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# COMMISSION STAFF WORKING DOCUMENT

## Commission Recommendations for Greece'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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## Contents

# 1. COMMISSION RECOMMENDATIONS FOR GREECE'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 Greece. The recommendations are based on analysis of the state of play, the needs and the priorities for agriculture and rural areas in Greece. The recommendations address the specific economic, environmental and social objectives of the future CoAP 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 Greece, in its CAP Strategic Plan, to set explicit national values for the Green Deal targets[1], taking into account its specific situation and these recommendations.

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

The analysis highlights recent positive income developments for the Greek farm sectors, which reverse the previous negative trend and help narrow the gap between farm and non-farm income. This was also supported by the steady improvement in competitiveness, as reflected in the agricultural trade balance, even though it remains negative. These encouraging developments mainly result from increased productivity growth and the increased share of value added in the food chain captured by the primary sector, despite the low degree of producer organisations. However, farm income remains very volatile due to the high proportion of crops in production. Despite the crucial role that direct payments play in stabilising farm income, significant differences in the level of support constrain their effectiveness. These differences, which stem from the historic structure of production, have over time lost their justification as they are decoupled from both present production realities and future economic and environmental needs, especially as regards the need to improve the preservation of area under permanent grassland and its integration into the direct payments system. Risk management tools, which can also play an important role in fostering the resilience of agriculture (e.g. against extreme weather events linked to climate change) exist and are used by a majority of professional farms. Therefore, a policy better targeting support measures towards extensive production, with a greater share of income support linked to environmental performance is therefore desirable.

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

The previous observation is also crucially important in order to help meet the European Green Deal targets and, in particular to increase the environmental and climate ambition of Greece's agricultural policy, supported by full implementation of standards (e.g. protection of landscape features, ban on conversion of grassland in all Natura 2000 sites, requirements applicable to farmers for the birds habitats). Even though they do not significantly contribute to EU greenhouse gas (GHG) emissions, the high share of livestock emissions and the specific agronomic and pedo-climatic characteristics of

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

Greek agriculture need to be addressed by means of a specific set of responses . 38% of Greek grassland has a favourable status, and the share of landscape elements and fallow land is very low, which negatively affects biodiversity. In addition, Greece needs to maintain and restore farm and forest habitats as regards the habitats and species identified and prioritised in the prioritised action framework for CAP funding in combination with the types of species and habitats relevant for the CAP, indicated in the EU and national species and habitats action plans, in particular for the most endangered species.

Greece is among those EU countries where water abstraction is a problem, and where prolonged periods of water scarcity due to global warming is projected to intensify[1]. At the same time, Greece needs to ensure that it achieves the objectives of the Water Framework Directive namely preventing the deterioration of water bodies and ensuring they attain of good status at least. Reversing soil erosion, reducing air pollution and improving water use efficiency in terms of quantity and quality are important priorities. Prioritising those practices that specifically address challenges related to biodiversity, soil, air and water (e.g. catch and cover crops, retention of crop residues on fields, switching to less water intensive crops and improved crop varieties, improving irrigation efficiency via water-saving systems and precision farming) combined with an enhanced conditionality, will be crucial to the successful green transition of Greek agriculture. Such an orientation could be supported by:

- enhancing the ongoing shift towards organic production and integrated pest and pathogen management, thus contributing to the reduction of the use of chemical pesticides
- increasing the, albeit uneven, introduction of practices linked to precision farming, improved nutrient management, low input management commitments or bioenergy.

Greece has a high potential to improve the production of renewable energy (solar, wind, biomass) from waste and by-products in the agriculture and forestry sectors (with due consideration to the effects of air pollution). Considering that Greece is particularly prone to forest fires, damage to forests needs to be prevented by supporting forest resilience and restoration in addition to afforestation. Carbon farming approaches can be designed to support carbon sequestration linked to land systems such as agro-forestry. Essential to this process is the timely replacement of harvested or damaged forest. This has to be carried out in such a way as to maximise long-term carbon capture (with sustainable eco-friendly species), preserving stocks and increasing the carbon sinks in forests, their soils and harvested wood products. This can be achieved through support and implementation measures not only through afforestation, agroforestry and restoration but also by means of advice on species selection. On the adaptation side, measures could include awareness raising, action to decrease the impacts of extreme weather events, introducing more water efficient irrigation/crops and investing in flood prevention/protection (e.g. natural water retention that also works in droughts) and in particular silvo-pastural systems.

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

Such a transition requires Greece to address one of the biggest social challenges facing European agriculture, generational renewal. In Greece, the challenge is even more acute as the country has one of the lowest shares of young farmers in the EU, which is decreasing, and the ratio of young managers to elderly in Greece is one of the lowest in the EU.

Improving the succession of farms critically hinges on: i) more favourable economic perspectives in rural areas, linked to investments in infrastructure from a variety of both public and private sources, and ii) addressing the bottlenecks stemming from legislation related to land, its access and its use. Rural areas in Greece suffer from a very high poverty rate and one of the highest rural unemployment rates (especially in young people) in the EU. Measures are needed to mitigate the employment and social impacts of the recent crisis, including short-term work schemes and ensuring effective activation support. 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. Moreover, it is necessary to support business creation and diversification to bring economic activity to rural areas, also outside the agricultural sector. The recent investment focus on green transition merits support for the efficient production and use of energy, including bio-economy, and environmental infrastructure.

The recommended investments should also prioritise a stronger shift of production towards consumer preferences in such areas as quality production, more balanced diets and health. Sectoral programmes can help increase consumption of fruit and vegetables for the benefit of both producers and consumer health. Furthermore, Greece should make an effort to shift towards healthier, more environmentally sustainable diets.

The national food waste prevention programme, as required by the Waste Framework Directive could also tackle the issue of food loss and waste occurring at the primary production level and the early stages of the supply chain.

Moreover, investments can improve standards of living and access to healthcare of both Greek citizens and third-country nationals. Antimicrobial resistance (AMR) linked to the excessive and inappropriate use of antimicrobials in the livestock sector should especially be prioritised as the sales of veterinary antimicrobial agents in Greece, in contrast to most EU Member States, show an upward trend. Pig tail docking remains one of the key animal welfare issues that Greece has to resolve in the near future, as well as those related to farm biosecurity and farm registration and animal identification to protect against animal diseases. Greece should also take action to promote the production of eggs under non-cage system for laying hens.

Despite an overall reduction better than the EU average in harmonised risk indicator (HRI1), the use of the more hazardous pesticides (candidates for substitution) continues to be high and stable in terms of percentage of total sales. There is also a need to improve implementation of integrated pest management.

Digital upskilling will allow better access to e-services, help businesses make effective use of teleworking, and e-tools, and enable all learners be they at school, university or in adult education to fully participate in distance learning. Keeping people, particularly young people, in rural areas and addressing other social challenges requires the enabling of certain conditions, such as access to business opportunities, knowledge, and basic services.

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.

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

Addressing the above challenges, enhancing the overall sustainability of Greek agriculture and thus contributing to the broader targets of the CAP's future orientation require rapid smart, digital and green transformation of Greek agriculture.

Knowledge and innovation have a key role to play in helping farmers and rural communities meet future challenges. The agricultural knowledge and innovation system (AKIS) includes not only "Agriculture", but related farming and rural activities (environment, climate, biodiversity, landscape, food and non-food systems including processing and distribution chains, consumers and citizens, social aspects etc.). A well-functioning AKIS should enable plenty of knowledge flows between its actors in order to respond to the growing needs for information, provide faster innovation and accelerate its uptake, and increase the valorisation of existing knowledge to achieve these objectives.

It requires improved creation and exchange of knowledge. However, a highly fragmented and weak AKIS, including farm advisory services which function poorly, hamper the creation and exchange of knowledge for farmers. It is essential to improve links between public and private advisers and invest in their training and skills. Advisory services and operational groups should be prepared to respond to the growing information needs of farms regarding economic, environmental as well as social aspects. Advisers should be supported to help capture innovative ideas from an individual grassroots level and develop them by setting up and implementing European Innovation Partnership (EIP) operational group projects. Such "innovation support services" will become obligatory for Member States post 2020.

The shortcomings of AKIS may limit the ability to move towards a greener agriculture system as set out by the Farm to Fork Strategy and the need to train farmers on issues related to environment/biodiversity. This is despite the fact that the share of Greek rural development funding for knowledge transfer and information actions, advisory services, farm management, farm relief services and the E I P has been above the EU average. However, a full uptake of planned funds has not occurred. Further actions have to be undertaken to increase knowledge flows and strengthen links between research and practice, including the creation of innovation support services, e-infrastructures, workshops and platforms for disseminating information, as well as the improvement and better dissemination of information available in different information systems. Concrete, though not general, examples in recent years show how this orientation also results in a positive impact on growth and employment in rural areas. Furthermore, there is a need of incentivising impartial advisers to acquire sufficient digital knowledge and of access to data in order to accelerate the green and digital transition.

### 1.5 Recommendations

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

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

- **Improving the resilience of farms** through a fairer, more effective and efficient distribution of direct payments, by applying, for example, the complementary redistributive income support for sustainability and the reduction of payments, and by further reducing differences in the level of support resulting from old individual historic references, while taking into consideration agronomic conditions and territorial differences.

- **Improving environmental standards** by prioritising interventions in actions that promote permanent grassland and their environmental protection, including better integration of these areas into the direct payments system and better targeting support measures towards extensive production systems.

- **Improve farmers' position in the food supply chain** by supporting the formation of producer organisations and cooperatives as well as strengthening the organisation of agrifood markets, and by targeting higher added value products, like organic products.

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

- Developing the Greek bio-economy by **increasing the contribution of agricultural waste and by-products in the production of total renewable energy** through private and public investments, focusing on energy production from anaerobic fermentation, solar and wind, and by supporting farmers through training and advice and preserving at the same time the attractiveness of the rural landscapes.

- **Contributing to the EU Green Deal target on reducing nutrient losses** and improving soil health by addressing soil erosion through effective implementation of an enhanced conditionality and by adopting agro-ecological practices, low input and soil management commitments, a better nutrient management (e.g. animal housing, fertilisation techniques) and practices such as the retention of crop residues on fields, and precision farming. Appropriate training and advice to farmers are also essential to achieve this target.

- **Addressing water use efficiency,** especially in light of climate change projections for water scarcity, with practices and targeted management commitments (e.g. use of crop varieties with reduced biological cycle, use of water-resistant crops), by modernising the existing irrigation infrastructure but also switching to more efficient and sustainable irrigation systems while also providing appropriate training and advice services to farmers.

- **Contributing to the Green Deal target on organic farming** by further increasing the area under organic farming through incentivising the maintenance and conversion to organic agriculture, especially in disadvantaged and mountainous areas where more opportunities for quality products exist and by filling research and innovation gaps in organic as well as other types of low-impact farming.

- **Contributing to the EU Green Deal targets on biodiversity** by increasing the share of **landscape features** in agriculture and by improving the status of protected species and habitats, farmland birds and wild pollinators in line with the prioritized action framework for CAP funding and the species and habitats action plans, thereby achieving biodiversity and climate mitigation and adaptation benefits, as well as increased productivity from enhanced pollination and natural pest control.

- **Contributing to climate change mitigation** by encouraging carbon sequestration though carbon farming, the sustainable management of the existing forests as well as the timely replacement of harvested or damaged forest. This would maximise long-term carbon capture and increase the carbon sinks in forests, their soils and harvested wood products; support and implementation not only for afforestation, agroforestry and restoration but also through advice on species selection will contribute to this direction.

- **Strengthening climate change adaptation** measures including awareness raising, introducing water efficient crops and investing in flood prevention/protection. In addition, still in the interest of adaptation to high wildfire risk, a forest cadastre and the review of the legal framework for prevention and suppression of wildfires is recommended.

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

- Strengthening the efforts to meet the **challenge of the generational renewal** in agriculture by reducing the entry barriers in the sector, mainly as regards access to land, credit through appropriate financial instruments, training and farm advisory services creating thereby a favourable environment for new entrants, especially young farmers.

- **Tackling poverty, unemployment, employment gender gap** and ageing population and contributing to improving access to healthcare in rural areas through investments in economic and social infrastructures and services. The synergy of CAP tools with other Funds towards this direction should be ensured.

- **In line with the Green Deal/ Farm to Fork targets on pesticides,** monitoring and reducing the use and risk of pesticides by more sustainable farming practices, appropriate training and advice to farmers, taking action to decrease the use of the more hazardous pesticides and through implementation of integrated pest management.

- Whilst its sales of **antimicrobials** are below the EU average, Greece should continue to implement measures to reduce its use of antimicrobials in agriculture, in order to contribute to the **achievement of the EU Green Deal target**, for

example by promoting best practices and integrating targets into concrete and more ambitious CAP actions.

- **In line with the Farm to Fork Strategy,** putting in place more ambitious measures to support farmers to **improve livestock management practices aiming at higher animal welfare**, especially in the area of tail-docking, laying hens and transport of animals, as well as better **farm biosecurity**, **disease prevention and control.**

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

- Accelerating the digital and green transition of the farming sector by investing **its Agricultural Knowledge and Innovation System**, focusing in particular on farm advice, interactive innovation, and training to increase the knowledge level and innovative skills of farmers and advisors. Implementation of recently adopted national legislation as regards farm advisory services as well as putting in place innovation support services are also essential to achieve this target.

- **Contributing to the EU Green Deal target on broadband** by substantially increasing fast broadband infrastructure coverage via targeted investments in synergy with other EU funds while promoting at the same time the development of digital skills in rural areas through appropriate training.

## 2. ANALYSIS OF AGRICULTURE AND RURAL DEVELOPMENT IN GREECE

Rural areas represent 63% of Greek territory with rural inhabitants representing a stable 31% of the Greek population. Greek agriculture consists of about 700 000 farms, which are, in average, rather small in physical size (7.7 ha). An important percentage of the Greek agricultural area is designated as area facing natural or other specific constraints, playing a role especially for sheep and goat farming. The sector employs approximately 450 000 people, representing 12% of total employment.

Unemployment in rural areas remains an issue, especially for young people. Greece has one of the lowest share of young farmers in the EU, who have though at least a basic level of agricultural training. Greece has a positive trade balance with countries outside the EU, with the main export products to be cotton and agricultural processed products (e.g. olive oil and processed fruits and vegetables), while the trade balance with other EU countries is negative. However, the share of the value added for primary producers in the food chain is increasing over time in Greece, despite the low degree of producer organisations.

While overall status of nature and biodiversity protection seems rather satisfactory, important issues remain as regards the management of natural resources especially soil and water.

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

Greek agricultural entrepreneurial income per worker has increased from 63% to 86% compared to average wages in whole economy during 2006-2017, well beyond the EU average (49% in 2017)[2], which demonstrates the resilience of farm income during the economic crisis but also the substantial fall in average incomes.

Greek agriculture consists of about 700 000 farms, which are, in average, rather small in physical size (7.7 hectares). It employs a full time equivalent of 450 000 Annual Working Units, corresponding to 12% of the total labour force. Direct payments play a more important role in agricultural factor income (32%) than on average in the EU (approximately 25%)[3]. The direct payment per hectare historically is higher for specific types of sectors and farming. While most support is not coupled to production requirements, voluntary coupled support is significant in Greece, representing 9.7% of total direct payments in 2017. Coupled support was mostly granted to the sheep meat and goat meat sectors, followed by beef and veal and protein crops.

The factor income broadly increases with physical farm size whereas the direct payment per hectare decreases[2]. This is also reflected in result indicator R6 (redistribution towards smaller farms): on average for 2015-2017, farms below average size received 123% of the average direct payment per hectare. However, there are still important differences in income between small to medium farms on one hand and large farms on the other hand. Income increases constantly with economic farm size while the direct payment per hectare increases for the low-medium and decreases for higher economic sizes[4].

As regards the basic payment scheme, Greece does not apply the flat rate model but a partial convergence by 2019 at regional level[5]. The unit amount per hectare varies greatly by individual farmer[6], illustrating the still high link to old individual historic references,

which are increasingly difficult to justify. Greece applies also the small farmers scheme with a maximum payment of EUR 1 250 a year[7].

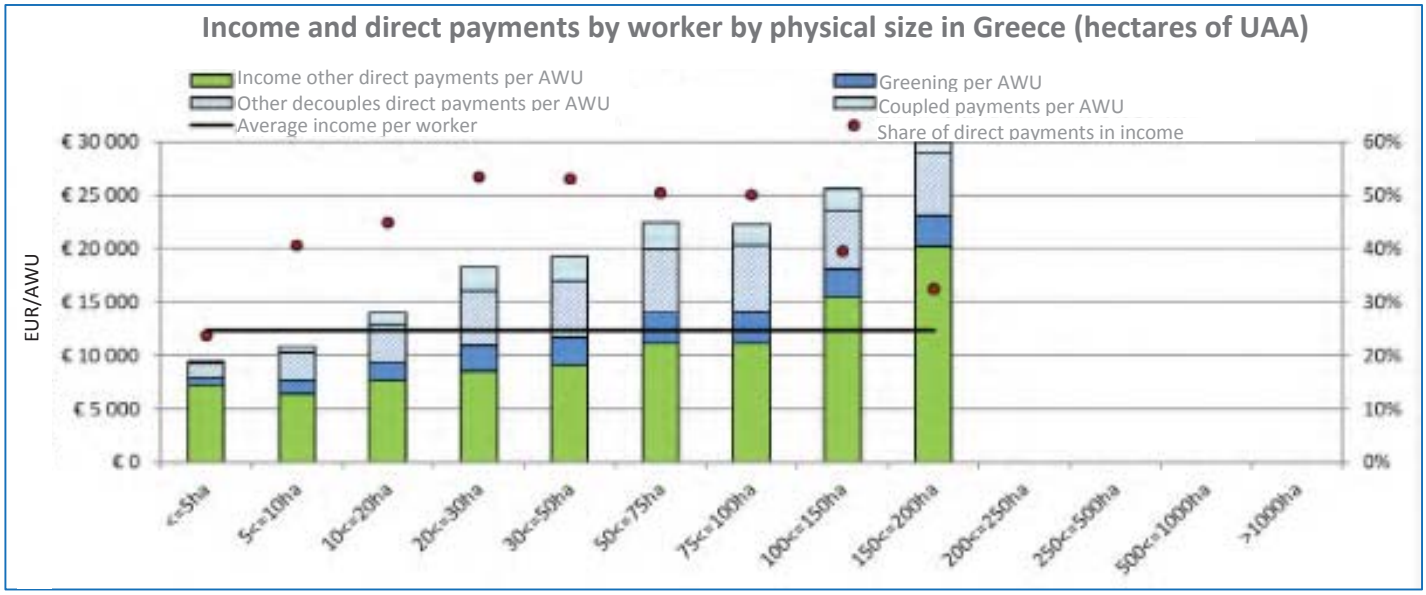
Factor income is above average for field crops and granivores, while their direct payment per hectare is lower than average, except for other field crops than cereals, oilseeds, and protein crops, for which it is significantly higher than average[8]. Income is on average lower in the apiculture, olive sector and mixed crops and livestock sector[9]. It should be noted that the direct payment per hectare is lower than average for those types of farming.

The granivore sector has been highly volatile during the period 2008-2017, but the factor income has been highest compared to other livestock sectors. During years 2013-2017, the mixed crops and livestock sectors and the apiculture sector have faced a slight increase in farm net value added per worker. Amongst the different crop sectors, the agricultural factor income has been higher for cereal, oilseed and protein crop farms during 2006-2017. However, the sector has been relatively volatile and facing a slight downward trend during 2016-2017. At the same time, the factor income for other crop sectors has slightly increased with the horticulture sector being stable.

78% of agricultural area is designated as area facing natural or other specific constraints (ANCs) for which specific ANC-payments are made, totalling 22.6% of the rural development budget. Agricultural factor income per worker is on average similar or even higher in areas with natural constraints compared to other areas[10]. However, it seems the situation is changing in the last years of observation (income in mountain areas is converging towards non ANC). This situation differs from the European average as generally areas not classified as facing constraints have the highest income per worker.

Furthermore, it should be noted that a significant share of direct payment beneficiaries have an economic size lower than EUR 4 000 and that a significant proportion of them are self-consumption farms.

The farm income variability in Greece over the period 2007-2013 is lower than the EU average and the average for other southern European countries[11]. While there is a compulsory crop insurance for climatic risks in Greece, there are no mutual funds for the crop or livestock sectors. Moreover, farmers do not use forward contracts or futures contracts in Greece, the only exception being forward contracts for dairy farms.




Source: European Commission. *Income support breakdown.* [Distribution of direct aid to farmers – indicative figures 2018 financial year.]

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

About 450 000 farmers are employed in Greek agriculture, corresponding to close to 12% of the total labour force[12]. The agricultural workforce mainly consists of farm owners and family members. Small-sized, family-owned dispersed units dominate the agriculture structure with a continuous decline in the number of farms since 2007, from 860 150 to 685 000 farms between 2007 and 2016, with the average farm size slightly increasing from 5 to 8 hectares during the same time period (compared to 15 ha on average in the EU)[13].

National legislation related to land, its access and its use and insufficient public and private investments in infrastructure impede the emergence of new farmers, contributing to Greece having one of the lowest shares of young farmers (3.7%) in the EU (5.1%)[14]. The total factor productivity (TFP) has increased since 2005 because of the increase of labour productivity mainly due to the outflow of labour (-28% between 2005 and 2017). Age structure, lack of investments and small farm size weigh on the land productivity of the sector[15], and the low level of cooperative and producer organisations make modernisation and knowledge transfer more difficult.

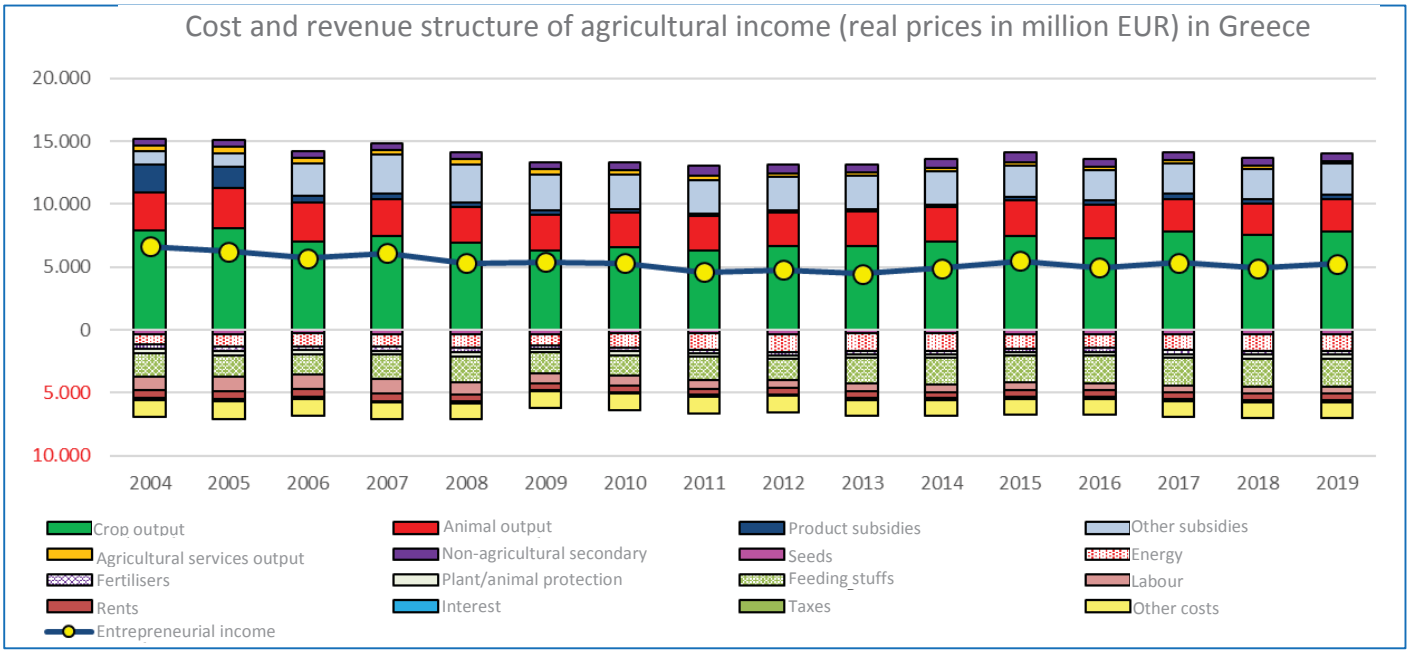
In disadvantaged and mountainous areas, agriculture is limited to extensive production systems, which provide opportunities for organic, quality, regional-based products. With 9.3% of the total utilised agricultural area under organic farming in 2018, Greece has a higher share of agricultural land under organic farming than the EU average (7.5%)[16], but the lack of available data on the value of production under quality schemes (including organics) hampers analysis of prospects. However, the largely extensive production model based on quality and regional products provides a good basis to meet the sustainability ambitions of the European Green Deal.

Farm income in real prices was in decline between 2003 and 2008, but has been fairly stable since[17]. Over this period, crop and animal output revenues and labour costs decreased while energy and feeding stuffs increased. As regards the reduction of animal

output revenues, there is a downward trend of the total number of livestock units since 2007[18].

The trade balance for agricultural products was negative at EUR 657.4 million in 2018. Nevertheless, in recent years the deficit narrowed and exports grew[19]. Greece has a positive trade balance with countries outside the EU, but the intra-EU trade balance is negative. Processed agricultural products, in particular, olive oil, cotton and preparations of nuts, fruits or vegetables, have a highly positive trade balance while commodities and other primary products, like meat products, have a high trade deficit[20].

The capacity for innovation of the Greek economy is low compared to other Member States[21]. This weakness is accentuated in the agricultural sector by the small size of farms, which have less capacity for investments and scale economy, and by the low level of training of farm managers[22].




Source: EUROSTAT [aact_eaa01]

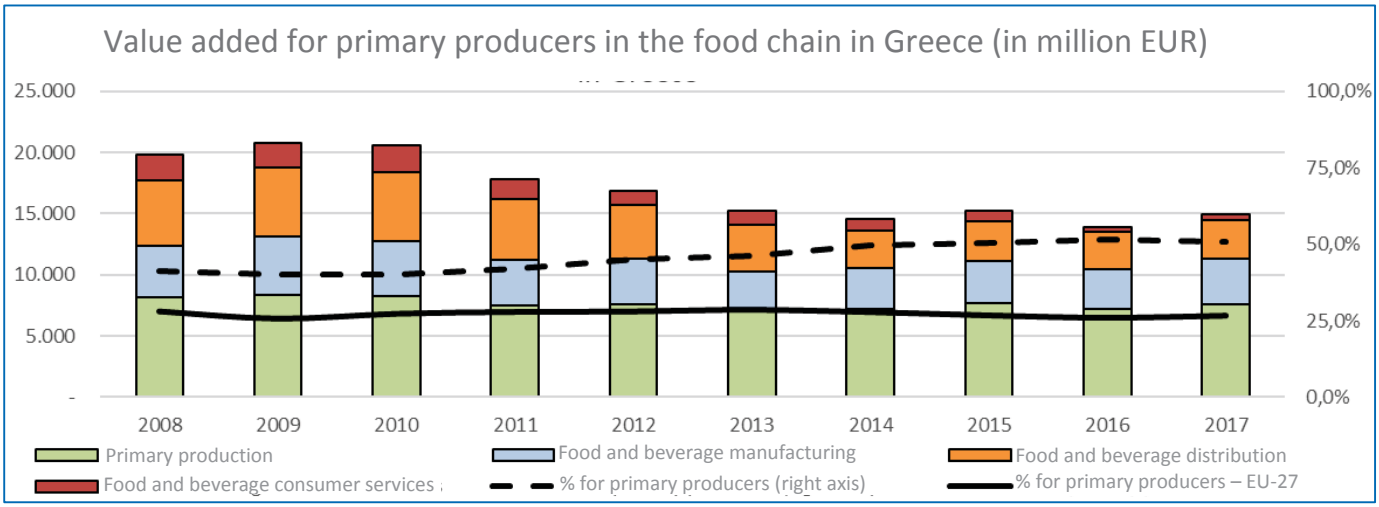
### 2.3 Improve farmers' position in the value chain

The share of the value added that goes to agriculture is higher in Greece than the EU-average (23% in 2016)[23]. In 2016, 51.5% of the value added in the Greek food chain went to primary producers. In addition, the share of the value added for primary producers in the food chain is increasing over time in Greece from 41% in 2008 to 51.5% in 2016, while the overall value added in the food chain has decreased in recent years.

To be able to compete at the scale necessary on the internal and global markets creating higher added value and income for producers and agro-processors, additional focus on developing the organic sector and other products under EU quality schemes appears necessary. In total Greece has recognised 281 protected designations of origin (PDOs), protected geographical indication (PGIs), traditional speciality guaranteed (TSG) and geographical indications (GIs). Still there are margins to further increase the participation of farmers in these Community and/or national quality schemes in order to increase scale and benefits. A more dynamic use of EU quality labels scheme could also be seen as a

response to consumers' demand for high quality products by promoting the new participation of farmers to the recognised quality schemes, concentrating the production and undertaking promotional activities, including on-line or light ones such as networking.

The degree of organisation of Greek farmers in producer organisations, including cooperatives, is low. While producer organisations are developing, with aid of EU support particularly in some sectors, their market power is sometimes weakened as individual members sell their products independently.




Source: European Commission. *CAP indicators – Data explorer*. CAP Result indicator RPI_03 Value for primary producers in the food chain.

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

In 2018, agricultural emissions of greenhouse gas emissions (GHG) in Greece amounted to 7.8 million tonnes of $CO_2$ equivalents, up 2.5% since 2000, representing about 8% of total GHG emissions in Greece and less than 2% of the total EU GHG emissions from agriculture. Between 2013 and 2018 GHG emissions decreased by 7% while between 1990 and 2018 by as much as 23%. 46% of agricultural emissions in Greece relate to enteric fermentation of livestock (mainly sheep), 39% to agricultural soils (fertiliser), 12% to the management of manure and 2% to rice cultivation[24]. Between 2013 and 2018, the GHG emissions from enteric fermentation decreased by 9%, the GHG from manure management by 8% and the GHG emissions from soil management by 7%. Net $CO_2$ emissions from cropland and grassland are both negative meaning that they are a sink for $CO_2$, with the sink capacity increasing in recent years. However, in Greece, the emissions from cropland were limited and the role of grassland as a GHG sink was limited compared to the total land use, land use change and forestry sector (LULUCF). Peatlands cover only 0.4% of soils in Greece[25].

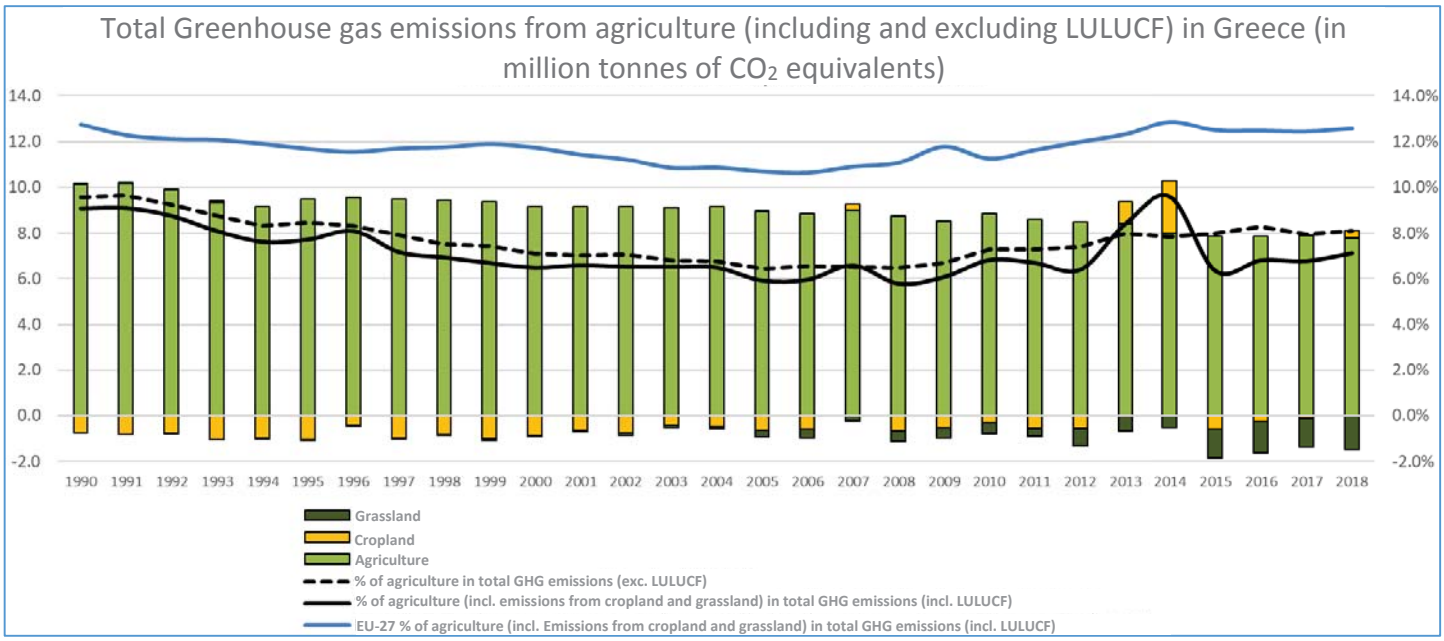
The share of agriculture in the production of total renewable energy in Greece is low (6%), below the EU-27 average (12.14%), and it decreased by 4.5% between 2013 and 2018, compared to the EU average growth of +0.13%)[26]. Over a third (36%) of renewable energy production came from forestry sector, bringing the contribution of renewable energy production from agriculture and forestry in total energy production to about 12%. In Greece, energy consumption in agriculture and forestry has one of the

lowest shares in total final energy consumption (1.6%) in the EU. Between 2013 and 2018 the final energy consumption by agriculture/forestry in Greece declined by 11% to about 50 kgoe per hectare of agricultural land[27]. The national energy and climate plan (NECP), adopted in December 2019, does not set a specific reduction target for agriculture, however, it mentions measures proposed to promote biomass for energy production, sustainability certification scheme for biofuels, promotion of energy crops of woody biomass or coppice plantations and development of the bioethanol and biomethane market. Moreover, Greece is considering a specific package of policy measures aimed at improving energy efficiency in the agricultural sector, for example to improve the energy efficiency of pumping stations, as well as the energy upgrading of agricultural machinery and the reduction in energy consumption in greenhouses and livestock farms.

The national strategy for adaptation to climate change[28] places particular emphasis on agriculture and forestry, giving priority to synergies between adaptation and mitigation actions through the conservation and sustainable use of soil resources and land management practices. In some regions, the impacts of climate change are expected to be more serious (e.g. Crete, Aegean) and some crops will face more negative effects (vegetables, olives, maize). For a large part of the country's agricultural land droughts are expected to become more severe due to climate change.

The rural development programme (RDP) promotes a more intensified implementation of afforestation to increase the level of absorption in the land use, land use change and forestry (LULUCF) sector and it also supports prevention and restoration of damage to forest arising from fires, natural disasters and other catastrophic events. Moreover, the RDP 2014-2020 supports actions in energy savings, water savings, organic farming, the prevention of the effects of disasters (including unfavourable climatic phenomena) and promotes the use of renewable energy sources and the reduction of greenhouse gas emissions as well as the cooperation for environmental practices (including emphasis on climate change/adaptation).

The removal of carbon dioxide emissions (net sink) is expected to continue in the LULUCF sector until 2040, with forests and forest areas playing the most important role in the entire sector with approximately 56% of total emissions/removals. This trend in the forest category is expected to continue in the period up until 2050. The national strategy for forests lays down the principles and guidelines of forestry policy for the period 2018-2038, adopting the 'Mediterranean forestry model' in the management of forest ecosystems, adapted to biotic and abiotic conditions in Greece at national and regional levels. In the Strategy, the serious impact of climate change on forest ecosystems is stressed. The Mediterranean forests are highly likely to be affected by the average temperature increase of 2 – 4 °C (for Greece 3 - 4.5 °C), and the reduction of the available water resources by a very large percentage. The National Strategy has already identified the evidence of the impact on the forest ecosystems of Greece, such as deadlocks on forest boundaries, an increase in insect attacks, changes in the intensity and seasonality of forest fires, a reduction in the increase due to drought, changes in genetic make-up, etc[29]. Actions will be promoted for the assessment of the vulnerability of forest ecosystems to climate change, for management aiming at adapting forest ecosystems to climate change, for mitigating climate change by increasing carbon capture and storage in forest ecosystems and for addressing extreme phenomena (e.g. forest fires, pests and diseases, and prevention of flooding and water scarcity).



Source: European Environmental Agency. EUROSTAT [env_air_gge]

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

In air quality, the total ammonia emissions in Greece are decreasing over time, in opposite trend than in the EU since 2013. 91% of the ammonia emissions in 2018 came from agricultural sources. The latest submitted emission projections indicate that Greece can achieve its national emission reduction commitments Directive targets for ammonia (reduction by -7% compared to the 2005 levels for all years 2020-2029 and by -10% by 2030 and beyond)[30], even though the required NAPCP (national air pollution control programme) has not been submitted yet with information on policies and measures to be implemented. Data show that livestock contributes more than crops to the ammonia emissions from agriculture in Greece[31].

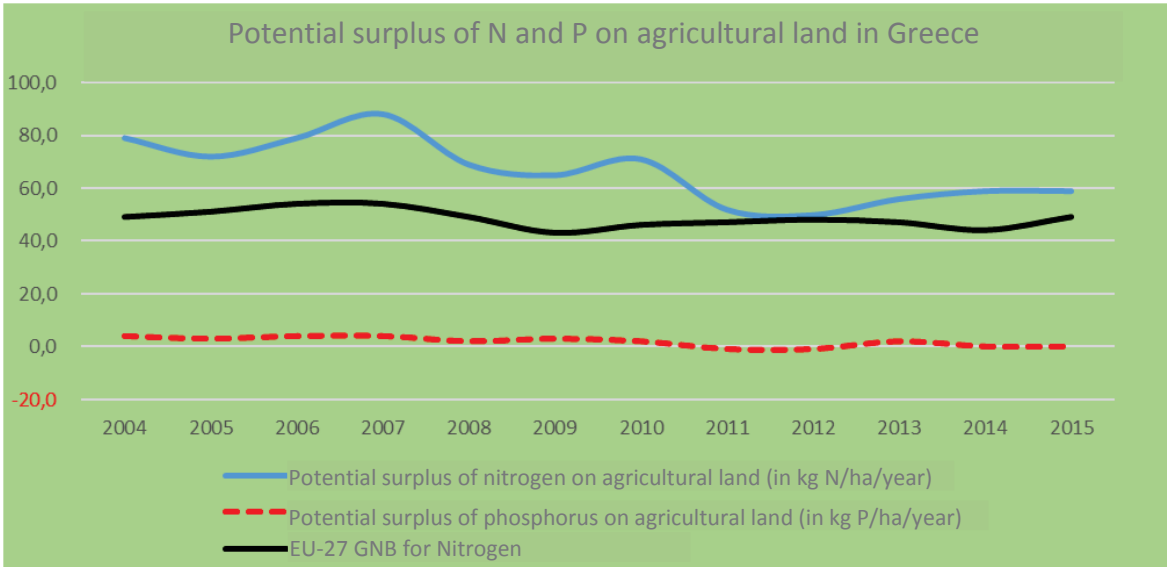
However, the fact that permanent grassland surfaces are increasing over time (to 39% of total agricultural area in 2017, from 16% in 2010)[32] has a positive contribution to the overall GHG emissions trend.

In contrast, soil quality is an issue in Greece. The share of agricultural area at risk of soil erosion in Greece being 10.2%, above the EU average (6.6%)[33], and much more important in north-west and southern parts of Greece[34]. Greece has an average soil loss rate by water of 4.1 t $ha^{-1}$ $yr^{-1}$ (EU mean is 2.5 t $ha^{-1}$ $yr^{-1}$)[35]. Wind erosion is also an issue in the Aegean islands. The level of soil organic carbon stocks (183 mega Tonnes in 2015) and mean soil organic carbon (16 g/kg in 2015) are much below EU the average[36]. Specific Mediterranean characteristics contribute to increased risk of soil erosion, with rainfall patterns and drought leading to loss of soil organic matter while sloping land, especially for pasture, increases the risk of soil erosion. The type of cultivated crops and other management practices such as reduced tillage, cover crops and agroforestry can contribute to soil protection. 51% of farmland was subject to crop diversification (EU average is 77%)[37], with 10% of the agricultural land being under rural development contracts to improve soil[38]; in 2017, 61% of the 2023 target was reached[39]. Despite the above efforts, the change in soil characteristics is slow, with certain support measures (e.g. for areas with natural constraints) lacking environmental targeting. In the future,

Greece can address these key issues in synergy with activities under the Horizon Europe mission on soil health.

Water quality and quantity represent one of the biggest challenges for Greek agriculture. While the nitrogen and phosphorus surpluses in Greece are decreasing over time[40], the estimated N surplus was 59 kg/ha UAA/year in 2017[41] and needs to be reduced to address the pernicious effects in the environment and in view of the Green Deal target to reduce nutrients losses[42]. As regards groundwater, according to the nitrates Directive implementation report (2012-2015), 15.5% of the groundwater monitoring stations have concentrations above 50mg/l $NO_3$. This nitrogen surplus has to be seen also in combination with farm intensity coverage; areas with low input intensity per hectare increased between 2004 and 2016 from 26% to 33.5%, whereas areas with high input intensity remained stable at around 30% between 2004 and 2016[43]. Water quality could also have been hampered by the increase of plant protection products use, since an increase of 24% in their total sales was reported from 2014 to 2018.

Irrigable areas represented 24% of the total farmland in Greece in 2016, with a 9% jump in irrigation use between 2012-2015. The share of irrigation in total water abstraction decreased over time (79.7% in 2016 versus 82.9% in 2012)[44], with the northern part of Greece having the biggest share of water abstraction for irrigation purposes (however, data are missing for water use from streams, wells and ponds, which are very common). In addition, the total water abstraction in agriculture remains high over the last 20 years (9 067 100 $10^3m^3$ in 2000, 8 961 160 $10^3m^3$ in 2016)[45]. Water use targets (2023) for the 2014-2020 rural development programme stood at 61% for water management improvement and 87% for switching to more efficient irrigating systems[46]. Greece's aim to improve water management at 17.5% of agricultural land and water efficiency for 5% of irrigated land through irrigation infrastructures is hampered by lack of appropriate training and advisory services to farmers, measures that were not properly implemented[47]. As a result, the potential to contribute to better water quality though better management and efficiency is not fully exploited, even though important steps have been taken.




Source: European Commission. *CAP context indicator C.40 Water quality.*
Based on EUROSTAT [aei_pr_gnb]

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

The Farmland Bird Index in Greece decreased overtime (100 in 2007 versus 64 in 2013), but recovered to 97 in 2016, being above the EU average (82 in 2016). In 2012, 38% of grassland was in a favourable status, the rest being in an unfavourable-inadequate conservation status. Greece has developed Natura 2000 management plans and accompanying legal tools but very few have been formally adopted and implemented. The main causes of biodiversity loss in Greece relate to past and current policies on unsustainable land use, agriculture, fisheries, transport, tourism (especially coastal), production and consumption patterns and climate change.

Pressures stemming from agricultural practices affect the majority of relevant habitat types, but mostly water ecosystems, and are associated with agricultural runoff, drainage, change of land use and of natural succession, pumping of groundwater, surface water and mixed water. Though in recent years there is a slight upsurge in traditional farming, the overall tendency of intensive and large-scale monocrop agriculture puts significant pressure on natural resources, namely water (scarcity and pollution) and soil (erosion, low soil organic carbon and pollution). It also has negative impacts on the landscape and leads to habitat fragmentation.

In Greece, 2.8% of agricultural area is fallow land (lower than the EU average of 4.1%) while 0.2% is landscape elements (also lower than the EU average of 0.5%).
Forests, mostly state-owned, cover approximately 30% of the land area[48], but they are prone to major forest fires. Forest products make no significant contribution to the economy.

The total area under organic farming (certified and under conversion) fell in Greece between 2012 and 2016 to about 343 000 hectares but has since increased. With 10% of area under organic farming in 2019, Greece is above the EU-27 average, and the area

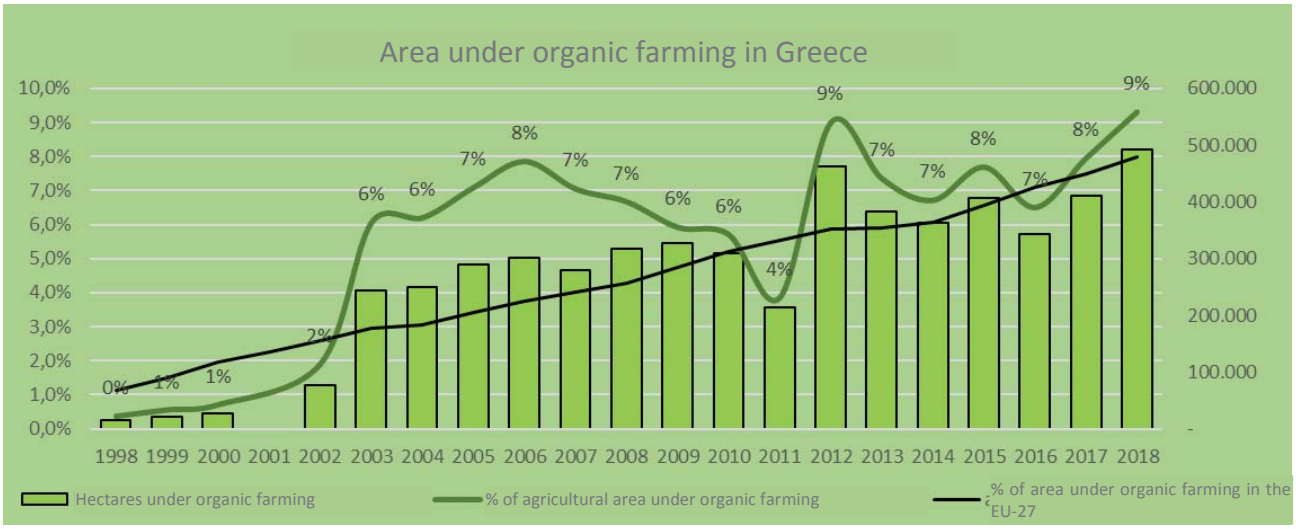
under conversion as share of total UAA is also increasing[49], showing a good potential for growth towards the EU level Green Deal target of 25% of agricultural land by 2030. The fluctuations in the Greek organic area may be linked to the sharp fall in disposable incomes in Greece recent years and highlight the importance of ensuring development of supply and demand in parallel. The number of organic producers increased from 23 448 in 2012 to 29 594 in 2018[50]. The share of animals held by organic farmers increased from 2011 to 2013 and is significantly higher compared to the EU average[51].

On biodiversity, according to Article 17 of the habitats Directive and Article 12 of the birds Directive reports (reference in the prioritised action framework), a large number of habitat types and species included in the habitats and birds Directives face pressures and threats related to agricultural activities. Agriculture has also been recognised as a high pressure/threat for 31 habitat types, 73 habitats Directive species, and 59 bird Directive birds, thus requiring urgent conservation measures to mitigate the effects.

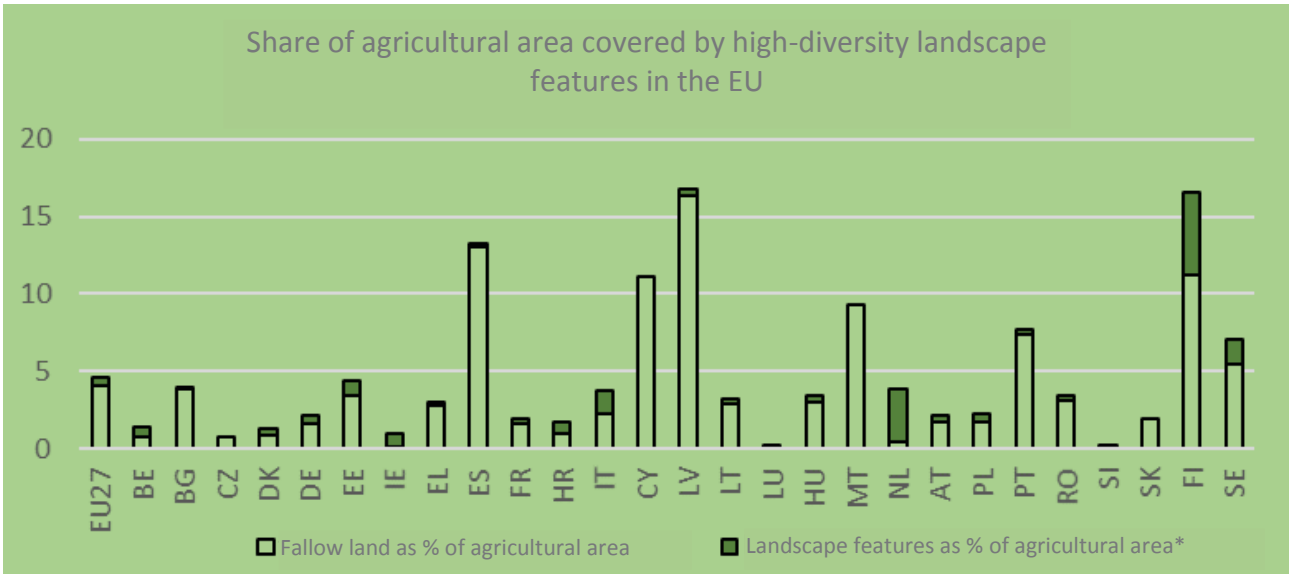
The prioritised action framework (PAF) of Greece identifies the following needs: foster the management of the Natura 2000 sites, priorities for grasslands both within and outside Natura 2000 sites (example regulation of access (e.g. vehicle traffic), restoration and improvement of habitats of the orchid *Dactylorhiza kalopissii*, *Anser erythropus* and *Vipera ursinii*) and for other agricultural habitats, increasing agricultural biodiversity and improvement/conservation of associated avifauna, increases in hedgerows, promotion of organic agriculture and agri-environmental measures in Natura 2000 sites with lakes and rivers, installation of agro-forestry systems, and improvement of habitats for terrestrial fauna-stone walls, terraces, etc.

The above should go hand in hand with not funding investments and farming practices, which have a negative impact on Natura 2000 sites and beyond by defining ambitious Good Agricultural and Environment Conditions (GAEC) requirement on biodiversity and applying fully the Statutory Management Requirements from the Nature directives.

During the RDP approval 2014-2020, the Greek authorities have made a commitment to advance considerably on the Natura 2000 management plan front – and committed to introduce a grassland management measure for Natura 2000 areas, under measure 10 or measure 12. Those efforts should continue. About 30% of the N2000 terrestrial surface is agricultural land. Thus, the key vector of agricultural development, the CAP Strategic Plan, has a key role to play in integrating biodiversity requirements to rural and agricultural development.




Source: European Commission. *CAP context indicator C.19 Agricultural area under organic farming.* Based on EUROSTAT [org_cropar_h1] and [org_cropar]




Source: Directorate General for Agriculture and Rural Development. Based on EUROSTAT for land laying fallow and Joint Research Center based on LUCAS survey for estimation of landscape elements.
** 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

Greece has one of the lowest share of young farmers (3.7%) in 2016 in the total number of farm managers below the EU-27 average (5.1%), and this share decreased by 44.3% from 2005 to 2016. Despite a slight change of trend during the economic crisis, the decline in the proportion of young farmers continues, and farm managers older than 55 years old increased from 55% in 2010 to 61% in 2016[52, 53]. At the same time, the number of female farmers remains very low in Greece. The ratio of young female managers to male managers decreased from 1:3 in 2005 to 1:4 in 2016. This poses a serious challenge

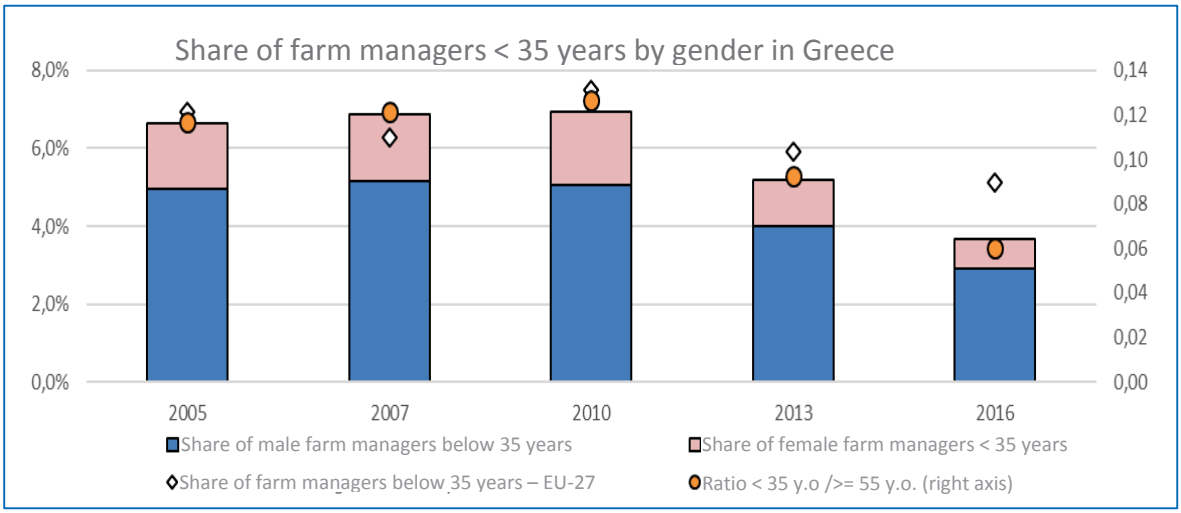
for generation renewal due to the fact that many farmers do not have natural successors. The shortage of young farmers is especially prevalent in mountainous areas.

The average farm managed by young farmers is bigger in comparison to all other age groups, in terms of both agricultural land and potential production value in 2016. Young farmers tend to have the biggest farms compared to older farm managers who have reached the end of their working life. With most of land used by young farmers bought from relatives when they retire, access to land is the biggest obstacle for young people. Land mobility is hampered by rigidities in the distribution of direct payments and obstacles stemming from national legislation on property rights also creates difficulties in access to land for young farmers. The share of farm managers below 35 years old with at least a basic level of agricultural training (20%) in 2013 was higher than the one in 2010 (16%).

Young farmers in Greece are also constrained in accessing finance. This can be explained by their lack of credit history, lack of collateral, the banks' perception of young farmers as high-risk clients, and the banks' risk aversion towards financing farmers, resulting in a much lower chance of receiving loans compared to their older peers. The share of viable young farmers with rejected applications in 2017 is 43% and the share of farmers who were discouraged from applying is 19%. For younger farmers, the absence of own equity raises further challenges. In general, new entrants or young farmers who take over a large-sized farm with diversified agriculture activities are considered to be more credit worthy and to have better access to financing. Young farmers who take over an established family business have a far better chance of accessing credit than any other new entrant. Young farmers and new entrants often turn to private sources. Private financing in terms of 'friends, family and business partners' may account for anywhere between 19% and 40% of financing. The main requested purpose for finance in Greece by young farmers is working capital (80%)[54].

Greece dedicated EUR 16 million to the young farmer payment in 2016, 0.85% of the envelope for direct payments. In addition to the installation grant for young farmers under rural development, EU funds dedicated to young farmers per year in Greece amount to about EUR 55 million, representing 2.91% of the envelope for direct support in 2016. By the end of 2019, more than 15 000 young farmers received average support of about EUR 17 200 from rural development funds. Greece also earmarked 5.9% of the rural development budget for business development plans for young farmers aid[55].

While young farmers could bring innovative ideas and are better able to work with digital technologies and precision farming methods than the older ones, they are faced with the complexities of claiming financial support and meeting the conditions of policies, which may diminish their scope for truly innovative entrepreneurship, especially since fast and ultra-fast broadband are not available everywhere and farm advisory needs are not well supported.




Source: EUROSTAT [ef_m_farmang]

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

Rural areas represent 63% of Greek territory[56], compared to 45% EU-27, with rural inhabitants representing 31%[57] of the Greek population (with a decreasing trend, as per data during years 2005-2019) - future demographic trends suggest risk of further shrinking in rural population. Ageing population is increasing[58] with Greek rural areas (though at a lower rate than urban areas) having one of the highest proportion of elderly people (24%) in the EU. Unemployment in rural areas remains an issue, especially for young people. During 2013-2017, Greece recorded the highest rate of unemployment in rural areas with more than one fifth of the active population (between 15-64 years old) unemployed[59]. The unemployment rate was much higher (more than 45%) for the young active population (15-24 years old). The respective EU average for the same period was 8.7% (15-64 years old) and 18.6% (15-24 years old). Greece has the highest unemployment rates in EU but it showed, pre-COVID crisis, signs of recovery.

Although the employment rate (almost 60% in 2019)[60] in Greece in predominantly rural areas was increasing recently (and it is higher than the general employment rate in Greece), it remains well below the EU average. In 2018, a gender gap[61] of about 26% and 25% existed between employment in males and females in lower secondary and upper/post-secondary education, respectively. The employment gender gap is smaller (9%) among employees with tertiary education. Moreover, the total GDP per capita in predominantly rural areas is 60%[62] of the EU-average (without much fluctuation since 2011) – the same trend applies to the total GDP per capita in Greece.

Agriculture plays a significant role in the Greek bio-economy, representing the second-highest contributor (33%)[63] of turnover and contributes the majority of employees (more than 75%) in the bio-economy sector. In 2015, the share of agriculture in production of renewable energy[64] was 4.7% (EU-28: 11.7%) but its average annual growth rate during 2013-2015 was 32.9% (a lot higher than the EU-28: 6.5%). For the respective period, the share of forestry in production of renewable energy was 36.1% (EU-28: 44.6%) and its average annual growth rate 5.6% (higher than EU-28: 1.2%). In forestry, although the persons employed have increased from 2005 to 2017 (from approximately 5000 to 10000

annual working units)[65], the gross value added per employee has decreased. Greece has the lowest output of forestry (2017) in the EU[66].

The rural poverty rate in Greece increased in recent years and is above the EU average for rural areas. Rural poverty rate (around 35%)[67] demonstrated an upward trend from 2011 but has been stable since 2014 although higher than the national average poverty rate. Additionally, Third-Country migrants are at higher risk of poverty compared to EU migrants, taking into account the poverty levels of Greek citizens[68]. The financial burden of healthcare is higher in Greek rural areas when compared to cities, towns and suburbs (2017 data: 18%)[69] and also higher than the EU average.

As concerns digital skills, Greece remains below the EU average, with particular challenges in people from disadvantaged backgrounds, including refugees and asylum seekers, and those living in remote and rural areas[70].

In recent years, LEADER has successfully brought local actors together and allowed for the development of local governance capacities, enabling the rural development policy to play an important role in promoting a more inclusive society and making rural areas a better place to live. Since 2015 (approval of the RDP 2014-2020), Community-led local development is carried out via 50 local programmes developed by Local Action Groups, at regional level. More than 4 million rural inhabitants benefit from LEADER (as per RDP indicator)[71]. Integration of the CAP priorities, including Green Deal targets (e.g. reduction of gas emissions), Farm to Fork Strategy and Digitalisation (e.g. by enhancing the Smart Village approach), might be considered under LEADER.

### 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

The sales of plant protection products has, with annual variations, increased in recent years. As regards the trends in harmonised risk indicator (HRI1), Greece is better than the EU average (59 in 2018; figure 1)[72] showing a 41% decrease to the three year average baseline against an EU reduction of 17%; however the use of more hazardous pesticides remains high. Greece adopted its first national action plan for the sustainable use of pesticides for the 2014-18 period. However, this plan was not reviewed within five years as required, and progress made in meeting the targets was not monitored. Limited coordination and insufficient cooperation among the authorities responsible for the implementation of the Directive on sustainable uses resulted in inefficiencies in executing the provisions of the national action plan, thus preventing Greece from fully achieving objectives. In particular, there was no system in place for the collection of empty plant protection products containers and the implementation of measures to protect the aquatic environment had not been verified. Efforts have been made to promote initiatives aimed at encouraging the implementation of integrated pest management, training and certification of professional users of plant protection products and to establish a system for the inspection of pesticide application equipment[73].

The sales of veterinary antimicrobial agents in Greece for 2018 are below the EU-27 average of 118.3 mg/PCU of active ingredient. Still, they show a marked increase over the period 2015-2018 (see figure below)[74]. The Green Deal target at EU level is an overall 50% reduction in sales of antimicrobials for farmed animals and in aquaculture by

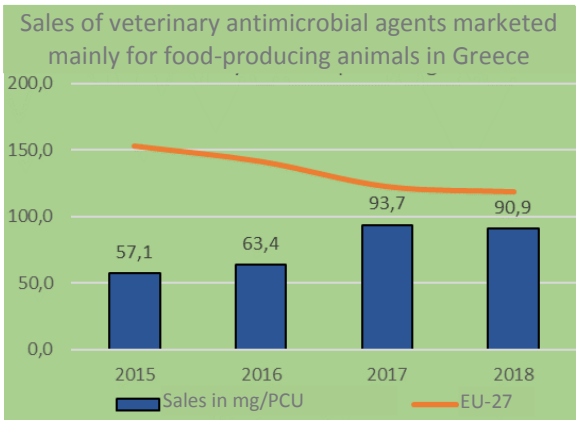
2030[75], to which a significant Greek contribution is expected by reversing this upward trend in sales.

Based on the last audit report on animal welfare and transport, inspections on means of transport and animals are being carried out, but due to resource constraints, these still focus almost exclusively on controls at slaughterhouses, which is not fully in accordance with the central competent authorities' obligations. Competent authorities are not carrying out satisfactory checks of animal welfare during transport as the standard of the reporting at slaughterhouses was variable and undermines the efficacy of these controls carried out by the official veterinaries[76]. In addition, tail docking of pigs remains a widespread practice while routine tail docking is forbidden by EU legislation. The majority of the egg production (77%) is still in cage systems and alternative systems could be promoted.

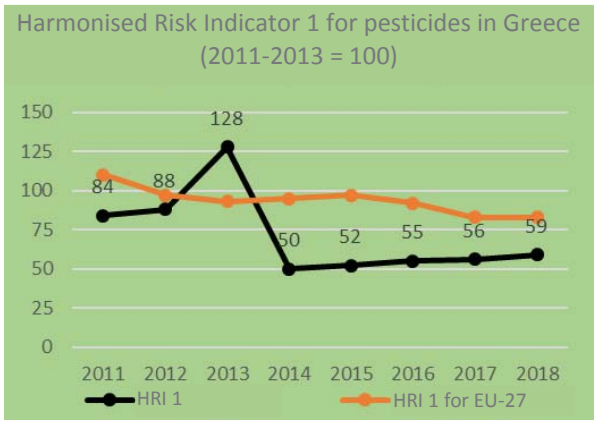
Biosecurity is equally a challenge, considering that Greece is among the countries at high risk from African Swine Fever (ASF) where farms with low biosecurity and poor controls pose higher risk for animal disease infections and spread. Therefore, strong action is needed to establish, revise/upgrade biosecurity, registration of farms, animal identification and animal movements.

Consumption of individual food items make up dietary patterns. The diet of Crete in the mid-20th century, similar to the Mediterranean diet, was largely plant-based and was low in red meat (average intake of red meat and poultry combined was 35 g/day)[77]. Greeks had one of the longest life expectancies at the time[61]. Today's diet in Greece has changed as compared to the traditional dietary pattern. Greece carries a high burden from non-communicable diseases due to dietary risk factors expressed as disability-adjusted life years (DALYs) per 100 000 population attributable to diet[78]. A number of dietary factors influence the DALY value. A significant part of the Greek population is overweight or obese, at levels above the EU-27 average[79]. Also, Greece has a high estimated consumption of red meat[80]. Greece is below, but relatively close to the recommended 400 grams a day of fruit and vegetables, at 359 g/day[81]. Efforts should focus on shifting towards healthy sustainable diets, in line with national recommendations in order to contribute to reducing overweight and obesity rates and the incidence of non-communicable diseases while simultaneously improving the overall environmental impact of the food system. This would include more plant-based diets with less red and processed meat and more fruits and vegetables, whole grains, nuts, seeds and legumes. Concerning food loss and waste in primary production and processing, no data is yet available. The National Waste

Prevention Strategic Plan (2014-2020)[82] does not pay attention to food loss and waste occurring at those early stages of the supply chain.




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




Source: EUROSTAT [aei_hri]

### 2.10 Cross-cutting objective on knowledge, innovation and digitalisation

The Greek agricultural knowledge and innovation system (AKIS) is highly fragmented with actors at national and local level having very little connection. It was also assessed weak in the 2014 Pro-AKIS study, meaning that very little financing was made available for AKIS. Additionally, the re-organisation of research and farmers' training from the Ministry into semi-autonomous organisations leads to extremely weak linkages among the main public AKIS components. Agricultural Research and Innovation (R&I) is characterised by a high concentration of research and competencies in universities, with little or no interest in the needs of farmers and insufficient interest from the private sector, due to difficult access to finance.

As regards research and innovation infrastructures, there is only one main applied research institute interacting with other R&I infrastructures and actors[83], but largely insufficient with advisors or farmers.

Under the programming period 2014-2020, Greece programmed almost 5% of the rural development (RD) funding for knowledge transfer and information actions (M1), advisory services, farm management, farm relief services (M2) and cooperation-EIP (M16), well above the EU average of 3.63%[84]. The current spending until second quarter 2020 however is only 20% for M1, 0% for M2 and 0% for M16, indicating significant delays that probably will lead to severe under-implementation of the planned amounts[85]. The Greek rural development programme (RDP) aimed at creating around 67 500 training places for farmers and other rural businesses and supporting 285 cooperation projects under the framework of the European Innovation Partnership (EIP).

As regards cooperation for innovation, there are no officially submitted EIP-Operation Groups by the management authority of Greece to the Commission, since the measure under the Greek RDP was only recently activated. Implementation of the RDP measure on advisory services, farm management and farm relief services is lagging even further behind since it has not yet been activated. In 2016, the number of farm managers that attained basic or full training was 7% (for managers under 35 the share was 24%), which is below the EU average[86]. The implementation progress of the RDP indicates that up to 2019, the number of participants trained was 10 456, meaning that only 15.49% of the

2023 target was reached. In addition, this percentage seems to be stagnating since 2017 (already 10 350 participants at that time).

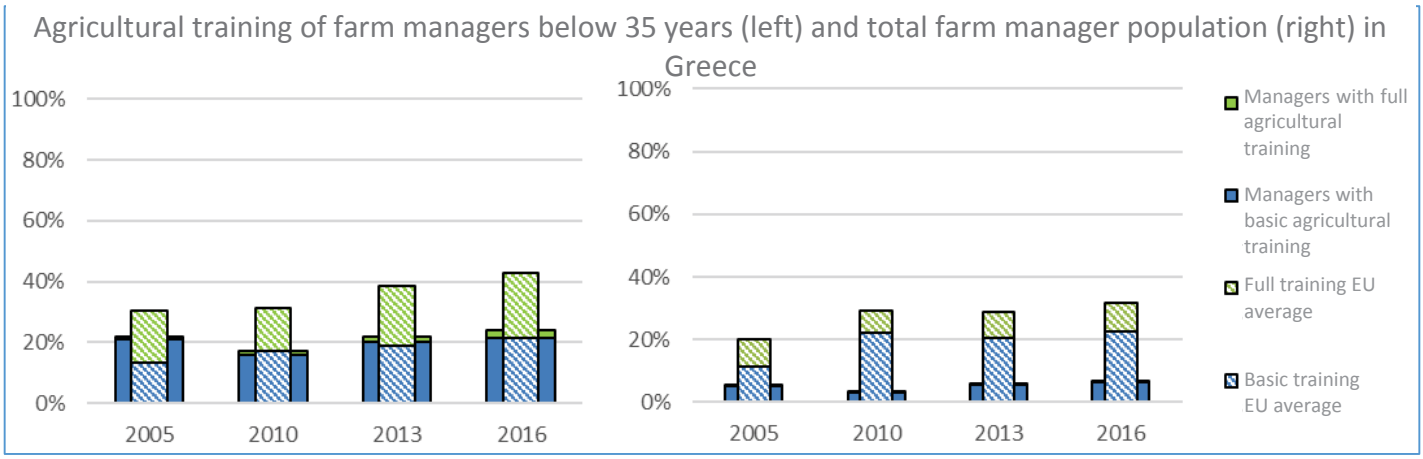
The national rural network has organised some activities connecting research actors such as universities and partners of Horizon 2020 projects with farmers, advisors and rural businesses. This experience can be the basis for the future national CAP network to intensify such actions and play a key role in promoting synergies between the CAP and European Research Area (ERA). The best way to do so is to keep in close touch with the Horizon Europe National contact point and to intensify the dissemination of information on the EIP website. Moreover, when collecting and sharing information, the CAP can finance interventions that help to make use of up-to-date scientific information for agricultural practices, for instance through the CAP network and its knowledge platforms, and by setting up advisory back-offices where the latest knowledge and innovation is collected and shared with the field advisors and the farmers.

Greece ranks 26th out of 27 EU Member States in the 2020 digital economy and society index (DESI)[87], showing a limited improvement of its performance despite an increase in its overall score. However, the percentage of individuals with at least basic digital skills is over 50%. On connectivity, Greece is progressing at a very high pace in fast broadband (Next Generation Access (NGA)) coverage but remains below EU average. The overall fixed broadband take-up is still progressing slowly, reaching 76% (below the EU average of 78%)[88].

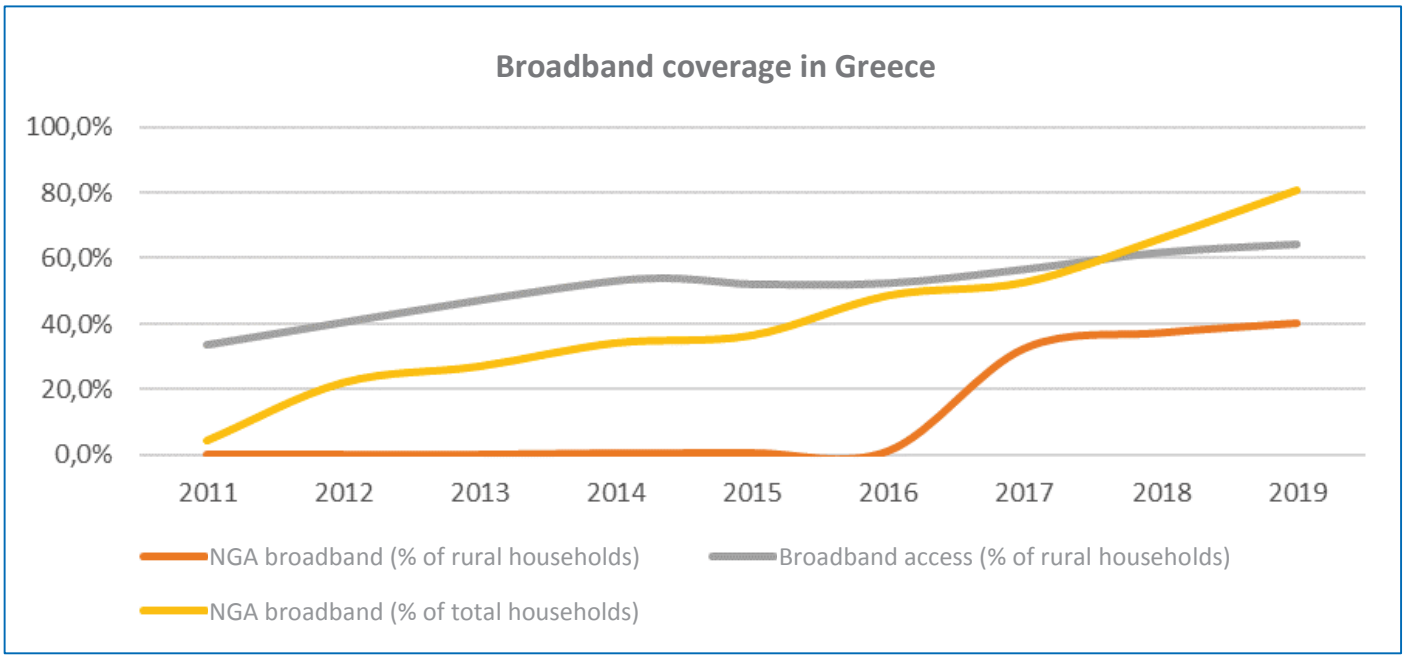
Broadband coverage is still limited in rural areas across Greece since it depends significantly on the extent of the territory to be covered, the population density and the difficulty in developing the necessary infrastructures in certain regions. In 2019, more than 98%[89] of households in Greek rural areas benefit from fixed broadband coverage, which is above EU average. More than 40% of households in Greek rural areas benefit from NGA broadband, which is below 59% of EU average. Greece has one of the lowest NGA broadband coverage of rural area in the EU, making it difficult for businesses to thrive and resulting in unattractive environment, especially in remote and less populated rural areas, poorly integrated in knowledge-based economy. Efforts to overcome the low NGA coverage have not materialised.

In addition, Greece has not yet opted for the use of satellite-based means to monitor CAP implementation but governmental organisations are currently part of EU projects dealing with the uptake of new technologies for the modernisation of CAP administrations, CAP controls and interactions with farmers.

A lack of combined performance of advisors, agricultural training, researchers and farmers organisations largely accounts for the underperformance of AKIS in Greece, in turn affecting the achievement of the targets of all priorities for the CAP. There is also a need for impartial advisors with sufficient digital knowledge and of access to data in order to accelerate the smart, green and digital transition in agriculture in Greece and avoid the digital divide. This should better interlink actors and organisations/institutions (users and producers of knowledge and innovation) bridging the gap between research and practice.




Source: European Commission. *CAP context indicator C.24 Agricultural training of farm managers.* Based on EUROSTAT [ef_mp_training]




Source: European Commission. *Digital Economy and Society Index.* DESI individual indicators – 1b1 Fast BB (NGA) coverage [desi_1b1_fbbc]

[1] JRC PESETA IV Project: Analysis of climate change impacts on EU agriculture by 2050: https://ec.europa.eu/jrc/sites/jrcsh/files/pesetaiv_task_3_agriculture_final_report.pdf

[2] Directorate General for Agriculture and Rural Development. *CAP context indicators C.25 Agricultural factor income and CAP 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.

[3] European Commission. *CAP indicators – Data explorer*. CAP Result indicator RPI_01 Share of direct support in agricultural income.

[4] 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).

[5] European Commission. *Summary report on the implementation of direct payments [except greening] – Claim year 2017*. Section III.1.The models of basic payment after the 2013 CAP reform, page 8.

[6] 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).

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