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Commission recommendations for Portugal's Cap strategic plan

Accompanying the document

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**Recommendations to the Member States as regards their strategic plan for the Common
Agricultural Policy**

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1. COMMISSION RECOMMENDATIONS FOR PORTUGAL'S CAP STRATEGIC PLAN

In the framework of the structured dialogue for the preparation of the common agricultural policy (CAP) strategic plan, this document contains the recommendations for the CAP strategic plan of Portugal. The recommendations are based on analysis of the state of play, the needs and the priorities for agriculture and rural areas in Portugal. The recommendations address the specific economic, environmental and social objectives of the future Common Agricultural Policy and in particular the ambition and specific targets of the Farm to Fork Strategy and the Biodiversity Strategy for 2030. As stated in the Farm to Fork Strategy, the Commission invites Portugal, in its CAP Strategic Plan, to set explicit national values for the Green Deal targets¹, taking into account its specific situation and these recommendations.

1.1 Foster a smart, resilient and diversified agricultural sector ensuring food security

Portugal is increasingly susceptible to desertification, biodiversity loss, coastal erosion, drought, and animal and plant diseases. Due to climate change, these risk becoming more frequent and extreme, thus compromising the resilience of farming, as an economic activity heavily exposed to natural hazards. The transition towards a sustainable food system presents both important economic opportunities as well as challenges for the Portuguese agricultural sector.

Research and innovation, including the use of technology, are key to overcoming factors which inhibit Portuguese farming, such as water availability and soil quality. At the same time, there are opportunities to diversify new activities which have the potential for economic growth linked to traditional sources of income, which become even more important in areas at risk of decline and human abandonment.

In Portugal, the organisation of production, in terms of share of total value per sector marketed by producer organisations, varies significantly depending on the sector, and there is significant margin for improvement. Associating production with producers can translate into better bargaining power, as well as improved access to innovation and technological solutions with a potential positive impact on the financial and environmental performance of individual holdings.

Direct payments already provide an important safety net for farmers and better targeting might prove essential in Portugal. This process should take into account the diversity in the structure of land and farms, as well as underlying natural constraints.

Moreover, it is essential in this context to develop a comprehensive approach to risk management, making use of both EU and national resources, including the development of insurance products adapted to financial and natural risks in farming.

¹ It concerns the targets related to use and risk of pesticides, sales of antimicrobials, nutrient loss, area under organic farming, high diversity landscape features and access to fast broadband internet.

1.2 Bolster environmental care and climate action and contribute to the environmental and climate related objectives of the Union

In Portugal, agricultural greenhouse gas emissions without land use, land-use change and forestry (LULUCF) began to decrease after 1990, but started increasing again in recent years; between 2013 and 2018, non-CO₂ emissions from agriculture increased by more than double the EU-27 average. Against this background, the Portuguese national energy and climate plan (NECP) sets a target of -11% for reducing emissions in the agricultural sector in 2030, compared to 2005. The increase in pasture land in Portugal, which requires active management and maintenance, has led to an increase in livestock numbers. Measures to reduce methane emissions should be considered, such as livestock density limits, improved feed and manure management as well as anaerobic digestion. These measures should be weighed against the risk of biodiversity loss and increased risk of forest fires in poorly maintained pastures.

Forests cover over half of Portugal's territory and are an important carbon sink. However, carbon sequestration in the LULUCF sector has been sharply decreasing since 2008. This reflects a need for more resilient and sustainable forest management practices. There is a need to halt and reverse the deterioration in conservation trends and status of all protected habitats and species. There is also a need to respond to the challenges of climate change, preserving stocks and increasing the carbon sinks in forests, in agroforestry/Montado systems, in their soils and harvested wood products. CAP result-based payments can be designed to reward carbon sequestration and the protection of carbon storage, in order to promote a new carbon farming business model around climate action.

Ammonia emissions from agriculture in Portugal have been increasing since 2013, putting Portugal at high-risk of not complying with its commitment to reduce ammonia emissions for 2020-2029 and for 2030 onwards. The biggest contributor is livestock production (livestock units have been increasing) followed by nitrogen fertilisers.

While energy consumption of agriculture and forestry per hectare of utilised agricultural area (UAA) remains below the EU average, this consumption increased between 2013 and 2018 at a rate more than the double of the EU average. In 2018, the share of agriculture in the production of total renewable energy in Portugal was low and below the EU average.

Water availability and soil quality are two significant challenges for the agricultural sector in Portugal. Portugal is among those EU countries where water abstraction levels are particularly high, and where prolonged periods of water scarcity due to global warming are projected to intensify. Without sufficient water, some crops may collapse by 2050, with large yield decreases¹. Despite the significant decrease in water used in farming in recent years, there is a significant scope for saving water, namely through innovation. The mean organic carbon content in arable land is among the lowest in the EU and is decreasing. Conversion of arable land to grassland is a relevant measure for sequestering carbon in the soil and tackling desertification and soil erosion. In the future, soil management and quality aspects can be addressed in synergy with activities under the Horizon Europe mission on soil health.

Challenges also exist as regards water quality. In terms of the Water Framework Directive (WFD), not all water bodies are deemed to have attained a good status yet and agriculture is identified as the most significant pressure. Furthermore, improvements are needed as regards ensuring nutrients are efficiently used.

Preserving biodiversity remains a challenge in Portugal where the conservation status of agricultural habitats is largely assessed as “unfavourable-inadequate”. This is also due to the abandonment of traditional farming systems. Farming systems based on ecosystem functionalities and lower input use, e.g. organic farming and some traditional farming systems, which have a positive impact in environmental terms including on biodiversity, preservation of species and natural habitats are developing slowly. Data also shows that the organic farming area is well below the EU average.

The Commission considers that Portuguese agriculture needs to improve its ecological and climate transition in line with the objectives of the Farm to Fork and the biodiversity strategies. The future CAP strategic plan should play an important role through a strengthened environmental ambition raising the level of minimum requirements and developing appropriate incentive tools. Preservation of areas of extensive agriculture, as well as providing incentives to use agricultural models that help in maintaining or increasing biodiversity need to be prioritised.

To ensure consistency, the above should go hand in hand, not with funding investments and farming practices that have a negative impact on Natura 2000 sites and beyond, but rather with defining ambitious requirements for biodiversity in terms of good agricultural and environmental conditions (GAEC) and fully applying the statutory management requirements from the Nature directives.

1.3 Strengthen the socio-economic fabric of rural areas and address societal concerns

Portugal is undergoing continued extensive urbanisation with people leaving inland rural areas and moving to urban centres on the coast. This has led to a fall in rural areas in the number of people aged 15-64, by 4% for men and 3% for women between 2015 and 2019, while the number for those aged under 15 fell by 9% for men and 8% for women over the same period. This contributes to Portugal having the EU’s oldest farmer population. The main difficulty for young farmers in setting up their businesses is access to land and finance, as well as the lack of basic services in rural areas which make them less attractive areas to settle in.

Rural areas in Portugal lack sufficient job opportunities, especially for young people, as illustrated by the 16% unemployment rate for 20-24 year olds in 2019. Ensuring the protection of agricultural workers, especially those in precarious, seasonal and undeclared employment, will play a major role in delivering on the respect of rights enshrined in legislation which is an essential element of the fair EU food system envisaged in the Farm to Fork Strategy. Women also struggle to access job opportunities as shown by the gap between male and female employment rates. The specific needs of women in agriculture and rural areas must be carefully considered in order to deliver on gender equality and close the gender gaps in employment, pay, and pensions, care and decision making.

Forests and other wooded land are an important feature in Portugal, covering 53% of the country. In recent years, forest fires have led to increased LULUCF emissions. The atomisation of privately owned forest land hinders the efficient forest fire prevention management, as well as management of plant pests. Agro-forestry systems, on the other hand, show evidence of better resilience to similar risks and make a greater contribution towards biodiversity and socio-economic objectives. When it comes to the bioeconomy sector, it still

hasn't reached its pre-financial crisis level. The number of people employed in the sector has fallen year on year since 2008.

When developing its strategic plan, Portugal should consider the diversity and specific situation of different areas across the country. This is particularly true and relevant in the case of areas with specific needs and vulnerabilities, such as its outermost regions, which should be appropriately addressed with relevant CAP instruments.

In Portugal, agriculture has only partially responded to societal demands on food and health. Sales of antimicrobial agents have fluctuated greatly but are still above the EU average. Sales of plant protection products have been on a downward trend and their use decreased between 2011 and 2018. However, sales of more hazardous pesticides in Portugal represent a significant share of total sales of pesticides. Portugal should also make an effort to shift from a diet rich in animal products towards healthier, more environmentally sustainable diets rich in fruit and vegetables.

1.4 Modernising the sector by fostering and sharing of knowledge, innovation and digitalisation, and encouraging their uptake

The agricultural knowledge and innovation system (AKIS) in Portugal has been characterised as weak and fragmented. The level of public investments in knowledge and innovation through the rural development programmes overall has been below the EU average and the dedicated budget has decreased over time. AKIS actors operate with little cooperation and coordination. These shortcomings hamper the AKIS' capacity to respond to the growing information needs of farmers, support the emergence of innovation on the ground and better valorise existing knowledge. These factors contribute to hindering the transition towards more sustainable food production.

The national advisory services are dominated by farmer-based organisations, while public advisors have a limited presence and dialogue between advisory sector and other AKIS actors is also limited. Furthermore, the agricultural research system seems to have weak connections to both advisors and farmers. It is essential to improve links between public and private advisors and invest in their training and skills.

The overall level of knowledge among farmers, expressed in terms of training, remains below the EU average. Moreover, their involvement in the knowledge building and exchange process is weak, as shown by their low level of involvement in interactive innovation projects.

When it comes to digitalisation, Portugal remains below the EU average in terms of use of internet services. NGA broadband coverage in rural areas has increased significantly in recent years and is above the EU average but coverage varies greatly between regions. The number of people in rural areas with at least basic digital skills also remains too low. Improved access to the internet could contribute to the development of the farming sector, as well as the general development of rural areas in Portugal.

1.5 Recommendations

To address the above economic, environmental/climate and social challenges, the Commission considers that the Portuguese CAP strategic plan needs to focus its priorities and concentrate its interventions on the following points, taking into account also the high territorial diversity of the Portuguese agriculture and rural areas:

Foster a smart, resilient and diversified agricultural sector ensuring food security

- **Encourage business-oriented farm management and increase the average economic farm size and productivity**, through better organisation of the sector, stimulating farm capital investments, notably innovative solutions including new ways of sharing resources (fixed capital, labour and technological services), ICT and other digital technologies – and focusing on environmentally friendly farming practices.
- **Improving the viability of farms** through improvements in the effectiveness, targeting and distribution of direct income support, by continuing the internal convergence process and the elimination of the link to historical references while taking into account territorial differences in agricultural income along with the needs of areas with natural constraints and small farms, by applying, for example, the complementary redistributive income support for sustainability and the reduction of payments.
- **Further develop risk management systems** to cover more holdings, risks and sectors through insurance products and mutual funds.

Bolster environmental care and climate action and to contribute to the environmental- and climate-related objectives of the Union

- **Contribute to the EU Green Deal targets, including organic farming** by appropriate incentives in production, food chain and market organisations for the conversion of farmers to organic farming, agro-forestry and other types of production systems that have a positive impact on the environment, biodiversity, preservation of species and natural habitats.
- Improve the conservation status of agricultural land with a special attention to grassland habitats, in line with the priorities defined in the Prioritised Action Framework. **Contribute to the Green Deal target on high diversity landscape features** by improving for example the management of agroforestry areas like “montado”, traditional olive groves and stone walls therefore contributing to restoration of biodiversity and enhancing pollination.
- **Strengthen climate change adaptation measures**, with particular attention to improving the resilience of agriculture against drought by promoting sustainable and less water intensive crops, changing planting dates and crop varieties, as well as promoting land management practices that improve soil quality, in order to increase soil organic matter and protect soils against desertification and water erosion. Further support should be given to increasing farm resilience against extreme weather events.
- In line with Portugal’s agricultural GHG target indicated in the NECP, **strengthen efforts on climate change mitigation** by promoting precision farming and on-farm

GHG assessment tools. Portugal should also reduce ammonia emissions in particular in high livestock density regions to respect existing commitments.

- **Incentivise governance measures for resilient and sustainable forest management**, addressing the atomisation of privately owned forest land. Enhanced governance should promote active forest management more consistently across forested landscapes in pursuit of two key objectives. First, to exploit the multifunctional potential of forests to support, where relevant in combination with agroforestry, **the Green Deal objectives on climate mitigation and adaptation, as well as restoration of biodiversity**. Second, **to support rural areas through improved forest fire prevention** and support to the bioeconomy.
- **Strengthen the development of renewable energy production**, including from biomass (biowaste and bio-products), by fostering local cooperation between private and public actors. Incentivise its use to replace fossil fuels in agriculture and strengthen training and advice on innovative, environmentally friendly and energy saving practices for farmers.
- **Strengthen efforts to reduce water abstraction pressures and to achieve sustainable water management which is in line with the WFD** by modernising the existing irrigation systems, prioritising water reuse, where it is environmentally and economically sound to do so,—and promoting solutions which include nature based ones and natural water retention measures. **Contribute to the EU Green Deal target on nutrient losses** by reducing surplus of nitrogen and phosphorus originating in agriculture by a better nutrient management, from animal housing to fertilisation techniques, which will also contribute to improving water and air quality.

Strengthen the socio-economic fabric of rural areas and address societal demands

- **Reduce the depopulation trend, risk of poverty and gender employment gap in rural areas** by promoting a multi-funded strategy, ensuring synergies between EU and national funds, creating the conditions and infrastructure for the setting-up of businesses, quality employment and training opportunities in rural areas. This strategy should in particular strengthen efforts to meet the challenge of generational renewal in agriculture by reducing entry barriers to the sector (namely access to land and to credit).
- **Develop the circular economy** by integrating primary biomass producers and their associations in bio-economy value chains and reducing food waste.
- **Contribute to the EU Green Deal target on antimicrobials** by putting in place sizeable efforts to significantly reduce the use of antimicrobials in farming, considering that the figures indicate sales of antimicrobials above the EU average. Portugal is encouraged to use all available tools, including instruments under the CAP, to support the farmers e.g. by promoting best practices on reduced and prudent use of antimicrobials, together with improved livestock management, biosecurity, infection prevention and control.
- **Contributing to the EU Green Deal targets on pesticides** by continuing the efforts to decrease the quantities and risks of most hazardous used pesticides and promoting

the sustainable use of pesticides, in particular by ensuring the uptake of integrated pest management practices.

- Enhance **animal welfare** by establishing ambitious measures to promote best practices for livestock, especially for pigs and laying hens.

Fostering and sharing of knowledge, innovation and digitalisation in agriculture and rural areas, and encouraging their uptake

- **Strengthen the Portuguese agricultural knowledge and innovation system (AKIS)** by investing in coordination and increase of knowledge flows (especially among farmers, researchers, advisors, education and the CAP network) to strengthen the impact of EU and national funding for research and innovation. Particular attention needs to be paid to the **further development of inclusive, integrated and knowledgeable advisory services** focused on increasing the overall level of knowledge and skills as regards economic, environmental and social aspects and innovation support capacity. Better links between public and private advisors should also be established.
- **Contribute to the EU Green Deal target on broadband by further improving Next Generation Access** broadband coverage and strengthening digital skills in rural areas to overcome the rural urban gap and to increase development opportunities for the rural economy and communities.

2. ANALYSIS OF AGRICULTURE AND RURAL DEVELOPMENT IN PORTUGAL

Portugal's population is 10.28 million inhabitants and it has an area of 92,000 km². Approximately 31% of people live in predominantly rural regions and 22% live in intermediate regions. These regions employ 2.5 million people² across an area of 86,400 km².

Farm holdings in Portugal are mostly small farms of 5 ha or less, and family constitutes the largest share of the labour force. There were around 259.000 active farm holdings in Portugal in 2016, covering 3.6 million hectares of utilised agricultural area. Less than 2% of landholders were under 35 years old³, with half of those only possessing basic training. In addition, around half of the total farmers relied on practical experience only⁴.

Agricultural income per family worker is below the average wage in the whole economy but higher than the EU average⁵. Furthermore, Portugal has a negative agricultural trade balance with other EU countries, while the trade balance with non-EU countries is positive⁶. Significant exports include olive oil and wine. The negative net migration rate in Portuguese rural areas underlines the issue of depopulation. In recent years, the employment rate in rural areas has been slightly above the EU rural employment rate and slightly below the total employment rate in Portugal⁷.

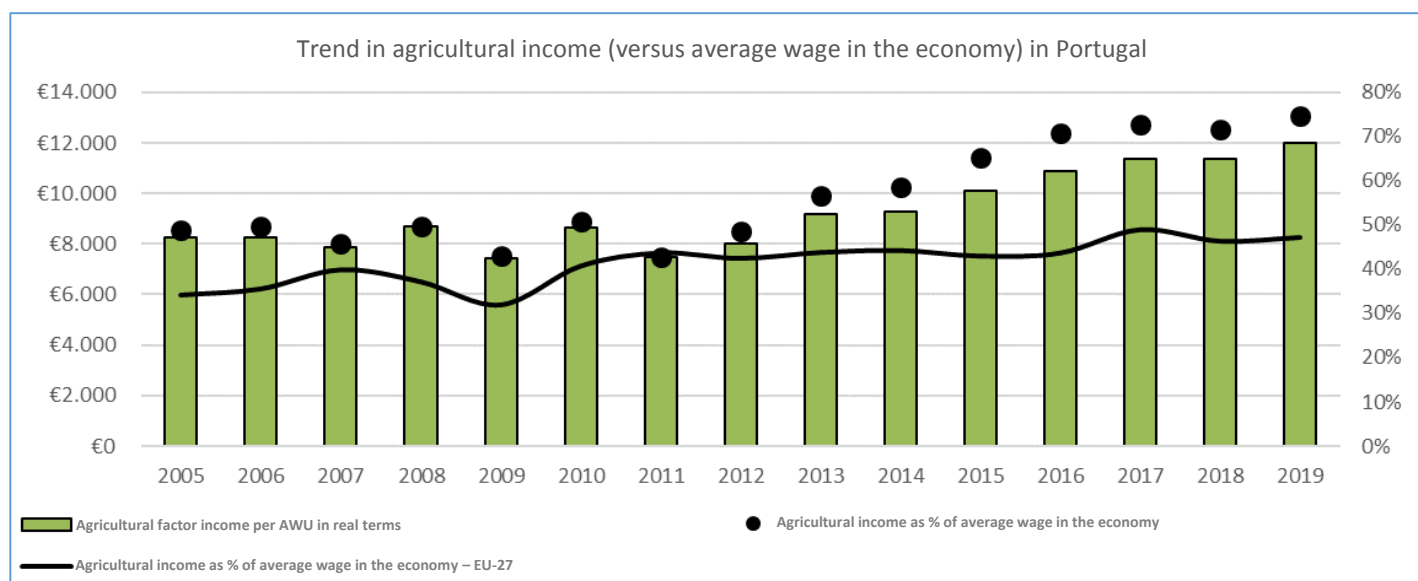
2.1 Support viable farm income and resilience across the EU territory to enhance food security

Between 2005 and 2018, the entrepreneurial agricultural income equalled, on average, about 52% of the average wage in the whole economy⁸. With great fluctuations over time, ranging from 39% in 2011 to 71% in 2018⁹, the average income per worker is lower on smaller farms. There is a positive correlation between income and holding size for farms of up to 200 ha.

Direct payments represented 23% of the agricultural factor income in Portugal between 2016 and 2018¹⁰. Coupled support is 20% of the Portuguese national ceiling, oriented to support milk, beef and veal, sheep and goat, rice and fruit and vegetables¹¹. Consequently, direct payments play an important role in all classes of farms in Portugal, with even higher importance in areas with natural constraints and small farms. 66.3% of farms in Portugal received direct payments in 2018¹².

In terms of targeting and distribution, 20% of the beneficiaries received 85% of direct payments in Portugal in 2018¹³, reflecting the existing concentrated structure of land ownership. The direct payments per hectare ratio decreases with farm physical size¹⁴. This could be related notably to the preponderance of certain sectors, with a continuing high average of direct payments per hectare in the smallest economic size and after in the biggest economic size classes. The redistributive payment introduced since 2017 seems to play a moderate role (relatively low envelope dedicated to it). Most agricultural sectors see fluctuations in income over time, with income being on average lower for livestock and mixed crops as compared to other sectors¹⁵. The level of agricultural income is also different depending on the regions, with income levels below the average in the Norte, Centro and R.A. of Madeira (where the unit amount - direct payment per hectare - is on average higher), and with more than double the average in Alentejo and R.A. of the Azores¹⁶. In terms of risk management, Portugal is characterised by a high yield variability¹⁷. Direct payments provide the main protection against falls in income. Portugal has a risk management system for economic losses due to climatic or environmental events as well as animal or plant diseases. This has been financed mainly through the Rural Development Programmes and the Wine

support programs and Fruit and Vegetables operational programmes¹⁸ as well as the national budget¹⁹. For crop insurance, Portugal works with a national subsidised insurance scheme under the rules of state-aid²⁰. The MS offers an insurance premium for its farmers, with a support rate at 65% for all collective insurance policies and young farmers and 62% for all other groups²¹. In general, the number of total beneficiaries is relatively small, with a huge decrease in memberships (from 100 000 to 20 400 between 2000 and 2018²²). The coverage of the current insurance system is limited despite the fact that, according to the forecast, agricultural activity will be significantly more exposed to climate risk and other potential risks, such as the occurrence of pests or plant health diseases.



Source: DG AGRI, based on EUROSTAT

2.2 Enhance market orientation and increase competitiveness including greater focus on research, technology and digitalisation

The agri-food trade balance in Portugal is traditionally negative, which causes a structural macroeconomic imbalance. Levels of self-sufficiency in cereals in particular are very low, originating a risk of supply breakdown. Portugal had a slight positive trade balance with countries outside the EU (extra EU-27) between 2013 and 2017 mainly due to the export of olive oil and wine. The intra-EU trade balance is negative but remains relatively stable overtime.

The total number of farms decreased between 2005 and 2016 in Portugal from about 324 000 to 259 000 farms. The average farm size remained stable over the same period, between 12 and 14 hectares. The agriculture sector is atomized with 73% of the farms with a very reduced economic dimension²³ and 16% with a reduced dimension. These farms represent only 30.2% of the UAA. There is a significant regional diversity in terms of physical and economic dimension of the holdings. The North and Centre concentrating the higher number of farms and work volume while the UAA is mainly in the South. The agricultural area decreased from 3.8 million hectares in 2005 to 3.61 million hectares in 2019. The decline in agricultural area is explained by a decline in arable land²⁴.

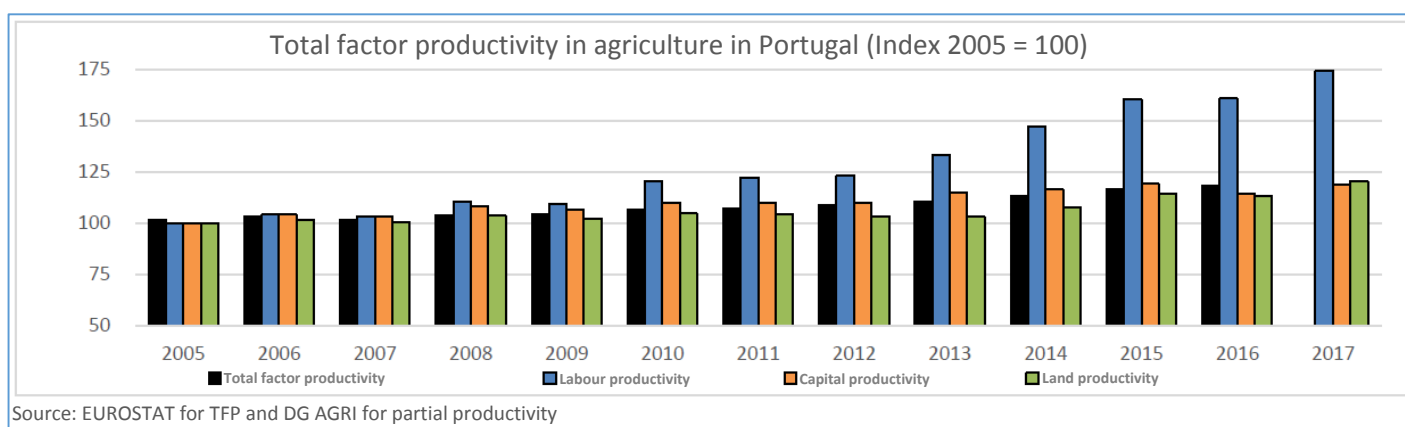
The number of livestock units increased over time in Portugal from around 2 million LU in 2005 to 2.2 million in 2016. The livestock density (calculated as total number of livestock

units/total utilised agricultural area) increased from 0.54 in 2005 to 0.61 in 2016. The agricultural area of extensive grazing (area under grazing livestock production below 1 LU/ha of forage area) increased marginally between 2005 and 2013 from 53% to 56% of the total UAA. The increase is related to the increase in the share in permanent grassland in 2016²⁵.

Total factor productivity (TFP) in Portugal is slightly increasing, 1.7% average from 2007 to 2017²⁶. However, the behaviour of each factor varies significantly. The productivity of gross fixed capital is increasing 1.2% each year. The productivity of the land is diminishing as a consequence of the increase in the value of the land (0.9% year). The labour productivity has increased steadily from 2010 onwards (4.5% a year) in a context of sharp decrease of employment in the agriculture sector representing now 5%. The significant increase in the volume of intermediate consumption used in the agriculture activity led to a loss of productivity of 0.5% a year.

Investment in Research and Innovation in the agri-food sector is low in Portugal²⁷. Despite the increasing trend, it represents less than 4% of total Portuguese R&I investments. The research model in the agri-food and forestry sectors is characterised by great fragmentation and reduced dialogue between its structures, favouring fundamental research, which results in the limited connection to companies and the poor dissemination of results.

Water availability and the quality of the soil are two essential factors for the productivity and sustainability of the sector. This is even more important under Mediterranean climatic conditions. Between 2002 and 2016, water consumption in the sector was reduced by 43.5%, however it is estimated that the efficiency in the use of water is between 60% and 65%. According to the estimates of the Commission, the annual soil loss by water erosion is 2.2 t ha⁻¹ yr⁻¹ a little bit lower than the mean at EU level.



2.3 Improve farmers' position in the value chain

The share of the value added for primary producers in the food chain in Portugal has fluctuated between a minimum of 22.6% in 2011 and a maximum of 27.2% in 2013. The share of value added that goes to agriculture in Portugal is very similar to the EU-average. In 2016, 25% of the value added in the food chain went to primary producers.⁸

Value added in the primary sector has increased in the last twenty years (1997-2017) but still on a lower pace than upstream stages of the food chain i.e. food processing and distribution²⁸.

Contrary to most other EU Member States, micro-enterprises generate 60% of the Portuguese agricultural output²⁹. Crop production generates 60% of Portugal's agricultural output. The most important sectors in terms of production value in Portugal in 2017 are fruits (20.3%), vegetables and horticulture (16.8%), wine (11.4%), milk (9.5%) and cattle (8.8%).²

At the end of 2018, there were 128 recognised Producer organisations (PO) in Portugal. Between 2015 and 2018, there was an increase in the number of recognised POs for most sectors. Fruit and vegetable POs present the highest proportion (45%). This is mainly explained because this sector benefits from specific Operational Programmes for recognised POs.¹⁶

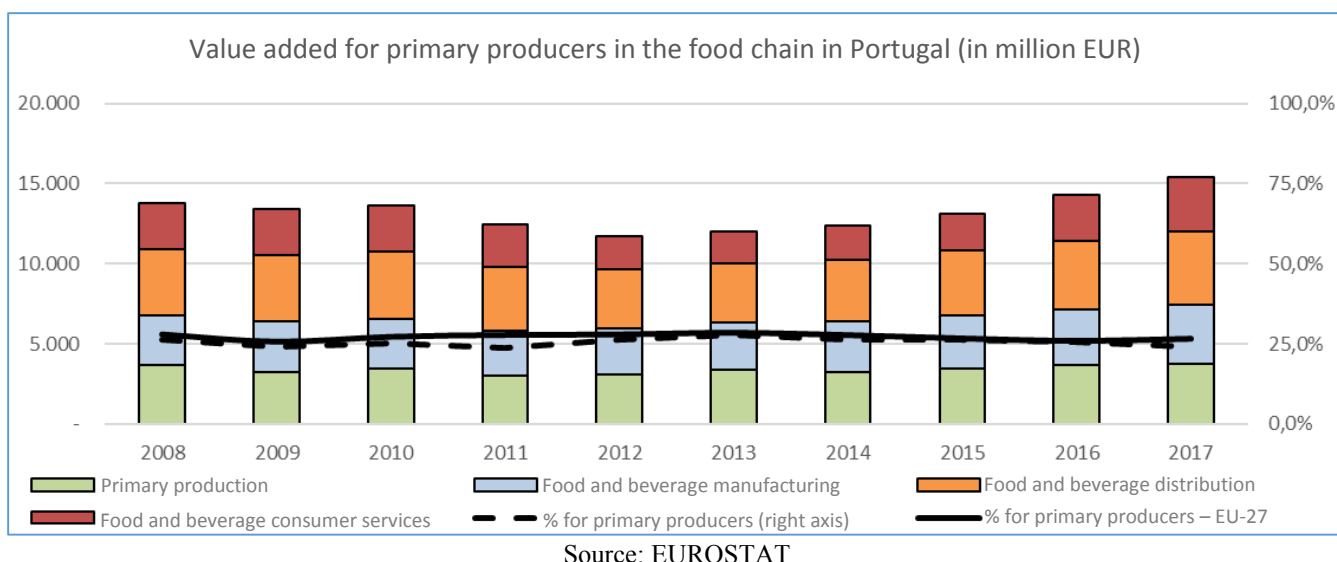
Overall, the economic value of POs has increased in the past years. Between 2013 and 2017 in VMP (value of marketed production) terms the distribution structure of POs moved towards larger POs, with the POs with a VMP of up to EUR 5 million EUR representing 59 % of the total in 2017, compared to 72 % in 2013. In 2017, 17 % of recognised POs had a VMP of over EUR 10 million against only 11 % in 2013.¹⁶

The organisation rate - share of total value per sector marketed by recognised PO - varies significantly depending on the sector³⁰. In 2017, 100% of rice is marketed by PO (from 50% in 2016). Milk and dairy PO market around 45% of the total production in 2017; cereals, 30%; olive oil 28%; pig meat, 25%; wine, 8%. For fruit and vegetables, the organisation rate (23%) is below the EU average (50% in 2017)³¹.

There are recognised Interbranch Organisations (IBO) for milk and dairy products, cork, rice, wine and olive oil. They mainly focus on technical aspects relevant to their sector (e.g. laboratory analysis for quality of milk and milk products). Only the rice sector has taken steps in negotiation and conclusion of IBOs agreements.³²

Since 2010, several regulatory policy initiatives have been implemented in Portugal to increase the bargaining power of primary producers along the food chain, (for example, a national UTPs legislation is already in place³³) and market transparency. Nevertheless, the asymmetry of bargaining power of the primary producers vis-à-vis downstream segments in the food chain persist⁹.

Quality schemes are well represented in Portugal with 94 PDO, 185 PGI and 1 TSG. 33% of them correspond to wine & spirits.³⁴



2.4 Contribute to climate change mitigation and adaptation, as well as sustainable energy

In 2018, agricultural emissions of greenhouse gases (GHG) (without LULUCF, see below) in Portugal amounted to 6.8 million tonnes of CO₂ equivalents. This accounts for about 9.5% of total GHG emissions in Portugal and circa 1.7% of the total EU GHG emissions from agriculture. These non-CO₂ emissions from agriculture increased by 4.89%, more than the double of the EU average, between 2013 and 2018. 51.4% of agricultural emissions in Portugal relate to enteric fermentation of livestock (mainly cattle), 31.7% to agricultural soils, 13.5% to manure management and 2% to rice cultivation. Trends for the 2013 – 2018 period show increases in emissions from enteric fermentation (8.2%) and manure management (6.7%) which are far above the EU average^{35,36}. Arable land abandonment has led to an increase in pastures³⁷ which has contributed to the increase in total livestock units and high input farming areas since 2013 to 2016, which may have contributed to this trend^{38,39}. Targets in the National Energy and Climate Plan for the reduction of emissions in the agricultural sector are -8% by 2020 and -11% by 2030. The recent increasing trend, in particular since 2016, puts GHG emissions from agriculture above the 2005 reference value, diverging from these targets.

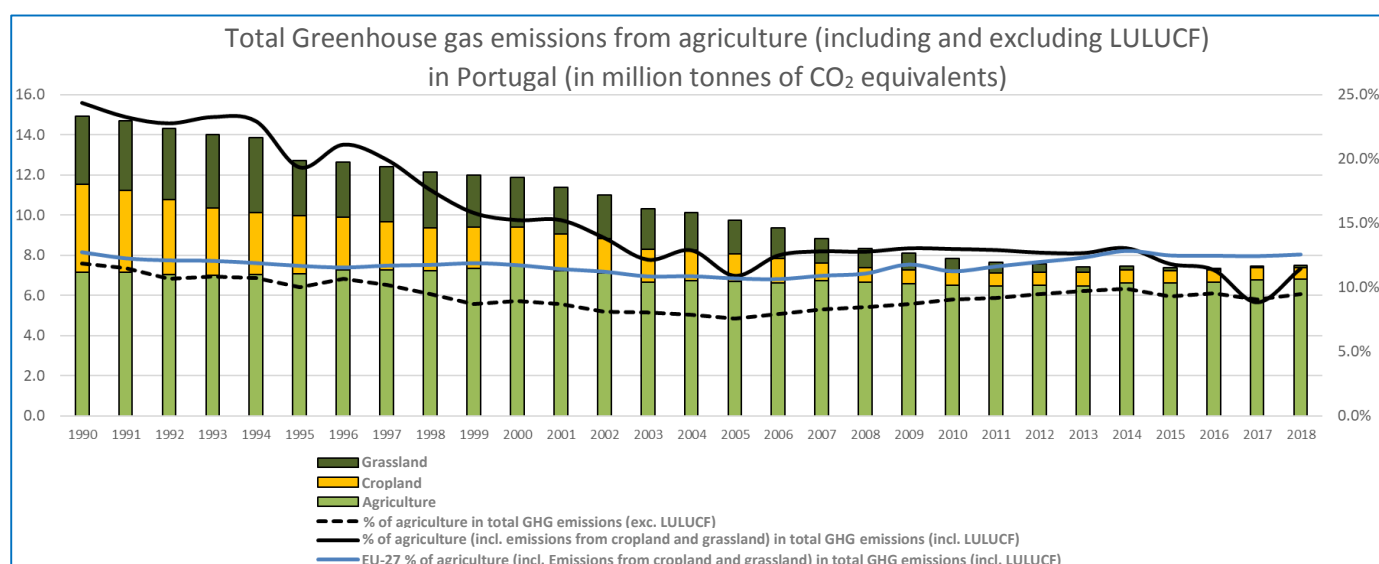
In Portugal, emissions and removals of GHG from land use, land use change and forestry (LULUCF) constitute a net sink, due to an important contribution of forestland, however, 44% lower than in 2010. Cropland and grassland are net sources of CO₂ emissions, following the EU-27 trend⁴⁰. 2017 was an exceptional year for Portugal, with a net source of emissions from LULUCF, due to exceptional forest fires⁴¹. As for the overall EU, LULUCF GHG removals in 2017 were also lower than in 2018 and in previous years. The mean organic carbon content in arable land was among the lowest in the EU in 2015, reaching 15.6 g kg⁻¹, a decrease since 2009⁴². The peat cover in Portugal is 0.3% only⁴³.

In 2018, the share of agriculture in the production of total renewable energy in Portugal was low (5.2%), below the EU average (12.1%). As for the forestry sector, it is responsible for 42% of total renewable energy production, slightly above the EU average (41.4%). The energy production from vegetal materials other than wood has decreased by 33.5% between 2013 and 2018, while the use of wood products has increased in the same period (6.23%). The share of energy consumption in Portuguese agriculture and forestry in total final

consumption (2.4%) was slightly below the EU average (2.9%)⁴⁴. A similar pattern can be observed for the use of energy for food processing (2.8%). However, the energy consumption in agriculture and forestry per hectare of utilised agricultural area (UAA) in 2013 - 2018 has increased by 20%, more than the double of the EU average⁴⁵.

The National Adaptation Strategy (ENAA 2020) has been adopted, followed by the Action Programme for Adaptation to Climate Change (P-3AC), for 2030. The vulnerabilities and impacts of climate change identified in the P-3AC include increases in the frequency and intensity of rural and forest fires, heat waves, droughts and water shortages, as well as increases of the maximum temperature and susceptibility to desertification⁴⁶. The Portuguese agricultural sector is expected to face a reduction in crop yields from water scarcity while some northern areas may benefit from heat accumulation, and damages to crop and infrastructure due to heavy rain and wind may also occur⁴⁷. To address these vulnerabilities, the P-3AC outlines adaptation measures grouped in nine action lines. These action lines include prevention of rural and forest fires, improvement of soil fertility, good practices for water management in agriculture, increased ecosystem resilience, prevention against invasive exotic species and agricultural and forestry diseases and pests, and reduction of flooding risks. Measures for each action line were described along with potential financial instruments, involved entities, monitoring indicators and targets. The 2014-2020 Rural Development Programme was an important financial contributor to these objectives⁴⁸. In 2018, the share of expenditure from Rural Development on climate action in Portugal was 19%, higher than the EU average of 5%⁴⁹.

According to the National Energy and Climate Plan, the target for the reduction of non-ETS emissions is of -17% by 2030, as compared to 2005 levels. Agriculture and forestry will make an essential contribution to the decarbonisation of the economy. Policies and measures established in the NECP include the reduction of the carbon intensity of livestock activities (by promoting the treatment and management of effluents and the improvement of feed digestibility) and the reduction of consumption of conventional nitrogen fertilisers (by adopting a code of best practices, improving fertiliser use efficiency, e.g. by expanding precision agriculture, and encouraging the use of organic fertilisers). In the LULUCF sector it will focus on the increase of carbon sinks in both agriculture and forestry (by supporting forestation, increasing resilience to rural fires, e.g. through species diversity, restoring and improving lands and preventing erosion, e.g. by recovering riparian galleries and applying techniques that improve carbon levels). This contribution will still be less significant than that of other sectors, such as transport, energy or industry. The role of bio-economy in the decarbonisation will also be encouraged for example through the promotion of the use of forestry and agricultural residual biomass and the support for the establishment of crop areas for energy purposes⁵⁰.



Source: European Environmental Agency. As in EUROSTAT [[env air ggc](#)]

2.5 Foster sustainable development and efficient management of natural resources such as water, soil and air

In terms of air quality, ammonia emissions from agriculture in Portugal have been increasing since 2013, a similar trend for the EU, and reached 47 thousand tons in 2017, accounting for around 80% of total ammonia emissions in Portugal and 1.4% of ammonia emissions from agriculture in the EU. The highest contributor is livestock production, which accounts for around 40% of total ammonia emissions from agriculture, particularly from cattle and swine, followed by application of synthetic nitrogen fertilisers (18.7%)^{51,52}. An increase in total livestock units and high input farming areas since 2013 may have contributed to this⁵³. The Commission's assessment of the risk of non-compliance with the emission reduction commitments under the National Emissions Ceilings (NEC) Directive states that Portugal would be at high-risk of non-compliance with the emission reduction commitments for ammonia for both 2020 to 2029 and for 2030 and beyond⁵⁴. The National Air Pollution Control Programme is currently being revised.

Threats to soil quality in Portugal include organic matter depletion, soil erosion by water and desertification. In 2015, the mean organic carbon content in arable land was among the lowest in the EU at 15.6 g kg⁻¹, and has decreased by 12% since 2009⁵⁵. This low organic carbon content is common to southern European countries due to climatic conditions that favour organic carbon mineralisation. However, improper land management may contribute to aggravating this issue. The southern region of Portugal has a large area which is sensitive to desertification⁵⁶. According to the 2014 National Action Programme to combat desertification under the United Nations Convention to Combat Desertification (UNCCD) framework, 63% of area in mainland Portugal was susceptible to desertification in the decade of 2000 - 2010, an increase compared to previous decades⁵⁷. In 2016, the share of estimated agricultural area affected by severe water erosion in Portugal was 5.2%, a slight decrease since 2010 (5.6%), and below the EU share of severe erosion (7%). The north of the country is the region most affected by moderate to severe erosion. Arable and permanent crop areas in "Tamega e Sousa" and "Ave" top the list with 51.4% and 30.5% of areas affected⁵⁸.

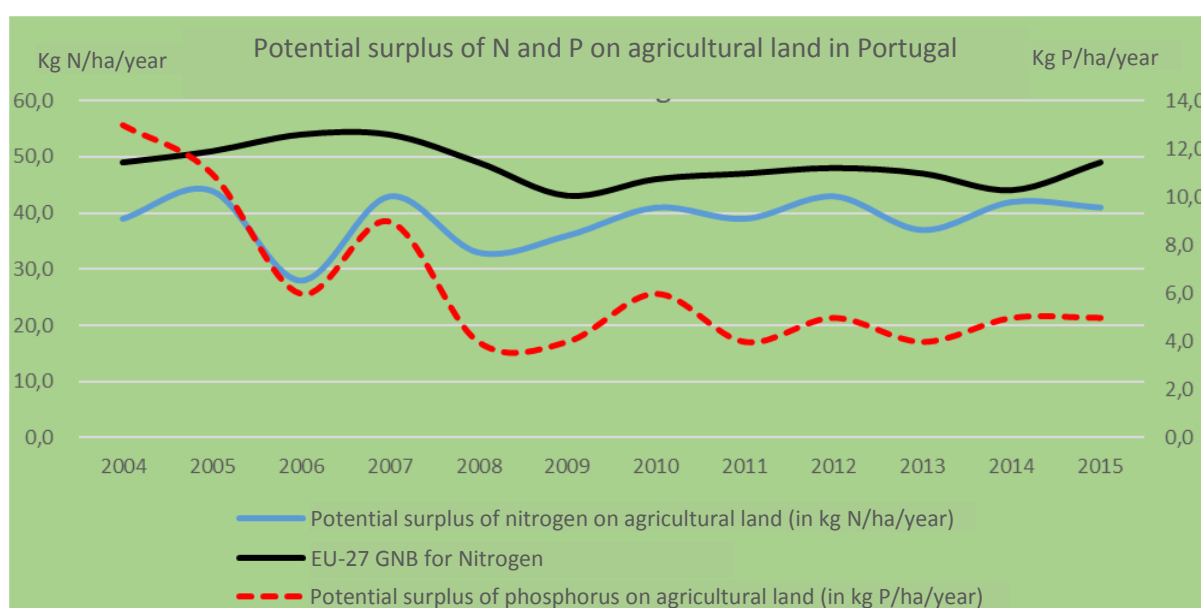
On water quality, in terms of the Water Framework Directive around 42% of surface water bodies are failing to achieve good ecological status and for chemical status 1% is failing to achieve good status but 74% are unknown. For groundwater the situation is better with 3%

failing to achieve good quantitative status and 9% failing good chemical status. Diffuse agricultural pollution is the most significant pressure on both surface and groundwater⁵⁹. The potential surplus of nitrogen has remained stable since 1995 while phosphorus surplus has fallen, both with year to year variations, as seen in the graph below. In 2015, the nitrogen surplus was of 41 kg/ha, which is still below the EU average. For phosphorus, the surplus was higher than the EU average, reaching 5 kg/ha. Recent trends show small increases in both nutrients since 2008⁶⁰. However, Portugal is among the Member States with lower efficiency in the use of fertilisers.

For the period of 2012 - 2015, no monitoring sites have reached poor water quality status for nitrates in surface waters. The situation has been relatively stable in comparison to the previous period of 2008 - 2011, since only 7.7% of stations present an increase in nitrate concentrations. Eutrophication in fresh waters has decreased in 2012 - 2015 as compared to 2008 - 2011. 32.4% of groundwater stations had a concentration of nitrates that was above the limit for a high quality status, and 17.9% of groundwater stations showed a poor quality status over the same period. Nitrate concentrations in 19.5% of groundwater stations have increased from 2008 - 2011 to 2012 - 2015⁶¹.

On water quantity, the water exploitation index (WEI+) in Portugal was 12.7% in 2017, indicating low water stress. However, the WEI+ has shown a high variability over the years and between river basins, with centre and south regions being usually the most affected⁶². Agriculture accounts for about 80% of total water consumption⁶³. Water abstraction in agriculture in 2017 has decreased by 10% since 2009. However, Portugal has a high water abstraction in agriculture, having reached around 3400 million cubic meters in 2017⁶⁴.

The share of irrigation in the total water abstraction was high (70%)⁶⁵. However, it is within the range commonly seen in Mediterranean countries. In 2016, the irrigable area in Portugal was 15.1% of the total utilized agricultural area, a slight increase since 2010 (14.7%), ranking as the 7th country with the largest share of irrigable area⁶⁶. Despite the decrease in water used in farming in recent years, there is significant scope for saving water and also significant potential through innovation⁶⁷.



Source: EUROSTAT [aei_pr_gnb]

2.6 Contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes

The share of farmland eligible to direct payments, covered by permanent grassland is slightly decreasing since 2015, reaching 34,1% in 2019⁶⁸. This variation is explained by an increase in the total agricultural area while the area under permanent grassland remained stable. The indicator on conservation status of agricultural habitats shows that in Portugal for the reporting period 2013-2018, 62.5% of grassland had an unfavourable conservation status (43.8% unfavourable-inadequate and 18.7% unfavourable-bad). This was particularly prevalent in grassland formations, which include traditional extensive farming systems including “montados” and marshes. The abandonment of agricultural activity has been affecting negatively some of these farming systems. These agricultural areas are particularly relevant for the existence of landscape mosaics favourable to biodiversity, namely in areas with high rate of afforestation. According to the same indicator, 37.5% of the grassland is in a favourable status and the more favourable areas are located in the south of Portugal⁶⁹.

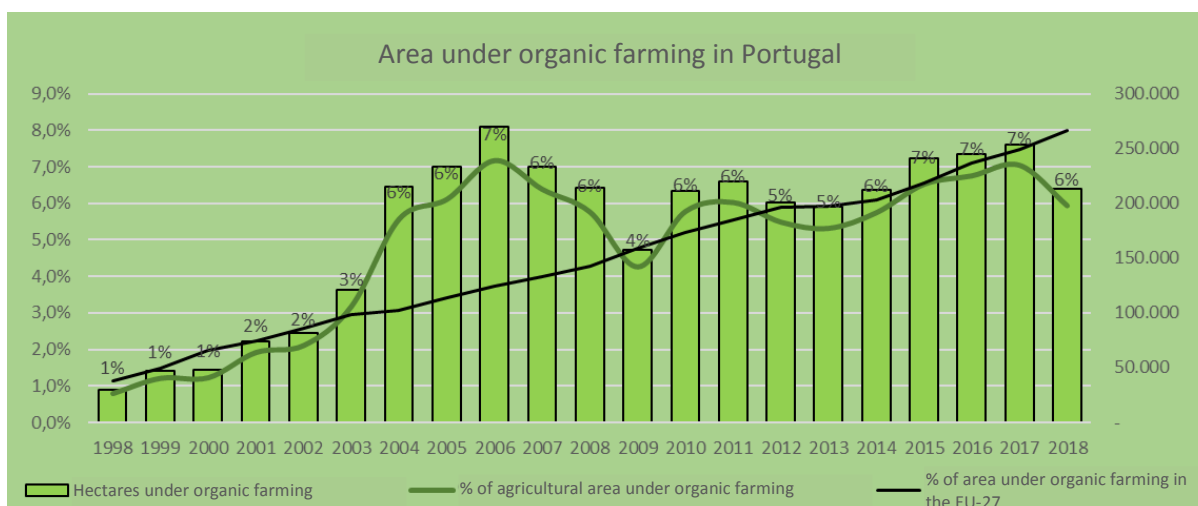
In Portugal, landscape elements represent 0.3% of the UAA which is below the EU average (0.6% for EU-27), but the share of fallow land is considerably higher than EU-27, 7.4% and 4.1% respectively. However, there are high variations at regional level. While the North, in particular Douro Vinhateiro region, present high density of linear elements, the Alentejo region has a rather low density of those elements important for the preservation of biodiversity⁷⁰. Portugal plays an important role in the Eastern Atlantic Flyway and in the habitat of farmland birds.

In 2018, the share of agricultural area in Natura 2000 was almost 18% (including natural grassland), compared to 11% at EU-27 average and for forestland at around 20% (including transitional woodland-shrubs), which is below the EU 27 average (30%)⁷¹.

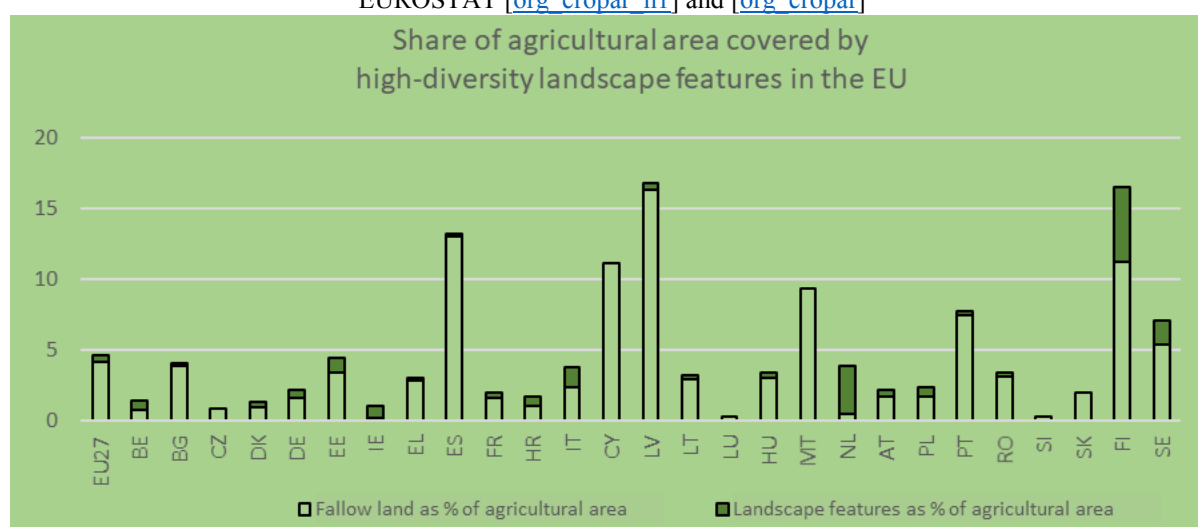
The Prioritised Action Framework (PAF) 2014-2020, that identifies Natura 2000 funding priorities, has suffered significant delays in its implementation, which required the carry-over of important activities for the period 2021-2027. This plan emphasises the need to implement horizontal and governance measures as well as agri-forestry conservation and restoration measures.

Organic farming, agro-forestry systems and other types of production systems have a positive impact in environmental terms including in the biodiversity, preservation of species and natural habitats. In 2018, the share of organic farming area in Portugal represented 5.9% of the total utilised agriculture area (UAA)⁷². This is below the EU27 average of 8%, and a decrease since the previous years when the organic area in Portugal covered around 7% of UAA. Area under conversion to organic farming has been declining year by year since 2015 until, in 2018, the area under conversion was only 0.5% of total UAA⁷³.

As for farming intensity, Portugal performs better than the EU average in terms of farms with low input intensity per ha, respectively 30.6% of UAA and 27%. However, Portugal has a slightly higher share of land managed intensively (39% compared to 36.3 % at EU-27). Portugal has by far the highest share of UAA used for extensive grazing (58.4 % compared to 19.8 % at EU-27 average).



EUROSTAT [[org_cropr_h1](#)] and [[org_cropr](#)]



Source: DG AGRI based on Eurostat and JRC based on LUCAS survey.

* *Linear elements considered here: Grass margins, shrub margins, single trees bushes, lines of trees, hedges and ditches. This estimation is to be taken with caution because of methodological caveats.*

2.7 Attract young farmers and facilitate business development in rural areas

Portugal has undergone a process of urbanisation with people from interior rural areas moving towards the coast and the urban areas, which contributes to the high age of the rural population, land abandonment and few socio economic alternatives in rural areas. Micro enterprises dominate the entrepreneurial landscape in the country with only 35% of these situated in rural areas. Micro-enterprises in the primary sector situated in the region of Lisbon and the coast north of Lisbon concentrate alone 24% of the gross added value.

Portugal ranks first in the EU-27 for the oldest farmer population, with 51.9% of farmers over 65 years old. Moreover, in the period between 1999 and 2016, there was a decrease of 40% in the number of farmers, which was more accentuated (70%) in the case of young farmers⁷⁴. In 2016, young farmers below 35 years of age represented 1.9%¹ of the total farm manager population in Portugal (compared to 5.1% EU average).

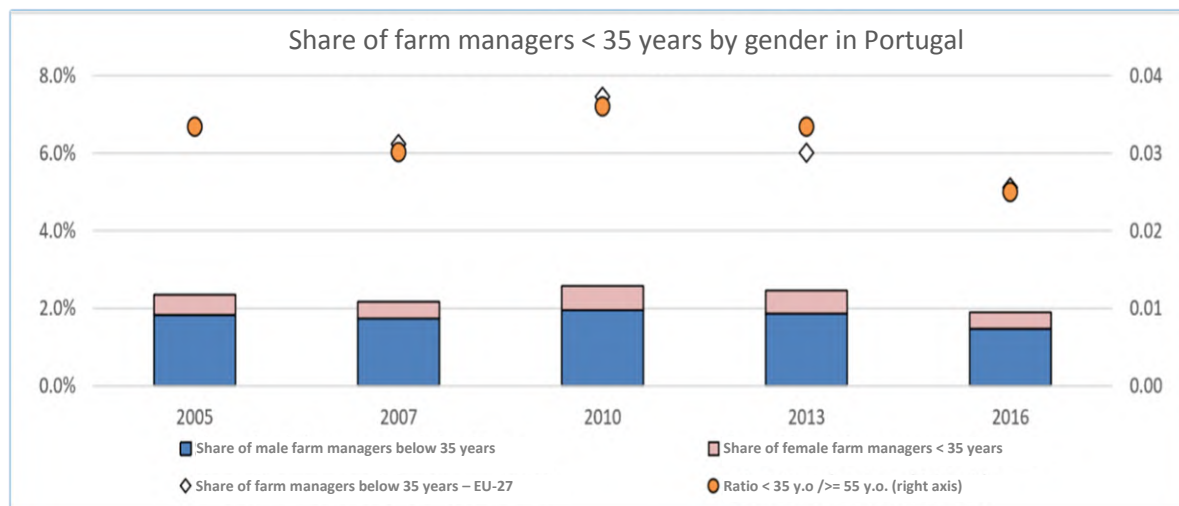
Young farmers hold bigger farms than others in each region, the size is varied and has followed an increasing trend. Over half are smaller than 5 ha, the average size being 18.5 ha,

double the average UAA of farm holders over 40 in 2016. The main activities are in animal production (27%) and the fruit and vegetables (18%) sector.

Access to land is the main obstacle to the setting-up of young farmers and is more accentuated in Portugal than in EU-27⁷⁵, followed by lack of seasonal workforce and access to credit. Young farmers mostly own the land. A significant percentage of young farmers¹ claim that lack of access to knowledge, extension services, technical support and technological solutions are also major factor inhibiting setting-up. There is a financing gap between 95 and 383 million euros in the Portuguese agriculture sector, for which young farmers constitute an important part.

Young farmers educated beyond the level of basic education have increased from 12% in 1999 to over 50% in 2016. Professional agricultural training has gained ground relative to on-site training, mainly due to obligations related with policy change. In 2016, 22% of young farmers were women (compared to 23.3% EU average)⁷⁶.

For 2016, first pillar top-up payments needs were estimated at the maximum of 2% of the national envelope⁷⁷. Regarding rural development, the current programming foresees support for the setting-up of young farmers, and other complementary support has been provided through knowledge transfer and information actions, advisory services, farm management and farm relief services, investments in physical assets and cooperation⁷⁸. Up to 2018⁷⁹, roughly 850 million euros of investments had been approved for young farmers, referring to approved and budgeted projects representing 30% of the total amount for submitted projects. Financial instruments are also available to young farmers since 2019.



Source: EUROSTAT

2.8 Promote employment, growth, social inclusion and local development in rural areas, including bio economy and sustainable forestry

Rural areas⁸⁰ accounted for 79% of land in Portugal in 2016⁸¹ compared to 45% for the EU-27. 31% of the Portuguese population lived in rural areas in 2019⁸², a reduction of 3% since 2015. Over the same period, the under 15 male and female population in rural areas went

down 9% and 8% respectively while the 15-64 age group went down 4% for men and 3% for women⁸³. The majority of Portuguese regions suffer from net population loss. Population density has remained stable at 45 inh/km⁸⁴ but many areas in Portugal are at risk of seeing their population shrink in the future⁸⁵. Ageing in rural areas is an issue a number of Portuguese regions will have to contend with, as illustrated by their high old-age dependency ratio in 2019⁸⁶.

The employment rate in rural areas for 15-64 year olds was 68.4% in 2019, on par with the EU27 average. It rose consistently from 61.8% in 2013 to its current level in 2018 and has stagnated since⁸⁷. Among the 15 to 64 age group, a clear gap remains between male employment in rural areas (73.4% in 2019) and female employment (63.4% in 2019)⁸⁸. This contrast is even starker when it comes to the employment rate for women with lower secondary education which was 59.7%, compared to 77.7% for men⁸⁹.

The unemployment rate for 20-24 year olds in rural areas has fallen from 30% in 2015 to 16% in 2019. This remains much higher than the national average which is 6.3% in 2019, comparable to the EU average of 5.8%⁹⁰. The share of young people aged 15 to 24 neither in employment nor in education in rural areas is on a general downward trend since 2013⁹¹. Despite improvements since a peak of 15% in 2015, rural women aged 15 to 24 remain disproportionately represented among this category in 2018 (10% vs a national average of 8%)⁹².

The share of people working in agriculture in Portugal was 5.9% in 2017 compared to an EU28 average of 4%. This number has been on a consistent downward trend since 2013, when the share was 9.6%. The share of women working in the sector has also decreased, from 41.5% in 2013 to 39.1% in 2016. It must be noted that Portugal ranked 7th among EU27 Member States in terms of share of female farm managers with 30% in 2016⁹³.

The GDP per inhabitant in Portuguese rural areas has remained around 70% of the EU average since 2005. The figure dipped to 65% around 2012 before gradually rising back to 70% in 2016. By comparison, this average is around 90% in urban areas in 2016⁹⁴, illustrating the gap between rural and urban economies. The gross value added contributed by rural areas has remained constantly at 27% between 2005 and 2016⁹⁵. The number of bed places for tourism in rural areas is on a constant upward trajectory, from just over 100.000 in 2012 to almost 200.000 in 2017⁹⁶.

The poverty rate in Portugal in 2019 was higher in rural areas with 25.5% of people at risk of poverty or social exclusion compared to 20.4% in cities or towns and suburbs. This compared to an estimated EU27 average of 23.6% in 2018⁹⁷. The share of EU and non-EU born migrants at risk of poverty was approximately 25% in rural areas in 2017.

Local development under the LEADER approach led to the creation of 60 Local Action Groups (LAGs) which are currently active in Portugal. 130 million euros were mobilised for these groups, financing small investments for agricultural holdings, economic diversification, short circuits and local markets, promotion of local products and renovations works. While multifunded strategies⁹⁸ were put in place on the continent, their implementation in the early stages of the implementation was more complex than expected⁹⁹.

53% of land in Portugal was covered by forest and other wooded land¹⁰⁰ in 2015, which was above the EU27 average of 45%. A specific feature of Portuguese forests is that 92% are owned by private owners, 6% by local authorities and only 2% are state owned¹⁰¹. There was

an increase in the amount of people employed in forestry, which went from 12,000 annual working units (AWU) in 2014 to 14,000 in 2017¹⁰². The EU27 average in 2017 was 17,915 AWU. The total output of the forestry sector in 2017 in Portugal was EUR 1.2 billion, confirming the upward trend in the sector. This represented approximately 2% of the EU's total output in the sector the same year¹⁰³.

The bioeconomy's turnover has steadily increased from EUR 32.5 billion in 2009 to EUR 39.6 billion in 2015¹⁰⁴. On the contrary, the number of people employed in the sector has gone down, from 872 569 in 2008 to 608 919 in 2015¹⁰⁵. The main sectors in order of their share in the bioeconomy sector turnover were food beverage and tobacco (40%), agriculture (17%), bio-based textiles (15%), paper (10%), wood products and furniture.

2.9 Improve the response of EU agriculture to societal demands on food and health, including safe, nutritious and sustainable food, as well as animal welfare

In 2018 the annual sales of antimicrobial agents for food producing animals expressed as mg per population correction unit (PCU) was 186.6. The sales fluctuated considerably during the period 2010 to 2018, with an increase of 4.9 % between 2010 and 2018. The sales of antimicrobial agents remain above the EU average of 118.3 mg/PCU in 2018¹⁰⁶.

On Plant Protection Products (PPPs), in 2018, the sale of pesticides in Portugal was around 8000 tonnes, another year of consistent downwards trend¹⁰⁷. The withdrawal of PPPs from the EU market may have contributed to this reduction. Better agricultural and plant health practices that are less dependent on these products, also contributed to reduced use of PPPs¹⁰⁸.

The assessment of the Sustainable Use Directive implementation demonstrate that, despite the progress made by Portugal, there are still gaps in many areas of the national action plan, as well as serious weaknesses in the control system to ensure the implementation of IPM. The main issues identified involve: equipment in use; use of PPPs in protected areas and water courses; controls for IPM¹⁰⁹.

Harmonised risk indicator 1 (HRI 1), is calculated using the quantities of pesticide active substances that are placed on the market, with a weighting based on the classification of the active substance, in accordance with Reg. EC 1107/2009. According to the ESTAT calculation of the HRI 1, the use and risk linked to pesticides reduced in Portugal by 34% in a period of 2011-2018, compared to a 17% decline in the EU¹¹⁰.

Harmonised risk indicator 2 (HRI 2), is calculated by combining the number of emergency authorisations granted in any one year and weighting them according to the classification of the active substance, in accordance with Regulation EC No 1107/2009. Analysis of data reported on the sales of pesticides under Regulation (EC) No 1185/2009, shows that candidates for substitution (group 3) comprised a relatively high proportion of total pesticide sales in Portugal in the 2015-2018 period, with no clear trend showing a reduction in the sales of these products over the years¹¹¹.

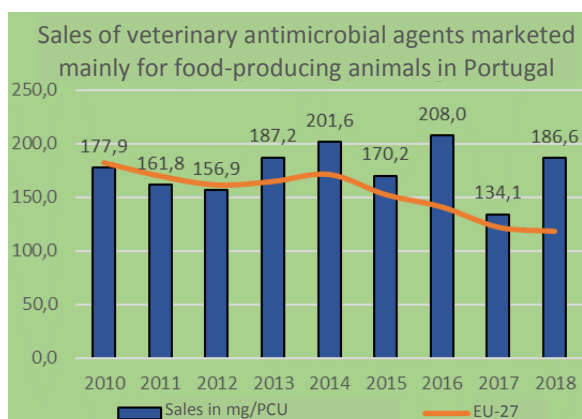
The type and number of emergency authorisations remains still quite high, due not only to the withdrawal or non-renewal of some active substances at EU level and the absence of suitable alternatives, but also the appearance of new plant health problems for which there are no PPPs available on the national market¹¹².

In relation to animal welfare, routine tail docking in Portugal is lower than most Member States due to slaughter piglets in certain systems of production and also to high number of pigs reared in extensive conditions. The competent authorities have a well thought-out implementation strategy to prevent tail biting and reduce routine tail docking which is a problem on farms with intensive rearing systems.¹¹³ Regarding egg production, 85% of eggs in Portugal are produced in cages while the EU average is around 50%¹¹⁴..

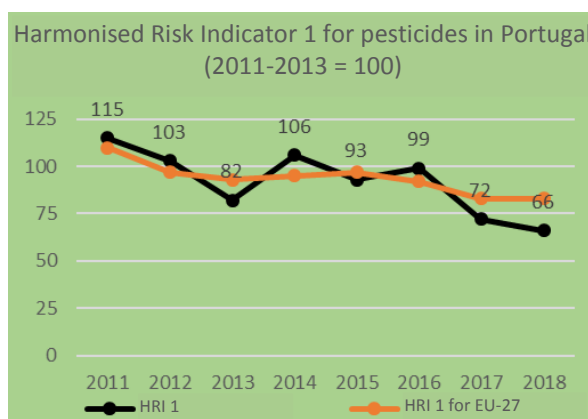
In Portugal, consumers are more sensitive to food production originating from short supply chains and local markets, with concerns that go towards environmental sustainability, animal welfare, fair trade, valuing local products, opting for the consumption of food directly from the producer and/or that went through less intensive production processes. Furthermore, buying local products directly from the producer is for many consumers the most satisfactory way to guarantee the quality, traceability and authenticity of the products and a way to support the local economy¹¹⁵.

An inter-ministerial working group was established, with the objective of developing a strategy for the promotion of healthy food aimed to encourage adequate food consumption and the consequent improvement of the nutritional status of citizens, with a direct impact in the prevention and control of chronic diseases. One of the key objectives, is to increase citizens' knowledge of the Mediterranean Diet and in particular, its benefits for human health¹¹⁶. Portugal has a very high estimated consumption of red meat¹¹⁷. A significant part of the Portuguese population is overweight or obese¹¹⁸. Therefore, Portugal should facilitate a shift in Portuguese diets towards a more plant-based diet with less red and processed meat and more fruits and vegetables, whole grains, legumes, nuts and seeds, in line with national dietary recommendations. Efforts should focus on shifting towards healthy sustainable diets, in line with national recommendations, in order to contribute to reducing overweight and obesity and the incidence of non-communicable diseases while simultaneously improving the overall environmental impact of the food system.

Concerning food loss and waste in primary production and processing of food no data is yet available. Nevertheless, a national strategy to combat food waste has been developed and an action plan is already in place¹¹⁹. Moreover, the National Waste Prevention Programme (2014-2020)¹²⁰ is focused on urban waste and gives no attention to food loss and waste occurring at the primary production level and the early stages of the supply chain. This could be tackled in the future national food waste prevention programme as required by Article 29(2a) of the Waste Framework Directive 2008/98/EC.



Source: DG AGRI after ESVAC, Tenth ESVAC Report (2020)



Source: EUROSTAT [aei_hri]

2.10 Cross-cutting objective on knowledge, innovation and digitalisation

The Agricultural Knowledge and Innovation Systems (AKIS) in Portugal has been characterised as weak and fragmented. A weak AKIS indicates low influence, low resource allocation, and low access and benefits to farmers. Furthermore, Portugal's AKIS is also fragmented: knowledge networks operate with little cooperation and coordination^{121,122}.

Portuguese advisory organisations are dominated by farmer-based organisations, while public advisory services have a limited presence. The advisory sector features a weak dialogue with other AKIS actors. Furthermore, the agricultural research system seems to have weak connections to both advisors and farmers¹²³. A representation of advisors as partners in European Innovation Partnership (EIP-AGRI) Operational Groups is also lacking, as well as in trainings under the Rural Development Programme¹²⁴. Also under the RDP, the number of beneficiaries advised remained at only 281 from 2016 to 2018¹²⁵. Overall, this shows a weak engagement of the advisory sector.

Portugal has launched 119 Operational Group (OG) projects under the EIP-AGRI, ranking among the highest number of OG projects per country in the EU¹²⁶, accounting for 70% of the national target for the 2014 - 2020 RDP and 8% of all EU OGs currently launched or finished. According to the available data at the EU level, OG partnerships are characterised by a high participation of small and medium-sized enterprises (SMEs), with circa 40% of overall partners¹²⁷ against ca 25% of researchers and only 9% of farmers.

The National Rural Network (NRN) is the national interlocutor of the EIP-AGRI, and has the objective of promoting the EIP and support initiatives of innovation, knowledge sharing and dissemination of OG results. The Portuguese NRN has established a permanent working group on innovation, which aims to integrate producers, identify common problems and ensure the networking of all innovation support agents¹²⁸. The Portuguese rural network has been active in networking actors from research and Horizon 2020 consortia with practice (farmers, advisors and others). This positive experience can provide the basis for the future national CAP network – namely for its innovation strand - to step up efforts in promoting synergies between the CAP and European Research Area (ERA) and help make use of up-to-date scientific information for agricultural practices. For example by establishing regular links with the Horizon National Contact Points intensifying the dissemination of the information on the EIP website and setting up knowledge platforms (supporting advisory back-offices).

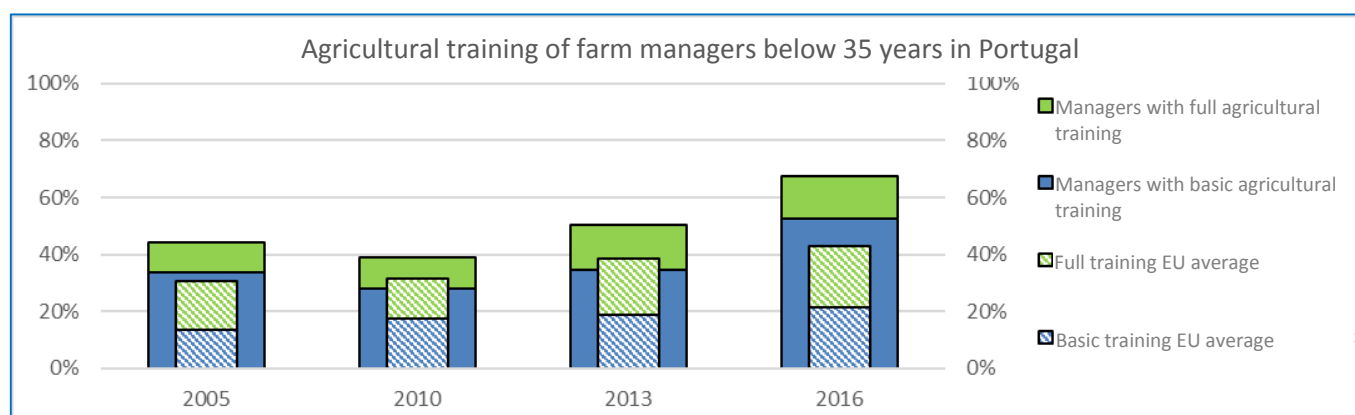
In 2016, about half of farm managers in Portugal had practical experience only, while 2.5% of farm managers completed full agricultural training. Although this is an increase of almost 35% since 2010, farm managers with full training in Portugal remain below the EU average of 8.9% of total managers. The highest percentage of fully trained farm managers in Portugal is within young farmers (15% of total of farmers with less than 35 years old). Regionally, full training is higher in the southeast of the country^{129,130}. In 2018, training had reached 3704 participants, roughly double of the previous year¹³¹. Despite the increase, it corresponds to a low share of the total farmers in Portugal (603.7 thousand in 2016).

Portugal has devoted 1.7% of its 2014-2020 Rural Development budget for knowledge transfer and innovation measures, well below the EU-28 average of 3.8%¹³². The planned budget for these measures has further decreased over time, with a cut of at least 50% for the first two measures in the latest approved budget. The actual spending of the planned budget to date varies between 24% and 49%

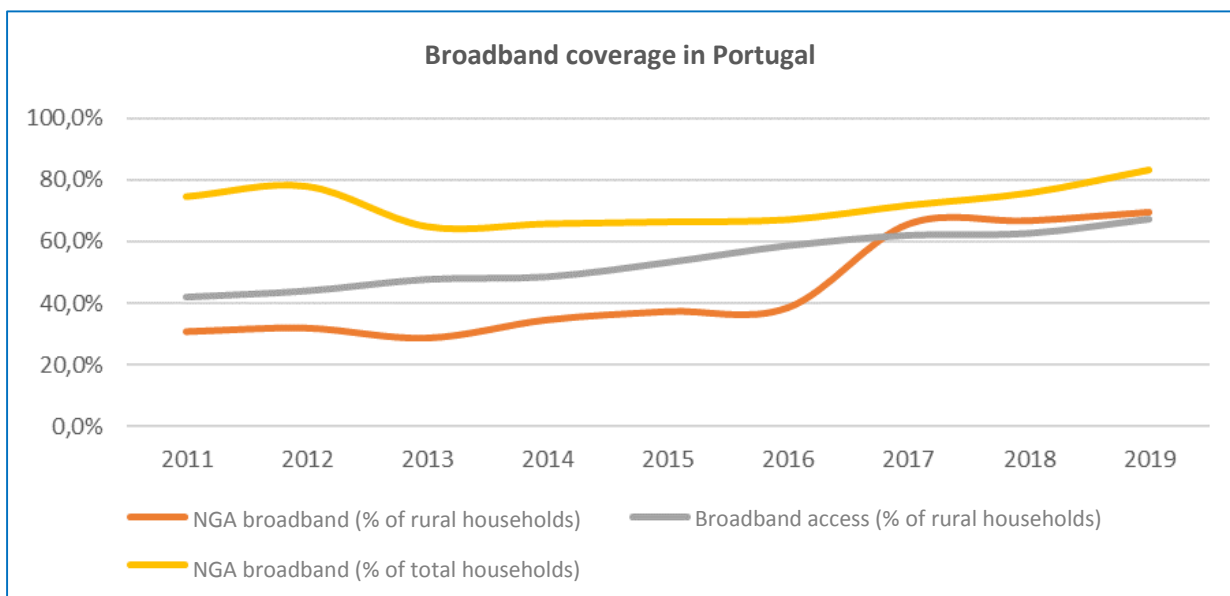
In terms of digitalisation, in the overall ranking of the Digital Economy and Society Index, which covers the dimensions connectivity, human capital, use of internet, integration of digital technologies and public digital public services, Portugal ranks below EU average, performing particularly weakly in the categories human capital and use of internet services.¹³³ Looking specifically at the differences between rural and urban areas, a gap between them can be identified in terms of rural broadband coverage and level of digital skills.

NGA broadband coverage in rural areas increased significantly from 38.4% in 2016 to over 69.4% in 2019 (DESI Scoreboard). It remains below the national average of 83% but is above the EU-27 average for rural areas of 59.3% coverage¹³⁴. In 2019, a significant gap existed between the share of people with at least basic digital skills in rural areas (36.7%) compared to urban areas (59.8%)¹³⁵. This also was lower than the EU-27 average of 49.3% in rural areas¹³⁶. A high percentage of the population has never used the internet (22% against 9.5% in the EU in 2019) and access varies greatly between regions¹³⁷.

Portugal has not yet opted for the use of satellite-based means to monitor CAP implementation. There are 5 Digital Innovation Hubs related to agriculture, hunting and forestry¹³⁸, which aim to assist companies in improving competitiveness through the use of digital technologies.



Source: EUROSTAT [ef_mp_training]



Source: DESI report

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- ¹ Hristov, J., Toreti, A., Pérez Domínguez, I., Dentener, F., Fellmann, T., Elleby C., Ceglar, A., Fumagalli, D., Niemeyer, S., Cerrani, I., Panarello, L., Bratu, M. *JRC Technical Report – Analysis of climate change impacts on EU agriculture by 2050*. Luxembourg, 2020.
https://ec.europa.eu/jrc/sites/jrcsh/files/pesetaiv_task_3_agriculture_final_report.pdf
- ² EUROSTAT [[urt_gind3](#)], [[urt_lfe3emp](#)] and [[urt_d3area](#)].
- ³ EUROSTAT [[ef_m_farmang](#)].
- ⁴ European Commission. *CAP context indicator C.24 Agricultural training of farm managers*. Based on EUROSTAT [[ef_mp_training](#)].
- ⁵ European Commission. *CAP indicators – Data explorer*. CAP impact indicator IMP_01 Agricultural entrepreneurial income.
- ⁶ European Commission. *CAP indicators – Data explorer*. CAP Impact indicator IMP_06 Agricultural trade balance. Based on EUROSTAT Comext
- ⁷ European Commission. *CAP indicators – Data explorer*. CAP impact indicator IMP_14 Rural employment rate.
- ⁸ European Commission. Common Agricultural Policy context indicator *C.26 Agricultural entrepreneurial income*. Income based on EUROSTAT [[aact_eaa04](#)], [[aact_ali01](#)] and [[aact_eaa06](#)], adding back the compensation of employees to the entrepreneurial income and divided by the total number of annual working units. Note: 2019 data estimated. The Average wage in the economy based on EUROSTAT [[nama_10_a10_e](#)] thousand hours worked using employees' domestic concept and [[nama_10_a10](#)], item wages and salaries
- ⁹ *Ibid.*
- ¹⁰ European Commission. *CAP indicators – Data explorer*. CAP Result indicator *RPI_01 Share of direct support in agricultural income*.
- ¹¹ European Commission. EC(2020) 2291 approving the decision of Portugal to use for the year 2020 more than 13 % of its annual national ceiling set out in Annex II to Regulation (EU) No 1307/2013 of the European Parliament and of the Council establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy, for financing the coupled support.
- ¹² European Commission. *CAP indicators – Data explorer*. CAP Result indicator *RPI_01 Share of direct support in agricultural income*.
- ¹³ European Commission. *Note on Distribution of direct payments 80-20 - update with claim year 2018*. Directorate General for Agriculture and Rural Development own calculations based on FADN (Farm Accountancy Data Network) data (up to 2018) and CATS (Clearance of Accounts Trailing System) data (up to 2018).
- ¹⁴ European Commission. *Note on Distribution of direct payments and income – background analysis*. Directorate General for Agriculture and Rural Development own calculations based on FADN (Farm Accountancy Data Network) data (2015) and CATS (Clearance of Accounts Trailing System) data (up to 2017).
- ¹⁵ Farm Accountancy Data Network. *FADN Standard reports*. [YEAR.COUNTRY.TF14](#) and own calculations (up to 2018)
- ¹⁶ European Commission. Directorate General for Agriculture and Rural Development own calculations based on data from GPP based on CEA/INE provided by the Portuguese government.
- ¹⁷ European Commission. Directorate-General for Agriculture and Rural Development (European Commission), ECORYS, Wageningen Economic Research. *Study on risk management in EU agriculture. Final report*. [<https://op.europa.eu/s/omTz>]
- ¹⁸ Factsheet on 2014-2020 Rural Development Programme for Portugal Continente.
- ¹⁹ Portuguese Government. Ministério da Agricultura e do Mar. Decreto-Lei n.º 162/2015 de 14 de Agosto. Diário da República n.º 158/2015, Série I de 2015-08-14 <https://data.dre.pt/eli/dec-lei/162/2015/08/14/p/dre/pt/html>
- ²⁰ European Commission. Directorate-General for Agriculture and Rural Development (European Commission), ECORYS, Wageningen Economic Research. *Study on risk management in EU agriculture. Final report*. [<https://op.europa.eu/s/omTz>]
- ²¹ *Ibid.*
- ²² Financing Institute for Agriculture and Fisheries, I.P. (Instituto de Financiamento da Agricultura e Pescas, I.P.). (2019).
- ²³ GPP (VPP < 8.000 €) Reduced means (VPP ≥ 8 000 e < 25 000 €),
- ²⁴ Instituto Nacional de Estatística, I.P. *Inquérito à Estrutura das Explorações Agrícolas 2016*. https://www.ine.pt/ngt_server/attachfileu.jsp?look_parentBoui=311060046&att_display=n&att_download=y

- 25 European Commission. EUROSTAT. [[ef lf leg](#)].
- 26 European Commission. CAP context indicator C.27 Total factor productivity. Based on EUROSTAT [aact_eaa05], [aact_eaa04], [aact_ali01], [apro_cpsh1] and [ef_mptenure] and FADN
- 27 Portuguese Ministry of Agriculture, *Estratégia para investigação e inovação agroalimentar e florestal no período 2014-2020*. 2014.
- 28 Gabinete de Planeamento, Políticas e Administração Geral (GPP), from National Statistics Institute
- 29 Gabinete de Planeamento, Políticas e Administração Geral (GPP) from Economic Accounting for Agriculture- National Statistics Institute
- 30 Gabinete de Planeamento, Políticas e Administração Geral (GPP) from National Statistics Institute and PO annual report
- 31 AGRI elaboration from MS PO Annual report for the F&V sector
- 32 *Study on agricultural interbranch organisations (IBOs) in the EU*. Portugal, 2016. https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key_policies/documents/ext-study-interbranch-organisations-portugal_2016_en.pdf
- 33 European Commission. *Commission Staff Working Document – Impact assessment Initiative to improve the food supply chain (unfair trading practices)*. SWD(2018) 92 final.
- 34 E-ambrosia
- 35 European Environmental Agency (EEA). *EEA greenhouse gas – data viewer*. <https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>
- 36 European Commission. *CAP context indicator C.45 Emissions from agriculture*. Based on EUROSTAT [[env air emis](#)], original source European Environmental Agency (UNFCC_v22).
- 37 European Commission. EUROSTAT. [[ef lf leg](#)].
- 38 European Commission. *CAP context indicator C.21 Livestock units*. Based on EUROSTAT [[ef lsk main](#)], [[ef lsk poultry](#)], [[ef lsk bovine](#)] and [[ef lus main](#)].
- 39 European Commission. *CAP context indicator C.33 Farming intensity*. Based on FADN –Agri-environmental indicator “Intensification/Extensification”. https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- 40 European Environment Agency (EEA). *EEA greenhouse gas – data viewer*. <https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>
- 41 Portuguese Environmental Agency. Pereira, T. C., Amaro, A., Borges, M., Silva, R., Pina, A., Canaveira, P. *Portuguese National Inventory Report on Greenhouse Gases, 1990 – 2017*. Amadora, 2019. [https://www.apambiente.pt/zdata/Inventario/March2019/NIR_global_2019_\(15_March\).pdf](https://www.apambiente.pt/zdata/Inventario/March2019/NIR_global_2019_(15_March).pdf)
- 42 European Commission. *CAP context indicator C.41 Soil organic matter in arable land*. Joint Research Center (JRC) based on LUCAS Land Use Survey 2015.
- 43 Joint Research Centre (JRC) – European Soil Data Centre (ESDAC). *Relative cover (%) of peat soils (0–30cm), per country*. https://esdac.jrc.ec.europa.eu/ESDB_Archive/octop/Resources/Peatland_Per_Country.pdf
- 44 European Commission. *CAP context indicator C.43 Production of renewable energy from agriculture and forestry*. Based on EUROSTAT [[nrg bal c](#)] and [[nrg cb rw](#)], and Strategie Grains.
- 45 European Commission. *CAP context indicator C.44 Energy use in agriculture, forestry and food industry*. Based on EUROSTAT [[nrg bal s](#)].
- 46 *National Energy and Climate Plan 2021-2030 (NECP 2030)*. Portugal, 2019. https://ec.europa.eu/energy/sites/ener/files/documents/pt_final_necp_main_en.pdf
- 47 Ministério da Agricultura, do Mar, do Ambiente e do Ordenamento do Território. *Estratégia de Adaptação da Agricultura e das Florestas às Alterações Climáticas – Portugal continental*. 2013. https://apambiente.pt/zdata/Politicais/AlteracoesClimaticas/Adaptacao/ENAAAC/RelatDetalhados/Relat_Setor_ENAAAC_Agricultura.pdf
- 48 Presidência do Conselho de Ministros. *Action Programme for Adaptation to Climate Change (Resolução do Conselho de Ministros n.º 130/2019. Diário da República, 1.ª série, N.º147*. Portugal, 2019. Pages 10-45. (<https://dre.pt/application/file/a/123610736>)
- 49 European Commission. *Agri-food Data Portal CAP Indicators, Climate Change & Air Quality - (EU27). Rural Development financial contribution to climate action – EU(%)*. https://agridata.ec.europa.eu/extensions/DashboardIndicators/Climate.html?select=EU27_FLAG,1Agri-foodDataPortalhttps://agridata.ec.europa.eu/extensions/DashboardIndicators/Climate.html?select=EU27_FLAG,1
- 50 *National Energy and Climate Plan 2021-2030 (NECP 2030)* and DG CLIMA. Portugal, 2019. https://ec.europa.eu/energy/sites/ener/files/documents/pt_final_necp_main_en.pdf

- 51 European Commission. *CAP context indicator C.45 Emissions from agriculture*. Based on EUROSTAT [[env air emisenv air emis](#)], original source European Environmental Agency (UNFCC_v22).
- 52 European Environment Agency (EEA). *National Emission Ceiling Directive*. <https://www.eea.europa.eu/data-and-maps/dashboards/necd-directive-data-viewer-3>
- 53 European Commission. *CAP context indicator C.21 Livestock units*. Based on EUROSTAT [[ef_lsk_main](#)], [[ef_lsk_poultry](#)], [[ef_lsk_bovine](#)] and [[ef_lus_main](#)].
- 54 European Commission. *Report from the Commission to the European Parliament and the Council on the progress made on the implementation of Directive (EU) 2016/2284 on the reduction of national emissions of certain atmospheric pollutants*. [COM\(2020\)266 final](#).
- 55 European Commission. *CAP context indicator C.41 Soil organic matter in arable land*. Joint Research Center (JRC) based on LUCAS Land Use Survey 2015. https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- 56 European Environment Agency (EEA). *Sensitivity to desertification index map*. <https://www.eea.europa.eu/data-and-maps/figures/sensitivity-to-desertification-index-map>
- 57 *Resolução do Conselho de Ministros n.º 78/2014. Ação Nacional de Combate à Desertificação, Resolução do Conselho de Ministros n.º 78/2014 -Ministros n.º 78/2014. Diário da República n. 1.ª série, N.º 248., Série I, de 24-12-2014-. Portugal, 2014. Pages 6242 - 6259. <https://dre.pt/application/file/65985917>*
- 58 European Commission. *CAP context indicator C.42 Soil erosion by water*. Original source: Joint Research Center. https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- 59 European Commission. *Commission Staff Working Document – Second River Basin Management Plans – Member State: Portugal*. SWD(2019) 56 final
- 60 European Commission. EUROSTAT [[aei_pr_gnb](#)].
- 61 European Commission. *Report from the Commission to the Council and the European Parliament on the implementation of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources based on Member State reports for the period 2012-2015., COM(2018) 257 final*.
- 62 European Environment Agency (EEA). *Use of freshwater resources in Europe*. <https://www.eea.europa.eu/data-and-maps/indicators/use-of-freshwater-resources-3/assessment-4>
- 63 *Commission Staff Working Document – The EU Environmental Implementation Review 2019, Country Report – Portugal*. [SWD\(2019\) 129 final](#).
- 64 European Commission. *CAP context indicator C.39 Water abstraction in agriculture*. Based on EUROSTAT [[env wat abs](#)].
- 65 *Ibid.*
- 66 European Commission. EUROSTAT [[tai03](#)].
- 67 European Commission. *Commission Staff Working Document – The EU Environmental Implementation Review 2019, Country Report – Portugal*. [SWD\(2019\) 129 final](#).
- 68 ISSAME Form 545
- 69 European Commission. *CAP context indicator C.36 Conservation status of agricultural habitats*. Original source: [European Environmental Agency](#).
- 70 Joint Research Center (JRC). *LUCAS Survey 2015 — NUTS 3 average number of linear elements per transect with agriculture as main land cover*. <https://ec.europa.eu/eurostat/documents/4031688/8503684/KS-01-17-069-EN-N.pdf/91e45d7a-ee8c-47ea-a666-f49600d1ee6c>
- 71 European Commission. *CAP context indicator C.34 Natura 2000 areas*. Based on NATURA 2000 Barometer and European Environmental Agency, Corine Land Cover 2018.
- 72 European Commission. EUROSTAT [[org_cropar](#)]
- 73 European Commission. EUROSTAT [[org_cropar](#)]
- 74 Under 35 year olds and under 40 years old in the outermost regions.
- 75 Data based on a survey made in 2015, for EU-28 , within EU pilot project : <https://ec.europa.eu/agriculture/sites/agriculture/files/external-studies/2015/young-farmers/country-reports/annex-i.22-portugal.pdf>
- 76 European Commission. *CAP context indicator C.23 Age structure of farm managers*. Based on EUROSTAT [[ef_m_farmang](#)]
- 77 European Commission. DG AGRI. *The Young Farmer Payment under Pillar I of the Common Agricultural Policy*. 2016.
- 78 *Continente Rural Development Programme*.

- 79 European Commission. FI Compass. *EAFRD financial instrument in Portugal*. <https://www.fi-compass.eu/sites/default/files/publications/EAFRD%20financial%20instrument%20in%20Portugal.pdf>
- 80 EUROSTAT uses two types of definitions for rural areas. The first one is considers the Local Administrative Units (LAU) level (*freguesias* in Portugal), and is called 'degree of urbanisation'. It provides a breakdown of data by cities, towns and suburbs and rural areas. The second is based on a classification at the NUTS-3 level (*subregiões* in Portugal), and is referred to as 'rural-urban typology'. It provides a breakdown by urban, intermediate and rural areas.
- 81 European Commission. *CAP context indicator C.03 - Territory (Rural-urban)*. Based on EUROSTAT [[reg_area3](#)] and [[urt_d3area](#)]
- 82 European Commission. *CAP context indicator C.01 – Population (Rural-urban)*. Based on EUROSTAT [[demo_r_gind3](#)]
- 83 European Commission. *CAP context indicator C.02 – Age structure (Rural-urban)*. Based on EUROSTAT [[demo_r_pjanaggr3](#)]
- 84 European Commission. *CAP context indicator C.04 – Population density (rural-urban)*. Based on EUROSTAT [[demo_r_d3dens](#)] and [[urt_d3dens](#)]
- 85 Copus et al., *Interim report ESCAPE European Shrinking Rural Areas: Challenges, Actions and Perspectives for territorial Governance*. ESPON Escape project 2020.
- 86 European Commission. *Commission Staff Working Document – Impact of demographic change*. [SWD\(2020\)109 final](#)
- 87 European Commission. *CAP Context indicator C.05 - Employment rate – (Degurba typology)*. Based on EUROSTAT [[lfst_r_ergau](#)]
- 88 European Commission. *CAP Context indicator C.05 - Employment rate (Degurba)*. Based on EUROSTAT [[lfst_r_ergau](#)]
- 89 European Commission. *CAP Context indicator C.05 - Employment rate (Degurba)*. Based on EUROSTAT [[lfst_r_ergau](#)]
- 90 European Commission. *CAP context indicator C.07 Unemployment rate (Degurba)*. Based on EUROSTAT [[lfst_r_lfu3rt](#)]
- 91 European Commission. *Young people neither in employment nor in education and training by sex, age and degree of urbanisation (NEET rates)* EUROSTAT [[edat_lfse_29](#)]
- 92 Ibid
- 93 European Parliament. Franic, R. and Kovacicsek, T. *The professional status of rural women in the EU*. (2019)
- 94 European Commission. *CAP context indicator C.08 GDP per capita (Rural-urban)*. Based on EUROSTAT [[nama_10r_3gdp](#)] and [[nama_10r_3popgdp](#)]
- 95 European Commission. *CAP context indicator C.10 Structure of the economy (Rural-urban)*. Based on EUROSTAT [[nama_10r_3gva](#)]
- 96 European Commission. *CAP context indicator C.30 Tourism infrastructure (Degurba)*. Based on EUROSTAT [[tour_cap_nuts2d](#)]
- 97 European Commission. *CAP context indicator C.09 Poverty rate (Degurba)*. Based on EUROSTAT [[ilc_peps11](#)]
- 98 European Commission. *Factsheet on Community Led Local Development (CLLD)*. 2014.
- 99 Managing Authority – Continente Rural Development Programme
- 100 Food and Agriculture Organisation of the United Nations (FAO). [FRA 2020 Database Global Forest Resources Assessment](#). 2020.
- 101 Instituto da Conservação da Natureza e Florestas (ICNF). [Perfil Florestal do Portugal](#). 2018
- 102 European Commission. *CAP context indicator C.15 Labour productivity in forestry*. Based on EUROSTAT [[for_eco_cp](#)] and [[for_awu](#)]
- 103 European Commission. EUROSTAT [[nama_10_a64](#)]
- 104 European Commission. *Jobs and wealth in the EU Bioeconomy*. JRC.
- 105 European Commission. *Jobs and wealth in the EU Bioeconomy*. JRC
- 106 European Medicines Agency, European Surveillance of Veterinary Antimicrobial Consumption (ESVAC). *Sales of veterinary antimicrobial agents in 31 European countries in 2018. Trends from 2010 to 2018 Tenth ESVAC Report*. [EMA/24309/2020](#).
- 107 European Commission. EUROSTAT [[AEI_FM_SALPEST09](#)]
- 108 PLANO ESTRATÉGICO DA PAC 2023-2027: https://www.gpp.pt/images/PEPAC/Draft_Diagnostico_OE9_Novembro_2020.pdf
- 109 European Commission, DG(SANTE) 2019-6719 Final report of an audit carried out in Portugal from 19 January 2019 to 07 February 2019 in order evaluate the implementation of measures to achieve the sustainable use of pesticides:

- https://ec.europa.eu/food/audits-analysis/audit_reports/details.cfm?rep_id=4165
- ¹¹⁰ Pesticide sales. Retrieved from: European Commission. As in EUROSTAT [AEI_FM_SALPEST09]
- ¹¹¹ European Commission. *Harmonised Risk Indicator for pesticides (HRI 1), by group of active substance*. As in EUROSTAT [SDG_02_51]
- ¹¹² PLANO ESTRATÉGICO DA PAC 2023-2027:
https://www.gpp.pt/images/PEPAC/Draft_Diagnostico_OE9_Novembro_2020.pdf
- ¹¹³ European Commission, DG(SANTE) 2019-6750 Final report of an audit carried out in Portugal from 13 May 2019 to 17 May 2019 in order to evaluate Member State activities to prevent tail-biting and avoid routine tail-docking of pigs: https://ec.europa.eu/food/audits-analysis/audit_reports/details.cfm?rep_id=4189
- ¹¹⁴ European Commission, *Eggs dashboard*: https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/eggs-dashboard_en.pdf
- ¹¹⁵ PLANO ESTRATÉGICO DA PAC 2023-2027:
https://www.gpp.pt/images/PEPAC/Draft_Diagnostico_OE9_Novembro_2020.pdf
- ¹¹⁶ PLANO ESTRATÉGICO DA PAC 2023-2027:
https://www.gpp.pt/images/PEPAC/Draft_Diagnostico_OE9_Novembro_2020.pdf
- ¹¹⁷ Health and nutritional aspects of sustainable diet strategies and their association with environmental impacts: a global modelling analysis with country-level detail:
[https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(18\)30206-7/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(18)30206-7/fulltext)
- ¹¹⁸ European Commission. EUROSTAT [SDG_02_10].
- ¹¹⁹ Portugal, *National Commission to Combat Food Waste*, <https://www.cncda.gov.pt/>
- ¹²⁰ Plano Estratégico para os Resíduos Urbanos:
http://apambiente.pt/zdata/DESTAQUES/2014/RelatorioPropostaPERSU2020_Fev14_v2.pdf
- ¹²¹ Knierim, A., PRO AKIS, European Commission 7th Framework Programme project PRO AKIS, European Commission 7th Framework Programme project Knierim, A., Prager, K. *Agricultural Knowledge and Information Systems in Europe: Weak or strong, fragmented or integrated?* 2015. [file://net1.cec.eu.int/homes/085/sanalin/Desktop/OVERVIEW.OF.AKIS.IN.EUROPE.AKIS_characterisation_briefing_final.pdf](http://net1.cec.eu.int/homes/085/sanalin/Desktop/OVERVIEW.OF.AKIS.IN.EUROPE.AKIS_characterisation_briefing_final.pdf)
- ¹²² Baptista, A., Cristovão, A., Koehnen, T., Madureira, L., Pires, M. *AKIS and advisory services in Portugal - Report for the AKIS inventory (WP3) of the PRO AKIS project*. 2014. https://430a.uni-hohenheim.de/fileadmin/einrichtungen/430a/PRO_AKIS/Country_Reports/Country_Report_Portugal_16_05_2014.pdf
- ¹²³ *Ibid.*
- ¹²⁴ European Commission. *CAP Indicator - Data explorer*. CAP Output indicator OIR_14 Number of advisors trained.
https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorer.html?select=EU27_FLAG,1
- ¹²⁵ European Commission. *CAP Indicator - Data explorer*. CAP Output indicator O.OIR_13 Number of beneficiaries advised.
https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorer.html?select=EU27_FLAG,1
- ¹²⁶ EIP-AGRI. *Projects – Operational Groups*. https://ec.europa.eu/eip/agriculture/en/eip-agri-projects/projects/operational-groups?search_api_views_fulltext_op=OR&search_api_views_fulltext=&field_proj_geographical_area%5B0%5D=173
- ¹²⁷ *Member state notifications to the Directorate General for Agriculture and Rural Development based on the latest adopted version of the Rural Development Programme at January 2020*
- ¹²⁸ National Rural Network. *Inovação para a Agricultura*. <https://inovacao.rederural.gov.pt/centros-de-competencias/14-centros-de-competencias/18-forum-de-inovacao>
- ¹²⁹ European Commission. *CAP context indicator C.23 Age structure of farm managers*. Based on EUROSTAT [ef_m_farmang]. https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- ¹³⁰ European Commission. *CAP context indicator C.24 Agricultural training of farm managers*. Based on EUROSTAT [ef_mp_training]. https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- ¹³¹ European Commission. *CAP Indicator - Data explorer*. CAP Output indicator OIR_12 Number of participants in trainings.
https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorer.html?select=EU27_FLAG,1
- ¹³² European Commission. *CAP Indicator - Data explorer*. CAP Output indicator OIR_01 Total public expenditure. <https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorer.html>

-
- ¹³³ European Commission. *Digital Economy and Society Index (DESI) 2020 – Portugal*. <https://ec.europa.eu/digital-single-market/en/scoreboard/portugal>
- ¹³⁴ European Commission. *Digital economy and society index (DESI) – Rural NGA broadband coverage*. [https://digital-agenda-data.eu/charts/see-the-evolution-of-an-indicator-and-compare-countries#chart={\"indicator-group\":\"broadband\",\"indicator\":\"bb_rngacov\",\"breakdown\":\"total_pophh\",\"unit-measure\":\"pc_hh_all\",\"ref-area\":\[\"EU\",\"PT\"\]}](https://digital-agenda-data.eu/charts/see-the-evolution-of-an-indicator-and-compare-countries#chart={\)
- ¹³⁵ European Commission. *Digital economy and society index (DESI) – Individuals with at least basic digital skills*. [https://digital-agenda-data.eu/charts/see-the-evolution-of-an-indicator-and-compare-countries#chart={\"indicator-group\":\"ict-skills\",\"indicator\":\"i_dsk_bab\",\"breakdown\":\"ind_deg3\",\"unit-measure\":\"pc_ind\",\"ref-area\":\[\"EU\",\"PT\"\]}](https://digital-agenda-data.eu/charts/see-the-evolution-of-an-indicator-and-compare-countries#chart={\)
- ¹³⁶ *Ibid.*
- ¹³⁷ European Commission. Commission Staff Working Document - Country Report Portugal 2020. SWD(2020) 521 final.
- ¹³⁸ European Commission. *Smart Specialisation Platform – Digital Innovation Hubs*. <https://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool>