]).

5.2. General landscape of food system policies, including market regulations

Food systems around the world are expected to deliver on a formidable “triple challenge”. The first requirement is to ensure food security and nutrition for all. The second is to provide livelihoods to farmers and others in the food chain and promote rural development. The third is to do all this while ensuring environmental sustainability – i.e. using natural resources sustainably (including protecting valuable ecosystems and biodiversity) and reducing greenhouse gas emissions, as well as meeting other societal expectations such as animal welfare (OECD, 2021^[11]). The “triple challenge” framing and the relevance of a food systems approach has been recognised by the 2022 OECD Agricultural Ministers Declarations to which Romania has adhered to.¹⁰

Romania does not have a food systems law or integrated policy that simultaneously looks at the three elements of the triple challenge. Agricultural policy follows three main drivers: the CAP objectives and the strategic vision for the sector is mainly contained in the CSP; the Strategy for the development of the agri-food sector in the medium and long term 2020-2030; and the National Sustainable Development Strategy 2030 (see Section 2.5.1). Additionally, multiple other food systems-related policies co-exist and fall under the responsibility of authorities scattered across jurisdictions, government agencies and levels of government. This structure is frequent given the complexity of food systems (OECD, 2021^[11]).

While an exhaustive overview of all food system-related policies would exceed the scope of this accession review, this section will briefly look at specific topics related to each of the three challenges faced by food systems:

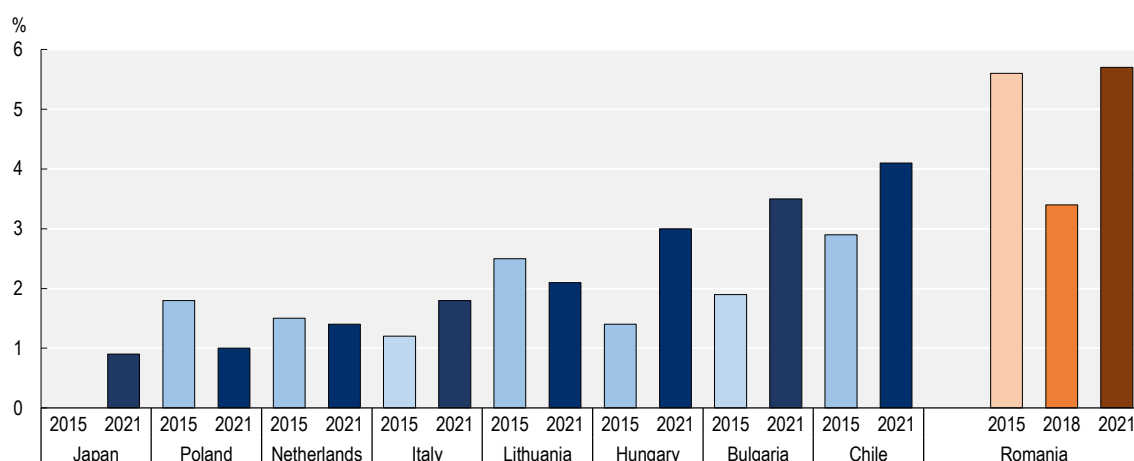
1. *Food security and nutrition*: emphasis will be given to the existence of school meals programmes, food vouchers and food banks, three important types of food assistance programmes in OECD countries (Giner and Placzek, 2022^[17]).
2. *Improved livelihoods of farmers and others*: emphasis will be given to market regulation and competition issues.
3. *Environmental sustainability*: while the most relevant issues related to agriculture and natural resource management are analysed in Chapter 3, here emphasis will be given to food waste, a topic of growing interest for OECD members.¹¹

5.2.1. Food assistance programmes

Food insecurity in Romania increased following the COVID-19 pandemic

In 2022, nearly one-fourth (22.1%) of all people in Romania were unable to afford a meal with meat, chicken, fish, or a vegetarian equivalent every second day (EC, 2024^[18]). Furthermore, the 2019-21 period represented a setback for Romania in terms of reducing the prevalence of severe food insecurity in its population, which surpassed 2015 levels in 2021 (Figure 5.4), after a steady decline between 2015 (5.6%) and 2019 (3.4%). While this is a trend also seen in other OECD and EU countries after the COVID-19 pandemic, it calls for stepping up efforts to tackle food insecurity.¹²

Responses to food insecurity are not limited to food assistance programmes analysed in this section and could instead focus on livelihood assistance such as increasing universal social security payments or providing cash transfers or universal basic income (Giner and Placzek, 2022^[17]).

Figure 5.4. Prevalence of severe food insecurity in the population

Source: World bank (2023), World Development Indicators, <https://databank.worldbank.org/source/world-development-indicators>, accessed November 2023.

School meal programmes are important in Romania but could be strengthened

Romania has a school meal programme in force which, in the 2020-21 school year, delivered fruits, vegetables and dairy products to 1.9 million children in public and private schools and covered 60% of primary and secondary school-age children (GCNF, 2021^[19]). Furthermore, its coverage significantly increased since 2016, with 2022 numbers showing a 21% increase in the number of beneficiaries and a nearly a three-fold increase in the number of participating schools and kindergartens (S.C. CC SAS S.R.L., 2023^[20]).

The main objectives of the school meal programme are to (i) promote and raise awareness of healthy eating habits, (ii) increase short-term and long-term consumption of fruits and vegetables in children, and (iii) increase the degree of information children have about local food products and about fighting food waste (MARD, 2022^[6]). At the same time, the programme is seen as an opportunity for the dairy, fruit and vegetables sectors, with potential to supporting local producers (MARD, 2022^[6]).

The school meal programme in Romania benefits from resources of the EU school scheme,¹³ which supports the distribution of certain products to school children, ranging from nursery to secondary school, and includes educational measures, with the aim of increasing the consumption of the covered products, and contribute to shaping healthier diets (EC, 2022^[21]).

According to a 2021 survey conducted by the Global Child Nutrition Foundation, recent successes include the extension of the hot meals pilot programme which passed from operating in 50 schools in 2016 to 150 schools in the 2020-2021 school year and to 450 in 2022 (EC, 2023^[22]). This pilot has recently evolved into the “Healthy Meal” national programme, which aims at providing hot meals to 1 000 schools in 2024 (Government of Romania, 2024^[23]).

Challenges include shortage of space for preparing and serving hot meals, lack of human resources, and insufficient funding (GCNF, 2021^[19]). Additionally, recommendations from an evaluation of the programme for the 2017-22 period include (a) simplifying procurement procedures, (b) increasing the use of digital tools to simplify internal procedures and improve monitoring, (c) providing schools with cooling and storage infrastructure, (d) encouraging a more active involvement of educational institutions and local authorities, and (e) increasing funding (S.C. CC SAS S.R.L., 2023^[20]). In the same line, a recent EU-wide evaluation found that the variety of fruit and vegetable products distributed at Romanian schools has significantly decreased, payment and selection procedures are lengthy and burdensome, and educational measures

are not very effective (EC, 2022^[21]) (EC, 2023^[24]). Furthermore, unlike most EU Member States, the interaction between the school scheme and national health initiatives was weak (EC, 2022^[21]).

Co-ordination of food banks has improved but they are not able to meet the growing needs

Food banks are not-for-profit organisations that collect and distribute food to people struggling with food insecurity. While they were initially developed as an emergency tool for a hungry population, they still play a major role for food insecure households in many OECD countries and across the world. In Europe, over 350 food banks from 30 countries, including Romania, are brought together under the umbrella of the European Food Banks Federation (FEBA). The daily mission of FEBA members consists of recovering, collecting, sorting, storing, and redistributing safe and nutritious food for free to charities that assist families and people in need (Giner and Placzek, 2022^[17]).

In Romania, the Federation of Food Banks of Romania (FBAR)¹⁴ was created in 2020 and became fully operational in 2022, with the objective of co-ordinating food banks and act as a representative body to FEBA (FEBA, 2022^[25]). FBAR has grown rapidly and now brings together 121 donor companies for the benefit of 650 beneficiary NGOs and to date it has achieved the distribution of around 18 000 tonnes of food, reaching around 225 000 people (Banca pentru Alimente, n.d.^[26]). Despite the progress, food banks in Romania are not able to meet the increasing needs revealed by charity organisations (FEBA, 2022^[27]).

Romania has recently started using food e-vouchers

In May 2022, and as a response to high inflation, the Romanian Government introduced a series of temporary measures to support some of the most vulnerable segments of the population. One of these measures was the creation of “social” e-vouchers to be used for purchase food products and hot meals, as part of two national programmes¹⁵ funded by the European Social Fund Plus (ESF+) and the European Regional Development Fund (ERDF)¹⁶ (Government of Romania, 2022^[28]). These e-vouchers are provided every two months for a value of RON 250 (EUR 50) and beneficiaries include homeless people, social assistance recipients and low-income pensioners and single-parents. The government estimates that around 3 million people will benefit annually from these vouchers (Human European Consultancy, 2024^[29]). The provision of these e-vouchers has been extended until 2027, but with reduced amounts and frequency between 2025-27.

Using food vouchers, particularly e-vouchers, can have certain benefits, such as reducing the costs and administrative burden of the contracting authority, increase efficiency for implementing organisations, and potential to give recipients a greater sense of dignity and autonomy (EC, 2021^[30]). Some OECD countries are also exploring how to link the use of food vouchers with healthier food choices.¹⁷

5.2.2. Market regulation and competition issues

Market regulation in the agro-food sector is in line with EU regulation

Upon its EU accession, Romania became part of the EU single market and measures related to the trade of agro-food products, such as tariffs and tariff rate quotas (TRQs) are defined and co-ordinated at the EU level, as is the large majority of legislation related to Sanitary and Phytosanitary (SPS) measures and technical barriers to trade (TBT).

Equally, Romania is subject to the common organisation of agricultural products contained in Regulation (EU) No 1308/2013 and Regulation EU 2021/2117, which regulates the use of market-support tools, exceptional measures, and aid schemes for certain sectors. In the context of market and economic crises, also the previous CAP 2014-22 (Regulation (EU) No. 1308/2013) included several measures that could be activated, notably the traditional instruments of public intervention and support for private storage, which were augmented by provisions for exceptional measures in the event of a market disturbance (Articles

219-222) for all products (OECD, 2023^[10]). These articles provide considerable discretion to the European Commission to handle market crises, including the use of voluntary supply controls and financial support packages. In addition, Member States can be authorised to provide national assistance to their farmers under state aid rules, an option often used in response to the COVID-19 pandemic and the energy price hike induced by the war in Ukraine (OECD, 2023^[10]). Romania's government implemented several emergency measures to mitigate the exceptional circumstances created by the COVID-19 pandemic. These included specific support for the livestock sector, as well as various other measures under the Regional Development Programme for an amount of nearly EUR 180 million (see Sections 2.3.2 and 2.5.3). Specific measures to tackle recent crises and fight food inflation are described in Section 2.6.2.

Romania's legislation tackles unfair commercial practices in the agro-food supply chain, in line with EU Directive

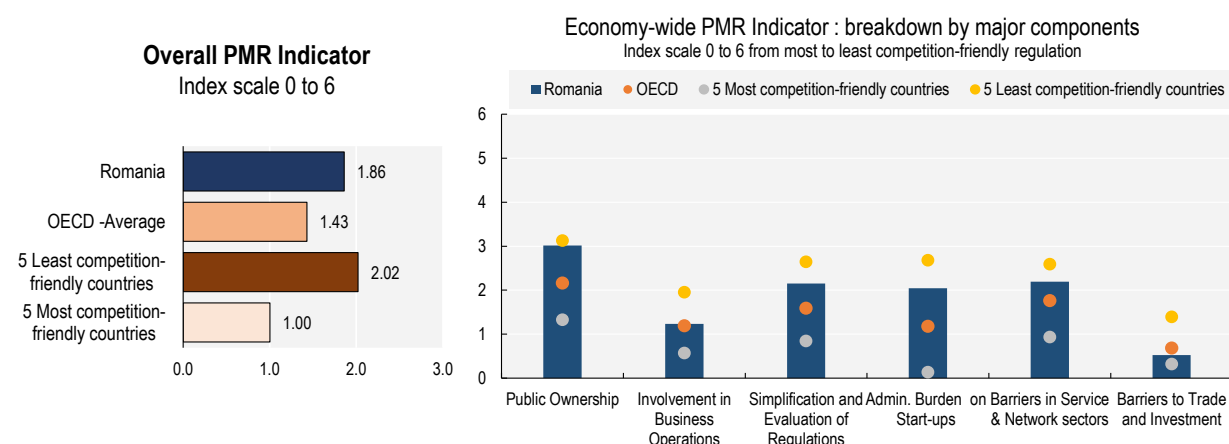
As regards to competition in the agro-food sector, Law 81/2022 on unfair commercial practices between enterprises within the agricultural and food supply chain transposes into Romania's national legislation the provisions of the Directive (EU) 2019/633 unfair trading practices in business-to-business relationships in the agricultural and food supply chain.

The EU Directive 2019/633 distinguishes between “black”, which are always prohibited, and “grey” practices, which are only allowed if the supplier and the buyer agree on them beforehand in a clear and unambiguous manner. Black unfair trading practices include short notice cancellations of perishable agro-food products, unilateral contract changes by the buyer, risk of loss and deterioration transferred to the supplier, misuse of trade secrets by the buyer. Grey practices, on the other hand, include return of unsold products; payment of the supplier for stocking, display, and listing; payment of the supplier for promotion, marketing, and advertising.

Administrative burden and regulatory complexity make markets less competition-friendly than in other OECD countries

According to the OECD Product Market Regulation Indicators,¹⁸ product market regulation in Romania (score of 1.86 on a scale from 0 to 6) is fairly less competition-friendly than in most OECD countries (OECD average was 1.43) (OECD, 2018^[31]). While this is an economy-wide indicator, it highlights areas where Romania's regulatory framework is below EU average and which can affect businesses, including those along the food supply chain. For instance, the indicator for simplification and evaluation of regulations (2.15) is significantly higher than the EU average (1.59) (OECD, 2018^[31]; OECD, 2022^[15]). On the other hand, regulatory restrictions to trade and investment are low (aggregated score of 0.52) are less than the EU average (average of 0.69) (Figure 5.5).

Figure 5.5. Economy-wide PMR Indicator

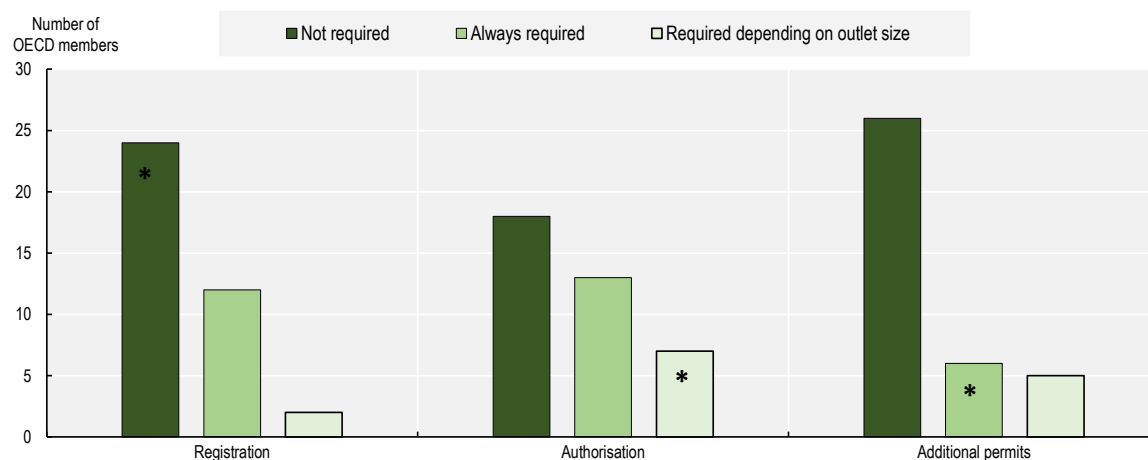


Note: The PMR values range between (0) and (6) from the most to the least competition-friendly regulatory regime.

Source: OECD 2018 PMR database. Consulted December 2023.

While PMR sectoral indicators do not cover the agro-food sector, they do include an indicator for retail which considers, among others, information on how easy it is to establish a retail outlet for selling food and beverages. In Romania, no registration (beyond a general commercial or trade registry) is needed to establish a new retail outlet for selling food and beverages, but an additional permit must be obtained, and an authorisation is required depending on the outlet size (Figure 5.6).

Figure 5.6. Establishing a retail outlet for selling food and beverages requires obtaining an additional permit and an authorisation for larger outlets



Note: Asterisks (*) in bars make reference to Romania's answers. For authorisation, the threshold has been set to be between 500 and 1 999 sq.

Source: OECD 2018 PMR database. Consulted December 2023.

5.2.3. Food waste

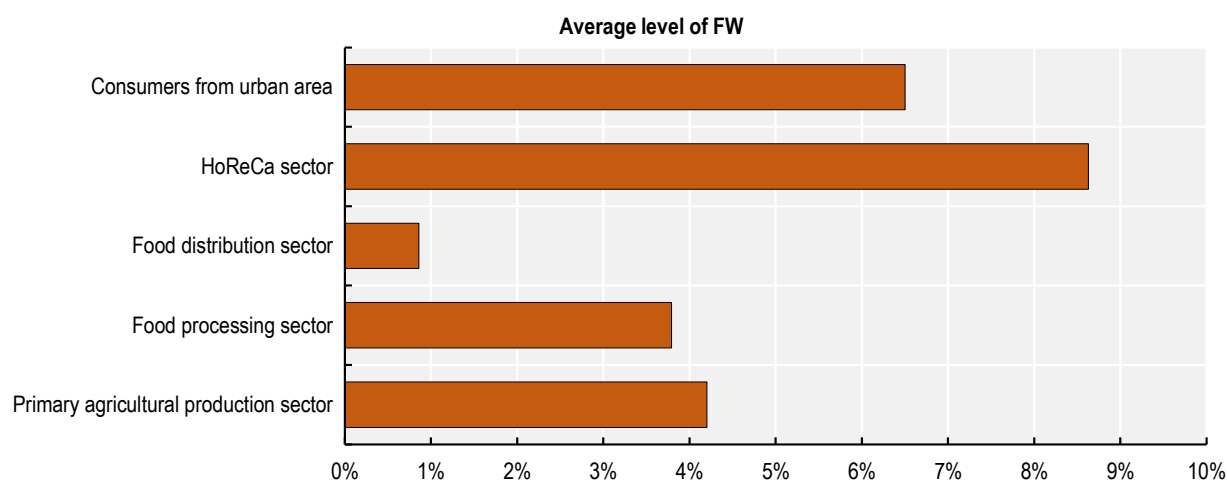
Efforts to reduce food waste in Romania are hindered by the limited amount of reliable information

It is hard to gauge the level of food waste in Romania. Despite the existence of certain estimations done in the past,¹⁹ available information on food waste is very limited, and there is no publicly available data complying with the methodologies for the measurement of food waste adopted at the EU level.²⁰ This explains why Romania is one of the EU Member States for which there is no food waste data available in Eurostat. The lack of data limits the capacity of public authorities to monitor food waste reduction goals and to evaluate performance against peer countries.

In the context of a project supported by the MARD,²¹ it was found that the food waste values, expressed as the share of waste in the annual volume of products, was higher for hotels, restaurants and cafeterias (8.6%) followed by urban households (6.5%), primary production (4.2%), food processing (3.8%) and distribution (0.9%) (Dumitru, Iorga and Mustatea, 2021^[32]). In the case of urban households, the 6.5% figure shows progress since 2016, when the average share of waste in the annual volume of products was estimated to be 10.4%. According to a prospective analysis up to 2030, the share is expected to decrease to 2% by 2030.²²

Figure 5.7. Level of food waste across the food supply chain

Share of food waste in the total volume of products, by sector



Note: The average values are expressed as the share of food waste in the annual volume of products.

Source: For all sectors except consumers from urban areas: (Dumitru, Iorga and Mustatea, 2021^[32]). For consumers from urban areas: (Dumitru, Iorga and Sanmartin, 2021^[33]).

Law 217/2016 on food waste reduction contains several measures to reduce this type of waste throughout the food supply chain and established the obligation for actors in the agro-food sector to undertake actions to prevent and reduce food waste (EEA, 2023^[34]). Subsequent amendments of this law in 2019 facilitated food donation by simplifying donation contracts and clarifying which food business operators could redistribute food. This has facilitated collaboration between the private sector and non-governmental actors involved with food redistribution (EEA, 2023^[34]). A recent amendment to Law 217/2016 requires economic operators to implement measures to reduce food waste and report data to a national platform, which is scheduled to be operational by June 2025 (Romanian Parliament, 2024^[35]).

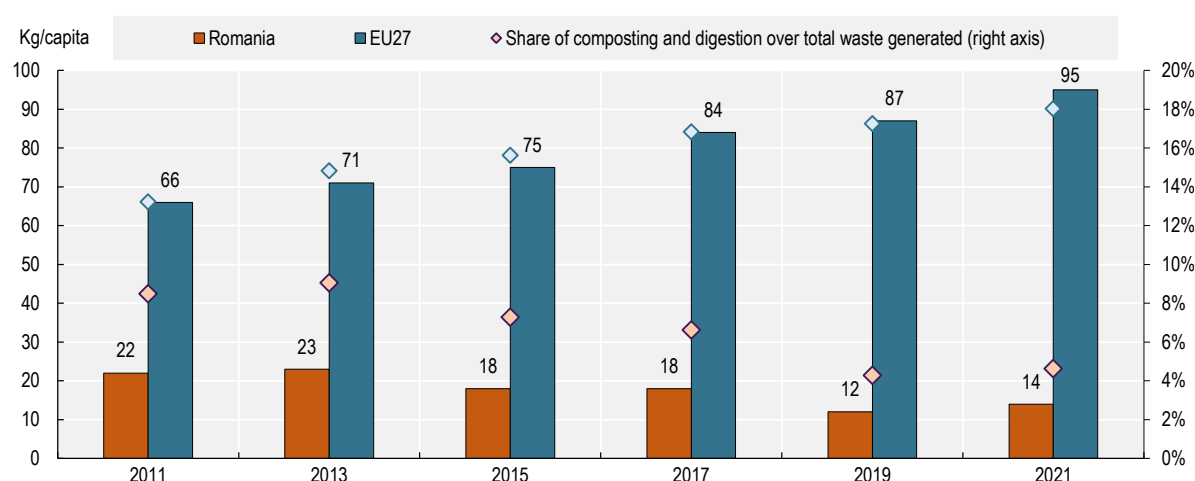
Food waste treatment in Romania is lagging behind

According to the EU hierarchy for prioritisation of food surplus, by-products, and food waste prevention strategies, recycling nutrients is the preferred strategy when prevention, re-use or recycling food waste is not possible (EC, 2020^[36]). Recycling of nutrients is usually done through composting or anaerobic digestion, the two most common treatment methods for bio-waste (EEA, 2020^[37]).

Romania's levels of composting and anaerobic digestion of municipal food waste are low compared to EU countries and are decreasing, against the regional trend (Figure 5.8). Indeed, per capita levels of municipal waste treated through composting or anaerobic digestion decreased from 22 kg in 2011 (vs 66 kg in the EU) to 14 kg in 2021 (vs 95 kg in the EU).

Figure 5.8. Treatment of municipal food waste is decreasing

Evolution of composting and digestion



Source: Eurostat (2023), Environment and energy indicators/Waste [env_wasmun]. Accessed October 2023.

While the data for composting and digestion included in Figure 5.8 only refers to municipal waste and does not cover food waste from the food manufacturing sector and agricultural food waste, it is still a useful proxy of a country's capacity to treat food waste. At the end, bio-waste is the largest component of all municipal waste in Europe (34%) and about 60% of this municipal bio-waste is food waste (EEA, 2020^[37]).

Increasing the levels of composting and digestion requires availability of biowaste, which in turns relies on having separate collection systems (EEA, 2020^[37]). In 2017, Romania only separately collected 7% of its estimated potential total biowaste, which is low compared to the EU average of 32% (European Compost Network, 2022^[38]). This percentage decreases to just 3% for food waste,²³ also below the EU average of 16% (European Compost Network, 2022^[38]). EU Member States are required to ensure separate collection of bio-waste by the end of 2023.²⁴

5.3. Demand side policies for healthy diet and consumption choices and sustainability of food systems

5.3.1. Selected dietary risks

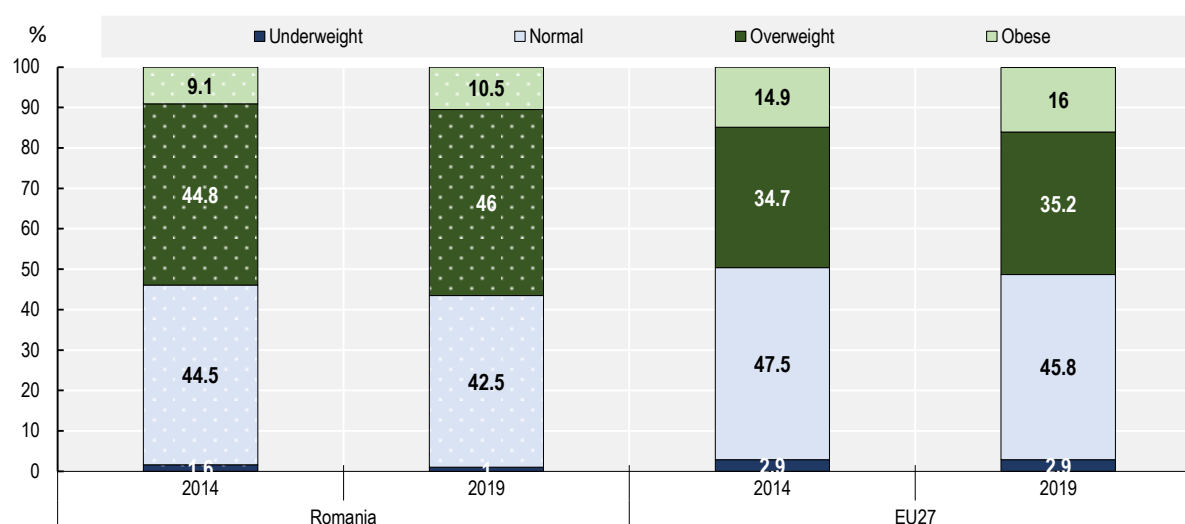
The rate of adult obesity in Romania is lower than the EU average, but overweight is high and is increasing in younger population

Overweight and obesity are major risk factors for various non-communicable diseases including cardiovascular diseases, diabetes, and certain cancers (OECD/European Union, 2022^[39]). Furthermore, both conditions are leading behavioural factors increasing the risk of disability and cause more than 1.2 million deaths across Europe annually (WHO, 2022^[40]).

In 2019, 56% of the Romanian population aged 15 years and over was overweight or obese, which is above the EU average (51.2%). Obesity rate, however, was 10% in 2019, significantly lower than the EU average of 16% (Figure 5.9). In the case of children aged 7-9, the prevalence of obesity was 12%, in line with the average of countries participating in the fifth round of the WHO Childhood Obesity Surveillance Initiative (COSI) (WHO, 2022^[41]). Overweight in adolescents is high, with one in four 15-year-olds self-reporting being overweight in 2022, which is above the EU average (OECD/European Observatory on Health Systems and Policies, 2023^[42]).

Figure 5.9. Evolution of body mass index

Evolution of body mass index, share of total population



Note: Underweight: BMI less than 18.5. Normal weight: BMI between 18.5 and less than 25. Pre-obese (overweight): BMI between 25 and less than 30. Obese: BMI equal or greater than 30.

Source: Eurostat (2023), Population and social conditions indicators [hlth_ehis_bm1e]. Accessed October 2023.

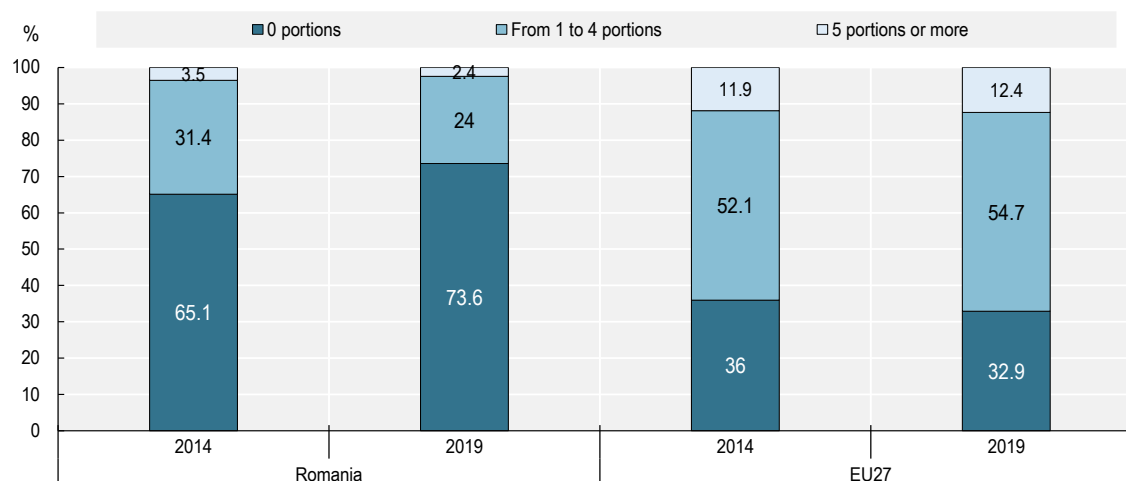
The large majority of Romanians do not consume fruits and vegetables on a daily basis

In Romania, one-fourth of all deaths can be attributed to dietary risks, one of the highest rates in the European Union and well above the EU average (17%) (OECD/European Observatory on Health Systems and Policies, 2023^[42]). These dietary risks include high sugar and salt intake, as well as low fruit and vegetable consumption (OECD/European Union, 2022^[39]).

While regular consumption of fruits and vegetables is an important element of a healthy and balanced diet and is associated with lower risk of cardiovascular diseases and certain types of cancer (OECD/European Union, 2022^[39]), Romania is the EU Member State with the poorest fruit and vegetable consumption record, with nearly three-quarters of its population consuming zero daily portions of fruits and vegetables (Figure 5.10). Furthermore, consumption of fruits and vegetables decreased in the 2014-19 period, against the trend in most EU countries.

Figure 5.10. Daily consumption of fruits and vegetables

Distribution of daily consumption of fruits and vegetables, share of total population over 15 years old



Note: Data for 2019 excludes fruit or vegetable juices or soups (cold and warm). Data for 2014 includes juices squeezed from fresh fruit and vegetables.

Source: Eurostat (2023), Population and social conditions indicators/Health determinants [hlth_ehis_fv3e]. Accessed October 2023.

5.3.2. Policies to encourage healthier and sustainable food choices

Romania has implemented different policy measures across the four-track approach...

The high prevalence of non-communicable diseases associated with dietary risk factors underscores the need for Romania to transition to healthier diets. There are, however, multiple ways in which governments can integrate public health considerations into policies for the food sector. Previous OECD analysis of policies that encourage healthier food choices (Giner and Brooks, 2019^[43]) suggests a four-track policy approach to reconcile food security and nutrition objectives with wider food systems objectives (Box 5.3). Romania has implemented multiple policy actions to encourage healthier diets, ranging across all four tracks (Table 5.1).

Box 5.3. OECD four-track policy approach to encourage healthier food choices

The large and growing burden that unhealthy consumption habits impose on public health has underpinned the legitimacy of government intervention. Accordingly, governments have resorted to a wide range of health-related policies, from nutritional guidelines to fiscal policy, to address obesity and other main dietary risks. As in other policy areas, there is no “silver bullet” and the right set of instruments is to be carefully chosen by policy makers, considering the specific characteristics of their respective food systems.

Recognising the diversity of policy responses, the potential synergies among them and the need to find the right policy combination for each context, previous OECD work has proposed a “four-track policy approach” to encourage healthier food choices. This four-track approach can also be easily adapted to encourage more sustainable choices.

The four tracks proposed under this approach are:

- a) *Demand-side public interventions* (e.g. education programmes or providing dietary information).
- b) *Voluntary collaborations* with the food industry at the supply-demand interface (e.g. food reformulation, food labelling).
- c) *Firmer regulations* when public-private incentives are misaligned (e.g. rules on advertising aimed at children).
- d) *Fiscal measures* to make the price of certain processed food products more closely reflect their social cost (e.g. excise or sales taxes).

Source: (Giner and Brooks, 2019^[43]), (OECD, 2021^[11]).

Table 5.1. Romania policy mix to encourage healthier food choices

Non-exhaustive list of measures to encourage healthier food choices.

Type of policy intervention	Policy, regulation or initiative	Measure
1st track (Demand-side public interventions)	“Guidelines for a healthy diet” 2023-2030 National Health Strategy School Scheme Programme	- Food-based dietary guidelines (adopted in 2006). - School nutrition education and informational campaigns on healthy eating. - Education interventions for adults, on healthy habits.
2nd track (Voluntary collaborations)	Salt Reduction Agreement	- Agreement with the food industry to reduce salt content across food categories. - The Agreement was later expanded to include sugar content. Two large multinationals committed to reductions of 12% for salt and 24% for sugar contents.
3rd track (Firmer regulations)	Law no. 123/2008, Order no. 1456/2020 Regulatory Code Regarding Audiovisual Content	- Mandatory standards for food available in schools or vicinity (500m). - Prohibition of soft drinks in school premises. - Advertising of food products between 6:00 and 22:00 must include health information messaging (e.g. encouraging consumption of foods and vegetables, limiting nutrients such as salt, fats, or sugar).
4th track (fiscal measures)	Law 370/2022 (approving Government Ordinance 16/2022)	As of 2023, certain soft drinks (including those with added sugar) are subject to a 19% VAT (instead of the previously applicable rate of 9%).

Source: (World Cancer Research Fund International, 2023^[44]).

Simplified front-of-pack (FOP) food labelling schemes are increasingly used in OECD countries. EU Member States can implement these schemes on a voluntary basis, until a mandatory front-of-pack

nutrition labelling is adopted at the EU level (Giner, Rodríguez and Elasri, 2023^[45]).²⁵ While some countries have developed their own labelling schemes or adopted the schemes of other EU Member States, Romania has not done so. Since February 2024, the National Authority for Consumer Protection (ANPC) imposed a ban on the use of Nutri-score, the simplified FOP food labelling scheme adopted by France in 2017 and which has been adopted in other EU Member States.

...but further government action could help Romania reduce dietary risks

Romania's policy framework to promote healthier diet outcomes could be strengthened by exploring further government action in key areas. For instance, Romania currently has few or no policies dealing with marketing restrictions to young people, financial incentives for healthier food choices, simplified nutritional labelling, and nutritional training for educators, health professionals and caterers in public settings (World Cancer Research Fund International, 2023^[44]). Table 5.2 briefly describes some examples of relevant policies that have been implemented in OECD and accession countries in some of these areas.

Table 5.2. Areas where further policy action in Romania could be explored

Measures related to	Examples in other OECD countries:
Incentives and rules to create a healthy retail and food service environment	Mexico (local): The "Less Salt, More Health" is a voluntary agreement between Mexico City and the restaurant industry, whereby restaurants commit to only provide saltshakers to customers upon request. United States: The Healthy Food Financing Initiative provides financial and other assistance to attract healthier retail outlets to under-served areas. Scotland (United Kingdom): The Scottish National Planning Framework 4 incorporates public health considerations on spatial planning, specifically related to hot food providers.
Nutrition advice and counselling in school healthcare settings.	Norway : School health services offer education to increase students' knowledge on the importance of healthy living habits.
Training for educators, health professionals and caterers	Netherlands: The Healthy Childcare Programme includes a "train-the-trainer" course on healthy lifestyle (including healthy nutrition) for teachers and childminders who work with children aged 0-12. Slovenia: The "Healthy Choice" certificate was developed to reward companies in the hospitality sector who provide specific training to their caterers on healthy diets and evaluate their dishes according to the national dietary guidelines.
Promotion of studies to enhance the evidence base for overweight prevention interventions	Australia : Between 2012-18 Australia established the Assessing Cost-Effectiveness (ACE) Obesity Policy, a priority-setting study led by academics and obesity experts to evaluate the "economic credentials" of several obesity prevention policies.
Provision of sugar-sweetened beverages in schools	Finland: No energy drinks, soft drinks or any other acidified beverages or beverages with added sugar are served at school. Mexico: Mandatory food and beverage guidelines for elementary schools include a ban on sodas; and limitations for the availability of other soft drinks.
Public awareness, education, and skills	United States (local): A multi-channel media campaign (#LiveSugarFreed) was deployed in rural areas of Tennessee, Virginia, and Kentucky, warning young adults about the health risks of sugary drinks. Multiple countries: Following WHO's recommendations countries like Australia, Canada, France, Germany, Japan, New Zealand, Norway and United Kingdom have undertaken "5 a day" national campaigns to encourage fruits and vegetables consumption.
Restrictions on advertising and other forms of commercial promotion	Norway: Schools must ensure that students are not exposed to any kind of broadcast and non-broadcast advertising. Peru: National law bans all type of advertising of unhealthy food and beverages aimed at children. United Kingdom (local): The Mayor of London introduced restrictions on any type of advertising of unhealthy food and beverages across the entire Transport for London.

Source: (World Cancer Research Fund International, n.d.^[46]), (OECD, 2022^[47]).

5.4. Inclusive processes for navigating the triple challenge

In the context of the triple challenge, policy makers are facing multiple objectives and policy instruments, inherent to which are synergies and trade-offs. Furthermore, policy makers need to overcome disagreements over facts, diverging interests, and differences over values, which often complicate policy-

design and political decisions-making processes (OECD, 2021^[1]). This section explores how Romania is dealing with these paradigms, looking at elements that have proven useful in navigating the complexities of the triple challenge, such as policy coherence, impact assessment and evaluation of policies, and stakeholder engagement (OECD, 2021^[1]).

5.4.1. Policy assessment and evaluation

Romania has a fragmented strategic framework, but recent reforms may lead to more policy coherence

The Romanian Government has implemented multiple whole-of-government and cross-cutting strategies, on different time horizons. On the long-term, the strategic planning is guided by the Sustainable Development Strategy (NSDS) 2030 and the National Recovery and Resilience Plan (NRRP). The medium-term planning is shaped by the Medium-term Government Programme (Decision No. 42 of November 25, 2021), the National Reform Programme, the Fiscal-budgetary strategy for the period 2022-2024, and Nationally Determined Contributions. The short-term planning is influenced by the Annual Government Work-Plan (Decision No. 414 of 2013) and the Annual State Budget Law (Law No. 317/2021 of 28 December 2021) (OECD, 2024^[48]). These strategies are, nonetheless, all led by different government institutions, are not fully aligned and there is not a clear hierarchisation among them (OECD, 2024^[48]). The recent establishing of a methodology for the development, implementation, evaluation and updating of government strategies²⁶ is a welcome development towards a better strategic framework (OECD, 2024^[48]).

The use and quality of RIAs is uneven and there is no requirement for the periodical review of existing regulations

Romania has gradually developed its regulatory policy since the early 2000s, including by introducing a formal requirement to conduct regulatory impact assessment (RIA) to inform the development of primary laws and subordinate regulations. The Consultative Council for the Impact Assessment of Normative Acts (CCEIAN) was also established in 2022 to analyse draft legislative acts and to issue opinions on impact studies. However, the use and quality of RIA remains uneven, with many RIAs remaining superficial (OECD, 2024^[48]; OECD, 2022^[49]). Capacity-building for civil servants is key for improving the quality of RIAs. A recent in-depth RIA in the livestock sector supported by the World Bank is a good example of sound RIAs that help inform policy actions, while increasing the capacities of MARD personnel (Box 5.4).

Box 5.4. Technical co-operation for regulatory impact assessments in animal breeding

In the context of the project “Impact studies for better regulation”, the Ministry of Agriculture and Rural Development (MARD) and the National Agency for Zootechny (NAZ) recently benefitted from the support of the World Bank to undertake a RIA in relation to breeding in animal farming.

The assessment sought to address the fact that breeding programmes implemented in Romania have historically not been financially or operationally sustainable. This has resulted in an increased import dependency, low competitiveness and reduced number of local breeds. The work included defining the problem and possible second-order consequences, setting objectives, proposing five potential policy options (including a baseline), and conducting the impact assessment of the different scenarios. While the report recognises that tackling the problem requires a policy mix which combines regulatory and institutional reforms, the impact assessment focused solely on regulatory changes needed to ensure the financial sustainability of breeding activities, from the farmers' perspectives. Following the impact assessment, some regulatory interventions were recommended.

Beyond the scenarios and impact assessment, which will be of great use to MARD and NAZ, the process was important in itself. One of the key objectives of this exercise was precisely to strengthen the capacity of MARD and NAZ to use RIAs and, more broadly, to encourage a culture where decisions are taken based on data, information and the analysis of the problems in question.

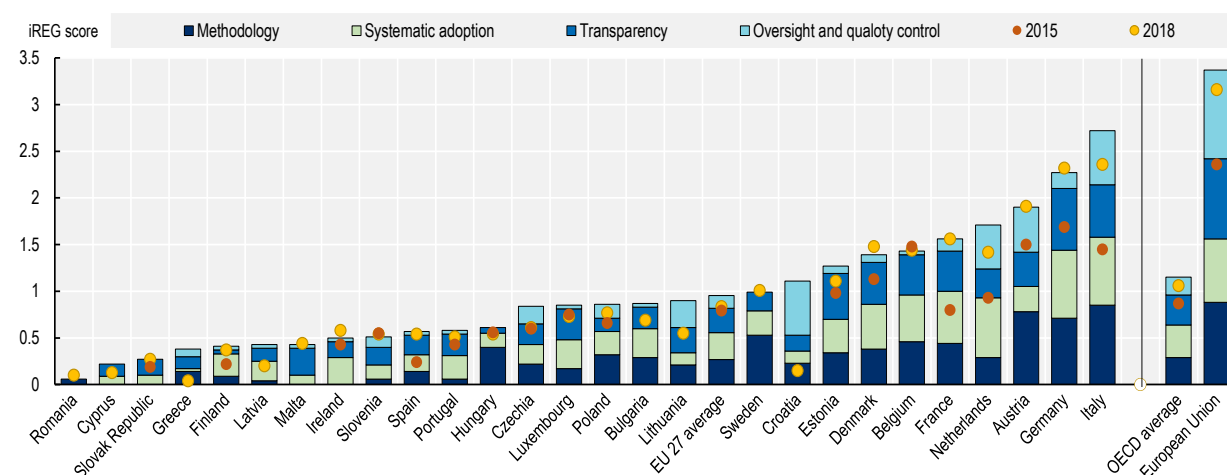
On the side of the Romanian Government, a working group composed of 14 staff members from MARD and NAZ co-ordinated the work and led the discussions. The report captures the discussions of the working group and the opinions of multiple stakeholders consulted during the process.

Source: (World Bank and General Secretariat of the Government (SGG), 2023^[50]).

Indeed, Romania's performance is weaker than OECD and EU countries in terms of reviewing existing regulations (Figure 5.11). Ex-post evaluation is conducted on an ad hoc basis by ministries and there is neither methodological guidance nor a requirement for the periodical review of existing regulations. Romania would benefit from systemising ex post evaluation to inform the development of new policies and to assess whether existing laws and regulations are meeting their objectives (OECD, 2022^[49]).

Figure 5.11. Romania performance is relatively weak on ex post evaluations

Composite indicator for ex post evaluations of primary laws, which equally weights methodology, oversight, adoption, and transparency



Note: Methodology gathers information on different assessments included in the ex-post evaluations; Oversight and Quality Control records mechanisms to monitor and ensure the quality of ex post evaluations; Systematic Adoption records formal requirements and how often ex post evaluations are conducted; Transparency records how open ex post evaluation processes are. The maximum score for each category is 1. The total score for the composite indicator ranges from 0 to 4. Data for 2015 is based on the 34 countries that were OECD members in 2014 and the European Union, which included 20 of the current 27 EU Member States. The OECD average is based on the 38 member countries at the time of the survey. Data for 2018 and 2021 includes the remaining EU Member States of Latvia, Lithuania, Bulgaria, Croatia, Romania, Cyprus¹ and Malta. The more regulatory practices as advocated in the 2012 Recommendation a country has implemented, the higher its iREG score. This figure shows data for primary laws only.

Source: Indicators of Regulatory Policy and Governance Surveys 2014, 2017 and 2021.

5.4.2. Stakeholder engagement and policy co-ordination

Stakeholder engagement has improved but certain groups remain underrepresented

Romania's public consultation process in decision-making is regulated by the Law no. 52/2003, which requires authorities to engage the public, consider feedback, and justify any decisions that are made. As

reported by the European Commission in the most recent Rule of Law Reports (see for example (EC, 2024^[51]), the effectiveness of public consultations prior to the adoption of laws should be improved, both as regards their length and the authorities' feedback on the input collected. Law no. 52/2003 also requires ministries to publish all regulations for comments on their websites. Romania updated its central consultation portal in 2019 which is now more frequently used. However, the minimum period for submitting comments is only ten days. The consultation portal also redirects members of the public-to-public consultations held by the European Commission. Romania recently began publishing yearly reports on the performance of consultation practices on draft laws and regulations (OECD, 2022^[52]).

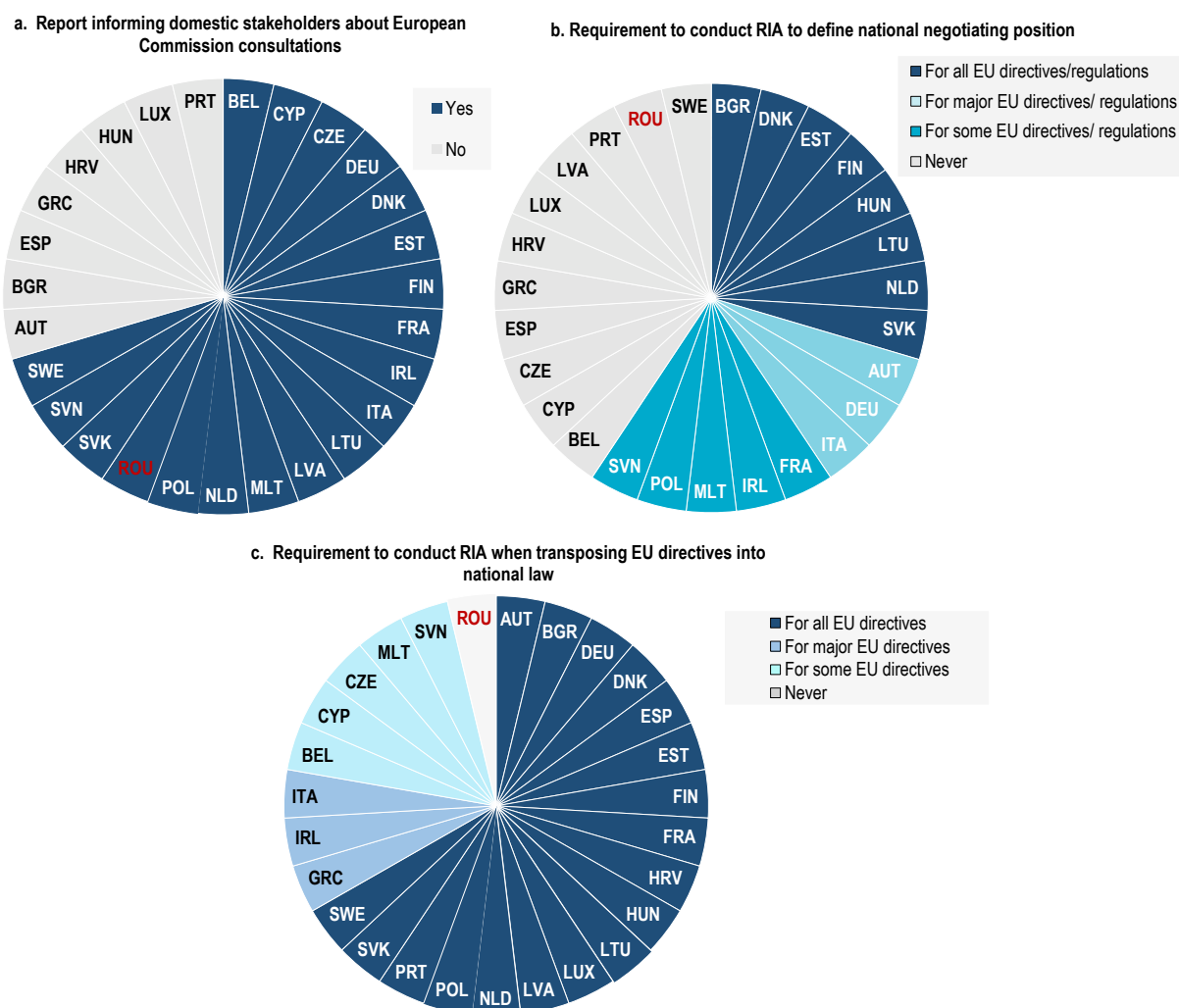
In Romania, the focus on involving stakeholders is often legalistic and formal, with scope to engage in more innovative participatory practices, and to benefit from greater experimentation. Efforts to involve stakeholders tend to focus on organised stakeholders, such as civil society organisations (CSOs), trade unions and other formalised actors, rather than ordinary citizens. Engagement by CSOs is low at the sub-national level (OECD, 2024^[48]). To encourage further engagement from citizens and/or from specific-groups, OECD countries have resorted to alternative deliberative processes, such as citizen's assemblies, juries, and panels. These types of exercises are increasingly being used in the context of food systems (OECD, 2021^[1]).

Romania could strengthen the use of regulatory management tools in negotiating EU initiatives and transposing regulation

In shared competence policy areas like agriculture, EU Member States benefit from reaching the negotiation phase with a good understanding of the potential impacts of EU directives and regulations, including on domestic citizens and businesses. The regulatory management tools used by the European Commission are a key to this end. The European Commission's impact assessments are a functional and published resource that EU Member States can easily use and that is available several weeks in advance of the negotiation. EU citizens are offered various opportunities to contribute to EU law-making process as it evolves, including through broad public consultations (OECD, 2022^[49]).

In addition to the European Commission's RIAs and stakeholder engagement, EU Member States often take additional actions to enhance those processes or to complement them with additional evidence. For instance, most EU Member States inform their stakeholders about EC consultations (Figure 5.12, panel a) and require conducting their own RIA (Figure 5.12, panel b) to define their national negotiating position. Some EU Member States also conduct their own stakeholder consultations. This is not the case for Romania. When it comes to transposing EU directives into national law, Romania is the only EU Member State without a requirement to conduct its own RIA (Figure 5.12, panel c).

Figure 5.12. Most EU Member States report informing domestic stakeholders about European Commission consultations and performing RIA to define their national negotiation position



Source: Indicators of Regulatory Policy and Governance (REG) Survey 2021.

Relying solely on the original impact assessment of the European Commission when transposing EU directives or defining negotiating positions can lead to overlooking potentially relevant effects for Romania. Indeed, these tools do not necessarily assess the impacts on individual countries, nor do they consider subsequent amendments made by the Council of the European Union and by the European Parliament. The vast majority of EU Member States apply the same RIA requirements when transposing EU directives as they do for laws originating domestically, while most have different requirements when defining their negotiating positions. In EU Member States where domestic RIAs are not conducted systematically, their use is generally determined based on proportionality (OECD, 2022^[49]).²⁷

Similarly, using only the results of the European Commission's consultations to define its national position means that stakeholders' input is considered by Romanian authorities at a relatively late stage, losing the benefits of early-stage consultations. Furthermore, considering the different interests and methods of work of the EC and EU Member States, the same stakeholder input could influence policy development differently if submitted to the European Commission than if presented to an individual Member State (OECD, 2022^[49]).

Inter-ministerial co-ordination and information-sharing on food systems-related policy areas is limited

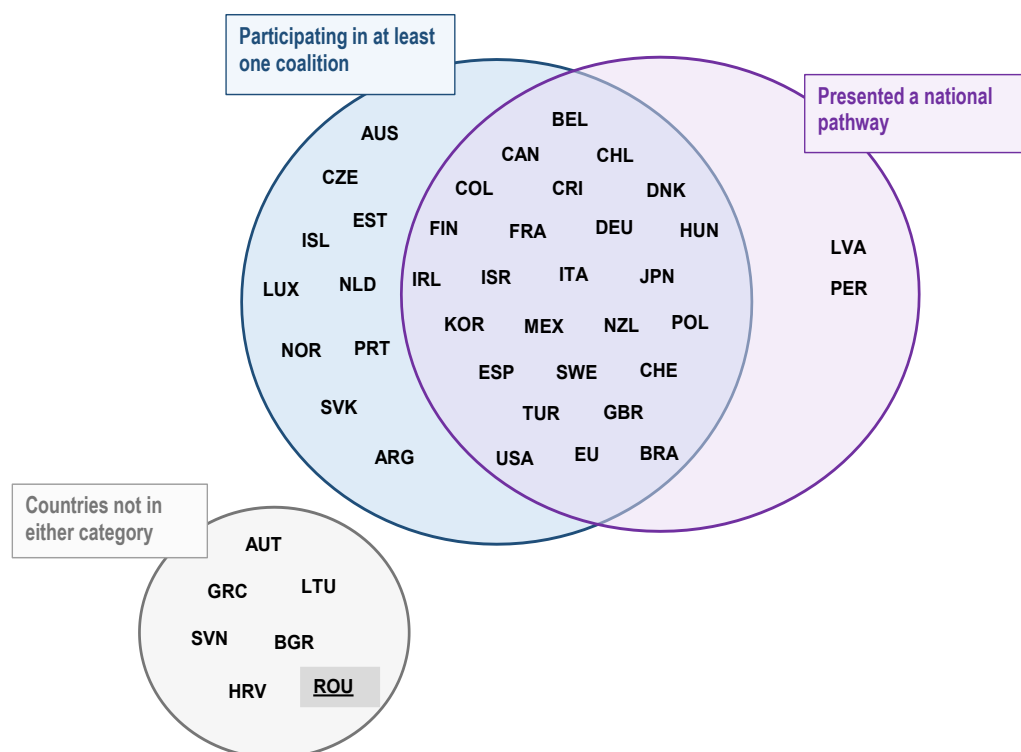
Inter-ministerial co-ordination is essential to achieve food systems transformation. Strong inter-institutional mechanisms should integrate relevant actors and engage them in strategy development. Such mechanisms facilitate the identification of potential synergies and trade-offs and offer the opportunity to discuss the best way to address them (UN Food Systems Coordination Hub, 2021^[53]). As explained in Section 5.2, Romania does not have a food systems law or integrated policy that simultaneously looks at the three elements from the triple challenge. In addition, and similar to most OECD countries, there is no single co-ordination body or mechanisms that comprehensively covers food systems-related issues.

Inter-ministerial committees have emerged as a key tool for co-ordination within the Romanian government in recent years. These committees, however, often overlap in scope, and their composition, frequency and functions vary widely across bodies. Other tools used by OECD countries to enhance inter-ministerial co-ordination include bilateral agreements (e.g. Memorandum of Understanding) and deploying networks and peer-learning opportunities (OECD, 2024^[48]).

Participation in Food Systems Summit-related initiatives has been low

The UN Food Systems Summit (UNFSS) took place in September 2021. The UNFSS gave participants an opportunity to discuss five axes or action areas, with follow-up stocktaking meetings to be held every two years.²⁸ Engagement by OECD countries has been high in relation to the different official and unofficial initiatives in the context of the UNFSS. For example, 33 out of the 38 OECD countries, and the European Union, have participated in at least one of the UNFSS coalitions, and 27 OECD countries, and the European Union, have presented national pathways (Figure 5.13). So far Romania has not participated in any of the coalitions created in the context of the UNFSS, nor has it presented a national pathway.

Figure 5.13. Most OECD and accession candidate countries participate in a UNFSS coalition and/or have presented a national pathway.



Source: (UN Food Systems Coordination Hub, n.d.^[54]).

5.5. Conclusions

- Food markets in Romania are functioning well, even if integration into global value chains is relatively low. Market concentration is mostly moderate to low across the value chain. With the largest number of farmers in the European Union, primary production contributes to over half of the total food value added.
- Co-operation among farmers is very low in Romania and the contribution of recognised producer organisations to the fruits and vegetables sector is the lowest across the European Union. Despite a recent increase in the number of registered co-operatives, farmers have little knowledge of the co-operative system. Romania's 2023-27 CSP includes interventions to promote co-operation and short supply chains, but past experience shows that uptake and interest from farmers for these types of interventions has been low.
- Romania is an adherent to the Council Recommendation on the OECD Due Diligence Guidelines for RBC (Guidelines) and other OECD RBC-related instruments. Romania has not adhered to the Recommendation of the Council on the OECD-FAO Guidance, although activities have been undertaken to promote their use.
- Romania does not have a food systems law, integrated policy or coordination body that simultaneously looks at the three elements of the triple challenge. Instead, as in most OECD countries, Romania has multiple policies guiding specific food system-related issues with responsible authorities scattered across jurisdictions, government agencies and levels of government. That said, overall, Romania has been taking action on shared OECD priorities with respect to meeting the triple challenge. Co-ordination tools used in the context of the National

Sustainable Development Strategy 2030 could be explored to improve horizontal co-ordination for food systems transformation.

- Severe food insecurity has increased in Romania following the COVID-19 pandemic. The creation and rapid growth of the Federation of Food Banks of Romania is a positive development. Romania has recently introduced e-vouchers as a food assistance programme for certain low-income households with potential to improve dietary habits.
- Romania has enacted regulation and taken measures to reduce food waste, but these efforts are hindered by the limited reliable information available. The levels of food waste treatment, through composting and digestion, are very low and declining.
- In Romania, one-fourth of all deaths can be attributed to dietary risks and reported levels of fruit and vegetable consumption are the lowest in the European Union. This suggests there is space for Romania to strengthen its policy mix to encourage healthier food choices, and to explore synergies with environmental sustainability goals. To this end, Romania could benefit from exploring the different measures implemented so far by other countries.
- Romania has gradually developed its regulatory policy since the early 2000s. Despite progress made, the use and quality of RIA is uneven and there is no requirement for the periodical review of existing regulations. Stakeholder engagement has improved but mostly covers organised stakeholders, and participation is low at the sub-national level.
- The strategic vision of agriculture and food systems is to a great extent defined at the EU level. Romania largely relies on regulations, decisions and discussions at the EU level, without fostering national discussions or exploring policy actions to complement EU regulations. For negotiating and transposing EU directives and regulation, Romania relies solely on the EC's RIA and stakeholder engagement.
- Romania's participation in UN Food Systems Summit's initiatives seems to be lower than that of most OECD and accession candidate countries. A more active engagement in initiatives such as the coalitions or national pathways could help Romania strengthen its food systems vision, improve the capacities of policymakers, and increase the country's influence at the international level.

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Notes

¹ The analysis made by (Van Dam et al., 2021^[3]) covers 14 product categories based on Euromonitor's food categorisation system.

² The “modern grocery retailer” category includes hypermarkets, supermarkets, discounters, forecourt retailers (grocery outlets attached to gas/petrol stations), and convenience stores.

³ In 2020, 2 887 070 agricultural holdings in Romania, while at the EU level there were 3 719 recognised POs and APOs and 9 067 300 agricultural holdings (Eurostat).

⁴ These numbers refer to co-operatives, most of which are not considered as recognised POs.

⁵ Laws 164/2016, 21/2019 and Decree 23/2019 provide for two types of tax benefits for agriculture co-operatives. On the one hand, these norms create an income tax exemption during three to five years, depending on the activities performed by the co-operative. On the other hand, the regulation provides certain tax exemptions or reduced rates for the production marketed by the co-operative, rental fees and local taxes (Tudor and Roşu, 2022^[8]).

⁶ Another indicator used to measure the importance of POs for primary producers, at the EU level, is the share of raw milk delivered by POs and APOs in the total production. Information for Romania on this indicator is not available in Eurostat.

⁷ This is of particular importance in sectors like fruit and vegetables or olive oil, where sectoral structural interventions are channelled through Pos (EC, 2019^[55]).

⁸ This measure focuses on the so-called “co-operation groups”, which included networks, clusters and EIP Operational Groups.

⁹ The Romanian Agency for Investment and Foreign Trade holds the National Contact Point for the Guidelines.

¹⁰ Romania has adhered to both the 2022 OECD Declaration on Transformative Solutions for Sustainable Agriculture and Food Systems and the 2016 Declaration on Better Policies to Achieve a Productive, Sustainable and Resilient Global Food System.

¹¹ The 2022 OECD Declaration on Transformative Solutions for Sustainable Agriculture and Food Systems refers to food loss and waste both in the commitments section, as well as in the call for the OECD to develop data, common metrics and analysis that helps measure progress. The OECD (2025^[56]) report

“Beyond food loss and waste reduction targets: Translating reduction ambitions into policy outcomes” includes a commitment to reduce food loss and waste and improve its measurement, as well as a call for the OECD to develop data, common metrics and analysis that helps measure progress.

¹² Food insecurity is defined by FAO as the “lack of regular access to enough safe and nutritious food for normal growth and development and an active and healthy life” (FAO, 2023^[57]).

¹³ In 2017 EU aid scheme for the supply of fruit and vegetables, bananas, and milk in educational establishments, known as the “school scheme”, was established by combining two previous schemes (the school milk scheme and the school fruit and vegetables scheme) under a single framework. https://agriculture.ec.europa.eu/common-agricultural-policy/market-measures/school-fruit-vegetables-and-milk-scheme/school-scheme-explained_en.

¹⁴ Băncilor pentru Alimente din România (FBAR).

¹⁵ The Inclusion and Social Dignity Operational Programme and the Disadvantaged Persons Assistance Operational Programme.

¹⁶ The European Social Fund Plus (ESF+) now provides EU Member States with the possibility to use e-vouchers to strengthen their food assistance programmes.

¹⁷ See (Giner and Placzek, 2022^[17]) for more information on food voucher programmes across OECD countries.

¹⁸ The OECD’s Product Market Regulation Indicators assesses the alignment of a country’s regulatory framework with internationally accepted best practices. The Economy-wide Indicator measures the distortions to competition that can be induced through the involvement of the State in the Economy, as well as the barriers to entry and expansion that domestic and foreign firms face in different sectors of the economy (OECD, 2018^[31]).

¹⁹ There have been attempts to measure per capita levels of food waste in the past, but they range from 107 kg to 250 kg per capita (EC, 2020^[58]) (EC, 2011^[60]).

²⁰ Commission delegated decision (EU) 2019/1597 (supplementing Directive 2008/98/EC of the European Parliament and of the Council as regards a common methodology and minimum quality requirements for the uniform measurement of levels of food waste).

²¹ ADER Project 18.1.2 “Methods for reducing food waste in the agri-food chain, at national level, in order to prevent and reduce the socio-economic impact, by 2030”.

²² Information provided by the MARD in response to the OECD fact-finding questionnaire.

²³ Biowaste is composed of food waste and garden.

²⁴ Article 22 of Directive 2008/98/EC indicates that, by 31 December 2023, Member States shall ensure bio-waste is either separated and recycled at source or is collected separately and is not mixed with other types of waste (EU, 2008^[59]).

²⁵ Simplified nutrition labelling policies provide supplementary nutritional information in an easy-to-understand label displayed on food products at the front-of-pack. The adoption of a mandatory front-of-

pack nutrition labelling within the European Union was announced in the Farm to Fork Strategy of May 2020 (Giner, Rodríguez and Elasri, 2023^[45]).

²⁶ Government Decision No. 379 of 23 March 2022.

²⁷ EU Member States use various methods to identify European Commission legislative proposals that will undergo a domestic RIA, predominantly based on proportionality and particularly on the significance of their impacts, including on national and EU budgets or non-budgetary domestic effects (OECD, 2022^[49]).

²⁸ (1) Nourish All People; (2) Boost Nature-based Solutions; (3) Advance Equitable Livelihoods, Decent Work and Empowered Communities; (4) Build Resilience to Vulnerabilities, Shocks and Stresses; and (5) Accelerating the Means of Implementation.

6

Agricultural policy performance in achieving national objectives

The triple challenge facing food systems - ensuring food security and nutrition, providing livelihoods along the food chain, and safeguarding environmental sustainability - are interconnected, and require coherent and mutually reinforcing policies. This chapter examines Romania's policy objectives for the agro-food sector, which are framed within the broader EU Common Agricultural Policy (CAP) and include social, environmental and economic dimensions. The chapter assesses Romania's recent performance in terms of sustainable agricultural productivity growth, examining the economic productivity of agriculture together with greenhouse gas emissions and other agri-environmental trends.

Key messages

- The EU's Common Agricultural Policy (CAP) provides the broader policy direction for Romania's agricultural policies and strategies, the objectives of which focus on social, environmental and economic aspects.
- After a long-lasting negative trend of output growth, Romania's agricultural output experienced a significant increase during the period 2011-20, driven by total factor productivity (TFP) growth. Over this period the TFP growth rate was above the OECD average.
- Agricultural GHG emissions in Romania followed the same path as output growth, but since 2011 emissions have grown at a slower rate than the value of total output, therefore reducing the emissions intensity of agricultural output.
- In Romania agricultural yields and productivity levels are still low compared to other OECD countries, with scope to improve labour productivity, the main driver of TFP growth.

6.1. EU and domestic policy objectives

6.1.1. Policy objectives

National policy objectives are formulated in the context of EU policies and strategies

As outlined in Chapter 2, Romania's agricultural policies are formulated in the context of its European Union membership. Thus, national policy objectives are in line with the EU's Common Agricultural Policy (CAP) and consider the broader policy direction given by EU-level plans and strategies such as the European Green Deal, the Farm to Fork Strategy and the Biodiversity Strategy. In this context, a first level of policy objectives is provided by the goals agreed on by EU Member States for the 2023-27 reform of the CAP (Figure 6.1). The objectives focus on social, environmental and economic aspects, with knowledge and innovation as a cross-cutting goal for the sector.

Figure 6.1. EU policy sets the direction for national policy

Key policy objectives of the 2023-27 Common Agricultural Policy



Source: (EC, 2022^[1]).

In 2015, the Romanian Ministry of Agriculture and Rural Development launched a strategy for the agri-food sector setting the vision and the strategic objectives for the medium (2020) and long term (2030) period (MARD, 2015^[2]). The strategy is centred around five strategic objectives:

- Increase the share of agri-food consumption covered by domestic production and reinstate Romania as a net agri-food exporter.
- Accelerate structural transition towards professional and economically viable farming and aquaculture, while aligning with demographic trends and ensuring an equitable phasing out of surplus farm labour.
- Limit the impact of the agricultural and fisheries sector on the environment and promote climate change resilience in agriculture and rural areas.
- Improve living standards in rural areas.
- Improve the institutional framework.

The objectives of Romania's CAP Strategic Plan (CSP) 2023-27 (see Chapter 2) seek to address economic, social and environmental issues and should guide interventions in the agro-food sector financed by the 2023-27 CAP and the state, regional and local budgets. In this regard, the CSP is the most important national plan for agriculture, due to the relevant budget allocated and the wide range of interventions addressing the specific needs of Romania, while also delivering on EU-level objectives. The key strategic objectives of Romania's CSP (see Section 2.3.1) include competitiveness, and social and environmental sustainability goals (MARD, 2022^[3]) that are aligned with the productivity, sustainability and resilience policy goals reflected in the 2016 OECD Ministerial and the 2022 Declarations.

6.2. Benchmarking productivity and environmental sustainability performance compared with OECD countries

Food systems around the world must deliver on a formidable “triple challenge”: ensuring food security and nutrition for all, providing livelihoods to farmers and others in the food chain and promoting rural development, and ensuring environmental sustainability (OECD, 2021^[4]). Given the global nature of the triple challenge, it is pertinent to assess the performance of Romania regarding the general goals of increasing Productivity, Sustainability and Resilience (OECD, 2020^[5]). These three dimensions encompass many aspects of the economic, social and environmental goals of the CAP (OECD, 2023^[6]) and match with the objectives of Romania's CSP listed above. This section focuses on benchmarking environmentally sustainable productivity performance, analysing the path that the Romanian agricultural sector is taking in terms of productivity growth and main environmental outcomes. The overall assessment of Romania is undertaken in the Assessment and Recommendations chapter.

Solving the puzzle of the triple challenge requires co-ordinated and synergic policies that generate the innovation and transformation of the agricultural production system. Policies need to enhance productivity growth through a pathway that is environmentally sustainable. This entails achieving Total Factor Productivity (TFP) growth and, at the same time, ensuring that the gains in efficiency imply producing more with less natural resource and are associated with lower environmental impacts.

6.2.1. Agricultural productivity growth

Total factor Productivity growth has been a key driver of agricultural output growth over the last decade

Agricultural total factor productivity (TFP) growth reflects the ability of the sector to use inputs and land more efficiently, thus achieving a higher output per unit of inputs or per hectare of land. Productivity growth

is also desirable because a more efficient use of resources is in line with the main objectives for agricultural policies in Romania, such as strengthening sector competitiveness, ensuring a viable income for farmers as well as creating new businesses and job opportunities in rural areas.

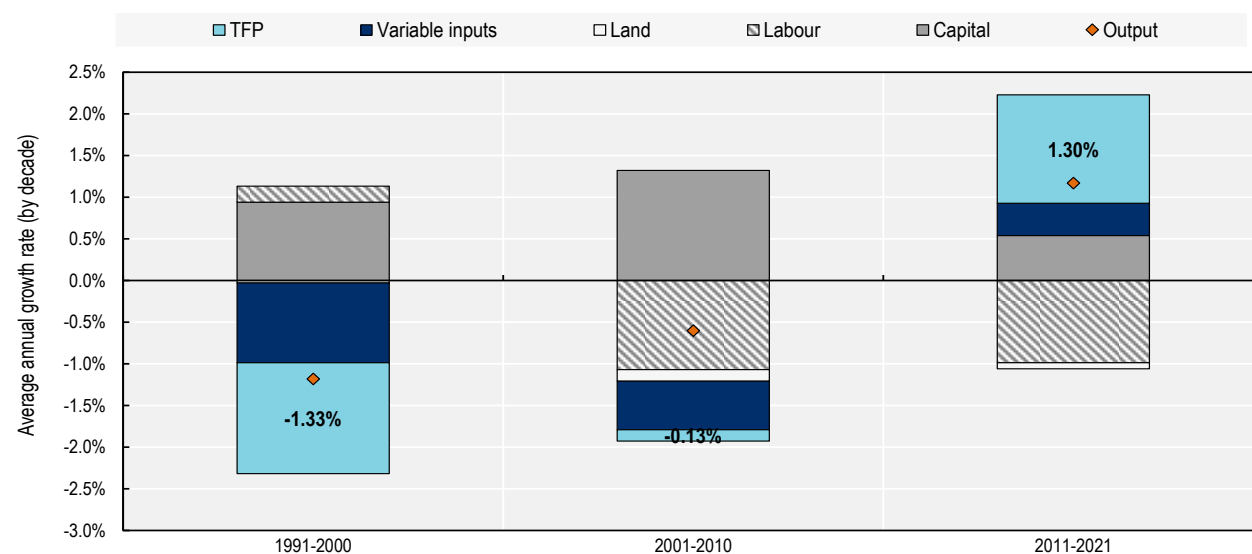
Figure 6.2 shows the trend of agricultural productivity growth over the last 30 years in Romania, in which the evolution of productivity shares many similarities with other countries that joined the European Union in the early 2000s (OECD, 2023^[6]). The 1990s decade was marked by the transition from communism to the market economy, which came with a sharp decrease of agricultural output. The use of variable inputs use decreased significantly following the cuts to fertiliser subsidies which had been a key driver of Romania's agriculture growth. At the same time, TFP growth also decreased (-1.33%), contributing to the fall of outputs.

During the first decade of the 2000s, the negative trend in output and productivity growth persisted, yet signs of recovery started to appear in the whole economy. Capital use increased in agriculture, partly led by the impressive performance of the rest of the economy and the appetite for investments that came with the EU accession in 2007. At the same time, labour outflows from rural to urban areas, together with massive emigration to third countries resulted in a sharp decrease in labour use (see Chapter 1).

The third period corresponds to the 2011-2020 decade, when agricultural outputs grew at an average annual growth rate of 1.17%, ending a long-lasting trend of negative output growth of Romania's agricultural sector. This growth was mainly driven by agricultural productivity – TFP grew at an annual rate of 1.3% – but also by an increase in both capital and variable inputs. Moreover, most of the gains in TFP result from improved labour productivity. Labour use increased only during the 1990s, as agriculture absorbed part of the labour outflows generated by the quick deindustrialisation of the country (Ianoş and Secăreanu, 2020^[7]).

Figure 6.2. TFP growth shifted from a negative to positive influence on growth after 2011

Decomposition of Romania's agricultural output growth by decade



Note: TFP growth is calculated as a residual, equal to growth in output minus growth in inputs.

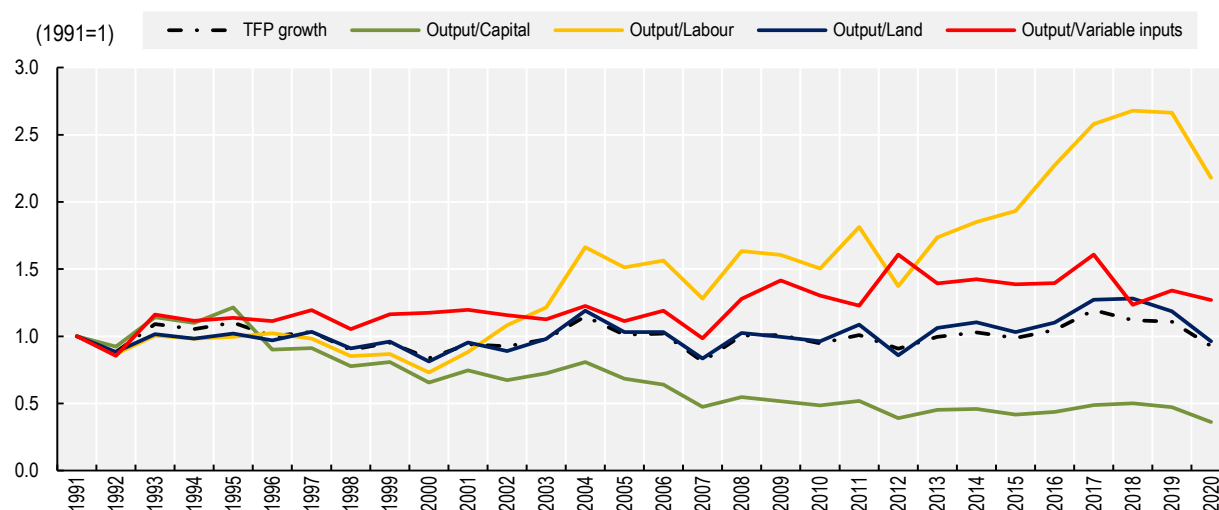
Source: Authors' calculations based on USDA (2022), International Agricultural Productivity (database).

Labour productivity has been the main driver of Romania's TFP growth

In line with the European Union, where agricultural productivity growth has mainly been driven by labour productivity growth (OECD, 2023^[6]), also in Romania recent productivity gains were mainly driven by the ability to increase the productive capacity of farms while reducing the labour force. Figure 6.3 shows the extent to which labour productivity has sharply increased over the last two decades – except for years such as 2020, when productivity was negatively affected by one of the most severe droughts that Romania has experienced over the last five decades.

Figure 6.3. Labour productivity has been the main driver of agricultural output growth

Evolution of Partial productivities and TFP growth in Romania, Index (1991 = 1)



Note: TFP growth is calculated as a residual, equal to growth in output minus growth in inputs.

Source: Authors' calculations based on (USDA ERS, 2024), International Agricultural Productivity database.

Following the accession to European Union, the Romanian farming sector has experienced a significant structural change, and as the number of farms diminishes and their size increases farmers are taking more advantage of economies of scale, thus needing less labour. Despite consistent growth, Romania has still the lowest labour productivity levels of the European Union (four times below the EU average) and the largest agricultural labour force, with 1.8 million people employed in the primary sector (see Section 1.2.1).

While land productivity also increased over the last decade (yields of most crops are increasing, see Section 1.3.3) capital productivity decreased steadily from 2004 to 2012 and has not recovered since. Finally, variable input productivity has not increased, which is not a good signal, given the more intensive use of them by Romanian farmers over the last decade and their potential impact on the environment.

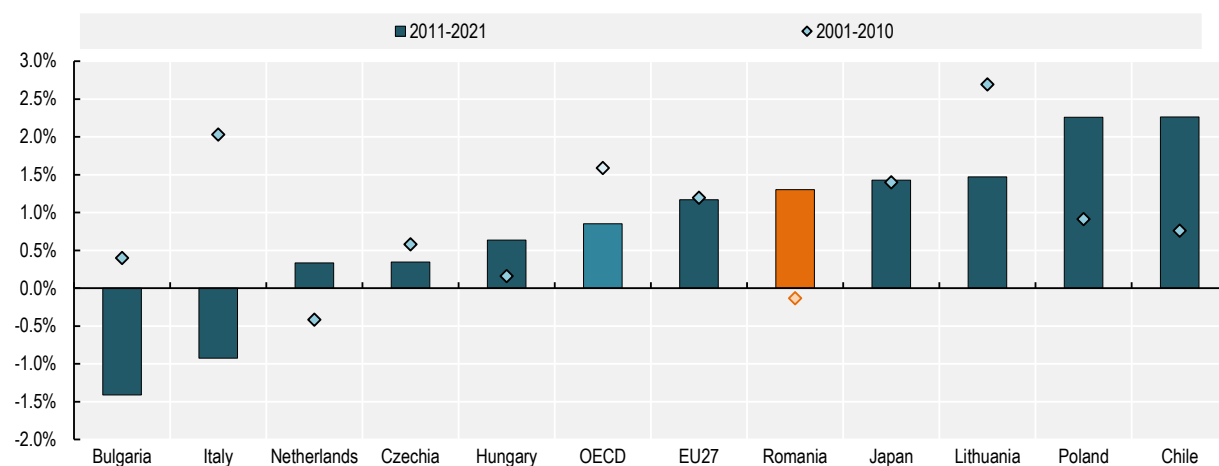
Romania's TFP growth rate is on par with the EU27 average

Romania experienced moderate growth in both productivity and output in the most recent decade, putting an end to the long-lasting negative trend that began in the mid-1980s. The annual TFP growth rate of 1.3% during the 2011-2020 period is above the OECD average of 0.82% and similar to the EU average of 1.2% (Figure 6.4). Compared to peer countries, Romania's TFP growth performance ranks at the average, behind countries such as Lithuania and Poland, yet ahead of Czechia and Hungary. This is a notable improvement compared to the previous decade, when Romanian TFP growth was slower than most peer countries. Moreover, there is margin to further increase TFP: yields and productivity levels are still low

compared to other OECD countries, and with the largest labour force in the European Union the country has a large margin to keep raising labour productivity, the main driver of TFP growth.

Figure 6.4. Romania had a good productivity performance in the last decade

Agricultural TFP growth in selected countries



Source: Authors' calculations based on USDA (2022), International Agricultural Productivity (database).

6.2.2. Sustainable productivity growth

Agri-environmental sustainability is important for the whole economy but has particular impact on agricultural productivity. A deteriorating natural resource base may reduce the country's resilience to climate variability and depress present and future agricultural productivity. Productivity growth needs to follow an environmentally sustainable path.

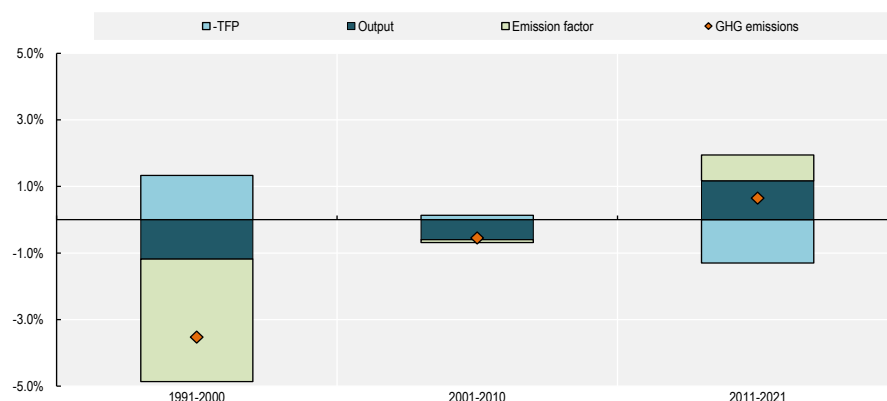
Agricultural GHG followed the trends of output growth...

Given the triple challenge, countries need to find pathways to decouple GHG emission growth from output growth so that agriculture also contributes to climate change mitigation. This can occur when innovation enables the farming sector to produce more with less inputs or help to reducing the GHG intensity of the inputs. The latter is captured by the emissions factor, which measures the amount of agricultural GHG emissions per unit of input.¹ In sum, emissions can grow less than output either because less inputs are needed per unit of output (higher TFP), or because less polluting inputs are being used (lower emission factor).

Following paths of other OECD and EU economies, Romania's agricultural growth is based on a shift towards labour saving technologies and towards a more intensive use of variable inputs (fertilisers and feed). At the same time, as shown in Figure 6.5, over the last decades agricultural GHG emissions followed the same direction than output growth: during the 2000s output decreased at an average annual rate of 0.60% and GHG emissions at 0.59%, while over last decade (2011-2020) output grew by 1.48% on average each year, and GHG emissions grew by 0.78%.

Figure 6.5. Romania was unable to decouple GHG emissions from agricultural output

Decomposition of changes in agricultural GHG in Romania, 1991-2021



Note: Growth in output (dark green) and in emissions per unit of inputs (light green) contribute positively to the growth in GHG emissions (the diamond marker). Productivity (TFP) improvements (light blue) contribute negatively; thus, they are shown as negative values.

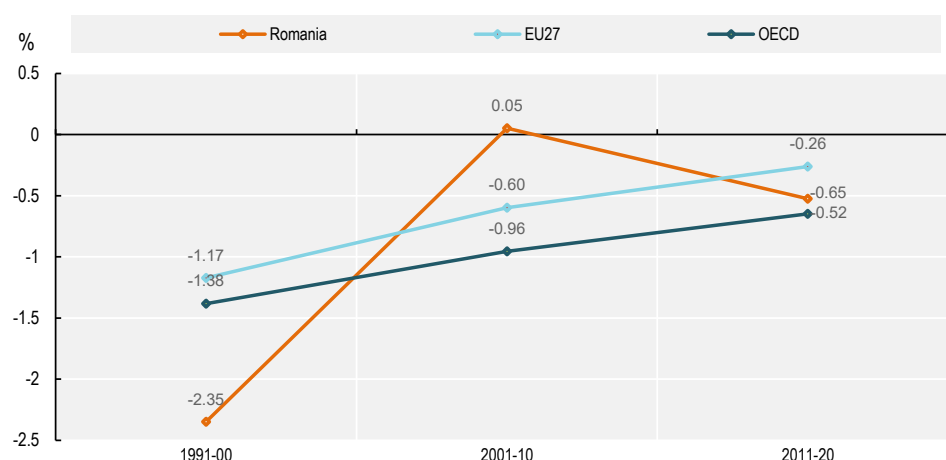
Source: Authors' calculations based on USDA (2022), International Agricultural Productivity (database); and OECD (2022) Agri-environmental indicators (database).

... but over the last decade Romania has successfully achieved a partial decoupling of GHG emissions from production.

Even though Romania has not succeeded to increase output while lowering GHG emissions in any of the last three decades, since 2011 GHG emissions have grown at a slower rate than the value of total output, therefore reducing the emissions intensity of its agricultural output (i.e. emissions per unit of output) (Figure 6.6). Emission intensity is calculated as the ratio between GHG emission growth and output growth, and as such, it is a measure of the changes in the level of decoupling between the latter two. That is, Romania has successfully achieved a partial decoupling of GHG emissions from production.

Figure 6.6. Romania reduced its agricultural GHG emission intensity

Evolution of changes in agricultural GHG emission intensity in Romania, the European Union, and OECD



Note: Emission intensity measures the amount of greenhouse gases emitted per unit of output. Lower numbers show greater improvement.

Source: Authors' calculations based on USDA (2022), International Agricultural Productivity (database) and OECD (2022) Agri-environmental indicators (database).

6.3. Conclusions

Romania launched a strategy setting the vision and the strategic objectives for the agri-food sector in 2015, which, together with the CAP objectives at EU level, should guide main policies affecting agriculture. The objectives of Romania's CSP 2023-27 cover economic and social aspects, environmental sustainability, and innovation.

Romania has undertaken a significant structural adjustment in the most recent decades, with sharp increases in labour productivity. In the last decade the sector has expanded and turned into a path of output and productivity growth that is increasing farmers' incomes and transforming the sector.

The innovations that have improved productivity performance have focused on labour saving technologies rather than on reducing the use of most environmentally harmful inputs. However, Romania has succeeded in achieving output growth that is above the increase in GHG, leading to partial decoupling of production from GHG emissions.

The challenge ahead is to consolidate the path of output and productivity growth that has been sometimes volatile, and make the next leap forward redirecting innovations towards environmental sustainability. Contributing to climate change mitigation is not enough and Romania should ensure good adaptation to the new uncertain environment generated by climate change.

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Note

¹ Equation (1) summarises this relationship: $g(E) = g(Y) + g(EF) - g(TFP)$ (1)

where E corresponds to total GHG emissions, Y to total agricultural output, and EF to the emission factor, that is, the amount of GHG emissions per unit of input used, and TFP to total factor productivity, see (Henderson and Lankoski, 2023^[8]). Equation 1 basically entails that any increase in GHG emissions is due to either an increase of the overall production, a more intensive use of polluting inputs or a drop in productivity.

The equation can be rearranged in the following form: $g(Y) - g(E) = g(TFP) - g(EF)$ (2)

which indicates that the level of decoupling -the difference between output and GHG emissions growth rates- is equivalent to the increase in productivity plus the decrease of the GHG intensity of inputs.

Policies for the Future of Farming and Food in Romania

Romania has made significant economic and social progress in the last decades, particularly since joining the European Union, with the EU Common Agricultural Policy playing a key role in shaping its agricultural development. Agriculture in Romania is marked by a dual farm structure and slow structural transformation, and key challenges need to be addressed to unlock the sector's full economic potential. This report reviews Romania's agricultural and food system policies and offers recommendations to support a more productive, sustainable, and resilient agro-food sector. It highlights the need for action to: develop a coherent policy mix to accelerate structural change in agriculture; create an enabling environment for a more competitive and resilient agro-food sector; strengthen policies to ensure long-term environmental sustainability; and to reinforce the agricultural knowledge and innovation system.



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