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**COMMISSION STAFF WORKING DOCUMENT**

**Commission's recommendations for Finland's CAP Strategic Plan**

*Accompanying the document*

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## **1. Commission's recommendations for Finland'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 Finland. The recommendations are based on analysis of the state of play, the needs and the priorities for agriculture and rural areas in Finland. 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 Finland, 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 Northernmost agriculture is costly, accompanied with low profitability and a limited variety of crops. Structural problems linked to unfavourable growing conditions and long distances lead to higher production costs. Consequently, the agricultural sector is highly dependent on public support. The CAP and national support schemes play a fundamental role in Finland. Without income support, the average income per worker would be negative. Contrary to the positive average EU-level development, the agricultural income per worker is going downwards in Finland. In order to ensure food production, the agricultural sector continues to need strong and targeted income support taking into account regional differences.

Increasing the profitability of the agricultural sector and stimulating farm income and productivity are key issues. Even though farm investments are more significant in Finland as compared to other Member States, the annual downward trend in labour productivity requires attention. Export markets are difficult to find due to long distances to markets, a lack of sufficient and stable supply of volumes and poor price competitiveness.

The sector requires overcoming such hurdles through investments that stimulate productivity and add value to food products. Considering the structural development of livestock and dairy farming, investments are needed especially in grassland and feed production. Investing in processing and marketing would help offsetting, at least partially, the high primary production costs. Some of the key factors to promote and export could be related to the innovative solutions assisted by research and cooperation, making use of the advantages such as pure nature, the low use of pesticides in agriculture, antimicrobials and higher animal welfare standards. Awareness raising of these typical advantages of Finnish production related to the sustainable production could be considered. In this context the EU quality labelling could play a role.

Access to finance to farmers should be promoted. For example, the use of financial instruments could be considered for the wider segment of medium-sized enterprises, which sometimes face obstacles in accessing finance to enable investments to create

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

value added. Medium-sized farms represent the largest farm enterprise group in Finland and can lead the development of the sector in the future, whereby securing access to finance for this group is of importance.

The food supply chain is characterised by strong farmers' cooperative presence in the primary production and processing of milk and meat. The concentration of supply is low in other primary production sectors. In contrast, producer organisations (POs) are rare and cover so far only a part of the fruit and vegetable sector. The wholesale and retail sectors are strongly concentrated, and have increased their share of value in the food chain in recent years at the cost of primary producers. Fostering POs could be explored, in particular in sectors with low cooperative presence.

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

Although Finland performs well by many environmental indices, there is still room for improvement, especially as regards ammonia emissions, biodiversity and water quality. Finland is at high risk of not reaching its ammonia emission reduction commitments for 2020-2029. In order to reach the Green Deal and Farm to Fork targets, Finland still should strengthen the efforts in certain areas. Given the sensitive sub-arctic and arctic nature, the environmental care is of utmost importance.

Certain biodiversity targets show unfavourable trends in particular the Farmland Bird Index shows decrease. EU's Biodiversity targets play a crucial role as the Prioritized Action Framework for CAP funding.

Keeping water bodies in good status and reducing coastal water pollution is a priority for Finland through maintenance of buffer zones to reduce eutrophication and improve habitats. Protection of wetlands, peatlands, grassland, and manure management (in particular in view of reducing ammonia emissions) require further investments. Maintenance of open areas to promote biodiversity and carbon capture is essential.

As regards climate change mitigation and adaptation, the indicators are rather positive in Finland. The share of GHG emissions of the agricultural sector (including cropland and grassland) in relation to the rest of the economy, however, remains at a significantly higher level than in average in the EU. Thanks to its considerable forestry sector and area, the highest percentage in the EU, as well as carbon-rich soils, Finland manages a very valuable carbon sink at EU level, so the focus should be put on maintaining this carbon sink. Peatlands, that cover roughly one third of the Finnish territory, are a major source of GHG emissions, and the trend of emissions in cropland and in wetland are upwards. In the LULUCF sector, Finland should explore different interventions to reduce emissions, for example, through carbon farming approaches that remunerate rewetting of peatlands, or adequate and climate adapted production methods on organic soils. Finally, Finland is among the largest emitters of methane per unit of ruminant in the EU.

As regards the development of organic production, while the trend was positive in the recent past there is still room to reach the Farm to Fork target.

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

Finland has vast rural, sparsely populated areas with long distances. Managing the existing pronounced depopulation trend and improving the vitality of rural areas as attractive places to live require investments in rural infrastructure services and livelihoods outside farming. The efforts to promote the generational renewal should be strengthened as the youth unemployment and inactivity in rural areas should be addressed, as well the low number of female farm managers. Ensuring the protection of agricultural workers, especially the precarious, seasonal and undeclared ones, 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 by the Farm to Fork Strategy.

In comparison to the EU average, the situation in Finland as regards the animal welfare practises and the use of antimicrobials, is rather positive. Finland has taken significant initiatives on these issues and the indicators reflect this positive situation which needs to be maintained, and where possible, further improved. There has been a significant increase in the overall use of pesticides (as measured by HRI1), due to the use of urea in forests. This and the promotion of sustainable use of pesticides requires further attention from the Finnish authorities.

Finland should also make an effort to shift towards healthier diets as it has a very high burden from non-communicable diseases due to dietary risk factors.

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

Finland is an innovation and knowledge oriented society with a strong emphasis in digitalisation and research. However, the distances are long due to low population densities. This may be the reason why the Finnish Agricultural Knowledge and Innovation System (AKIS) is estimated relatively fragmented although strong. In this respect, coordination, cooperation and interactions between AKIS stakeholders should be strengthened. A particular focus should be on links between public and private advisors and on their training and skills, as on advisors providing innovation support services: capturing individual innovative ideas in order to support the set up and implementation of individual EIP innovation projects. Ensuring knowledge flows between all AKIS actors would be fundamental for speeding up innovation.

NGA broadband connection in rural areas is very low. Finland is characterised with big, sparsely populated territories. Therefore, public intervention is needed in order to attain the Green Deal target of 100 % fast broadband coverage by 2025.

### **1.5 Recommendation**

To address the above interconnected economic, environmental/climate and social challenges- the Commission considers that the Finnish CAP Strategic Plan needs to focus its priorities and concentrate its interventions on the following points, while adequately taking into account the diversity of Finnish agriculture and rural areas, including Åland Islands.

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

- **Increasing the income and profitability of the farming sector** by promoting productivity-increasing investments and addressing the financing gaps.
- **Enhancing the value-added of agricultural production**, for example by better promotion of the intrinsic product qualities and fostering the use of organic and (EU) quality labelling and highlighting sustainable production methods.
- **Fostering cooperation to innovate**, and to add value to products through investments and promotion of POs in sectors with low PO presence.

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

- Improving **biodiversity**, in line with the new actions of the Biodiversity Strategy, in particular the status of **habitats** and protected species, farmland birds and wild pollinators by enhancing the conservation of habitats, such as grasslands, peatlands and other wetlands through protective measures.
- **Strengthening the efforts in reducing ammonia emissions**, in particular from the livestock sector, to meet the national emissions reduction commitment. This could be, in particular, tackled through investments in manure management and in the development and application of appropriate technologies.
- **Increasing the area under organic farming, contributing to the EU Green Deal target** by promoting consumption and uptake of organic production, as well as by addressing needs in research and innovation for organic production.
- **Promoting climate change mitigation**: special focus should be on **forests** and **carbon-rich soils** (lowland peatland and cropland), in order to enhance the current carbon sinks and **reducing greenhouse gas emissions**. Further attention is also needed in **reducing methane emissions** in line with the **Methane Strategy**, for example, by promoting **biogas** production.
- **Promoting climate adaptation** and **increase resilience** via targeted investment and improved management.
- **Increasing nutrient use efficiency** in line with the **related EU Green Deal target**, and limiting the leaching of nutrients affecting coastal areas and Baltic Sea.
- Fostering **sustainable forest management**, enhancing multifunctionality, forest protection and restoration of forests ecosystems to reach good condition of habitats and species linked to the forests in order to enhance ecological services and biodiversity, and to build resilience to threats such as climate change impacts.

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

- **Promoting the diversification of the rural economy and infrastructural development in rural areas**, making use of increased coordination of knowledge and innovation and a further strengthened integration of the related actors.
- Contributing to the **EU Green Deal** targets on pesticides by promoting the sustainable use of pesticides, in particular by ensuring the uptake of **integrated pest management** practices

- **Continuing efforts in promoting the generational renewal**, including the current CAP support to young farmers, and stepping up the access to finance and land. Efforts in further development of adequate support, for example, through development of financial instruments as available under the II Pillar of the CAP.

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

- **Promoting and investing in the expansion of NGA broadband in rural and remote areas, in line with the EU Green Deal target** of 100% fast broadband coverage by 2025. In doing so it will be important to ensure synergies with other EU and national funds.
- **Enhancing AKIS** by sustained investment in coordination and cooperation between AKIS actors and organisations.

## 2. Assessment of agriculture and rural areas in Finland

The agricultural sector in Finland is characterised by the use of modern technology, environmental and animal welfare standards and practises above the EU average but also by significant profitability challenges. The growing season is short, costs are high, distances long and the variety of crops very limited. The income would be negative without public support. Contrary to the average European trend, the agricultural income per worker is decreasing. Finland has a strongly negative trade balance for food. The total labour force engaged in agriculture is declining much faster than the EU average. The number of farms is also declining.

Sparsely populated Finland is one of the most rural countries in Europe and rural areas are facing an increasing depopulation. Adequate services and infrastructures, such as the NGA broadband, should be ensured.

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

Finland has the most northern agricultural production, the shortest growing season and the lowest population density in the EU<sup>1</sup> combined with long distances. The sub-arctic and arctic production conditions result in low yields, high production costs and a limited variety of crops suitable for the Finnish growing conditions.

In this context, **CAP and national support are of key importance** for farm income in Finland. The CAP support, together with the national support play a significantly more important role in realising an income comparable to the EU averages: total CAP support forms 58% of the agricultural factor income in Finland<sup>2</sup>, of which direct payments are about 34% of the agricultural factor income in Finland in 2018 while the European average is around 24%<sup>3</sup>. In addition, the rural development payments (especially the payment for Areas facing Natural Constraints (ANCs) paid throughout the entire territory) play a key role. Without income support, average income per worker would be negative<sup>4</sup> at EUR -11 368 per full time worker. Even with support, the income per worker in agriculture remains at 42% of the average income in the economy<sup>5</sup>. The annual return on assets has been negative between 2000 and 2018<sup>6</sup> leaving the farmer with an average hourly salary of EUR 5.4 and the farms having on average EUR 28 000 negative balance after deducting the costs of production that have been growing. The entrepreneurial income reaches 33% of the target<sup>7</sup>.

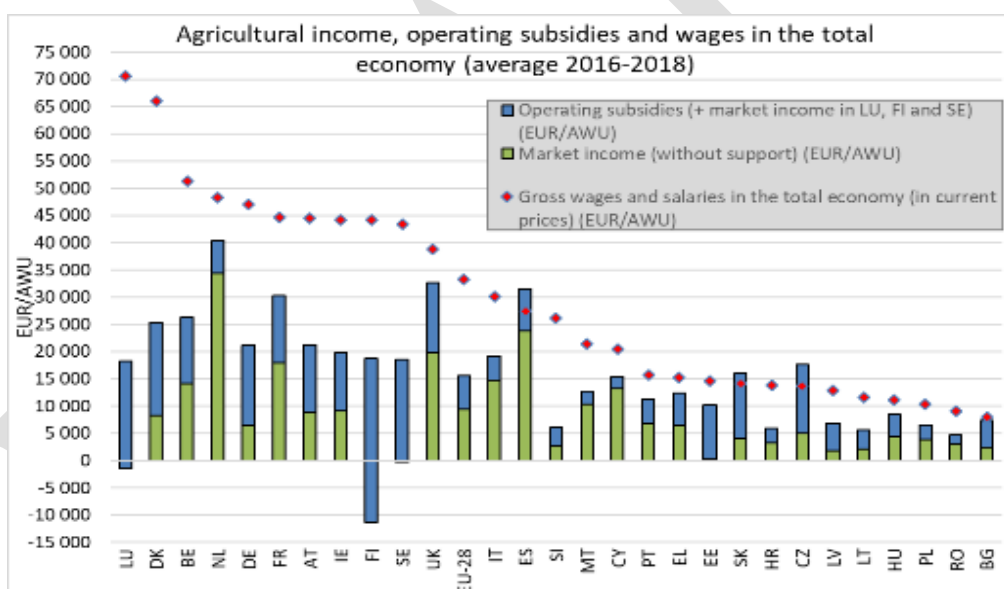
Between 2010 and 2015, the agricultural income per worker follows a downward trend in Finland, while the European average follows an upward trend. In 2019, agricultural factor income per worker in real terms is approximately EUR 23 000 (equal to 48% of the average wage in the whole economy<sup>8</sup>), whereas in most of the similar economies (in terms of GDP per capita) the agricultural factor income tends to be higher (for example in BE, DK, DE, FR, AT)<sup>9</sup>. In Finland between 2010 and 2018, the income of farm households has decreased, whereas it has increased in households relying on non-agricultural entrepreneurial income or salaried employment<sup>10</sup>. 76% of farmers have experienced difficulties related to the costs of production and 34% related to the access to land.<sup>11</sup>



The income per worker is above the national average for pig and poultry farms. Income fluctuates around the Finnish average for dairy, arable and livestock farms. Except for horticultural farms, CAP support is essential to provide farmers a positive income<sup>12</sup> 19.2% of direct payments are used to provide coupled support to eight different sectors<sup>13</sup>.

Income per worker is increasing with farm size<sup>14</sup> with on average, income being the lowest for farms between 10 and 30 hectares. In the category smaller farms (5-10 hectares), 16 % of farms are owned by farmers of more than 65 years of age, with a very limited turnover<sup>15</sup>. At the EU level, in 2017, the 20% biggest beneficiaries (in amount) still receive about 80% of total direct payments<sup>16</sup>. In Finland, the direct payments are less concentrated with a ratio of 57% of direct payments being received by 20% of farmers.<sup>17</sup> However, physically smaller farms (below the national average) receive slightly less than the average direct payment per hectare in Finland.

The income variability is high in arable crops and in mixed livestock. Phyto-sanitary losses are compensated in Finland from the state budget<sup>18</sup>. Risk management measures under rural development are not being implemented in Finland, the justification being that the risk management tools cannot function against the continuously negative farm income.



Source: DG AGRI based on EUROSTAT

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

The particular characteristics of the Finnish agricultural sector and its Nordic location brings a number of **constraints** with it that do not allow Finnish farmers to compete with other European countries based on quantity. The climatic conditions and shorter growing seasons result in a **higher production costs and the need to compete based on quality** through high value added products and innovation. The low use of antimicrobials and high animal welfare standards are examples that contribute to a higher value added.

Because of its **dependence on imports**, the Finnish agri-food trade balance is negative and this negative balance is even increasing further over time. Based on data for 2018, slightly more than 50% of the total agri-food imports come from the Netherlands, Germany, Sweden and Denmark. Its agri-food trade balance with countries outside the EU is slightly positive, mainly due to exports of raw hides, skins and furs (37% of the total agri-food exports value in 2018)<sup>19</sup>, followed by milk powder (which form another 11%). The main export destinations are Sweden and China (forming 25% of total exports in value).

With 30% of the total agricultural output, dairy is the most important sector in Finland, followed by fruit and vegetables production, cereals and cattle (each around 12% of total agricultural output in value)<sup>20</sup>. Despite the importance of cereal production, crop production is not very competitive in the international market. Finland's main competitive advantage are in **efficient livestock production and greenhouse production**. However, only circa 15% of protein crops used for animal feed are grown in Finland<sup>21</sup>. Improving this ratio could improve the productivity of the crop sector and increase animal sector competitiveness in the Finnish context and food security.

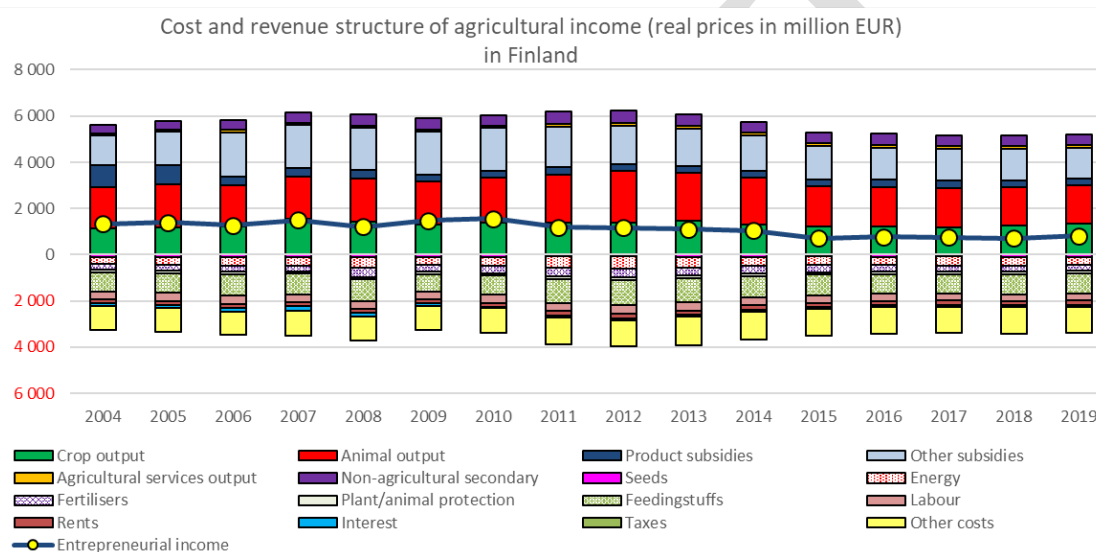
Increasing productivity is important to boost the competitiveness of the sector. The total factor productivity, measuring the efficiency of inputs and output, stagnated in Finland and even decreased between 2009 and 2013 but follows a positive trend since 2013. The total factor productivity in 2018, measured as a 3-year moving average index where the EU value in 2005 equals 100, is higher in Finland (117) than the EU average (110)<sup>22</sup>. In terms of cost and revenue structure, the **total agricultural output has decreased in Finland with 20% between 2012 and 2018**, while the costs have only reduced by 10%, reducing the total entrepreneurial income received by the sector<sup>23</sup>.

The **agricultural labour force** expressed in full time working units has decreased significantly in recent years. The labour force decreased by 39% between 2005 and 2019, and most importantly the trend accelerated in more recent years (-23% between 2014 and 2019 (versus -7% at EU-27 average)<sup>24</sup>. The **decline in the labour force** is also reflected in the decline in the number of farms in Finland, which between 2005 and 2016 decreased from about 70 600 to 49 700 farms. At the same time, the average farm size increased from 32 hectares in 2005 to 46 hectares in 2016<sup>25</sup>. Labour productivity is about equal in Finland to the EU average between 2017 and 2019 (98% of the EU average). However, the **annual growth rate of the labour productivity is negative** in Finland between 2012 and 2017 with 1.1%, whereas at EU level it is increasing with 3.1% per year during the same period<sup>26</sup>. The productivity in poultry, pig and greenhouse farms is higher than average in Finland.

Investments are essential to boost productivity in the sector. In terms of farm investments, there is a slight decrease in investments from EUR 1.1 billion to EUR 970 million between 2012 and 2018. Nonetheless, farm **investments**, measured by the gross fixed capital formation, **still equal 87% of the gross value added** in agriculture, which is considerably higher than the EU-27 average (31%)<sup>27</sup>. Most investments are made on livestock farms and dairy farms in the west of Finland. Under the current rural development programme, 7.3% of holdings have received support for investment in restructuring and modernisation, which is the one of the highest in the EU<sup>28</sup>.

In terms of innovation and investment priorities, a successful structural adaptation of the beef and dairy sector needs support, including **grassland management**, and **more emphasis could be required for investments in arable farming**, for example in precision farming. Furthermore, investing in the development of skills and supporting new business models can boost entrepreneurship and the value added in the sector. Access to capital is important to finance such projects. The average loan amounts to the agriculture sector have been increasing in recent years due to the structural changes taking place in the sector, in which enterprises are consolidating and increasing in size.

Nevertheless, **a lack of financing of between EUR 47 million and EUR 162 million was identified** for the Finnish agriculture sector. This is low compared to other EU Member States. Mainly medium-sized farms between 20 and 100 hectares face difficulties accessing finance. This financing gap is concentrated on medium and long-term investment lending<sup>29</sup>.



Source: EUROSTAT [Economic Accounts for Agriculture]

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

In the Finnish dairy and meat sector, most farms are organised through cooperatives. The largest cooperative collects 80% of the milk and the second largest 9.5%<sup>30</sup>. In the meat sector, the two largest cooperatives together have between 60 and 80% market share<sup>31</sup>. There are five cereal cooperatives, but their market share is relatively small. Some of the meat cooperatives are also in compound feed production. Since animal husbandry represents 62.5% of the value of primary agricultural production in Finland, the role of the cooperatives in Finnish agriculture is of pivotal importance.

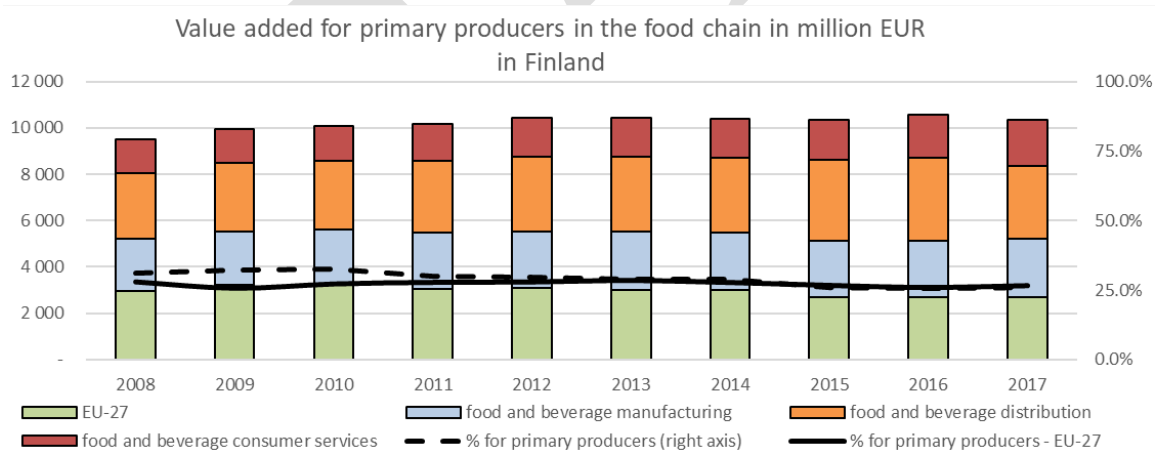
None of the cooperatives has a recognised PO status; they could be encouraged to seek recognition. There are only four recognised producer organisations accounting for 19% of the marketed value in the Fruit & Vegetable sector (50% at EU level). Altogether, the recognised POs represented 2% of the total value of the agricultural production in 2016.<sup>32</sup> No IBO (Interbranch Organisation) has been recognised so far. Only few products are under EU quality schemes.<sup>33</sup>

In 2018, Finland had 1 744 food and drink processing companies. Most of them were small, 1 634 small enterprises employing less than 50 people and the vast majority employing less than five people. Nevertheless, a small number of large or medium sized companies dominate the production structure. The 20 largest companies represented circa 50% of the EUR 9 912 million turnover in 2018. The milk and meat processing were the most concentrated with one milk and two meat processing cooperatives dominating their respective markets. In 2017, 46% of the turnover of the food industry was in milk and meat processing. Hence, these cooperatives have a strong position in the Finnish food industry as a whole.<sup>34</sup>

Against the differentiated processing industry stands a concentrated retail structure. The two major retail groups had an 82.5% market share in 2018. The third group has been present in Finland since 2002, and had a market share of 9.6% in 2018<sup>35</sup>. The increasing market share of private labels of these retailers has reinforced their market power vis-à-vis the large processing companies, which is reflected in the share in the value chain by retail.

The share of the value added in the food chain for primary producers is decreasing over time in Finland (from 32% in 2009 to 26% in 2017), but still slightly above the EU average of 23%.<sup>36</sup> As the share of processing has remained relatively stable or slightly decreased, the share of the food and beverage distribution (retail) has increased.

The use of EU quality labels scheme in view of improving the position of farmers in the value chain and of responding to consumers' demand for high quality products should be further explored.



Source: EUROSTAT

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

In 2018, **agricultural emissions of greenhouse gasses (GHG)** (excluding cropland and grassland) in Finland amounted to 6.5 million tonnes of CO<sub>2</sub> equivalents, representing about 11.2% of total GHG emissions in Finland (EU 27 average 10%) and around 1.7% of the total EU GHG emissions from agriculture<sup>37</sup>. Emissions from agriculture decreased

by 12.5% between 1990 and 2018, which is under EU average of 20.2%. However, since 2013 no further reduction has been recorded.

The most important source of GHG emissions in non-CO<sub>2</sub> agriculture in Finland is agricultural soils (53.4%) followed by ruminant enteric fermentation (31.7%) while emissions from manure management account for 11.1 % of emissions in this sector.

In Finland, the land use, land use change and forestry (LULUCF) sector is of particular importance not only in terms of carbon sinks but also in terms of emissions. In 2018, LULUCF sector as a whole was a net CO<sub>2</sub> sink of 10.2 million tonnes mainly resulting from the large total forest area. At the same time, emissions from cropland (mainly drained organic soils/peatland) amounted to 8.1 million tonnes of CO<sub>2</sub>, an increase of 48 % since 1990. During the same period emissions from grassland have decreased by 18.7 % to 0.73 million tonnes and from wetland increased by 58.7 % to 2.1 million tonnes. These changes show the importance of land use management to control emissions.

When including the LULUCF sector, emissions from high organic soil content peatland fields are over 50% of total agriculture emissions, with fields cleared in forestland (i.e. deforested land) having the highest emissions. The cleared peatland area has increased circa 2.5% between 2000 and 2018, mostly for the use of cattle farming in Northern Finland. Therefore, particular attention to the land use patterns related to animal husbandry are a key component in the emissions reduction strategy.<sup>38</sup> On the other hand, in terms of **carbon sinks** Finland has the second highest mean organic carbon content in soils after Ireland in the EU<sup>39</sup> and, with nearly 30%, the highest percentage of peat soils in the EU<sup>40</sup>. Finland has the highest share of forests and other wooded areas in the EU<sup>42</sup>, 76% of the Finnish territory is forest and other wooded land while the EU 27-average is 45%<sup>43</sup>. Since potential sequestration is limited by this already high level of storage, efforts to limit carbon loss, preserve below ground stocks and improve above ground carbon sinks (including materials) should therefore be targeted.

The share of agriculture in the **production of total renewable energy** in Finland is low (2.7%), well below the EU-28 average (12.1%). However the share of renewable energy production from forestry is considerable (74.1%, well above the EU average of 40.3%), thus bringing the share of agriculture and forestry in total renewable energy production to about 76.8%<sup>44</sup>. However, the biogas production from anaerobic fermentation (animal slurries and of waste in abattoirs, breweries and other agro-food industries) is 0,98 gigajoule per LSU which is much lower than EU average of 3,93 gigajoules per LSU.<sup>45</sup>

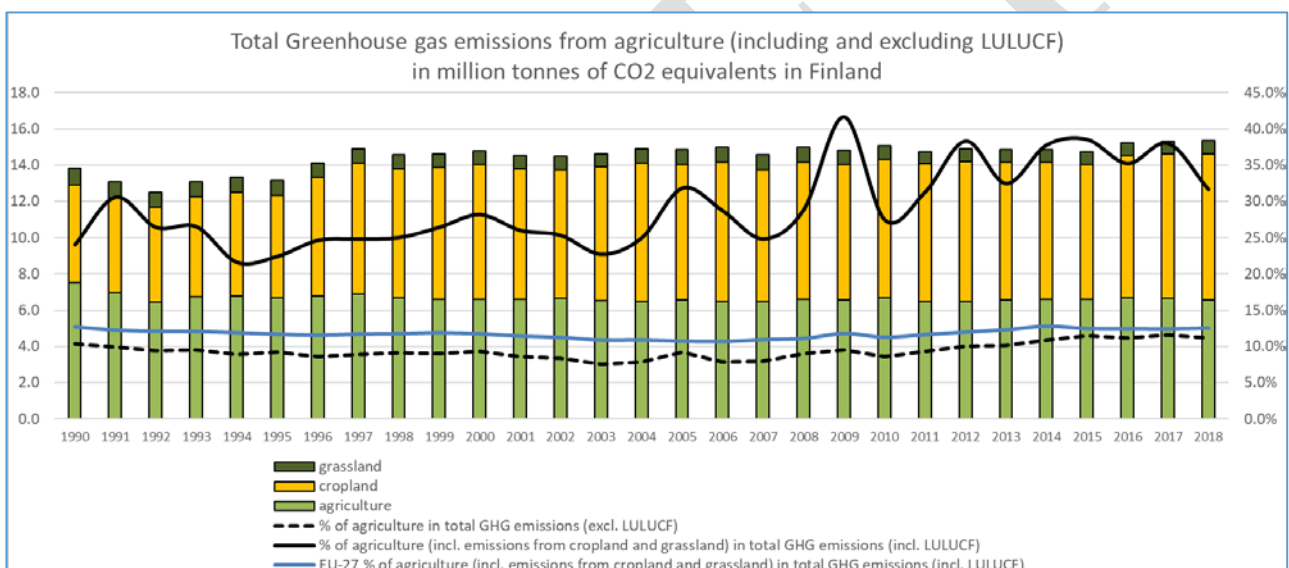
**Energy consumption** in agriculture and forestry in relation to the total final energy consumption in Finland is equal to the EU average (2.7%). However, the use per hectare, with 28.1 kilograms of oil equivalent per hectare is the fourth lowest of the EU. The percentage of use of energy in the food processing industry in Finland (1.7%) is below the EU average of 2.9%<sup>46</sup>.

Finland's Climate Act (approved in 2015) stipulates that the Government approve a national plan on adaptation at least every ten years. The **National Climate Change Adaptation Plan 2022** was published in 2014 replacing the National Adaptation Strategy from 2005. Many sectors have climate change adaptation plans and actions, the water sector being the most advanced<sup>47</sup>. In the current Governmental Programme Finland has set a target of carbon neutrality by 2035. The measures for the reduction of emissions on swamps and peatlands and the increase of the carbon sinks are included in the

programme.<sup>48</sup> The rural development programme 2014-2020 has granted circa EUR 10 million in farm investments to reduce GHG emissions, but despite the good uptake by farmers, the target set in the programme will not be reached. Finland's **National Forest Strategy**, adopted by the Government in February 2015 and updated in 2019, specifies the main objectives for forest-based business and activities until 2025.

Climate change is expected to lengthen the growing season and possibilities to cultivate certain crops in more northern altitude. Moreover, climate change brings also challenges in relation to droughts, new pests, plant diseases and adverse weather effects with the related side-effects in agriculture.<sup>49</sup> The Finnish forestry sources are growing. Roughly half of the CO<sub>2</sub> emissions from the fossil-based energy production are sequestered by forests and wood products. Climate change is lengthening the growing season and the growing forests sequester more carbon. However, the climate change is also bringing more pests, new species, changing the forest compositions and damages caused by storms.<sup>50</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

According to many international rankings, Finland performs well regarding the sustainable development and the management of natural resources. For example, according to some studies, Finland counts first on the World's cleanest air<sup>51,52</sup>.

Finland's landscape is characterized by forests and lakes. Ca. 76% of the Finnish land are covered by forests and other wooded land, having the largest forest coverage in Europe<sup>53</sup>. 7.5% of the Finnish territory is of wilderness reserve.<sup>54</sup> Finland ranks amongst the most water rich in the World<sup>55</sup> and counts on 168 000 lakes (minimum of 500 m<sup>2</sup>)<sup>56</sup>. Livestock density is rather low compared to the European average (0.5 per hectare)<sup>57, 58</sup>.

Concerning **air**, agriculture causes 89.5% of ammonia (NH<sub>3</sub>) emissions in Finland from which livestock causes a major part (87.9% of agriculture)<sup>59</sup>. Manure management for cattle (35%) forms the largest source of ammonia emissions from agriculture.

Although the ammonia emissions from agriculture have decreased in recent years<sup>60</sup>, Finland is currently still 5.6% behind its emission commitment reduction targets to reduce the ammonia emissions by 2020 and 2030.<sup>61</sup> Finland has a moderately low emission of NH<sub>3</sub> per hectare compared to the rest of the EU in the South of Finland, and around EU-average in the rest of Finland.<sup>62</sup> However, Finland is found to be at high risk of non-compliance with its ammonia emission reduction commitments for 2020-2029 and also at medium risk of non-compliance with the ammonia reduction commitment for 2030 and beyond.

As regards **soil** in Finland, the soil has a total organic carbon in arable land of 636 Mega tonnes, which is one of the highest in the EU. The mean soil organic carbon content is 61 g/kg in 2015<sup>63</sup>. However, the carbon content has diminished in mineral soils since mid-1970's. This is partly due to the relatively young age of the fields, but changes in agricultural practices have also contributed.<sup>64</sup>

In 2018, 70% of agricultural land is under commitments to improve soil under Rural Development which is one of the highest in the EU (EU average 12% in 2018).<sup>65</sup> There is no severe risk of soil erosion by water in Finland.<sup>66</sup> However, 23% of arable land is left bare during winter<sup>67</sup>.

Finland could share experience and good soil management practices and their associated benefits as well as lighthouse examples with other EU countries through participation in research, innovation and demonstration activities available under the forthcoming **Horizon Europe Mission on soil health**.

As to **water**, ground water quality is one of the best ones in the EU with 98,8% of monitored water stations reporting high quality regarding nitrates concentration and 1,2% being of poor quality in 2015-2017.<sup>68</sup> Nitrates in groundwater are one of the Europe's lowest (0.6 mg/l of annual mean concentration in 2000-2017) while the EU average is 18.8 mg/l.<sup>69</sup> Finland has the second best situation in the EU as regards nitrates in freshwater -surface waters with 98.2% being of high quality in 2015-2017.<sup>70</sup> The potential surplus of nitrogen on agricultural land has been at the EU average of 49 kg in 2015.<sup>71</sup> In rivers, the nitrate level for 2000-2017 is 0.3 mg/l while the European average is 1.72 mg/l.<sup>72</sup> In general, the state of lakes and rivers is stable but the state of coastal waters has deteriorated.<sup>73</sup> The phosphorus levels are more than 80% lower than in 1990, and are stable between 3.6 and 4.0 kilograms per hectare. In 2019, 68% of the rivers and 87% of lakes are in excellent or good condition but only 13 % of the coastal waters.<sup>74</sup>

In terms of the Water Framework Directive (WFD), not all water bodies are in good status yet and agriculture is identified as the second biggest pressure. Better integration of water objectives in other policy areas such as agriculture, is needed to achieve the requirements of the WFD and synergies should be optimised with policies including the CAP.

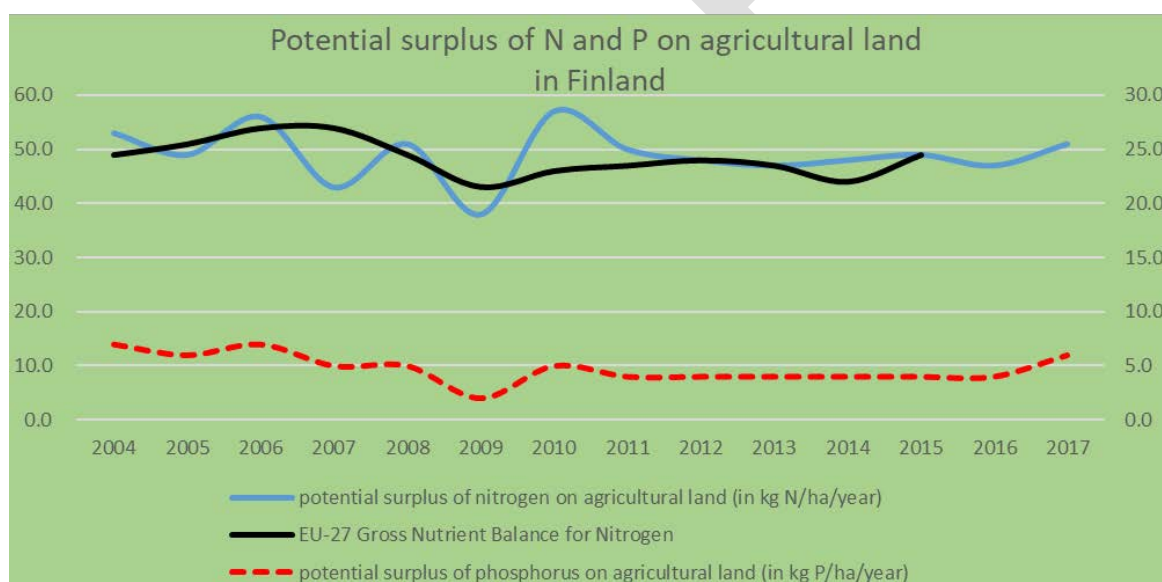
In this context, a special attention is to be paid to the Baltic Sea. Eutrophication is among the most influential and long lasting environmental pressures in the Baltic Sea. At least 97% of the region was assessed to be below good eutrophication status, including all of the open sea area and 86% of the coastal waters. Indicators reflecting nutrient levels were generally furthest away from good status. Long term trends shows signs towards improved eutrophication status in the westernmost Baltic Sea. Although signs of improvement are seen in some areas, effects of past and current nutrient inputs still influence the overall status.<sup>75</sup>



The nitrogen and phosphorous emissions have decreased significantly over past 30 years. However, this trend has recently discontinued. Regional differences occur as livestock and crop productions are concentrated in different areas.<sup>76</sup>

The share of agricultural land under Rural Development commitments to improve water management is 83%, which is one of the highest in the EU (EU average 12% in 2018)<sup>77</sup>. Agriculture puts pressure on water quality and several measures have been recommended by the Commission to reduce the pollution from nutrients and pesticides originating from agriculture<sup>78</sup>. More than half of nutrients originating from human action and ending up in waters are from agriculture. Especially challenging is the period outside of growing season<sup>79</sup>.

There are no particular problems with respect to water stress conditions in Finland. Only 0.4% of the total agricultural areas is irrigated (EU-27 average 6.5% in 2016)<sup>80</sup>. The water exploitation index (WEI+), which estimates the total water use relative to the renewable freshwater resources, is under 0.5% in most areas in Finland. In the Kokemäenjoki-Archipelago Sea-Bothnian Sea river basin, the index was 5.55% in 2015<sup>81</sup>. This indicates that there is no water stress in Finland as the exploitation remains below 20%.



Source: EUROSTAT<sup>82</sup>

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

Different indicators provide an understanding of the status and past trend for biodiversity in agricultural land. These indicators sketch different trends, for which some are unfavourable for biodiversity.

For example, the farmland bird index has declined over time being 79 in 2018 (2000 = 100), where the long-term trend is less steep than the EU28-average (81 in 2018)<sup>83</sup>, the farmland bird index shows a steep decrease in recent years from 102 in 2015 to 79 in 2018.<sup>84</sup> Moreover, in terms of conservation status of agricultural grassland habitats, 25%



of habitats are in favourable status. However, 66.7% classifies as unfavourable-bad during 2013-2018. This is a small improvement compared to the period 2007-2012 when 69.2% of habitats were classified as unfavourable-bad.<sup>85</sup> Terrestrial Natura 2000 area in Finland (in 2019) covers 13 % of total land area.<sup>86</sup> Most of the grassland habitats have been assessed as requiring additional efforts to optimize their management regime. 75% of the grassland habitats are reported to be affected by one or more agriculture-related pressure or threat.

However, the share of permanent grassland and meadows is only 1%, being one of the lowest in the EU (EU average 31%)<sup>87</sup>. This is obviously due to climate conditions. Nonetheless, the total grassland area has increased from circa 400 000 hectares in 1990 to over 600 000 hectares in 2018<sup>88</sup>. The **continuation of agriculture is essential in Finland for maintaining an open landscape**, and an evaluation has pointed out the particular importance of grassland maintenance to maintain and improve biodiversity.<sup>89</sup>

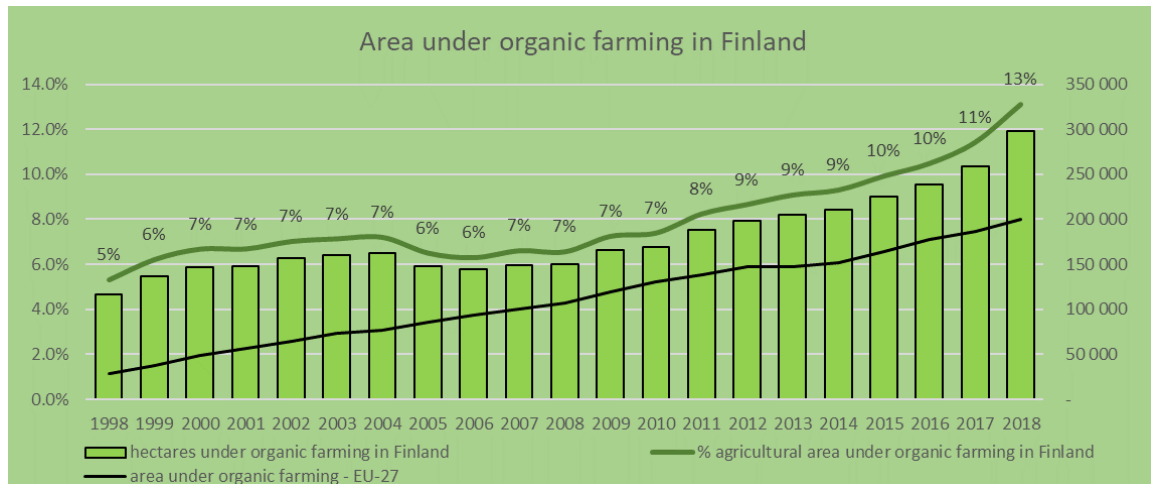
Moreover, different landscape features have a positive effect on biodiversity. A JRC study performed in 2015 estimated a coverage of agricultural land by landscape features equal to 5.3% of the agricultural area in Finland, which is the highest in the EU (on average 0.6%). In addition, 11.2% of the agricultural areas is fallow land in 2018, which is the second highest in the EU where it is on average 4.1%<sup>90</sup>.

The current CAP period 2014-2020 contains different measures that can contribute to improving biodiversity. With this respect, under the current greening obligations around 25 000 hectares fall under the ecological focus area obligation in Finland. 78.6% of the ecological focus area is land laying fallow, while the other 21.4% are nitrogen-fixing crops.<sup>91</sup> In addition, 14% of agricultural land is under commitments supporting biodiversity and/or landscapes under Rural Development, which is slightly lower than the EU average 15%.<sup>92</sup>

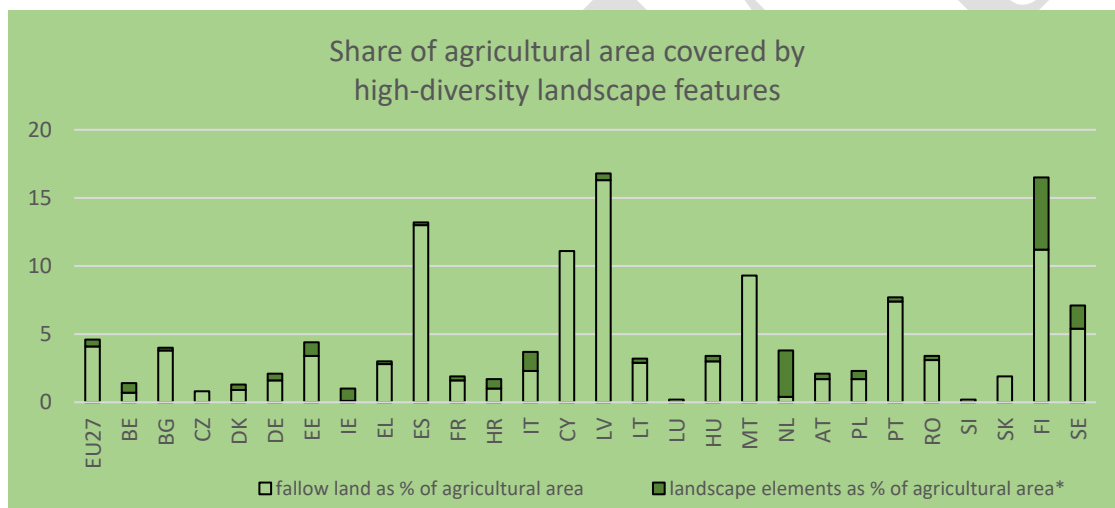
Organic management practices can also be beneficial for soils and biodiversity. The share of organic farming area in Finland equals 13.1% of the total agricultural area in 2018 (EU average 8.0%). The share of organic area shows a positive trend<sup>93</sup>. In 2019, circa 280 000 hectares were under organic production commitments and the Rural development programme 2014-2020 budget allocation had been overcommitted. About one third of commitments are in animal production. Despite the increase, the programme target of 355 000 ha will not be reached<sup>94</sup>. The number of organic producers slightly increased from 4 316 in 2012 to 4 665 in 2017, but the area increased. The share of animals held by organic farmers increased from 2013 to 2018, mainly for sheep and to a lesser extent also for cattle<sup>95</sup>.

Besides agricultural land, forestry plays a very important role in Finland. 76% of the territory is forest or other wooded area.<sup>96</sup> The growing stock of wood is growing steadily in the Finnish forests<sup>97</sup>. The share of forest area (including transitional woodland-shrub) that is protected under Natura 2000 in 2018 is 8.1% (EU average 30.4%).<sup>98</sup> Protected forests constitute 2.9 million hectares (13% of forests).<sup>99</sup> Finland has the biggest share of strictly protected forests (class 1.1 - no active intervention) counting 9% of forest and other wooded land whereas the EU-28 average is 2.2%.<sup>100</sup>

The conservation status of forest habitat types in boreal region is worse compared to other regions, 82.4% is in unfavourable-bad condition and 17.6% is in unfavourable-inadequate condition.<sup>101</sup>



Source: EUROSTAT<sup>102</sup>



Source: DG AGRI based on Eurostat and JRC based on LUCAS survey<sup>103</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.

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

Only 4% of farm managers is below 35 years old in 2016 after a decline from around 9% between 2005 and 2013). This is considerably below the EU average of 5.1%. Moreover, **the share of women** in the total number of farm managers below 35 years is 9% in Finland, the 4<sup>th</sup> lowest in the EU (figures from 2016)<sup>104</sup>. This shows a worsening trend in farmer ages in recent years in Finland<sup>105</sup>. As for other characteristics, the situation in south Finland is slightly better than for the east and the north.

The share of farm managers below 35 years of age with at least a basic level of agricultural training (50%) is higher than the share of total farm managers in Finland (45%), with both figures being higher than the EU-average level. However, the share of young farm managers with full agricultural training in Finland is below the EU average. The general tendency of increasing average economic farm size over time in Finland is

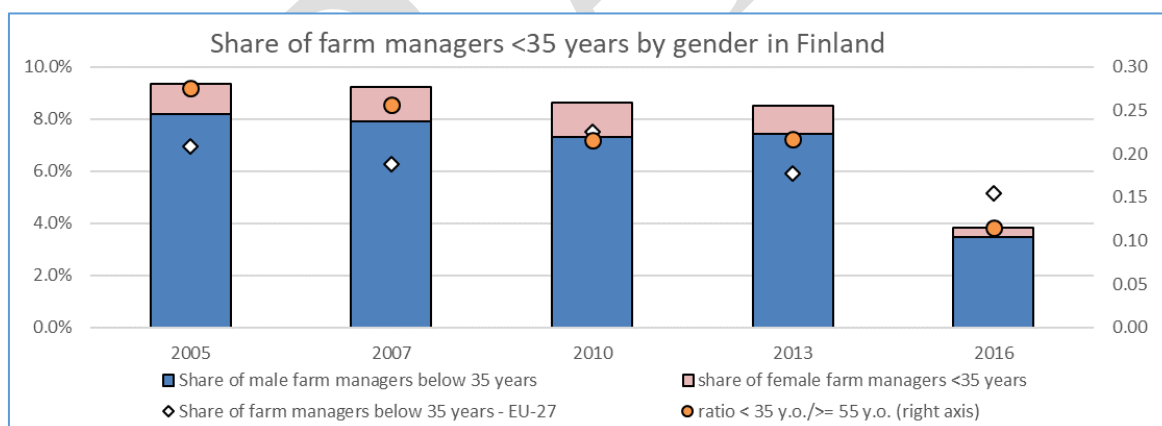
more pronounced in holdings with farm managers between 25 and 34 years old, which, in 2016, have on average the highest economic farm size.

Section 2.2 already mentioned the financing gap in the Finnish agricultural sector. Although the overall gap is low compared to the EU-27, **access to finance** for some viable farming enterprises in Finland might still be a challenge.<sup>106</sup> This counts in particular for young farmers, who sometimes face difficulties in obtaining the finance they require and in undertaking investments. A financial instrument providing risk coverage to financial institutions, for instance in the form of a guarantee or a loan risk-sharing fund appears useful to help bridge the financing gap.

Due to weak the profitability perspectives and improved employment opportunities in other sectors agriculture has not attracted young people.<sup>107</sup>

The business demography, expressed in the birth rate of enterprises in rural areas is with 6% the lowest among the Member States for which data is available<sup>108</sup>.

CAP support can contribute to reduce the entry barriers to the sector, in particular for new entrants.<sup>109</sup> 7.6% of farmers receive direct payments top up for young farmers. The total rural development programme funding in Finland was EUR 145.9 million for the setting up of around 2 700 young farmers in the period 2014-2020. This objective would result in a rather high share compared to other EU MS (4.6% of agricultural holdings)<sup>110</sup>, but at the end of 2019 there were 1 519 farmers with approved financing for setting up. This means that the target will not be reached before the end of the programming period.<sup>111</sup>



Source: EUROSTAT

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

Finland has among the highest share of rural areas in the EU, covering 82% of the total territory. Rural areas host 39.5% of the population (2019), with a downward trend (-1.1% between 2015 and 2019)<sup>112</sup>. In the Degree of urbanisation (DEGURBA) classification Finland shows the lowest figures in the EU in terms of area under urban centres (0.1%) and the urban clusters (0.7%). The area under rural grids is the highest (99.3%).<sup>113</sup> Shrinking regions are located more in the east and north of the country, whereas some

rural areas around urban agglomerations continue to grow<sup>114</sup>. The old-age dependency ratio is one of the highest in the EU: in 2019 the ratio is 38.4% in Finland (with less than three working age people for every person aged 65 or over).<sup>115</sup>

The employment rate in Finland increased over time and was 73.2% (age group 15-64 y.) in 2019 in rural areas (68.4% at EU-27), which is close to the total employment rate in Finland.<sup>116</sup> However, the unemployment rate for young people (age 15-24) in rural areas is considerably higher (16.1% in 2019) than the Finnish average (5.8% in rural areas for the age group 15-74).<sup>117</sup> The age structure in rural areas is unfavourable in terms of dependency ratio. Rural areas count for 37% of employment in Finland; although this figure is slightly decreasing, it is still rather stable, as well as the employment in the primary sector, which counts for 7.3% of the jobs (2016)<sup>118</sup>. In fact, the agriculture sector is one of the least recruiting sectors in the economy.<sup>119</sup> Other business activity than farming is an essential income source to many farmers, of whom 29% engaged in business activities outside farming in 2018, not counting salaried employment.<sup>120</sup> This percentage has decreased slightly from 2013.

The GDP per inhabitant in purchasing power standard in rural and intermediate areas is well beyond the EU-27 average. While the GDP per capita in whole Finland (EU-28, average 2013-2015) is 110.9% the rural areas record 94.2%.<sup>121</sup>

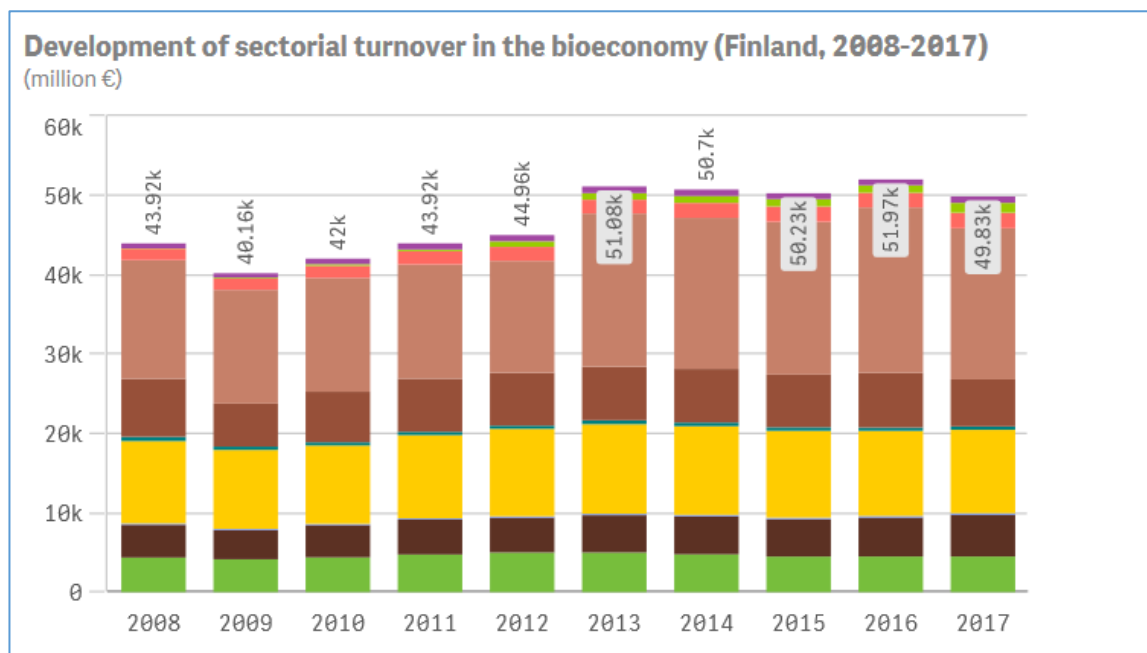
The poverty rate, i.e. the rate of people at risk of poverty or social exclusion, does not differ much between rural and urban areas<sup>122</sup> (the poverty rate is 17% in rural areas in 2018 (24% at EU-27),) but remains generally stable over time<sup>123,124</sup>.

Availability of public and private services is also under pressure in many rural areas, including the transport network and services.<sup>125</sup>

Under the two current rural development programmes for Finland (Mainland and Åland), 70% of the rural population is covered by local development strategies. By this, Finland exceeds the targets initially set (around 48% of the population)<sup>126</sup>.

With the highest share of forests and other wooded land in land cover in the EU-27, the forest sector plays an important role in ecological and economic terms. Whereas the sector demonstrates stable figures as to employment, the productivity increased significantly between 2005 and 2017, being now the highest in EU-27<sup>127</sup>. Already in 2012, the Finnish bio-economy had a share of 12% (EUR 23.5 billion) of the value added of the national economy, build up mainly by the forestry and the agri-food sector (36% and 16.6% thereof respectively). In 2018, there were ca 10 000 operating business units wholly engaged in bio-economy, of which about 30% in agriculture and over 25% in forestry and forestry services.<sup>128</sup>

Finland has a dedicated bio-economy strategy, with defined goals to generate new economic growth and new jobs from an increase in the bio-economy business and from high added-value products and services while securing the operating conditions for the nature's ecosystems. Furthermore, the strategy shall push the Finnish bio-economy output up to EUR 100 billion by 2025 (from EUR 60 billion in 2011) and create 100 000 new jobs.<sup>129</sup> The government has earmarking funding for bio-industry development, including research, pilot projects and investment support<sup>130</sup>.



Source: JRC:

<https://datam.jrc.ec.europa.eu/datam/mashup/BIOECONOMICS/index.html>

## 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. In Finland, all veterinary medicinal products (VMPs), that contain antimicrobials, are prescription-only medicines, which are available either from pharmacies on veterinarian prescription or directly from veterinarians. Veterinarians are allowed to dispense medicines for the treatment of animals under their care. The tenth ESVAC Report in 2020 states that the use of VMPs in Finland with 18.7 mg/PCU (2018) is well below the EU average of 118.3mg/PCU<sup>131</sup>.

Medicated feeds may either be produced by feed mills or imported into Finland, but always require a prescription from a veterinarian. Production and imports of medicated feeds must be reported to the Finnish Food Authority in accordance with the Decree on Medicated Feeds (10/EEO/2008).

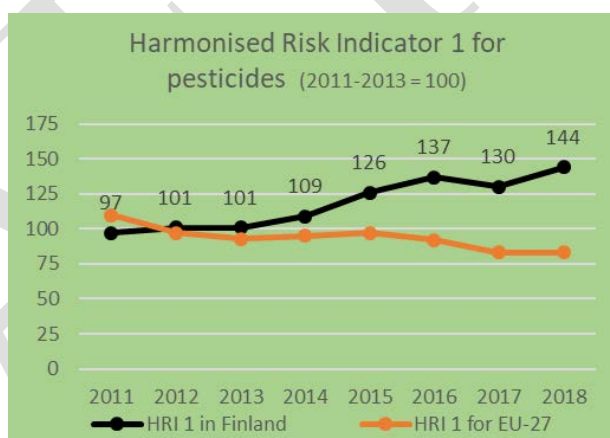
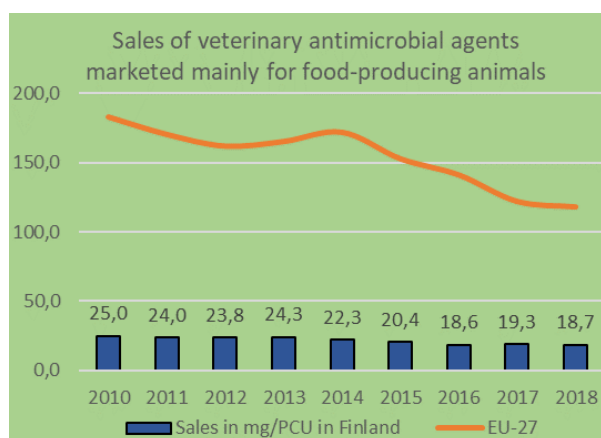
**Animal welfare** is another priority area for the Farm to Fork strategy, and essential for the sustainability of food systems. It is critical, therefore, that Finland devotes adequate resources to implementing EU rules in the above areas<sup>132</sup>. As regards implementation of the EU legislation, the Finnish competent authority has a strategic approach to enforcement of the EU requirements, makes efficient use of resources and supports a high degree of consistency in inspections. The competent authority has also established certain animal welfare indicators in its official controls<sup>133</sup>.

Ensuring the safety and proper use of **pesticides** and its controls on their use is integral to sustainable food production. In this regard, the main issue in Finland is that the requirements to establish harmonised risk indicators (HRI), as set out in Commission

Directive (EU) 2019/782 amending the Sustainable Use Directive, have not been transposed into national legislation<sup>134</sup>. Figures published by EUROSTAT show an upward trend for HRI 1 indicating the use and risks of pesticides (plus 44%) for 2011-2018, the highest among Member States and compared to minus 17% EU average. However, this trend is mostly due to the use of urea in forestry<sup>2</sup>. Finland will need to meet the Farm to Fork targets against this background.

Finland has very high overweight and obesity rates<sup>135</sup> and has a high burden from non-communicable diseases due to dietary risk factors expressed as DALYs per 100,000 population attributable to diet<sup>136</sup>, which are influenced by a number of dietary factors. Furthermore, Finland has a low consumption of fruits and vegetables<sup>137</sup>.

Finnish waste prevention programme (2017-2023)<sup>138</sup> gives some attention to food loss and waste occurring at the primary production level and the early stages of the supply chain. Further improvement can be expected in the upcoming national food waste prevention programme, as required by Article 29(2a) of the Waste Framework Directive 2008/98/EC.



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

Source: EUROSTAT [aei\_hri]

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

Finland has been investing in knowledge and innovation with an aim to be a leading innovative country.<sup>139</sup> Finland ranks amongst the best in various international rankings measuring innovations<sup>140</sup> and education<sup>141</sup> Finland scores also highest in the Digital Economy and Society Index (DESI) 2020 of the European Commission.<sup>142</sup> Finnish farmers have a higher level of education than the EU average. In 2016, 45% of the total farm managers attained basic or full agricultural training. This share, however, decreased compared to 2013. The difference between EU and Finland is bigger in the group with at least basic level of agricultural training (34.4% compared to 22.7% in EU-27), whereas compared to the EU, the share of farmers that attained full agricultural training<sup>143</sup> is almost similar to the EU-average (11.4% compared to 9%, 2016)<sup>144</sup>. Whereas in Finland the share of farm managers below 35 years of age with at least a basic level of agricultural training (50%) is higher than the share of total farm managers (45%), it

<sup>2</sup> Urea is considered as a potential low risk pesticide in the Commission Notice 2018/C 265/02. The status of urea will be re-assessed as from 01/09/2021

should be noted that the share of 'young' farm managers with full agricultural training in Finland is lower compared to the EU average<sup>145</sup>[see section 2.7].

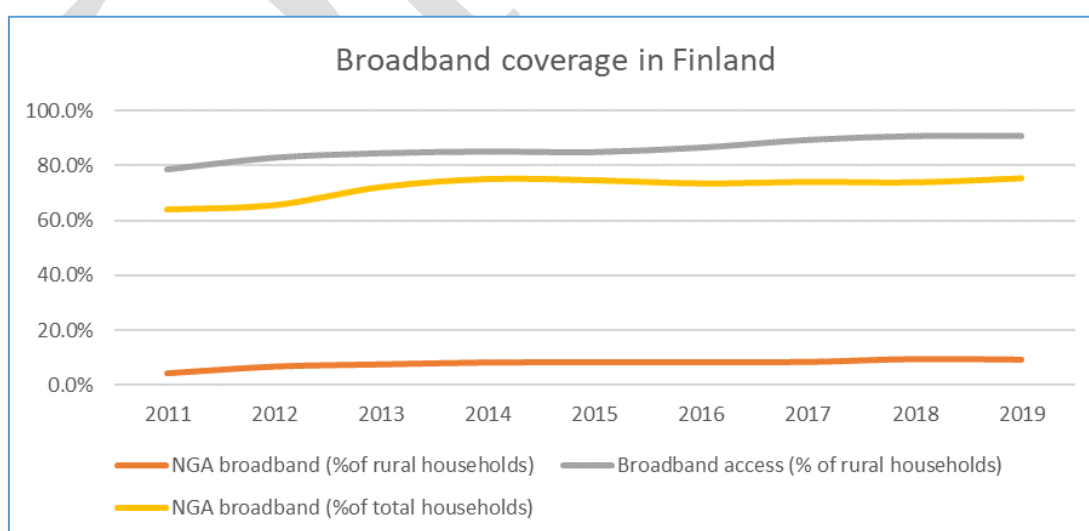
During the current programming period, several EIP Operational groups were set up in Finland focussing on various aspects of cereal production and storage, cattle feed, forestry and digitalisation (10 EIP groups in total)<sup>146</sup>. The budget programmed on training, advice and cooperation projects (EIP) in relation to the total public spending under EAFRD is slightly higher than the EU 28 average, but also decreased during the programming period.

While Finland has a high coverage of mobile broadband subscriptions,<sup>147</sup> one of the highest 4G coverages<sup>148</sup>, including the rural mobile 4G broadband coverage<sup>149</sup> and the share of individuals with at least basic digital skills in rural areas<sup>150</sup> tackling the NGA broadband coverage in rural areas (below EU average)<sup>151</sup> remains a challenge. The Rural NGA coverage/availability is 9.12% in households in 2019 while the EU average is 59.3%.<sup>152</sup> The lack of incentive for market players to invest in the sparsely populated areas is evident.

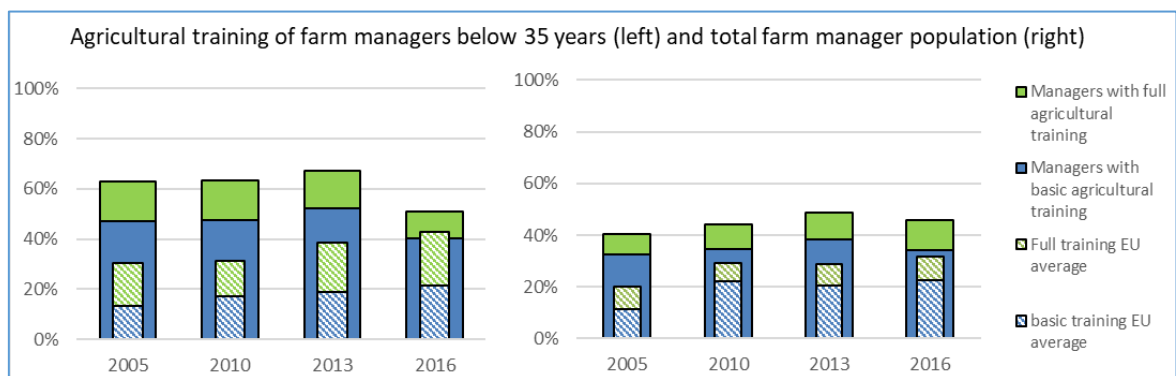
Finnish AKIS is strong but relatively fragmented.<sup>153</sup> As regards advisers, in January 2019, 765 farm advisers and 199 service provider organisations were registered in the farm adviser register of the Finnish Food Authority.

In the RDP for 2014-2020 target is to provide advice to 43 00 beneficiaries in Priority 4. By the end of 2019, 18 715 farms had received advise.<sup>154</sup> In 2019, a major part of advice concerned animal welfare.<sup>155</sup> Farmers have been mainly satisfied with the provided under the RDP 2014-2020. In the future programming period the research and advice should be better interlinked in order to disseminate faster new information.<sup>156</sup>

The National Rural Network (NRN) is active and well organised in Finland. Numerous events are taking place with different themes. Network is positively considered by the persons working on the implementation of the RDP.<sup>157</sup>



Source: DESI report



Source: EUROSTAT [ef\_mp\_training]

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## Endnotes still under finalisation

- <sup>1</sup> <https://ec.europa.eu/eurostat/en/web/products-eurostat-news/-/EDN-20171206-1>
- <sup>2</sup> Directorate General for Agriculture and Rural Development. *Share of direct payments and total subsidies in agricultural factor income (2014-2018 average)*. [https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-expenditure-graph5\\_en.pdf](https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-expenditure-graph5_en.pdf)
- <sup>3</sup> European Commission. CAP Indicator Dashboard [Farming Income support](#)
- <sup>4</sup> 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.
- <sup>5</sup> Directorate General for Agriculture and Rural Development. based on Eurostat data [[aact\\_eaa01](#)], [[nama\\_10\\_a10](#)], [[nama\\_10\\_a10\\_e](#)]
- <sup>6</sup> Natural Resources Institute Finland (LUKE). [https://portal.mtt.fi/portal/page/portal/economydoctor/total\\_calculation/timeline/financial\\_ratios](https://portal.mtt.fi/portal/page/portal/economydoctor/total_calculation/timeline/financial_ratios)
- <sup>7</sup> Natural Resources Institute Finland (LUKE). <https://www.luke.fi/uutinen/maatalouden-kannattavuus-heikkenee-vuonna-2019/>
- <sup>8</sup> 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.
- <sup>9</sup> European Commission. *CAP context indicator C.25 Agricultural factor income*. Based on EUROSTAT [[aact\\_eaa04](#)], [[aact\\_ali01](#)] and [[aact\\_eaa06](#)]
- <sup>10</sup> Statistics Finland. [http://www.stat.fi/til/tjt/2018/06/tjt\\_2018\\_06\\_2020-03-12\\_kat\\_002\\_fi.html](http://www.stat.fi/til/tjt/2018/06/tjt_2018_06_2020-03-12_kat_002_fi.html)
- <sup>11</sup> Fi-compass. *Survey on financial needs and access to finance of EU agricultural enterprises*. 2020. 72 pages. [https://www.fi-compass.eu/sites/default/files/publications/Survey\\_on\\_financial\\_needs\\_and\\_access\\_to\\_finance\\_of\\_EU\\_agricultural\\_enterprises\\_0.pdf](https://www.fi-compass.eu/sites/default/files/publications/Survey_on_financial_needs_and_access_to_finance_of_EU_agricultural_enterprises_0.pdf)
- <sup>12</sup> Farm Accountancy Data Network. *FADN Standard reports*. Report [YEAR.COUNTRY.TF14](#)
- <sup>13</sup> Member state notifications to the Directorate general for Agriculture and Rural Development.
- <sup>14</sup> Directorate General for Agriculture and Rural Development own calculations based on FADN data (up to 2018)
- <sup>15</sup> Eurostat. [[ef\\_m\\_farmang](#)]
- <sup>16</sup> Directorate General for Agriculture and Rural Development own calculations based on FADN data (up to 2017)
- <sup>17</sup> Directorate General for Agriculture and Rural Development own calculations based on FADN data (up to 2017) and CATS data (up to 2017)
- <sup>18</sup> Directorate-General for Agriculture and Rural Development, ECORYS and Wageningen Economic Research. *Study on risk management in EU agriculture*. Publication Office of the EU, Brussels 2018. 302 pages.
- <sup>19</sup> Directorate general for Agriculture and Rural Development based on COMEXT
- <sup>20</sup> EUROSTAT. [[aact\\_eaa01](#)]
- <sup>21</sup> Natural Resources Institute Finland (LUKE). Eläinten rehut ja ruokinta. <https://www.luke.fi/tietoa-luonnonvaroista/maatalous-ja-maaseutu/elainten-ruokinta/>
- <sup>22</sup> European Commission. *CAP context indicator C.27 Total factor productivity*. Based on EUROSTAT [[aact\\_eaa05](#)], [[aact\\_eaa04](#)], [[aact\\_ali01](#)], [[apro\\_cpsh1](#)] and [[ef\\_mptenure](#)] and FADN
- <sup>23</sup> EUROSTAT. [[aact\\_eaa01](#)]
- <sup>24</sup> EUROSTAT. [[aact\\_ali01](#)]
- <sup>25</sup> EUROSTAT. [[ef\\_m\\_farmang](#)]
- <sup>26</sup> European Commission. *CAP context indicator C.14 Labour productivity in agriculture*. Based on EUROSTAT [[aact\\_eaa01](#)] and [[aact\\_ali01](#)]
- <sup>27</sup> European Commission. *CAP context indicator C.28 Gross fixed capital formation*. Based on EUROSTAT [[nama\\_10r\\_3gva](#)] and [[nama\\_10r\\_2gfcf](#)]
- <sup>28</sup> [https://www.maaseutu.fi/uploads/Implementation-report\\_2014FI06RDRP001\\_2019\\_0\\_fi.pdf](https://www.maaseutu.fi/uploads/Implementation-report_2014FI06RDRP001_2019_0_fi.pdf)
- <sup>29</sup> Fi-compass. *Financial needs in the agriculture and agri-food sectors in Finland*. Study report, 2020. 73 pages.([or page 73 ?](#)) [https://www.fi-compass.eu/sites/default/files/publications/financial\\_needs\\_agriculture\\_agrifood\\_sectors\\_Finland.pdf](https://www.fi-compass.eu/sites/default/files/publications/financial_needs_agriculture_agrifood_sectors_Finland.pdf)
- <sup>30</sup> Suomalaisen maitosektorin rakenteet ja niiden muutokset vuosina 1995–2018, PTT 2019
- <sup>31</sup> Support for Farmers' Cooperatives. Country report Finland 2012, Wageningen UR
- <sup>32</sup> PO Study, European Commission 2019
- <sup>33</sup> [https://agridata.ec.europa.eu/extensions/DashboardIndicators/AddingValue.html?select=EU27\\_FLAG.1](https://agridata.ec.europa.eu/extensions/DashboardIndicators/AddingValue.html?select=EU27_FLAG.1)
- <sup>34</sup> 365 ruoan päivää: Elintarviketeollisuuden toimialaraportti. Työ- ja elinkeinoministeriö, Helsinki 2019.
- <sup>35</sup> Idem.
- <sup>36</sup> Directorate General for Agriculture and Rural Development own calculations based on EUROSTAT:[[aact\\_eaa01](#)] [[sbs\\_na\\_ind\\_r2](#)] [[sbs\\_na\\_dt\\_r2](#)] [[sbs\\_na\\_la\\_se\\_r2](#)]
- <sup>37</sup> Dashboard, 2017: [https://agridata.ec.europa.eu/extensions/DataPortal/cmef\\_indicators.html](https://agridata.ec.europa.eu/extensions/DataPortal/cmef_indicators.html)
- <sup>38</sup> <https://www.slideshare.net/LukeFinland/maankytn-pstt-nielut-ja-haasteet-nautataloudessa-kristiina-regina-tutkimusprofessori-luke>
- <sup>39</sup> Dashboard, 2016: [https://agridata.ec.europa.eu/extensions/DataPortal/cmef\\_indicators.html](https://agridata.ec.europa.eu/extensions/DataPortal/cmef_indicators.html)
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- <sup>42</sup> <https://ec.europa.eu/eurostat/documents/3217494/10317767/KS-FK-19-001-EN-N.pdf/742d3fd2-961e-68c1-47d0-11cf30b11489> (page 88, Figure 5.1.1: Forest and other wooded land, 2015 (% share of total land area)
- <sup>43</sup> Food and Agriculture Organization of the United Nations: <https://fra-platform.herokuapp.com/AUT/assessment/fra2020/extentOfForest/>
- <sup>44</sup> CCI C43, 2018: [https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table\\_2019\\_en.pdf](https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf)

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<sup>48</sup> Finnish Government: <https://valtioneuvosto.fi/en/marin/government-programme/carbon-neutral-finland-that-protects-biodiversity>

<sup>49</sup> LUKE: <https://www.luke.fi/tietoa-luonnonvaroista/maatalous-ja-maaseutu/maatalous-ja-ilmastonmuutos/>

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<sup>51</sup> Environmental Performance Index. <https://epi.yale.edu/epi-results/2020/component/air>

<sup>52</sup> Finnish Meteorological Institute. <https://www.ilmatieteenlaitos.fi/tiedote/524194286>

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<sup>54</sup> Statistics Finland. [http://www.stat.fi/tup/suoluk/suoluk\\_alue\\_en.html](http://www.stat.fi/tup/suoluk/suoluk_alue_en.html)

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<sup>64</sup> Natural Resources Institute Finland (LUKE). <https://www.slideshare.net/LukeFinland/maankytn-psst-nielut-ja-haasteet-nautataloudessa-kristiina-regina-tutkimusprofessori-luke>

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- <sup>141</sup> For example, in OECD's Better Life Index <http://www.oecdbetterlifeindex.org/topics/education/>
- <sup>142</sup> <https://ec.europa.eu/digital-single-market/en/desi>
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- <sup>147</sup> <https://data.oecd.org/broadband/mobile-broadband-subscriptions.htm#indicator-chart>
- <sup>148</sup> [https://digital-agenda-data.eu/charts/analyse-one-indicator-and-compare-countries#chart={\"indicator-group\":\"mobile\", \"indicator\":\"mbb\\_rltecov\", \"breakdown\":\"total\\_pophh\", \"unit-measure\":\"pc\\_hh\\_all\", \"ref-area\":\[\"AT\", \"BE\", \"BG\", \"HR\", \"CY\", \"CZ\", \"DK\", \"EE\", \"EU\", \"FI\", \"FR\", \"DE\", \"EL\", \"HU\", \"IS\", \"IE\", \"IT\", \"LV\", \"LT\", \"LU\", \"MT\", \"NL\", \"NO\", \"PL\", \"PT\", \"RO\", \"SK\", \"SI\", \"ES\", \"SE\", \"UK\"\]}](https://digital-agenda-data.eu/charts/analyse-one-indicator-and-compare-countries#chart={\)
- <sup>149</sup> [https://digital-agenda-data.eu/charts/analyse-one-indicator-and-compare-countries#chart={\"indicator-group\":\"mobile\", \"indicator\":\"mbb\\_rltecov\", \"breakdown\":\"total\\_pophh\", \"unit-measure\":\"pc\\_hh\\_all\", \"ref-area\":\[\"AT\", \"BE\", \"BG\", \"HR\", \"CY\", \"CZ\", \"DK\", \"EE\", \"EU\", \"FI\", \"FR\", \"DE\", \"EL\", \"HU\", \"IS\", \"IE\", \"IT\", \"LV\", \"LT\", \"LU\", \"MT\", \"NL\", \"NO\", \"PL\", \"PT\", \"RO\", \"SK\", \"SI\", \"ES\", \"SE\", \"UK\"\]}](https://digital-agenda-data.eu/charts/analyse-one-indicator-and-compare-countries#chart={\)
- <sup>150</sup> [https://digital-agenda-data.eu/charts/see-the-evolution-of-an-indicator-and-compare-countries#chart={\"indicator-group\":\"ict-skills\", \"indicator\":\"i\\_dsk\\_bab\", \"breakdown\":\"ind\\_deg3\", \"unit-measure\":\"pc\\_ind\", \"ref-area\":\[\"AT\", \"BE\", \"BG\", \"HR\", \"CY\", \"CZ\", \"DK\", \"EE\", \"EU\", \"FI\", \"FR\", \"DE\", \"EL\", \"HU\", \"IS\", \"IE\", \"IT\", \"LV\", \"LT\", \"LU\", \"MT\", \"NL\", \"NO\", \"PL\", \"PT\", \"RO\", \"SK\", \"SI\", \"ES\", \"SE\", \"UK\"\]}](https://digital-agenda-data.eu/charts/see-the-evolution-of-an-indicator-and-compare-countries#chart={\)
- <sup>151</sup> Digital Economy and Society Index (SDESI) 2020 Finland
- <sup>152</sup> [https://digital-agenda-data.eu/charts/see-the-evolution-of-an-indicator-and-compare-countries#chart={\"indicator-group\":\"broadband\", \"indicator\":\"bb\\_rngacov\", \"breakdown\":\"total\\_pophh\", \"unit-measure\":\"pc\\_hh\\_all\", \"ref-area\":\[\"EU\", \"FI\"\]}](https://digital-agenda-data.eu/charts/see-the-evolution-of-an-indicator-and-compare-countries#chart={\)
- <sup>153</sup> 4th Report of the Strategic Working Group on Agricultural Knowledge and Innovation Systems (AKIS), Standing Committee on Agricultural Research (SCAR), 2019. Referral to Diversity of European AKISs in 2014 (Knierim and Prager, 2015)
- <sup>154</sup> <https://www.maaseutu.fi/maaseutuverkosto/vaikutukset/tavoitteet-ja-tulokset/edistyminen>
- <sup>155</sup> Annual Implementation Report (AIR) of Rural Development Programme of Finland, 2019: <https://www.maaseutu.fi/uploads/PDF/Vuosiraportti-2019.pdf>
- <sup>156</sup> [https://www.maaseutu.fi/uploads/mmm\\_12\\_2019\\_maaseutuohjelma-2014\\_2020\\_neuvontatoimenpiteen-arviointi.pdf](https://www.maaseutu.fi/uploads/mmm_12_2019_maaseutuohjelma-2014_2020_neuvontatoimenpiteen-arviointi.pdf)
- <sup>157</sup> <https://www.maaseutu.fi/maaseutuverkosto/vaikutukset/arviointi/maaseutuverkoston-arviointi>