



Brussels, 18.12.2020  
SWD(2020) 374 final

**COMMISSION STAFF WORKING DOCUMENT**

**Commission recommendations for Spain'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**

{COM(2020) 846 final} - {SWD(2020) 367 final} - {SWD(2020) 368 final} -  
{SWD(2020) 369 final} - {SWD(2020) 370 final} - {SWD(2020) 371 final} -  
{SWD(2020) 372 final} - {SWD(2020) 373 final} - {SWD(2020) 375 final} -  
{SWD(2020) 376 final} - {SWD(2020) 377 final} - {SWD(2020) 379 final} -  
{SWD(2020) 384 final} - {SWD(2020) 385 final} - {SWD(2020) 386 final} -  
{SWD(2020) 387 final} - {SWD(2020) 388 final} - {SWD(2020) 389 final} -  
{SWD(2020) 390 final} - {SWD(2020) 391 final} - {SWD(2020) 392 final} -  
{SWD(2020) 393 final} - {SWD(2020) 394 final} - {SWD(2020) 395 final} -  
{SWD(2020) 396 final} - {SWD(2020) 397 final} - {SWD(2020) 398 final}

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## **1. COMMISSION RECOMMENDATIONS FOR SPAIN'S CAP STRATEGIC PLAN**

In the framework of the structured dialogue for the preparation of the CAP strategic plan, this document contains the recommendations for the CAP strategic plan of Spain. The recommendations are based on analysis of the state of play, the needs and the priorities for agriculture and rural areas in Spain. 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 Spain, in its CAP strategic plan, to set explicit national values for the Green Deal targets<sup>1</sup>, taking into account its specific situation and these recommendations.

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

The transition towards a sustainable food system presents significant economic opportunities as well as challenges for the Spanish agricultural sector.

Spanish agriculture recorded a positive economic performance, in terms of both income developments and behaviour in the international markets. However, the high volatility in some sectors and the concentration of exports in certain markets make Spanish agriculture more vulnerable and affects its long-term resilience, in particular in some sectors and territories.

At the same time, the Spanish farming sector faces low productivity growth. It has a low level of investment in research and innovation, a low level of investment by farmers and weak uptake of new technologies. The sector's high fragmentation, both in terms of economic size and concentration of supply, can also jeopardise its long-term competitiveness.

Despite the crucial role of common agricultural policy (CAP) support in stabilising farm income and helping Spanish farmers be competitive, current patterns in support distribution can hamper its effectiveness. In particular, on direct support, the level of support varies greatly from farmer to farmer. This shows that there is still a strong link to individual historical references, based on past characteristics of production rather than on objective criteria. There is therefore a need to significantly advance the internal convergence process for more fairness and better targeting of direct support.

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

Spanish agriculture needs to make progress on the future CAP's specific objectives on the environment and climate. Taking into account the climate and environmental ambition promoted by the European Green Deal, action needs to be taken to reverse some trends and guarantee the sustainability of natural resources against the background of growing challenges arising from climate change.

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<sup>1</sup> 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.

In recent years, both greenhouse gas (GHG) emissions and ammonia emissions have increased more than the EU average, confirming the need for ambitious actions to enable Spain to meet the targets set. The challenge of climate neutrality and the effects of climate change in the country mean increased attention on the sustainable management of forests and, in particular, the prevention of forest fires as well as measures to further promote afforestation and reforestation in order to make forests more resilient to climate change. In addition, improving the protection of wetlands would contribute to the climate agenda.

Spain faces major challenges in relation to water quantity and quality. In terms of the Water Framework Directive (WFD), not all water bodies have achieved good status yet, with agriculture identified as the most significant pressure. The quality of groundwater has deteriorated recently, and there is a need to reduce the surplus of nitrogen and phosphorus coming from agriculture. Also, Spain is among those EU countries where water abstraction is under high pressure in large parts of the country and where water scarcity is projected to be intensified with global warming. Despite efforts done to modernise irrigation systems, pressure on water availability is still a challenge and requires particular attention. At the same time, analysis points to the high risk of water soil erosion, a low level of mean soil organic carbon content in arable land (the lowest in the EU) and the high risk of desertification, in particular in certain regions.

The process of intensification has also increased the pressure on farmland biodiversity in the country, with a high share of agricultural land under Natura 2000. The extension of organic farming methods, which already show a positive trend in Spain (in terms of both supply and demand), would significantly help the country better cope with the on-going challenges associated with the loss of biodiversity. Spain needs to expand agro-ecology, as well as promote crops, forests and shrubs that are adapted to climate change to halt the biodiversity decline and fight against desertification. The conservation status of protected farmland habitats, in particular grasslands, needs to be improved. Measures are needed to improve landscape connectivity and achieve a greater diversity in landscape features in order to contribute to the European Green Deal target on bio-diversity.

The Commission believes that Spanish agriculture needs to improve its ecological and climate transition in line with the objectives of the Farm to Fork Strategy and the Biodiversity Strategy. The new CAP strategic plan is an opportunity for Spain to combine the whole variety of types of interventions offered by the first and second pillars of the CAP, and mobilise both resources and actors towards these priorities in a more effective and consistent way.

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

The shift towards a greener and more modern agricultural sector needs to be done in a way that preserves the territorial balance, stimulates generational renewal and generates growth and employment in rural areas. As highlighted in the Farm to Fork Strategy, it will also be particularly important to mitigate the socio-economic impact of the COVID-19 crisis on the food chain.

The proportion of young farmers is one of the lowest in the EU. It also has a low entrepreneurial activity rate and social imbalances in its rural areas. The major challenge of rural depopulation in Spain, together with the high rate of social exclusion, calls for ambitious action in order to reverse the current trends and ensure that young people have

better employment opportunities in rural areas, in particular in the most disadvantaged territories and social groups.

Against this background, there must be careful consideration of the specific needs of women in agriculture and rural areas in order to deliver on gender equality and close the gender gaps in employment, pay, and pensions, care and decision-making. 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. This is an essential element of the fair EU food system envisaged in the Farm to Fork Strategy.

When developing its strategic plan, Spain should consider the diversity and specific situation of different areas across the country. This is in particular true and relevant for areas with specific needs and vulnerabilities, such as the outermost regions referred to in Article 349 of the Treaty on the Functioning of the European Union. These should be appropriately addressed with relevant CAP instruments.

In line with the new societal demands presented in the Farm to Fork Strategy, important changes will also be needed in animal and crop production. Even though there have been improvements in recent years, animal welfare and antimicrobials use in Spain is not satisfactory, in particular in the pig sector. Furthermore, Spain has the second highest usage of plant protection products in the EU. Major efforts are needed to fully implement the Sustainable Use of Pesticides Directive, including making sure that the general principles of integrated pest management are implemented. Spain should also make an effort to shift towards healthier sustainable diets, in line with national dietary recommendations.

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

The transition of the Spanish agricultural sector towards a sustainable knowledge-based model is a key challenge for the future. It will require renewed efforts by both public authorities and private actors. The low level of investment in research and innovation, the low uptake of new technologies and low level of digitalisation are key challenges that currently hamper both the competitiveness and long-term sustainability of Spanish farms.

This process needs to be supported by an acceleration of the broadband coverage and an increase in basic digital skills. This will not only benefit the farming sector, but also the general economic development of Spanish rural areas.

At the same time, there is potential to address the current fragmentation of the Spanish agricultural knowledge and innovation system (AKIS) as well as reduce the administrative burden and improve the performance of the existing farm advisory services. This would include in particular a better coordination and cooperation between its actors and organisations, strengthening the impact of EU and national/regional research and innovation funding. This can be achieved through better interaction between information, knowledge, advice, innovation, training, education and research. It is essential to support better links between public and private advisers and investing in their training and skills to cover economic, environmental and social aspects.

## 1.5 Recommendations

To address the above economic, environmental/climate and social challenges, the Commission believes that the Spanish 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 Spanish agriculture and rural areas:

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

- **Encouraging business-oriented farm management and boosting farm competitiveness** by focusing future public support on achieving and consolidating viable market-oriented farms and stimulating farm capital investments, notably in new technologies and more environmentally friendly farming practices.
- **Encouraging greater integration of primary producers**, by increasing the economic scale, concentration and range of services of Producer Organisations (POs), in particular the smallest ones, and fostering the recognition of POs in sectors where they are not yet recognised yet or where their penetration is low.
- **Improving the viability of farms through improving the effectiveness, targeting and distribution of direct income support.** Spain should advance significantly on the internal convergence process and distributing direct income support towards homogenous groups of territories, taking into consideration agronomic conditions as well as the differences observed based on notably physical and economic size of farms and eliminating the link to historical references. Income gaps among different farm sizes should be addressed by using, for example, the complementary redistributive income support and the reduction of payments.

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

- **Contributing to the EU Green Deal target on organic farming** by enhancing the currently increasing trend of areas under organic farming through appropriate conversion and maintenance schemes and incentivising increased organic demand in the food chain and market organisation.
- **Mitigating climate change and reducing GHG emissions from agriculture**, through an appropriate mix of suitable tools under the new Green architecture in order to meet the established national targets. These interventions shall support improved crop rotations, precision farming, carbon farming and improvement of manure management. Particular attention needs to be paid on **reducing GHG emissions from enteric fermentation** in line with the Methane Strategy, by providing support for advice, innovation, land management practices, biogas production (anaerobic digestion), as well as adoption of low emission feeding strategies.
- **Enhancing climate change adaptation** by, in particular, supporting measures to decrease the impacts of extreme weather events, switch to less water intensive crops and drought resilient crop varieties, conserving and restoring existing grasslands (for carbon sequestration and overall resilience of these ecosystems).

- **Contributing to the EU Green Deal target on nutrient losses** by taking appropriate actions to reduce the surplus and leaching of nitrogen and phosphorus originating from agriculture, especially in the regions with poor groundwater quality by promoting innovative environmentally friendly farming practices (e.g. more environmentally friendly manure and fertiliser management).
- **Continuing the efforts to ensure a sustainable use of irrigation, by modernising existing water infrastructures and irrigation systems** (conveyance, distribution and application) and controlling sectoral demand in river basins with reduced water availability while exploring production methods and crop types that would relieve pressure on the resource. **High soil erosion** (by water and wind) and desertification of arable land and permanent crops areas must also be addressed.
- **Halting and reversing the loss of biodiversity**, including protected species and habitats, farmland birds and wild pollinators, by enhancing the efforts to improve the conservation status of protected farmland habitats, in line with the Prioritized Action Framework for CAP funding. Particular attention will be paid on fostering landscape connectivity and greater diversity in landscape features, in order to contribute to the **EU Green Deal target on bio-diversity**.
- **Fostering sustainable forest management, enhancing multifunctionality, forest protection and restoration of forests** to reach good condition of habitats and species linked to the forests in order to enhance ecological services and biodiversity to build resilience to climate change impacts on forests and agro-forestry systems such as the “*dehesa*”. **Improving forest fire prevention and restoration from forest fires**, enhancing adaptation to climate change.

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

- **Contributing to the achievement of the EU Green Deal target on antimicrobials.** Considering that sales of antimicrobials are above the EU average, Spain is recommended to put in place sizeable efforts to significantly reduce its use of antimicrobials in agriculture by using all available tools, including instruments under the CAP to support farmers, e.g. by promoting best practices on reduced and prudent use of antimicrobials, together with improved livestock management, biosecurity, infection prevention and control.
- **Improving animal welfare** by promoting and supporting best practices, knowledge and investments, especially for pigs and laying hens.
- **Making significant efforts to reduce the use and risks of pesticides in line with the EU Green Deal target**, by supporting schemes that foster a switch away from the more hazardous plant protection products, towards sustainable farming practices such as integrated pest management.
- **Reducing the depopulation trend in rural areas and strengthening efforts to meet the challenge of the generational renewal in agriculture** by reducing the entry barriers in the sector, mainly regarding access to land and finance as well as taking specific measures to reduce the gap between male and female employment in rural areas.

- **Strengthening efforts to create opportunities for employment and economic activity in rural areas as well as promoting social inclusion, with specific attention to vulnerable groups such as seasonal workers as well as EU and third-country migrants, in line with the Farm to Fork Strategy.**

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

- **Expanding broadband in rural and remote areas to achieve the EU Green Deal Target of 100% fast broadband coverage by 2025 and accelerating the digital transition of the Spanish farming sector** through large-scale training efforts and by exploiting the most advanced technology to better monitor and optimise agricultural production processes. In doing so it will be important to ensure synergies with other EU and national funds.
- **Improving the access to knowledge and innovation by the farming community**, by fostering the integration and organisation of advisers within the agricultural knowledge and innovation system (AKIS), improving the interaction of research with farmers and advisors, and better integrating farmers' needs in research and innovation projects.



## **2. ANALYSIS OF AGRICULTURE AND RURAL DEVELOPMENT IN SPAIN**

The population in Spain is 46.94 million inhabitants and is divided in 17 regions. Around 3.4% of the population live in predominantly rural areas and 33.3% live in intermediate regions. Altogether, these two territories cover 388 thousand km<sup>2</sup>, the largest share of the country's territory, and employ around 6.8 million people<sup>1</sup>.

Spain had around 945 thousand active farms in 2016, which covered 23 million hectares of utilised agricultural area. Half of those were small sized farms of 5 hectares or less, and family-operated farms were dominant. Less than 4% of farm holders were young farmers (less than 35 years old)<sup>2</sup>. From those, more than one third possessed basic training only. Overall, the majority of Spanish farmers relies on practical experience<sup>3</sup>.

Spanish agriculture is highly diverse, resulting from a great diversity in climate, topography, and soil conditions, and leading to significant differences in types of farming between territories. Spanish agriculture shows a positive trade balance with both EU and non-EU countries<sup>4</sup>, with large exports of olive oil, pork meat and wine. It's diversity is also reflected in the great variety of the 359 products registered in EU quality schemes (GIs, PDOs and PGIs)<sup>5</sup>.

Rural areas in Spain are facing the major challenge of depopulation as well as important social challenges, with an employment rate below the average rate in Spain and below the EU rural employment rate<sup>6</sup>.

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

In Spain, the agricultural entrepreneurial income was on average about 94% of the average wage in the whole economy between 2005 and 2018 (higher than the EU average), increasing from 76% in 2009 to 119% in 2018. During that period, the average wage in the economy stagnated due to the economic crisis, illustrating the relative resilience of the farming sector.<sup>7</sup>

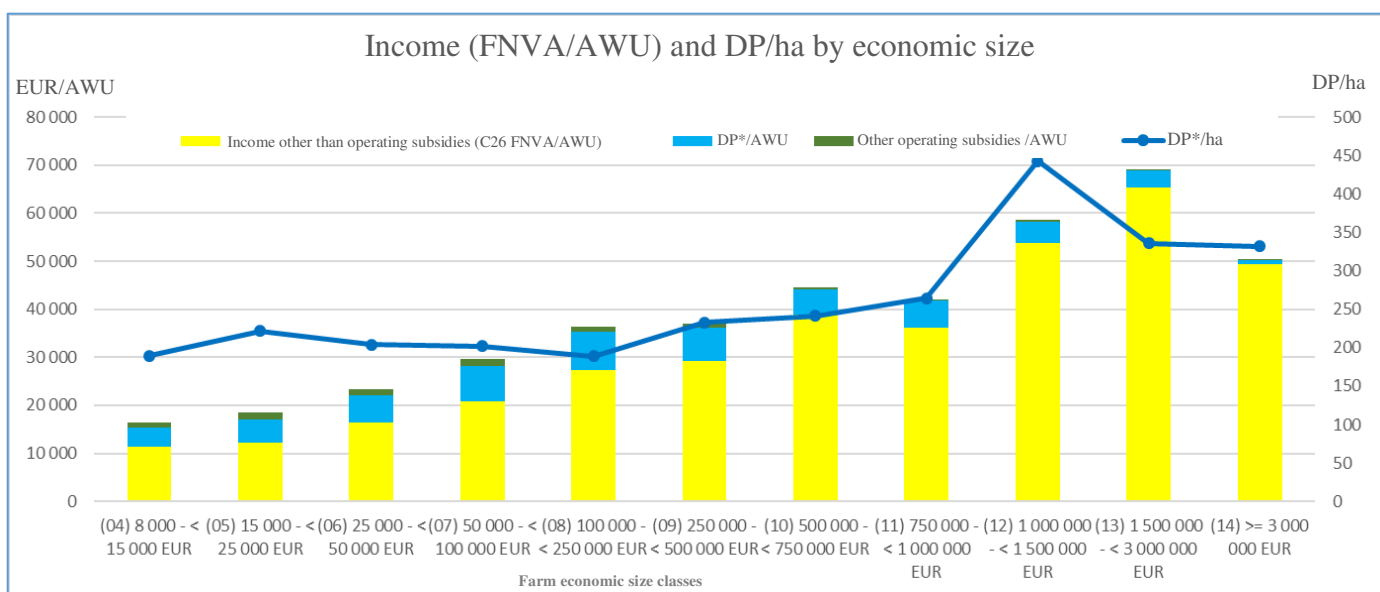
The average factor income fluctuated around the double of the EU average over the period 2005-2018. Income increases regularly with farm economic size up to a certain size (EUR 1 000 000 standard output) and tends to decrease slightly above this figure. The increasing trend is less clear by physical size (ups and downs).

Average income is significantly higher for granivore farms, regularly lower for cattle and sheep and goat farms, but in general, the national average incomes for the sectors do not show such high differences as in other Member States. However, within each region, there tend to be differences in levels of income between types of farming. Farm income has important differences across the territory, with on average higher income levels in Andalucía, Aragon, La Rioja and Navarra, and lower income levels in Cantabria, Canarias and Madrid. Despite the differences across sectors and territories, farm income levels in Spain show a greater variability across different groups by economic size than by sector or region.

Direct EU support represented about 18% of the factor income in Spain in 2017, which is less than the EU-average (24%). Rural Development support (except investment support) represents about an additional 5%. The level of support per hectare (unit amount)

decreases with the increase of the physical size. However, this unit amount tends to increase with economic size<sup>8</sup>. As well, the unit amount per hectare varies greatly by individual farmer, illustrating the still high link to individual historic references. Here again, the national averages appear to hide significant differences between homogenous groups of territories and types of farming within each of them. In 2018, 20% of the beneficiaries received 80% of direct payments in Spain (close to the EU average)<sup>9</sup>. Concentration seems to be diminishing, potentially due to a rise in the minimum requirements over recent years. There is a high rate of multi-activity on farms, with smaller farms being less dependent on agricultural income<sup>10</sup>. For 29% of the beneficiaries, agricultural income was less than 20% of their total income, and for 16%, less than 10%<sup>11</sup>.

Concerning resilience and risk management, Spanish agriculture has a high percentage of farms with income losses of over 30% of the average for the previous three years, although there are significant differences between the different subsectors. Spain has a strong and well-recognised agricultural insurance system since 40 years– achieving record rates of participation in 2018 - that strengthens farms by reducing the volatility of their incomes. At present, almost all production is insurable against almost all risks caused by adverse natural events<sup>12</sup>. Spain also benefits from a varied market in terms of private insurance suppliers and has implemented phytosanitary insurance that is offered as a complement to climatic coverage<sup>13</sup>.



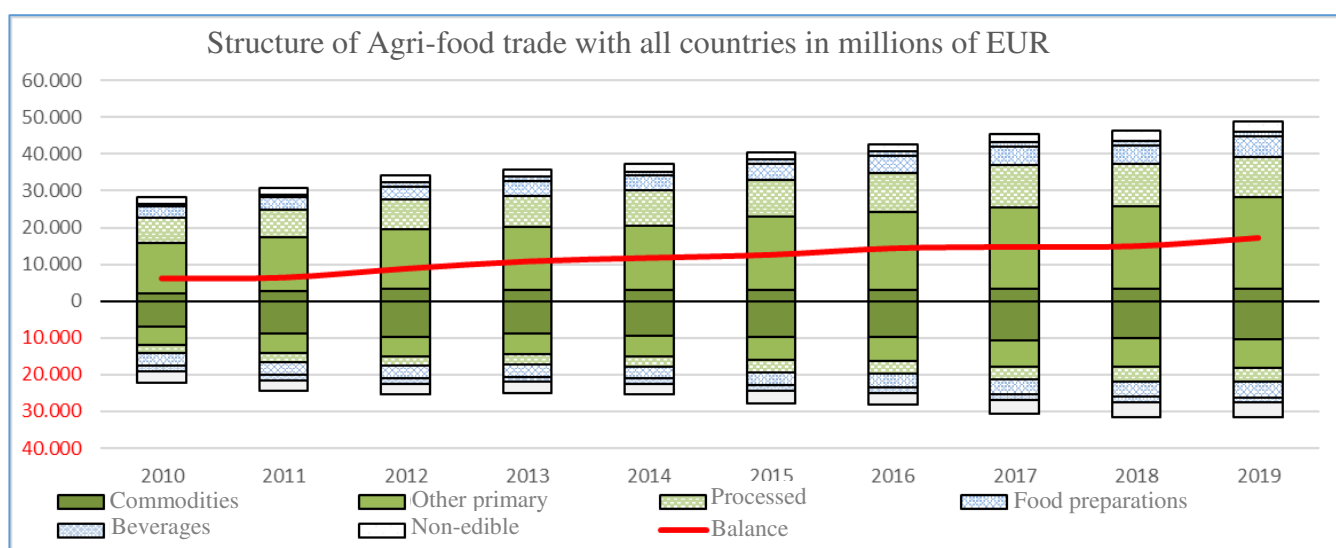
Source: FADN 2018 provisional results. NB: FADN does not cover farms below a minimum; \*DP may include some national aids.

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

Spain's agri-food trade balance is positive with a steady upward trend. Intra-EU trade accounts for most of this behaviour, due to the high share of exported products to EU countries. Extra-EU trade balance has been positive in recent years, although decreasing since 2016<sup>14</sup>, showing Spain's high dependence on commodity imports from outside the EU, especially animal feeds<sup>15</sup>. The main export products to non-EU countries in terms of value are olive oil (10.8%), pork meat (10.6%) and wine, vermouth, cider and vinegar

(10.1%)<sup>16</sup>. Spain's exports and imports show a current trend of concentration on specific sectors and destinations/origins<sup>17</sup>. The total number of farms is falling steadily in Spain, keeping stable the average farm size between 24 and 25 hectares<sup>18</sup>. The number of livestock units is rather stable over time in Spain, at around 14.5 million Livestock Units<sup>19</sup>. The livestock density has slightly increased since 2005 and the area share of extensive grazing has remained stable, accounting for around 33% of the total UAA<sup>20</sup>. As to their economic size, Spain's agricultural sector is fragmented into a high number of small farms (half of the Spanish farms have a Standard Output of less than 8000 EUR), in particular in sectors such as olive oil, wine, and sheep and goat<sup>21</sup>.

The total factor productivity (TFP) and its three components (labour, capital, land) have been steadily increasing since 1995 in Spain (though slowing in recent years)<sup>22</sup>. However, this varies among sectors, farm size typology, and regions. Farms' investments (gross fixed capital formation) dropped after 2009, due to the financial crisis, steadily increasing since then and now recovered<sup>23</sup>. On average, the level of farms investments is rather low in Spain (just 15% of their marketed value, well below the EU average of around 31%)<sup>24</sup>, which could compromise their competitiveness in the long-term. This investment indicator varies highly between sectors (though below the EU average for all sectors) and the farm size<sup>25</sup>.



Source: COMEXT

### 2.3 Improve farmers position in the value chain

The share of the value added in the food chain for primary producers is slightly increasing over time in Spain, from 30% in 2008 to 33% in 2016, above the EU average (23% in 2016). Moreover, the agri-food chain represents around 10% of the value added of the whole economy in Spain, also above the EU average (6%)<sup>26</sup>. Vegetables and horticulture, fruits, pigs, wines and olive oil are the most important sectors in terms of production value<sup>27</sup>.

Spain has a high number of recognised Producers Organisations (PO), although almost all concentrated in the fruits and vegetables sector. PO of fruits and vegetables have high economic relevance in Spain, as PO accounts for around 70% of the marketed value of the sector, but their average marketed value of EUR 11 million is below the EU average (13 million), showing that they might be too many and of small size, and requiring

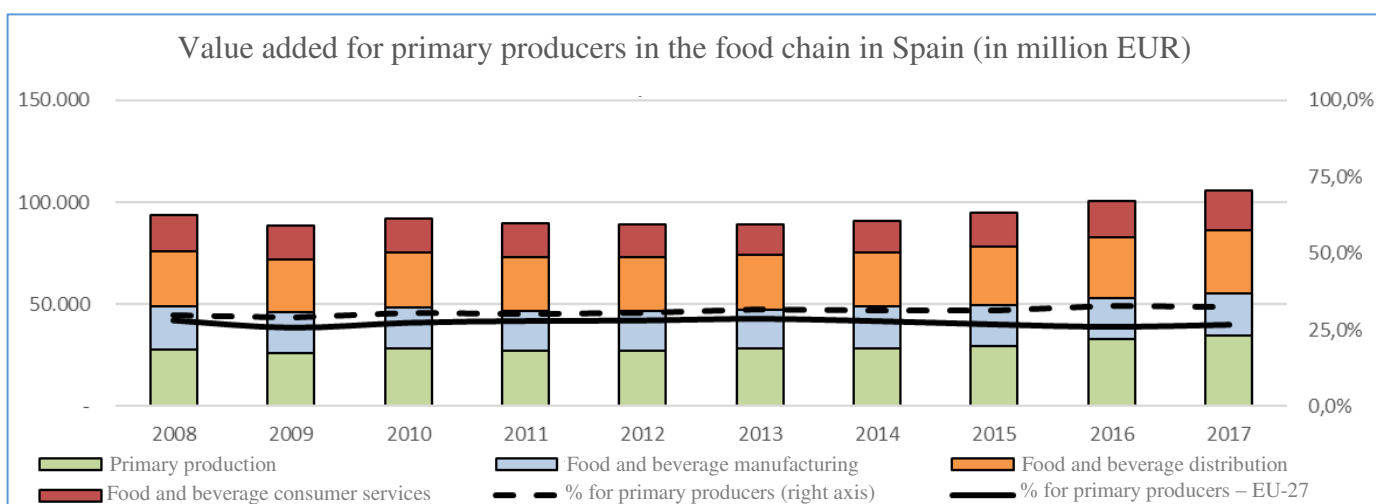
efforts of further integration. Other sectors with recognised POs are milk and dairy products, hops and tobacco. Producers in other sectors are already structured through producers organisations and farmers’ associations, in particular cooperatives<sup>28</sup>, but the latter have not been recognised so far as POs in line with the 2018 legislative changes<sup>29</sup>.

In Spain, primary production is organised through a large number of multi-level cooperatives, accounting for a market share around 40-50% across sectors (70% for wine). Despite this market share, there is a high fragmentation, since a large part of the cooperatives are small entities with few members and low marketed value (42% of cooperatives below EUR 1 million); this results in a low marketed value average of Spain’s cooperatives of EUR 8.5 million.<sup>30</sup> As to vertical integration, Spain numbers 26 Interbranch Organizations.<sup>31</sup> Shorter supply chains have grown in prominence recently, with a sale value of EUR 774 million in 2017.<sup>32</sup>

With regard to bargaining power of primary producers and transparency along the food chain, Spain has recently developed policies to increase both, in particular promoting written contracts between relevant actors. The level of compliance of the contract clauses has improved over time, and the payment times shortened.<sup>33</sup> Effective implementation and enforcement of the Unfair Trading Practices Directive will further improve the protection afforded to primary producers.

Spain has 359 entities of differentiated quality (PDO, PGI and TSG), with a sale value of over EUR 6.1 billion and with an increased trend. External markets are main outlets as exports accounts for about 45% of the economic value in spirits, 40% in wines, and 15 % in the rest.

Important developments are taking place in the market of organic production, which reached a retail sale value of EUR 2 133 million in 2018, representing 4 % of Spain’s agricultural production.<sup>34</sup> Despite the still low integration of organic products in the Spanish market (2.8% in 2017)<sup>35</sup>, organic consumption is growing at a very significant pace (EUR 46.5 per habitant in 2018, doubling 2015 figure of EUR 21.85)<sup>36</sup>. This steady increase in the demand has changed the pattern of the organic trade balance in Spain, which is not any more a net exporter on organic production and, since 2018 shows a negative trade balance.<sup>37</sup> The large size and competitiveness of the Spanish fruit and vegetable sector should provide a solid basis to exploit the growing trends towards organic products and more plant based food consumption.



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

In 2018, agricultural emissions of greenhouse gases (GHG) – i.e. without LULUCF, see below – in Spain amounted to 39.6 million tonnes of CO<sub>2</sub> equivalents. These emissions had fallen by 7% from 1990 to 2013 but then increased by 9.3% to current levels. Net agricultural emissions (including LULUCF) represent 11.3% of total GHG emissions in Spain (slightly below the EU average share of the sector) and 10% of the total EU GHG emissions from agriculture. 44.6% of agricultural emissions in Spain relate to enteric fermentation of livestock (mainly due to high share of cattle production), 31.1 % to agricultural soils, 22% to manure management and 1.1% to rice cultivation. Emissions from enteric fermentation, agricultural soils and manure management between 2013 and 2018 have all increased above the EU-27 trend, especially in the field of manure management, which rose by 15.5%.<sup>38</sup>

In Spain, the land use, land use change and forestry (LULUCF) sector is a net remover of GHG (-38 096 million tonnes of CO<sub>2</sub> equivalents in 2018), largely due to the contribution of forestland. While croplands have been a sink of GHG since 2014 (-3 645 million tonnes of CO<sub>2</sub> equivalents in 2018), grasslands and wetlands have switched to slight emitters in more recent years<sup>39</sup>. The mean soil organic carbon content in arable land is, as in all Mediterranean Member States, low in Spain (14.90 gC.kg<sup>-1</sup> in 2015), slightly increasing by 3.4% since 2009<sup>40</sup> and the country has almost no peatland (peat cover is 0.1% only)<sup>41</sup>.

In 2018, the share of agriculture in the total production of renewable energy in Spain was 9.8%, while the share of production from forestry constituted 29% of the total. Renewable energy production in both agriculture and forestry in Spain remained above the EU average for these sectors<sup>42</sup>. The share of energy consumption in Spanish agriculture and forestry in the total final consumption in 2018 was 3% (slightly higher than the EU-27 average of 2.9%), while the use of energy for food processing was 2.9% of the total final consumption<sup>43</sup>. The final energy consumption by agriculture and forestry has fallen by 13.3% between 2013 and 2018<sup>44</sup>.

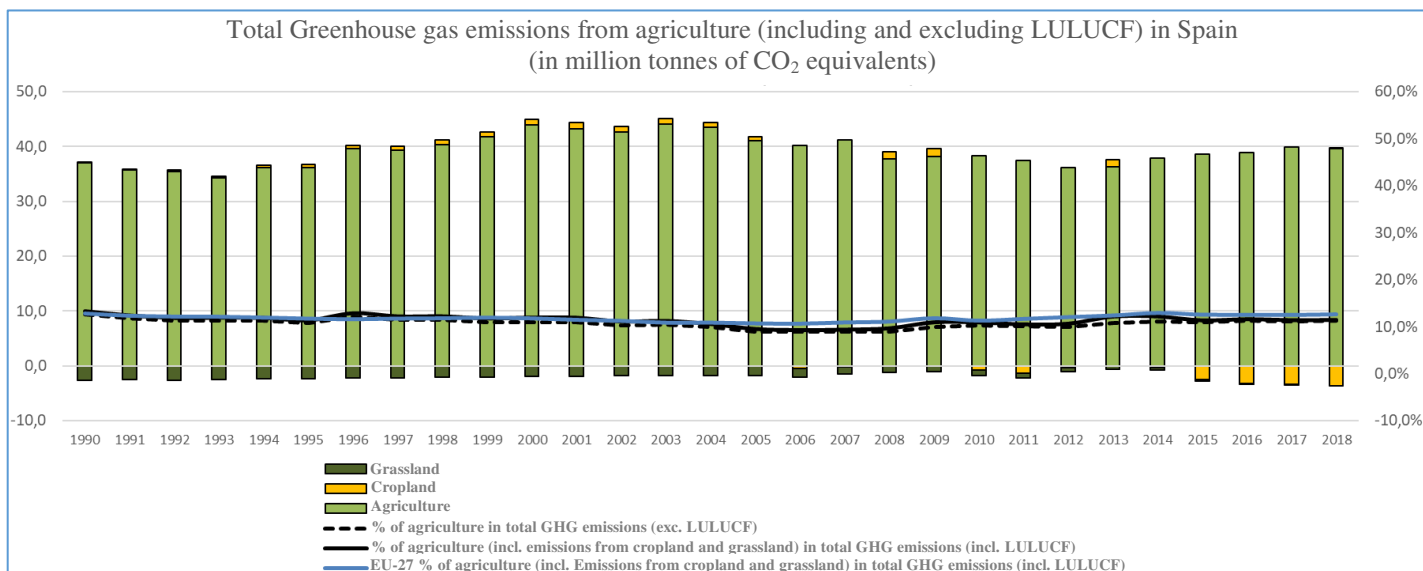
The National Energy and Climate Plan of Spain sets up measures for the achievement of the overall goal of a 23% reduction of GHG by 2030 and climate neutrality by 2050. According to the Plan, the agriculture and livestock farming sector will have to contribute to a reduction of 18% of greenhouse gas emissions in respect to the 2005 level. It is important that the agriculture sector meets this target to ensure its contribution towards the national climate change mitigation efforts. Specific measures established in that Plan include: the promotion of arable crop rotations on unirrigated land, adjustment of the application of nitrogen to the crop's needs, emptying of slurry from pig housing (reduction of emissions within stables), cover of slurry ponds (reduction of ammonia emissions during storage), measures for the reduction of stubble burning, solid-liquid separation of slurry and production of compost from the solid fraction. Promoting renewable energies is also part of the strategy for decarbonisation in the Plan, which predicts about a two-fold increase in installed capacity of electricity from biomass for 2030 in relation to 2015. Further measures for the LULUCF sector were also specified including, among others, regeneration of silvo-pastoral systems, prevention of forest fires or promotion of agroforestry<sup>45</sup>.

In the context of Spain's National Climate Change and Adaptation Plan (NCCAP), the assessment of the impacts, vulnerability and adaptation to climate change in the agricultural sector has identified that the rise in temperatures and atmospheric CO<sub>2</sub> and changes in the precipitation patterns may have different effects across the Spanish territory. In the south and southeast regions, water demands are projected to further rise due to heat stress and extreme weather events, requiring among others to change to other crop varieties, or even species, better suited to high temperatures. Diseases and pests can increase or spread to higher latitudes, and livestock production may also be affected by heat stress and increasing diseases. Furthermore, conditions for production might deteriorate for ruminants due to decreasing availability of pastures due to the tightening of the drought regime and/or an increase in the frequency and intensity of heavy rain that increases the erosive influence, lower pasture productivity resulting in a need for lower livestock density<sup>46</sup>. However, agricultural productivity may even see an increase in regions where water is not scarce.<sup>47</sup>

Specific vulnerabilities to climate change for Canary and Balearic Islands as well the Cantabrian coast relate to sea-level rise, although this will affect the whole Atlantic coast. Rising sea levels can cause the intrusion of seawater, affecting irrigation and causing salinization. In the Canary Islands and Cantabria, increases in torrential rain may lead to damages in crops and affect harvests. The islands will experience greater decreases in rainfall than the rest of Spain<sup>48,49</sup>.

Spain's draft NCCAP includes adaptation objectives such as to increase knowledge on climate change impacts, promote development of adaptation instruments through the CAP post-2020, and adaptation of agriculture and livestock to already verified climate changes.<sup>50</sup>

The CAP is one of the mechanisms that is used to implement measures addressing climate change mitigation as well as adaptation. Spain has programmed various measures to address climate related needs, in line with regional specificities. At the end of 2018 however, the state of achievements of specific climate targets set for the programming period (until 2023) is unbalanced: while for agricultural land under management contracts addressing reduction of GHG and/or ammonia emissions, the programme target set for 2023 is reached at already 63%, results are less positive in the case of Livestock Units concerned by investments in view of reducing GHG and/or ammonia emissions (only 13% of the 2023 target achieved in 2018). Nevertheless, measures programmed for the objective of ecosystem services (which in many cases contribute also to climate change objectives), have made much greater progress until now.<sup>51</sup>



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

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

The Spanish agricultural sector was responsible for nearly 97% of ammonia emissions in 2018, mainly from livestock (76%) but also from crops (24%). The swine sector (17.5%), cattle (14.5%) and the use of synthetic N-fertilisers (18.7%) are the most relevant source of these emissions. After a decreasing trend since 1990, emissions have increased since 2013, in particular in some regions. Based on a joint analysis of the quality of projections, the credibility of the policies and measures selected for adoption in the National Air Pollution Control Programmes, and the projected margin of compliance, Spain would be at medium-risk of non-compliance with the emission reduction commitment (under NEC Directive), for ammonia for both 2020-29 and for 2030 and beyond.

Spain is subject to a high risk of water soil erosion, with a rate of soil loss in agriculture estimated to be above 3.9 t ha<sup>-1</sup> yr<sup>-1</sup> in 2016, above the EU average (about 2.5 t ha<sup>-1</sup> yr<sup>-1</sup>)<sup>52</sup>. More than 9.8% of the Spanish UAA (about 2.7 million ha) is at risk of severe erosion, which is above the EU average (6.6%). The UAA at risk of erosion is mainly arable and permanent crops (91% of the total agricultural area affected)<sup>53</sup>. País Vasco, Andalucía, Cataluña, Cantabria and Asturias are the regions with the highest share of estimated agricultural area affected. Wind erosion is also relatively high in North East part of the country.

The mean soil organic carbon content in arable land in Spain is around 15 g/kg, the lowest level across the whole EU<sup>54</sup>. Spain, like other southern countries (Italy, Greece and Portugal), has lower values compared to northern countries due to the faster organic carbon mineralisation. Higher stocks are found on hilly and mountainous areas of the northeast while lower carbon stock are present in southern and central regions as well as the Ebro valley. About 74 % of Spain is at risk of desertification, with 18 % being at “high” or “very high” risk. The situation is particularly concerning in the Region of Murcia, the Valencian Community and the Canary Islands.<sup>55</sup> In 2016, 75%<sup>56</sup> of tillable area was tilled conventionally and 23%<sup>57</sup> of arable land was left bare during the winter months. A shift to more sustainable agricultural management practices would be beneficial. In the future, Spain can address these key soil-related issues in synergy with activities under the Horizon Europe mission on soil health.

The situation of water quality in Spain is not satisfactory for surface and ground waters. Diffuse agricultural pollution is the most significant risk on groundwaters and second most significant risk on surface waters and abstraction or flow diversion for agriculture is also a significant risk for both<sup>58</sup>.

During the period 2012-2015, 69% of groundwater<sup>59</sup> were in good chemical condition and 21.5 % of monitoring stations in groundwater were impacted by pollution from nitrates (>50 mg Nitrate/l)<sup>60</sup>. The total number of groundwater bodies concerned by nitrates pollution fell gradually since 2004 but Spain was in 2012 the Member State with the lowest share of stations in good quality and the highest share of stations with poor quality<sup>61</sup>. In addition, the nitrates concentration has increased with respect to the previous reporting period in 34% of the stations in groundwater bodies.

The average concentration of nitrates in surface water shows no clear trends between 1992 and 2017<sup>62</sup> and 87% of surface waters<sup>63</sup> were in good chemical condition in 2015. Nearly 1% were impacted by pollution from nitrates (>50 mg Nitrate/l)<sup>64</sup> during the period 2012-2015 and the total number of watercourses concerned by nitrates pollution descended since 2004. However, the concentration has increased with respect to the previous reporting period in 16% of the stations in surface water bodies. Phosphates concentration in rivers shows a decreasing trend during the period 1992-2016 but the average value is increasing since 2008.

The (estimated) nitrogen balance has increased by 3 kg/ha/year of agricultural land over the last twenty years (36 kg/ha/y over 1996-2005 and 39 kg N/ha over 2014-2016). Spain's gross nitrogen balance is lower than the European average (49 kg/ha). From 2000 to 2015, the phosphorus balance has declined from 6 to 4 kg P/ha/y but the average 2000-2015 (4 kg P/ha/y) is higher than the EU average (1kg P/ha/y). Spain has 80,702 km<sup>2</sup> of Nitrates Vulnerable Zones (NVZ), which represent 16% of the national territory and 35% of the agricultural area. In the last reporting period (2012-2015) changes were made in the designations of NVZs in Aragón, Catalonia, Madrid, and País Vasco. Compared to the previous period (81,699 km<sup>2</sup>), the area had decreased by 997 km<sup>2</sup>.<sup>65</sup>

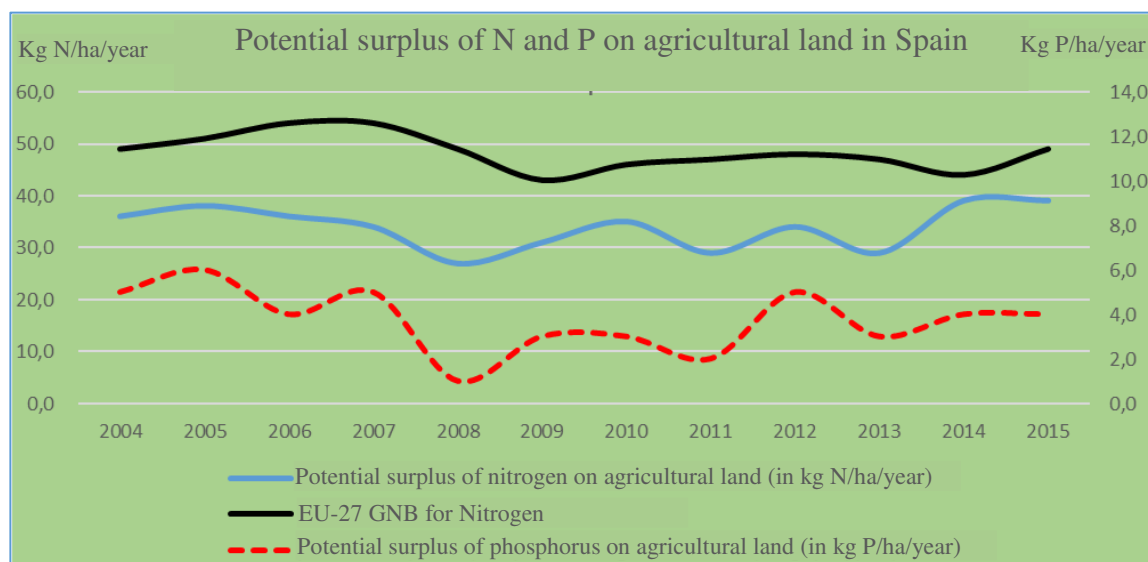
The decreasing availability of water is a severe problem in Spain and agriculture is the biggest pressure to the water resources. The volumes of water for irrigation represent around 80% of all the freshwater volumes withdrawn in Spain<sup>66</sup>. Farming activity under irrigated land represents more than 50% of the final crop output in the country<sup>67</sup>. Between 2005 and 2016, the share of irrigated areas in respect to the UAA remains stable in Spain<sup>68</sup>, where today around 13.2% of the UAA is irrigated. It is estimated that the irrigated area has been steadily growing during the last decade (+ 1% per year as average), reaching 3.83 million ha in 2019. This increase is accompanied by an evolution in irrigation systems (+18.7% of localised systems)<sup>69</sup>. Currently, the Rural Development Programmes (RDP) of Spain are contributing to support the conversion of 7.2% of the total irrigated land towards more efficient irrigation systems. By the end of 2018, 36% of this target had been met (completed projects), representing 2.6% of the irrigated land<sup>70</sup>.

The Water Exploitation Index (WEI+) has not been showing a favourable trend during this decade reaching 23.7% in 2017<sup>71</sup> with some variability mainly because of the variability in weather conditions. The data available at river district scale<sup>72</sup> indicated that 70% of the river districts monitored are in risk (WEI over 20%), with some districts<sup>73</sup> in a situation of severe scarcity (WEI over 40%) and agriculture is one of the main users of water in all these districts. Spain is among those EU countries where water abstraction levels are under high pressure, in which prolonged periods of water scarcity under global



warming are projected to intensify. Without sufficient water, crops such as maize may collapse by 2050, with yield decreases larger than 80%<sup>74</sup>.

Important efforts have taken place to improve water efficiency in the irrigation systems so that today 53% of the irrigated land uses localised systems while 24% use the traditional gravity method<sup>75</sup>.



Source: 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 Spain decreased from 100 in 2000 to 77 in 2017<sup>76</sup>, close to the EU-27 average decline to 76 for the same year. For the reporting period 2013-2018, the indicator on conservation of agricultural habitats show that in Spain, only 9.4% of grassland habitats were in a favourable status, whereas 62.5% had an unfavourable-inadequate and 15.6% even an unfavourable-bad conservation status and the trend remains negative. Compared to the reporting period 2007-2012, this represents a decrease from 15% in the best category ‘favourable’ as well as a significant increase from 42% in the unfavourable-inadequate category, whereas only the share of grassland in the unfavourable-bad category shows a positive trend by a cut in half from 30.3%. Looking at the period 2013-2018 only, these figures are better than the EU-27 averages for the category ‘unfavourable-bad’ (42.6%), but far lower in the categories ‘favourable’ (20%) and ‘unfavourable –inadequate’ (34.6%)<sup>77</sup>.

The above-mentioned values are average values for the whole Spanish territory. When examining the situation at regional level, we can see that the more favourable areas are located in the north of Spain, whereas the *dehesas* in the southwest of Spain are indicated as more unfavourable.

As a total share of utilised agricultural land, the share of permanent grassland in total UAA is at 29% in 2018 (below the EU 27 average of 31%) with a slight increase from 27% in 2014<sup>78</sup>.

In Spain, the average number of linear elements (identified based on the LUCAS survey 2015) is above the EU average. At national level, 13.2% of the UAA are covered by landscape elements (0.2%) and fallow land (13%)<sup>79</sup>. Spain has generally high variations at regional level, and many regions show a rather low density of those elements important for the preservation of biodiversity.

In 2018, the share of agricultural area in Natura 2000 stood at almost 17% (including natural grassland), compared to 11% at EU-27 average (rang 7) and for forestland at slightly above 40% (including transitional woodland-shrubs), however decreasing from 43,3% in 2010 (30.4 % for EU 27)<sup>80</sup>. As to the share of Natura 2000 areas at EU-28 level, it should be noted that Spain has the biggest contribution on Natura 2000 land area (138.311 km2, 17.6% of EU Natura2000 land area).<sup>81</sup>

The Prioritised Action Frameworks (PAF) indicate the need to support the following measures in Natura 2000 sites. Spain establishes it at regional level (19 regional PAFs). However, a plan at the level of the national general administration summarises the main targets for action, such as a focus on connectivity, resilience and knowledge gaps. It emphasises the restoration of the ecological connectivity and coherence of the Natura 2000 network, by among others, addressing a package of measures for implementation of the State strategy for Green Infrastructure<sup>82</sup>. Good coordination between the structural funds for its implementation is certainly desirable.

As regards the status of species associated with agricultural areas, the main threats and pressures identified in the Spanish regional PAFs are: abandonment of traditional farming practices, intensification agriculture, use of pesticides, homogenisation of the landscape, transformation of rain fed cultivation into irrigated cultivation, habitat fragmentation and, increase of infrastructures for the tertiary sector.<sup>83</sup>

As regards grassland habitats, supporting extensive livestock and traditional management is a general priority measure included in most regional PAFs; for croplands and agroecosystems, measures to improve knowledge of these ecosystems and their correct management are proposed. Many regions have included management measures to improve the habitat quality for steppe birds, ensuring the compatibility of agricultural practices with farmland birds' conservation and improving habitat heterogeneity in agricultural land. A number of measures are also for the maintenance of agricultural practices in rice fields to promote the presence of waterfowl. The PAF also include specific measures for forests, such as promotion of a more traditional forest management (e.g. for wood extraction), afforestation and substitution of non-native species by native ones.<sup>84</sup>

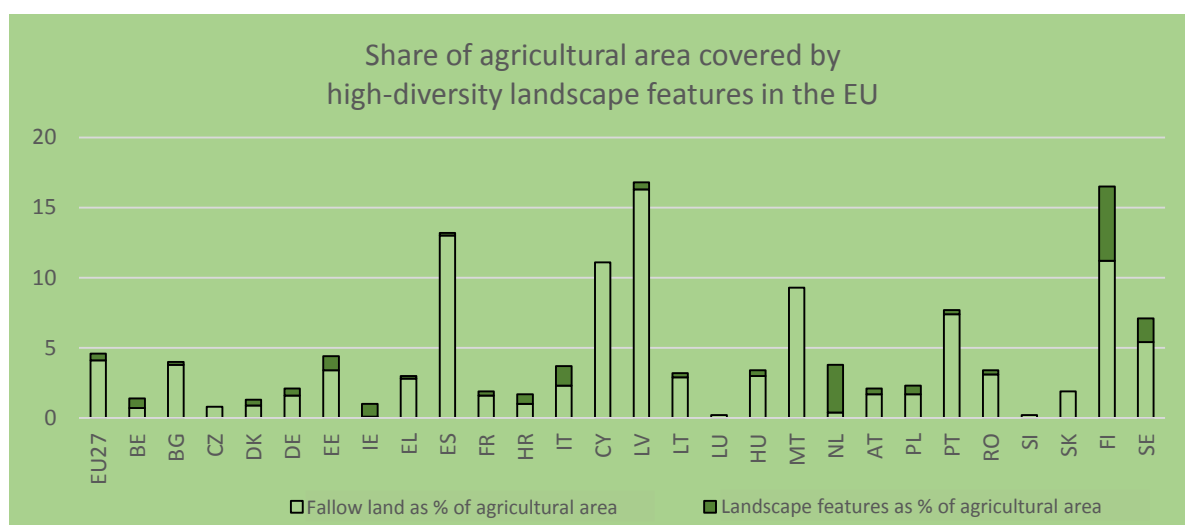
Based on the Commission's analysis of the current Rural Development Programmes in Spain (2014-2020), the allocation of funding for the environment and especially for Natura 2000 was not properly justified in most of the programmes. Excluding support for organic farming, the allocation for agro-environmental measures was rather low for some regions and not clearly linked to Natura 2000 objectives. Some regions (but not all) included in their RDPs support for preventive measure for damage caused by wildlife to agricultural production, livestock and beehives, which targeted protected species.<sup>85</sup> The selection criteria for investments in irrigation projects in RDPs did not ensure that negative environmental effects of such projects would be avoided.

As to farming intensity, on a country average, Spain's figures do not differ very much from the EU-27 average in terms of land managed by farms with low input intensity per

ha (27% of UAA for ES and EU-27), but has a higher share of land managed intensively (41.9% compared to 36.6 % at EU-27<sup>86</sup>). However, Spain is characterized by a high share of agricultural area used for extensive grazing (29.4% compared to 19.8% at EU-27 average). The data on High-nature-value farming (HNV farming) indicates that only some regions in the centre and north of Spain have an established approach for monitoring and assessing of HNV farming, of which some approaches need further development<sup>87</sup>.

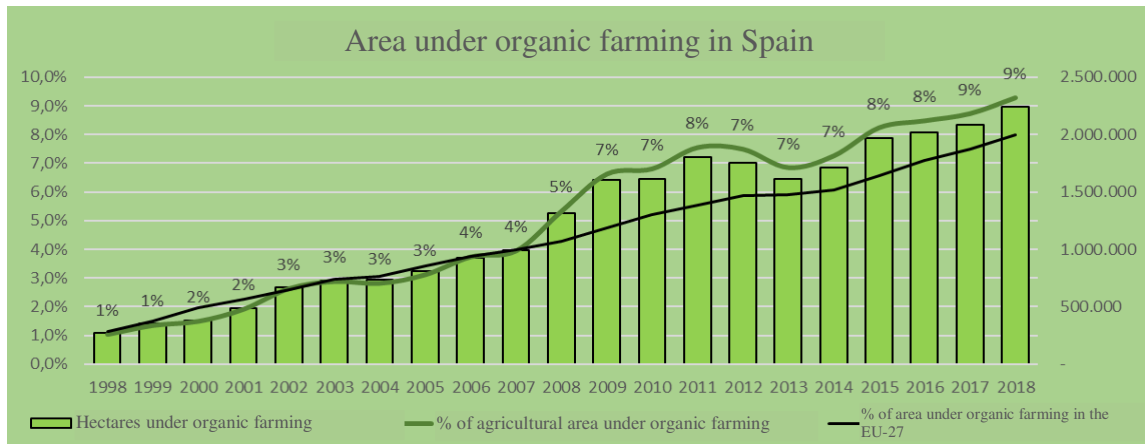
During the current programming period, the share of agricultural land under management contracts supporting biodiversity and/or landscape features is relatively high for agricultural land and Spain, by the end of 2018, had slightly exceeded its target for 2023 of 19.45 % of agriculture area (UAA). In contrast, this share is very low for forestland (1%)<sup>88</sup>. No use has been made of the possibility to introduce landscape elements as Ecological Focus Areas under greening<sup>89</sup>.

Organic management practices can also be beneficial for soils and biodiversity. The share of organic farming area in Spain reached 9.3% of the total agricultural area in 2018 (EU-27 average 8.0%)<sup>90</sup>, which represents 17% of the organic farming surface in the EU. The share of organic area shows a positive trend (with a significant increase by 28% since 2012) as well as the number of farmers, which reached 39 500 in 2018. However, the share of UAA under conversion to organic farming has decreased in recent years which indicates that the positive development of organic area risks to stagnate<sup>91</sup>. Despite an increase in recent years, the share of animals held by organic farmers remains very modest (3% of cattle and 4% of sheep). In 2018, around 1 million hectares (representing 46% of the total organic area) were under organic production commitments supported by the CAP, showing a positive trend.<sup>92</sup>



Source: DG AGRI based on Eurostat and JRC based on LUCAS survey<sup>93</sup>

\* 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.



Source: EUROSTAT [[org\\_cropar\\_h1](#)] and [[org\\_cropar](#)]

## 2.7 Attract young farmers and facilitate business development in rural areas

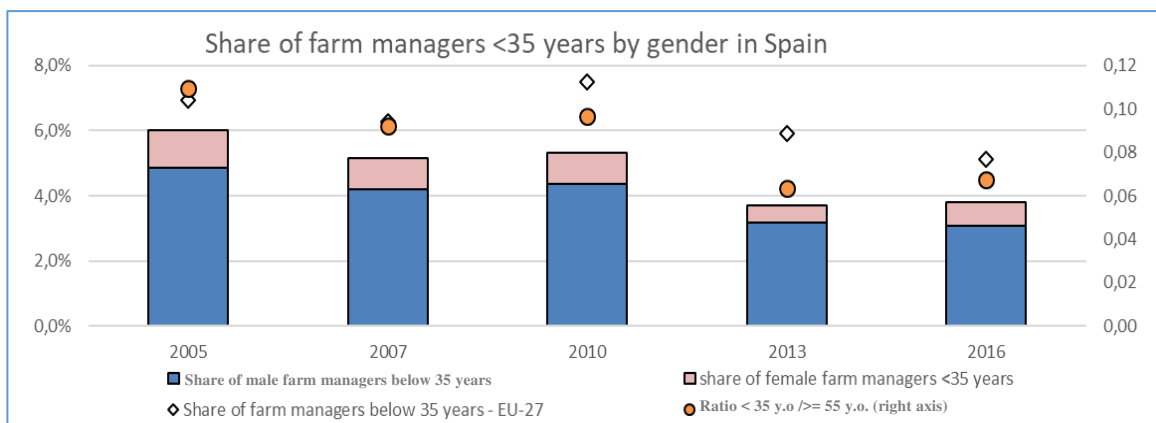
In 2016, Spain had one of the lowest shares of young farmers<sup>94</sup> (3.8%<sup>95</sup>) in the total number of farm managers. This was below the EU-28 average (5.1%) and trending downward since 2005 (-36.8%) even if the last available data seems to indicate some stabilisation. The ratio of young managers to elderly<sup>96</sup> follows the same pace (-38.4%) and remains among the lowest in the EU (6.73%). This illustrates the challenge of generational renewal in agriculture in Spain, including the gender aspect. Only 19.2% of young farm managers in Spain in 2016 were female (vs 23.3% in the EU<sup>97</sup>).

Younger farm managers tend to have larger farms, higher standard output, are better trained and invest more in their businesses. They are therefore leading the structural change. Farm managers between 25 and 44 years old have the largest economic farm size<sup>98</sup>. The share of young farmers increases with holding size, reaching 12.7% on farms of more than 100 ha of UAA. They are also more likely to have, at least, a basic level of agricultural training compared to other farm managers in Spain. The share of farm managers who have been through agricultural training is trending up but remained below the EU average (39% vs 43%) in 2016<sup>99</sup>.

CAP payments are of particularly high relevance to young farmers, as they can contribute to reduce the entry barriers to the sector, in particular for new entrants without land or an inherited family farm, or any credit history. In this sense, when expressed as total EAFRD funding, Spain shows one of the highest concentration of funds (8.5%, EUR 0.7 billion) for the setting up of 21,000 young farmers. Regarding direct payments, in 2018, farmers under 40 years old received 37% of the share of direct payments (including some national aids)<sup>100</sup>.

Access to land and finance is one of the main obstacles to setting-up in agriculture. The rented UAA rate for young people is higher than the average of other age groups (56% vs 39%) and existing data indicates that overall land mobility in Spain is low, especially land ownership. Young farmers might represent approximately 35% (between EUR 1.3 billion and EUR 2 billion) of the overall financial gap in the agricultural sector in Spain. Between 55% and 76% of the rejected and non-viable loan applications (rejection rate varies with the maturity of the loan) came from applicants below 40 years of age<sup>101</sup>.

In 2019, the low entrepreneurial activity rate observed in Spain in general, below the EU average (6.1% vs 9.6%)<sup>102</sup> is more pronounced in rural areas (access to finance, connectivity, gender gap, training...), while the development of new business initiatives in a rural environment is key against depopulation and generational renewal.



Source: EUROSTAT. [[ef m farmang](#)]

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

Predominantly Rural areas accounted for 16.9% of land in Spain in 2018 (compared to the 45% that rural areas represent across the whole EU27) and 3.4% of the population in 2018<sup>103</sup>. The definition of rural population by degree of urbanisation<sup>104</sup>, defines that 73.7% of the territory is rural and 14,0% of the population lives in these areas.

Between 2001 and 2018, 63% of municipalities lost population, with those of less than 1000 inhabitants being particularly affected<sup>105</sup>. According to national authorities, in Spanish rural areas, almost half of all municipalities are considered to be at risk (10.3%) or at high risk (38.1%) of depopulation<sup>106</sup>. It must be underlined that the challenge of depopulation is localised and does not affect all of the Spanish territory in the same way.

The employment rate in rural areas in Spain went up from 51% in 2013 to 61% in 2019 but remains below the EU-27 average (approx. 68%)<sup>107</sup>. A significant gap exists in rural areas between the male employment rate (approx. 68% in 2019), which is on par with the EU average, and the female employment rate (approx. 55% in 2019)<sup>108</sup>. This gap is even more pronounced for individuals with lower levels of education<sup>109</sup>. The unemployment rate for 20-64 year olds in Spanish rural areas fell from 28.2% in 2013 to 13.6% in 2019 (compared to an EU-28 average of 5.6% for 20-64 year olds)<sup>110</sup>. The unemployment rate of 20-24 year olds in rural areas is much higher than any other age group (from 53% in 2013 to 28.3% in 2019)<sup>111</sup>. The female youth unemployment rate of 20-24 year olds (16.5% in 2019) has dropped from its 2013 level of 30.1% and is below the average for 20-24 year olds in rural areas, which is an encouraging sign<sup>112</sup>. The share of young people neither in employment nor in education or training in rural areas went from 19.3% in 2009 to 12.1% in 2018, thus converging with the total national share of 12.4%<sup>113</sup>.

The agricultural sector accounted for 4% of employment in 2017 in Spain showing a slight increase from 2016 (3.9%)<sup>114</sup>. The share of women in the agricultural labour force was 24.3% in 2016, compared to 24.6% in 2013, while 23% of all farm managers were women in 2016, below the EU average of 28%<sup>115</sup>.

The GDP per inhabitant in Spanish rural areas stagnated at 80% of the EU-27 average between 2011 and 2016<sup>116</sup>. This is close to the figure for intermediate regions (approx. 83%) but far below the figure in urban areas (approx. 97%) over the same period. The contribution in gross value-added of rural areas to the Spanish economy was 3% between 2005 and 2016<sup>117</sup>. The number of bed places for tourism in rural areas was just below 1.5 million between 2012 and 2016, it then fell sharply to 862 292 in 2017 and has been rising since, reaching 880 939 in 2019<sup>118</sup>.

In 2018, the median income in rural areas was 12 751 euros (below the EU-27 average of 14 950 euros) significantly below the median income in urban areas, which was 16,292 euros<sup>119</sup>. It must also be noted that the rate of people at risk of poverty or social exclusion remains slightly higher in rural areas (28.8% compared to a 22.7% EU-27 average in 2019) than in towns and suburbs (25.6%) and cities (23.3%)<sup>120</sup>.

In 2017, over 50% of third country migrants and over 55% of EU-27 migrants in rural areas were at risk of poverty (compared to approx. 25% for natives)<sup>121</sup>. This situation also affects those migrants working in the primary sector. The share of migrants working in the agricultural sector in Spain is 9% higher than the share of migrants working in all other sectors. A significant number of these workers are temporary workers<sup>122</sup> as Spain is the Member State that has the highest share of temporary workers among its workforce<sup>123</sup>.

The endogenous development potential of rural areas is ensured by more than 250 local action groups in the framework of LEADER, which cover more than 12 million inhabitants in rural areas. Together with a significant 10% EAFRD budget allocation, this translates the commitment of Spain towards the approach, even if some delays in its implementation have been observed. The development of territorial instruments such as Integrated Territorial Investments and Community Led Local Development, pooling resources among different sources of EU funding could be further explored by Spanish authorities.

The share of land cover under forestry (forest and other wooded land) in Spain in 2020 was approx. 55% (EU-27 average 45%)<sup>124</sup>. The number of persons employed in forestry in 1000 annual working units went from 29 in 2005 to 17 in 2017, illustrating the increasing mechanisation of the forestry sector<sup>125</sup>. The gross added value per hectare of forestry, 68 €/ha available for wood supply, is among the lowest in the EU. Labour productivity in forestry went from approx. EUR 25 000 GVA per employed person in 2005 to approx. EUR 55 000 in 2017 (EU-27 average went from EUR 30 000 to EUR 55 000). The total output of the sector (forestry and logging) was EUR 2.105 million in 2018<sup>126</sup>.

The total growing stock (“standing trees”) in forests almost doubled since 1990. In 1990 it was 560 million m<sup>3</sup> over bark and it is 1108 million m<sup>3</sup> in 2020. In the same period the forest and other wooded land area increased from 25.98 million hectares to 27.95 million hectares.

Spain has developed a dedicated national bioeconomy strategy. In 2015, the sector employed 1 286 867 people, slightly more than the previous year. The sector is still struggling to recover from the effects of the financial crisis (1.5 million employees in 2008). The production of renewable energy from agriculture and forestry as a share of total primary energy production was below 19% in Spain in 2015, which was slightly above the EU-28 average and represented 41% of all renewable energy production<sup>127</sup>.

The sectors with the highest share in the bioeconomy's turnover in 2015 were in order food, beverage and tobacco (56%), agriculture (22%) and bio-based chemicals and pharmaceuticals (5%).

## **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**

Antimicrobial resistance (AMR) is a priority area for the Farm to Fork strategy. The sales of veterinary antimicrobial agents in mg per population correction unit (PCU) in Spain increased until 2014, before falling to 219.2 in mg/PCU in 2018<sup>128</sup> (see graph below). The sales in Spain in 2018 were nearly two times higher than the EU-average (which is weighted for those MS that provide data on a yearly basis and stands at 118.3 mg/PCU). Moreover, the estimated PCU (in 1 000 tonnes) of the population of food-producing species is the highest at EU level for pigs (4,024) due to the biggest EU pig population (more than 31 mio heads<sup>129</sup>) since 2015 but it is moderate for cattle (894) and for poultry (870) in comparison with other Member States.<sup>130</sup>

Regarding the standards on animal welfare in primary production, the main issue in Spain is tail docking of pigs as a routine practice. The percentage of pigs reared with intact tails has barely changed since 2016 and conditions on farm must improve if the number of tail-docked pigs is to decrease<sup>131</sup>. In addition, a large majority of the egg production (more than 75%) is still in cage systems and alternative systems could be promoted.

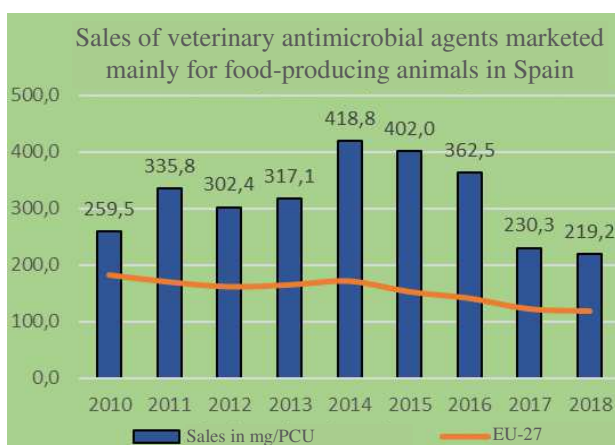
One of the most important challenges in the transition towards a healthy and environmentally-friendly food systems is the use of chemical pesticides in agriculture, as reflected in new reduction targets established at EU level at the Farm to Fork strategy. The Harmonised Risk Indicator 1 for pesticides shows a decreasing trend of 22% from the 2011-2013 baseline.<sup>132</sup> At the same time, Spain is one of main users in the EU of pesticides classified as so-called 'candidates for substitution'.

In order to advance towards the EU Green Deal targets on pesticides reduction, the first priority for the Commission will be to ensure full implementation of existing provisions of the Sustainable Use of Pesticides Directive (SUD). In that domain, Spain needs to improve the systems in place for training and certification of professional operators by including additional training for up-to-date knowledge of proper handling of pesticides to avoid risks to human health and the environment. Spanish authorities also need to put in place effective implementation of the general principles of IPM<sup>133</sup>.

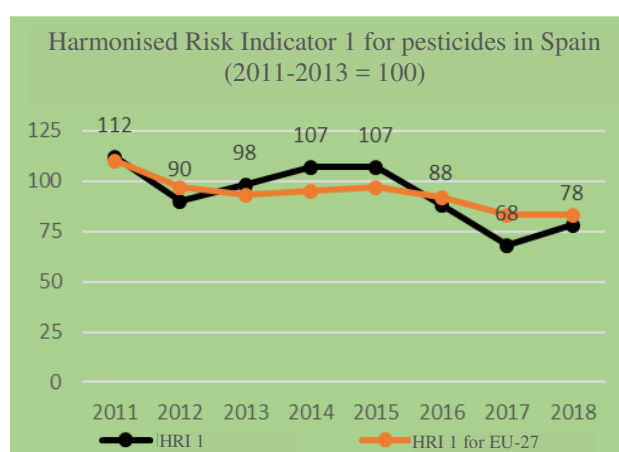
Spain is currently implementing its second National Action Plan (PAN 2018-2022), which outlines goals for promoting integrated pest management (IPM) and for reducing the risks and impacts associated with the use of plant protection products (PPP).<sup>134</sup> Spanish society is experiencing important changes concerning food consumption patterns, evolving from the traditional Mediterranean diet that still characterises dietary habits in this country<sup>135</sup>. In that context, the consumption of fruit and vegetables does not currently meet the recommended intake levels for a significant part of the population (defined as  $\geq 5$  portions consumption)<sup>136</sup>; also, Spain has a high estimated consumption of red meat<sup>137</sup>. Efforts should focus on shifting towards healthy sustainable diets, in line with national recommendations, in order to contribute to the incidence of non-communicable diseases while simultaneously improving the overall environmental impact of the food system. This would include moving to a more plant based diet with

less red meat and more fruits and vegetables, whole grains, legumes, nuts and seeds. Consumption of organic products is growing very fast<sup>138</sup>.

Concerning food waste, in 2018 Spanish households throw away 1.34 million tonnes of food and drinks. These data show an increase in the volume of food waste in 2018 of 8.9 %. Spanish authorities have identified legislative measures to facilitate food donation as well as other measures to reduce food waste at consumer level, such as national communication campaigns and education campaigns for students. According to the same analysis, in Spain 51.2 % of consumers would buy products if offered close to the end of their shelf life.<sup>139</sup>



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



Source: EUROSTAT [aei\_hri]

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

Investment in Research and Innovation in the agri-food sector is low in Spain: It represents less than 4% of total Spain's R&I investments, and has fallen by 9% during the period 2008-2016 (while it increased around 33% at EU level).<sup>140</sup> At the same time, Spain will dedicate 4.3% of the total public expenditure of the current Rural Development Programmes in knowledge transfer, advisory services and cooperation.

The functioning of the agricultural knowledge and innovation systems (AKIS) in Spain has been characterized as relatively strong but fragmented, with a lack of links among actors, with several independent knowledge networks operating in parallel and a low level of cooperation.<sup>141</sup> The participation in the Horizon 2020 projects like FAIRshare and i2connect that focus on the study and promotion of AKIS, are examples, among other initiatives, of the on-going work carried out in Spain to reinforce AKIS.

Spain has embraced the European Innovation Partnership (EIP) and set up until now 270 EIP Operational Groups (OG)<sup>142</sup> with an overall budget of more than €72.8 million (13.3% of the EU overall budget), ranking among the highest number of OG per country in the EU. These OGs involve more than 1 300 partners, including SMEs (335), Research Institutes (253), Farm holders (132), NGOs (36), Advisors (24) and other partners (536). It is important to highlight the choice of having both national and regional EIP OGs, so that national as well as local problems/opportunities can be tackled. The approach towards implementing between regions has been very diverse and cooperation dynamics to stimulate best practices between regions can be encouraged through the EIP.



As regards Farm Advisory System, there are significant variations across the Spanish territory and high administrative burden which is hindering its implementation. The main methods used for providing advice are “One-to-one on the farm”, “One-to-one outside the farm” and “Telephone helpdesk” consultations.<sup>143</sup> The support from the rural development programme in the period 2014-2020, has been focussed mainly on giving advice to farmers and (to a lesser extent) on the training of advisers.

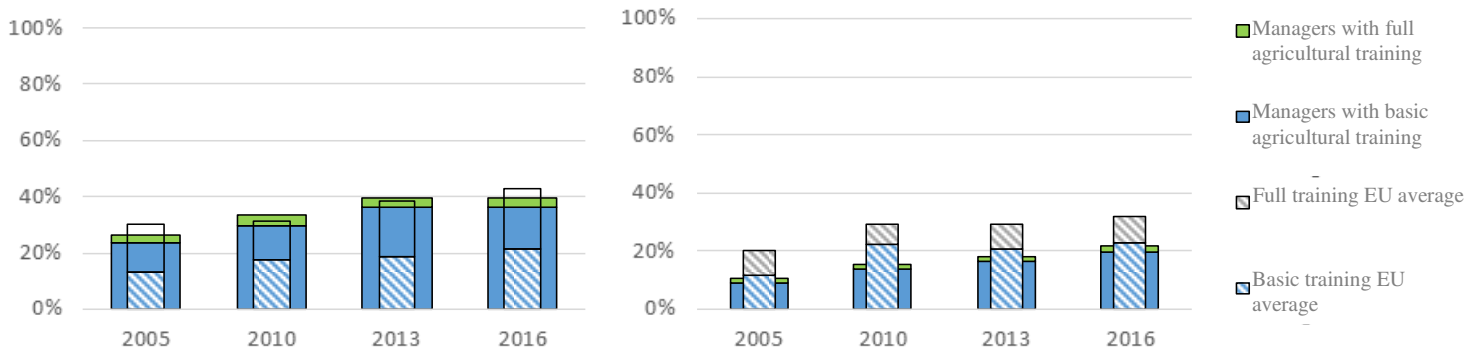
In 2016, 78% of farm managers in Spain had practical experience only, while 1.9% of farm managers completed full agricultural training. Farm managers with full training in Spain remain well below the EU average of 8.9% of total managers. The highest percentage of fully trained farm managers in Spain is within young farmers (less than 40 years old) with 4.4% of them being fully trained. In addition, although the number of farm managers who attained basic or full agricultural training is increasing over time, this share is still lower in Spain than in the EU<sup>144</sup>.

The current Rural Development Programmes have already supported 207 800 farmers in training activities during 62 453 training days, and expects to support more than 324 600 farmers<sup>145</sup> by 2023.

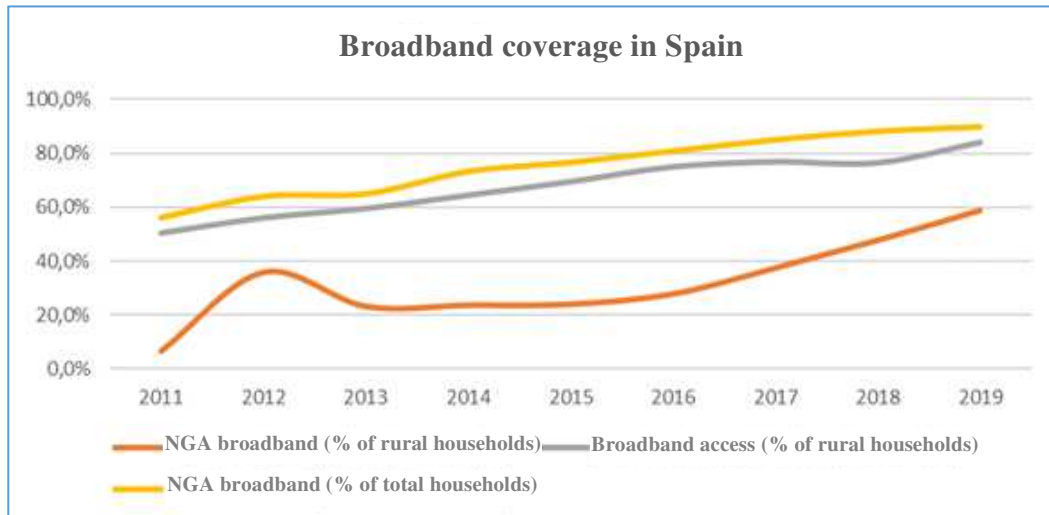
Regarding digitalisation, the situation of Spain is not satisfactory: it ranks 35 (4.8 points) among the 139 assessed in the Country Connectivity Readiness Index (NRI), prepared by the World Economic Forum.<sup>146</sup> Taking into account the countries of the EU-15, according to this classification, Spain is only ahead of Italy and Greece. According to the DESI (The Digital Economy and Society Index Report), in 2019, Spain ranks 11 out of the 28 Member States of the EU, with a gradual improvement in its score since 2017 thanks to advances in connectivity and digital public services. Some analysis highlight that agriculture in Spain has a technical automation potential of 57% (fourth place behind the hospitality industry, the manufacturing industry and the transport and logistics sector), especially in activities related to physical practice and capture and handling of data<sup>147</sup>. Broadband coverage in rural areas rose from 60% of households in 2013 to its current level of 76% in 2016. NGA broadband coverage in rural areas went from 23.1% in 2013 to 47.6% in 2018 (compared to over 88% at national level). The share of people with basic digital skills in rural areas in Spain (approx. 50%) in 2019 was comparable to the EU average<sup>148</sup>.

Finally, regarding the use of digital technologies in the CAP, Spain has opted for the use of satellite-based means to monitor CAP implementation and Spanish governmental organisations are currently part of several EU projects dealing with the uptake of new technologies for the modernisation of CAP administrations, CAP controls and interactions with farmers.

### Agricultural training of farm managers below 35 years (left) and total farm manager population (right) in Spain



European Commission. CAP context indicator C.24 Agricultural training of farm managers. Based on EUROSTAT [[ef\\_mp\\_training](#)]



European Commission. Digital Economy and Society Index. DESI individual indicators – 1b1 Fast BB (NGA) coverage [[desi\\_1b1\\_fbbc](#)]

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- <sup>1</sup> EUROSTAT. [[urt\\_gind3](#)], [[urt\\_lfe3emp](#)] and [[urt\\_d3area](#)].
  - <sup>2</sup> EUROSTAT. [[ef\\_m\\_farmang](#)].
  - <sup>3</sup> European Commission. *CAP context indicator C.24 Agricultural training of farm managers*. Based on EUROSTAT [[ef\\_mp\\_training](#)].
  - <sup>4</sup> European Commission. *CAP indicators – Data explorer*. CAP Impact indicator I.06, *Agricultural trade balance*, based on EUROSTAT Comext
  - <sup>5</sup> European Commission. *eAmbrosia – the EU geographical indications register*. 2020. <https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification/quality-labels/geographical-indications-register/#>
  - <sup>6</sup> European Commission. *CAP Indicator - Data explorer*. CAP impact indicator IMP\_14 Rural employment rate.
  - <sup>7</sup> European Commission. 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.
  - <sup>8</sup> European Commission. Directorate General for Agriculture and Rural Development own calculations based on FADN data (up to 2018).
  - <sup>9</sup> European Commission. 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)
  - <sup>10</sup> Ministerio de Agricultura, Pesca y Alimentación. Secretaria General de Agricultura y Alimentación. *Documento de partida del subgrupo de trabajo del Objetivo Especifico 1*, based on data obtained from AEAT on financial income (IRPF). <https://www.mapa.gob.es/es/pac/post-2020/objetivos-especificos.aspx>
  - <sup>11</sup> Ministerio de Agricultura, Pesca y Alimentación. Secretaria General de Agricultura y Alimentación. *Documento de partida del subgrupo de trabajo del Objetivo Especifico 1*, based on data obtained from AEAT on financial income (IRPF). <https://www.mapa.gob.es/es/pac/post-2020/objetivos-especificos.aspx>
  - <sup>12</sup> Ministerio de Agricultura, Pesca y Alimentación. Secretaria General de Agricultura y Alimentación. *Documento de partida del subgrupo de trabajo del Objetivo Especifico 1*. <https://www.mapa.gob.es/es/pac/post-2020/objetivos-especificos.aspx>
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  - <sup>14</sup> European Commission. *CAP indicators – Data explorer*. CAP Impact indicator I.06, *Agricultural trade balance*, based on EUROSTAT Comext.
  - <sup>15</sup> Ministerio de Agricultura, Pesca y Alimentación. Secretaria General de Agricultura y Alimentación. *Documento de partida del subgrupo de trabajo del Objetivo Especifico 2*, based on data from *Informe anual de comercio exterior agroalimentario pesquero y forestal 2018*. [https://www.mapa.gob.es/es/ministerio/servicios/analisis-y-prospectiva/Informe\\_anual.aspx](https://www.mapa.gob.es/es/ministerio/servicios/analisis-y-prospectiva/Informe_anual.aspx).
  - <sup>16</sup> European Commission. *CAP indicators – Data explorer*. CAP Impact indicator I.06, *Agricultural trade balance*, based on EUROSTAT Comext.
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- <sup>103</sup> European Commission. *CAP context indicator C.03 Territory*. Based on EUROSTAT [[reg\\_area3](#)] and [[urt\\_d3area](#)]
- <sup>104</sup> Degree of urbanisation (DEGURBA), at the Local Administrative Units (LAU) level (municipalities in Spain). Source: Eurostat.
- <sup>105</sup> Estrategia nacional frente al reto demográfico, Ministerio de Política Territorial y Función Pública. Directrices Generales. [https://www.mptfp.gob.es/dam/es/portal/reto\\_demografico/Estrategia\\_Nacional/directrices\\_generales\\_estrategia.pdf](https://www.mptfp.gob.es/dam/es/portal/reto_demografico/Estrategia_Nacional/directrices_generales_estrategia.pdf).
- <sup>106</sup> Ministerio de Agricultura, Pesca y Alimentación. Secretaria General de Agricultura y Alimentación. *Documento de partida del subgrupo de trabajo del Objetivo Especifico 8*. <https://www.mapa.gob.es/es/pac/post-2020/objetivos-especificos.aspx>
- <sup>107</sup> European Commission. *CAP context indicator C.05 Employment rate*. Based on EUROSTAT [[lfst\\_r\\_ergau](#)]
- <sup>108</sup> European Commission. *CAP context indicator C.05 Employment rate*. Based on EUROSTAT [[lfst\\_r\\_ergau](#)]
- <sup>109</sup> European Commission. EUROSTAT [[lfst\\_r\\_erednu](#)]
- <sup>110</sup> European Commission. *CAP context indicator C.07 Unemployment rate*. Based on EUROSTAT [[lfst\\_r\\_lfu3rt](#)]
- <sup>111</sup> European Commission. *CAP context indicator C.07 Unemployment rate*. Based on EUROSTAT [[lfst\\_r\\_lfu3rt](#)]
- <sup>112</sup> European Commission. *CAP context indicator C.07 Unemployment rate*. Based on EUROSTAT [[lfst\\_r\\_lfu3rt](#)]
- <sup>113</sup> European Commission. EUROSTAT [[edat\\_lfse\\_29](#)]
- <sup>114</sup> European Commission. *CAP context indicator C.13 Employment by economic activity*. Based on EUROSTAT [[lfst\\_r\\_lfe2en2](#)]
- <sup>115</sup> European Commission. *CAP context indicator C.23 Age structure of farm managers*. Based on EUROSTAT [[ef\\_m\\_farmang](#)]
- <sup>116</sup> European Commission. *CAP context indicator C.08 GDP per capita*. Based on EUROSTAT [[nama\\_10r\\_3gdp](#)] and [[nama\\_10r\\_3popgdp](#)]
- <sup>117</sup> European Commission. *CAP context indicator C.10 Structure of the economy*. Based on EUROSTAT [[nama\\_10r\\_3gva](#)]
- <sup>118</sup> European Commission. *CAP context indicator C.30 Tourism infrastructure*. Based on EUROSTAT [[tour\\_cap\\_nuts2d](#)]
- <sup>119</sup> European Commission. EUROSTAT [[ilc\\_di17](#)]
- <sup>120</sup> European Commission. *CAP context indicator C.09 Poverty rate*. Based on EUROSTAT [[ilc\\_peps11](#)]
- <sup>121</sup> European Commission. *Migration in EU Rural Areas*. Natale, F., Kalantaryan, S., Scipioni, M., Alessandrini, A. and Pasa, A. Publications Office of the European Union, Luxembourg, 2019
- <sup>122</sup> European Commission. *Migration in EU Rural Areas*. Natale, F., Kalantaryan, S., Scipioni, M., Alessandrini, A. and Pasa, A. Publications Office of the European Union, Luxembourg, 2019. This analysis uses the definition of rural areas based on Degree of urbanisation (DEGURBA).
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- <sup>129</sup> Eurostat, Pig population annual data
- <sup>130</sup> European Medicines Agency, European Surveillance of Veterinary Antimicrobial consumption (ESVAC). *Sales of veterinary antimicrobial agents in 31 countries in 2018 – trends from 2010 to 2018 Tenth ESVAC Report*. [EMA/24309/2020](#).
- <sup>131</sup> Letter from Commissioner Ms Kyriakides to Spanish Minister for Agriculture, Fisheries and Food Ares(2020)2643693 - 20/05/2020
- <sup>132</sup> European Commission. *Harmonised Risk Indicator for pesticides (HRI 1), by group of active substance*. As in EUROSTAT [[SDG 02 51](#)]
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- <sup>134</sup> [https://ec.europa.eu/food/sites/food/files/plant/docs/pesticides\\_sup\\_nap\\_esp-rev-2017\\_en.pdf](https://ec.europa.eu/food/sites/food/files/plant/docs/pesticides_sup_nap_esp-rev-2017_en.pdf)
- <sup>135</sup> Ministerio de Agricultura, Pesca y Alimentación, 2020, Informe del consumo alimentario en España 2019 [https://www.mapa.gob.es/es/alimentacion/temas/consumo-tendencias/informe2019\\_vf\\_tcm30-540250.pdf](https://www.mapa.gob.es/es/alimentacion/temas/consumo-tendencias/informe2019_vf_tcm30-540250.pdf)
- <sup>136</sup> EUROSTAT (hlth\_ehis\_fv3e)
- <sup>137</sup> Defined as beef, lamb and pork, 122,83 g/per capita/d, net of waste in the EU 2010, GBD study 2017 and M. Springmann
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- <sup>139</sup> El desperdicio alimentario generado en los hogares españoles 2018 [https://menosdesperdicio.es/sites/default/files/documentos/relacionados/informe\\_desperdicio\\_2018.pdf](https://menosdesperdicio.es/sites/default/files/documentos/relacionados/informe_desperdicio_2018.pdf)
- <sup>140</sup> 2018 Report of the Observatory on the Spanish agri-food sector in the European context. <https://www.cajamar.es/es/pdf/observatorio-sector-agro.pdf>
- <sup>141</sup> [PRO-AKIS](#) Overview
- <sup>142</sup> Notification by Spanish authorities to the European Commission (SFC) as 25/08/2020
- <sup>143</sup> FAS database <https://marswiki.jrc.ec.europa.eu/gaec/fas/>
- <sup>132</sup> European Commission. *CAP context indicator C.24 Agricultural training of farm managers*. Based on EUROSTAT [[ef mp training](#)]
- <sup>145</sup> Output indicator, Rural Development Programmes 2014-2020.
- <sup>146</sup> The Country Connectivity Readiness Index (NRI), prepared by the World Economic Forum, evaluates on a scale of 1 to 7, 53 indicators, grouped into 10 different themes. [https://www.mapa.gob.es/es/ministerio/servicios/analisis-y-prospectiva/informe\\_anual\\_indicadores2018\\_tcm30-513683.pdf](https://www.mapa.gob.es/es/ministerio/servicios/analisis-y-prospectiva/informe_anual_indicadores2018_tcm30-513683.pdf)
- <sup>147</sup> Report “Digital reinvention. An opportunity for Spain ” (Mckinsey and Cotec, July 2017)
- <sup>148</sup> [DESI – Key indicators – Degurba typology](#)