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**Commission recommendations for The Netherlands' CAP strategic plan**

*Accompanying the document*

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

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

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## **1. COMMISSION RECOMMENDATIONS FOR THE NETHERLANDS' 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 the Netherlands. The recommendations are based on analysis of the state of play, the needs and the priorities for agriculture and rural areas in the Netherlands. 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 the Netherlands, 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 Dutch agricultural sector is characterised as a productive, innovative and export-oriented sector with intensive agricultural production that is largely based on cost-price reduction and increasing economies of scale. By European standards, Dutch farmers earn a relatively high income, and their dependence on income support is lower compared to other Member States. However, farm income exhibits volatility, and several farms, smaller ones in particular, face lower incomes from agricultural activity.

To address this disparity, the Netherlands may explore ways of redistributing income support towards viable smaller and medium-sized farms. Given the challenging environmental objectives facing Dutch agriculture, income support should be redirected towards farmers who perform practices that are beneficial for the environment and climate and reward them accordingly for providing public goods. Secondly, to address the volatility of farm income, risk management tools, which can also play an important role in fostering the resilience of agriculture relating to climate change, should be promoted.

The shift to a sustainable food system presents significant economic opportunities as well as challenges for Dutch farmers. The Dutch agricultural sector is considered very competitive globally, with high labour productivity and a positive trade balance in agri-food products. The demand for financing in the agricultural sector is expected to increase in the coming years, in particular to finance the transition towards more circular and sustainable businesses and business models as put forward by the Dutch government. With a financing gap of around EUR 250 million for the agri-food sector, and between EUR 73 million and EUR 303 million for primary agriculture, the Netherlands could explore investments and, in synergy with existing instruments, the development of new loans to support innovative projects that aim to meet new environmental and climate standards that banks currently do not seem willing or able to finance.

In terms of cooperation and value added, Dutch farmers are well engaged in downstream activities and have a long history of cooperation. However, fewer EU co-financed operational programmes have been implemented in the fruit and vegetable sector in recent years. Aided by forthcoming changes to the rules for these programmes, the

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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.

Netherlands could encourage their implementation in this and in other agricultural sectors, as well as transnational producer organisations and associations of producer organisations to be set up. These organisations can therefore play an important role in e.g. the management and marketing of production, addressing environmental and climate challenges, and research and experimental activities. Moreover, the pooling of farmers in producer organisations also facilitates coaching, knowledge sharing, or extension activities. There is also a significant potential in the use of quality schemes which enables close collaboration among producers and also strengthens their position in the value chain.

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

Greenhouse gas (GHG) emissions require more and stricter measures in the agricultural sector to achieve the goals set out in the Paris Agreement. Data shows that the reduction of GHG from agriculture has stabilised in the last 10 years in the Netherlands. The country has the highest GHG emissions (CH<sub>4</sub> and N<sub>2</sub>O) per hectare of agricultural area, more than four times the EU-27 average. This reflects the country's higher levels of intensification of agricultural activities. In terms of the Water Framework Directive, not all water bodies have achieved good status yet, with agriculture identified as a major pressure. Moreover, 13% of ground water bodies report poor quality during the 2016-2019 period and exceed the nitrate concentration norm of 50 mg/l as established in the Nitrates Directive. The run-off of nutrients form part of the problem as the nitrogen surplus in the Netherlands, at 200 kg N per hectare per year, is four times the EU average. Whereas progress has been made in recent years in reducing the nitrogen surplus, also in light of conditional derogations under the Nitrates Directive, more is required to further improve the water quality. In light of the Farm to Fork strategy, the Netherlands should use the means offered by the common agricultural policy (CAP) to contribute to significantly decreasing the use of inorganic fertilisers and manure (especially on sandy soils). This would improve the status of water bodies by the end of the programming period, and also reduce nitrogen/ammonia air pollution. In this respect, the impact of soil management practices on improving the environmental footprint while retaining productivity could be increased by linking them to research, innovation and demonstration activities available under the forthcoming Horizon Europe mission on soil health. In addition to achieving nutrient reduction targets and water quality objectives, complementary actions should be included within the CAP Strategic Plan in synergy with relevant environmental legislation including the Nitrates Directive and Water Framework Directive (and other relevant legislation listed under Annex XI of the CAP).

The shift towards a bio-based and circular economy is part of this solution to move away from fossil fuels and increase the use of renewable energy. However, the scarcity of land in the Netherlands is a key issue - urbanisation, recreation and renewable energy put pressure on the availability of agricultural land and will continue to do so in the future. The excess of nitrogen/manure and the high livestock density and numbers in the Netherlands limit expansion. The high deposition of nitrogen in Natura 2000 areas (above the critical deposition value) requires further efforts in order to protect and restore biodiversity in nature reserves and on farmland. Given that around 40%<sup>1</sup> of nitrogen deposition originates from agriculture, the agricultural sector has an important role to play in addressing this situation. This includes the challenge of ammonia emissions (air pollution that contributes to nitrogen deposition but impacts human health), which have increased since 2013. The Netherlands has been found to be at high risk of non-

compliance with the ammonia emission reduction commitments for both 2020-2029 and for 2030 and beyond.

The preservation of biodiversity is still a challenge in many areas in the Netherlands. According to the latest State of Nature report on the conservation status of habitats and species covered by the Habitats Directive, almost 60% of habitats and over 72% of species are affected by agriculture. The latest 2013-2018 reporting on the status and trends of bird populations, while indicating very limited improvements, showed a higher proportion of decreasing long term trends particularly for wet meadow birds and farmland birds. The CAP should therefore support habitat management measures for these groups of birds and take into account the priorities in the prioritised action framework.

High nature value farmland covers approximately 15% of the total agricultural area in the Netherlands. Furthermore, landscape features in the Netherlands are far below the Biodiversity Strategy objective of at least 10% of agricultural area under high-diversity landscape features by 2030 in the EU. To improve this situation, biodiversity needs to be integrated into sustainable farming practices, and new business models must generate income to make it more attractive for farmers to adapt their farming practices (nature-inclusive agriculture). To help advance the EU Green Deal, a more integrated policy is needed that combines soil management and nutrient policy, manure management, climate mitigation, biodiversity and landscapes in the Netherlands.

In addition, evidence shows that the current area under organic farming was only 3.2% in the Netherlands in 2018, well below the EU-27 average. Given the benefits of organic farming, for e.g. soil quality, and its positive effect on reducing the use of chemical pesticides and inorganic fertilisers, increasing the organic area in the Netherlands would contribute to a more sustainable food production system. The Commission invites the Netherlands to set a target for the agricultural area under organic farming in its CAP national strategic plan as there is currently no dedicated strategy to stimulate the growth of organic farming in the Netherlands. However, to maintain profitability of organic farming, efforts should be made to stimulate the demand for organic products in order to balance the increase in supply.

The intensive use of rural areas by agriculture has resulted in lowered ground water tables by lowering surface water levels (especially in peatlands) and measures to speed up the transport of surface water out of the capillaries of the sub systems (especially in the sandy areas) by draining land and canalisation of streams and rivers. The sponge-function of rural areas has been reduced considerably. Climate change means that the Netherlands is expected to be warmer and wetter, with more frequent summer droughts and a rising sea level. Many of these challenges are already being felt. Severe droughts have led to considerable economic damage in the last 3 years.

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

The number of Dutch farms is decreasing by 3% a year, although the number of large farms is increasing. The Netherlands has a lower share (4.1%) of young farmers than to the EU average (5.1%), even though agricultural incomes are relatively high. Moreover, the percentage of female farm managers is very low in the Netherlands (5.3%). Young farmers are well educated, but this also provides them with good alternative job opportunities, especially as Dutch farms are very expensive to buy due to the high value

of land and a high capital intensity. The main challenge facing young farmers and new entrants is access to finance when starting-up due to insufficient own resources and collateral together with the reluctance of banks to provide loans. Young farmers and entrepreneurs in rural areas are key players in the successful realisation of the green transition. It is therefore vital to improve access to capital by using existing instruments and new policy tools.

Agriculture forms an important share of land use in rural areas in the Netherlands, and while the agri-food industry plays a significant economic role, the role of the primary sector is only marginal in economic terms. However, there is a substantial gap between urban and rural areas in terms of GDP per capita. Careful consideration should be given to the specific needs of women in agriculture and rural areas. Certain rural areas (mainly in the Northern provinces and the province of Zeeland) are at risk of depopulation as basic services are disappearing due to a lack of employment opportunities, especially for highly educated people, putting specific services under even greater pressure. Investments in basic infrastructure and the development of services in synergy with the other EU or national funds are necessary to halt the risk of depopulation in these areas. The growing bioeconomy and the forestry sector offer opportunities to further develop rural areas.

The Farm to Fork Strategy aims to reduce the environmental and climate footprint of the food system. There are a number of issues directly linked to it that need to be addressed, in particular animal welfare and the sustainable use of pesticides. On the Directive on Sustainable Use of Pesticides, the Dutch authorities have not reported any changes to its first national action plan to the Commission. Implementation of integrated pest management is also not sufficiently enforced, while growers continue to rely on chemical pest control methods. The Netherlands should also make an effort to shift towards healthier, more environmentally sustainable diets, in line with national dietary recommendations.

Furthermore, 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.

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

Knowledge and innovation have a key role to play in helping farmers and rural communities meet the challenges of today and tomorrow, such as those mentioned above. The Dutch agricultural knowledge and innovation system (AKIS) will benefit from its full potential and the high level of resources invested if knowledge and innovation flows between those involved are further enhanced in order to address AKIS fragmentation.

A well-functioning, integrated AKIS<sup>2</sup> should deliver plenty of knowledge flows between those involved to respond to the growing information needs of farmers, speed up innovation and increase the value of existing knowledge in order to achieve all CAP objectives.

In this respect it is worth reminding ourselves that AKIS is not limited to the agricultural sector but extends to all upstream and downstream farming and rural activities that relate to it (e.g. (environment, climate, biodiversity, food and non-food systems including

processing and distribution chains, consumers and citizens, social innovation etc.) One of the main challenges facing the Dutch AKIS is to organise the system in such a way that private and public interests are well balanced in the transition to a sustainable circular agriculture, and that knowledge developed in the field is applied as fast as possible. Considerable efforts are therefore needed to make knowledge widely applicable and apply it in order to support the necessary transitions in the field and towards sustainable food production systems. The move towards a more inclusive and integrated advisory system will be key in this. It is essential to ensure training and skills of private advisers reflecting public policy priorities whilst ensuring impartiality of advice. Advisers should be supported to help capture individual grass roots ideas for innovation and develop them by setting up and implementing European Innovation Partnership (EIP) operational group projects (“innovation support services”<sup>3</sup>)

## 1.5 Recommendations

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

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

- **Improving the viability of farms** through a more targeted, effective and efficient distribution of direct payments, by applying, for example, the complementary redistributive income support for sustainability and the reduction of payments.
- **Contributing to higher added value in agricultural sectors**, by investing in high-quality and/or distinctive food characteristics, including organic production, and increasing the efficiency of supply chain management - through support available under both CAP pillars. Focus on preserving and reinforcing the cooperative structure, considering that the high level of control by farmers of the food supply chain facilitates long-term investments to adapt to future challenges, including managing operational risk for the primary producers.
- **Improving the competitiveness of the agricultural sector**, in particular by supporting sustainable business models for farms through support available under both CAP pillars, such as investment interventions.

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

- **Reducing nutrient pollution of water and air, reducing nitrogen deposition below their critical level in nitrogen-vulnerable Natura 2000 sites, and contributing to achieve the EU Green Deal target on nutrient losses in the Netherlands**, through well-integrated measures that support the transition to more sustainable, less intensive farming. Support available under both CAP pillars should address the need for more efficient use of mineral and organic fertilisers, as well as generally improved soil management.

- **Reducing non-CO2 emissions** from the livestock sector and soil fertilisation, and **improving the carbon storage capacity** by supporting peatland/wetland restoration via carbon farming approaches and the shift to a bio-based and circular economy. Among other things, CAP interventions should support the shift to less-emitting livestock production systems by also considering sustainable manure management in line with the Methane Strategy.
- **Achieving favourable conservation status of habitats and species associated with agricultural systems, reducing habitat fragmentation and biodiversity loss, and contributing to the EU Green Deal target on high diversity landscape features**, by supporting appropriate management practices and other nature restoration measures in Natura 2000 areas and across farmland where appropriate, including the establishment and maintenance of landscape features practices which can halt the decline of meadow and other farmland birds, and wild pollinators and improve the status of grassland, wetland and peatland habitats.
- **Contributing to the EU Green Deal target on organic farming** by supporting conversion and maintenance schemes, This should go hand in hand with identifying potential in national organic food demand, and with improving food supply chain structures.
- **Foster sustainable forest management and afforestation, 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 on forests.
- **Contributing to the adaptation objectives of the EU Green Deal**, by strengthening efforts on resilience building. Farmers should be supported for agricultural practices that restore natural processes with regard to water and soil (sponge), including peatland/wetland restoration and water retention in capillaries of river (sub) basins.

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

- **Contributing to the EU Green Deal target on reducing the use and risk of pesticides** by continuing to implement schemes to reduce the use and risk of plant protection products , by promoting non chemical pest management practices and low-pesticide-input pest management and by ensuring full implementation of Integrated Pest Management.
- **Encouraging more young people, especially women, to move into farming businesses** - by combining interventions and by facilitating access to capital for farmland and green investments in the agricultural sector.
- **Developing the bioeconomy to contribute to employment** and halt the decline and depopulation of small rural villages, by promoting the socio-economic development of rural areas through an appropriate mix of CAP interventions such



as support for investments, the provision, development and maintenance of basic infrastructure and services, while ensuring synergies with the other EU and national funds.

- **Improving animal welfare on farms** by putting in place more ambitious measures to support best livestock management practices, especially for pigs and dairy cows.

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

- **Reinforcing the national Agricultural Knowledge and Innovation System** by addressing its fragmentation and by support for putting in place effective advisory and innovation support services, geared towards achieving more sustainable farming practices in the transition towards a more circular economy. Focus should be on training and skills of advisors while ensuring impartiality of advice and links with public policy priorities.

## **2. ASSESSMENT OF AGRICULTURE AND RURAL AREAS IN THE NETHERLANDS**

The Dutch agricultural sector is characterised as highly productive, modern, innovative and export-oriented sector. The soil and climatic conditions are favourable for a diversified agriculture. Vegetables and horticulture, dairy, and pig meat production are the most important sectors in terms of production value. However, environmental issues (e.g. soil, water and air) are important challenges to be dealt with to secure a sustainable future of the Dutch agricultural sector.

Agricultural land covers two-third of the total surface area in the Netherlands but due to the high population density, the rural area is small (2%). The declining of the agricultural land is expected to continue in the future, and this due to the increasing urban spread and need for recreation area. The socio-economic conditions are relatively good compared to EU averages but challenges remain for certain rural regions facing a declining population.

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

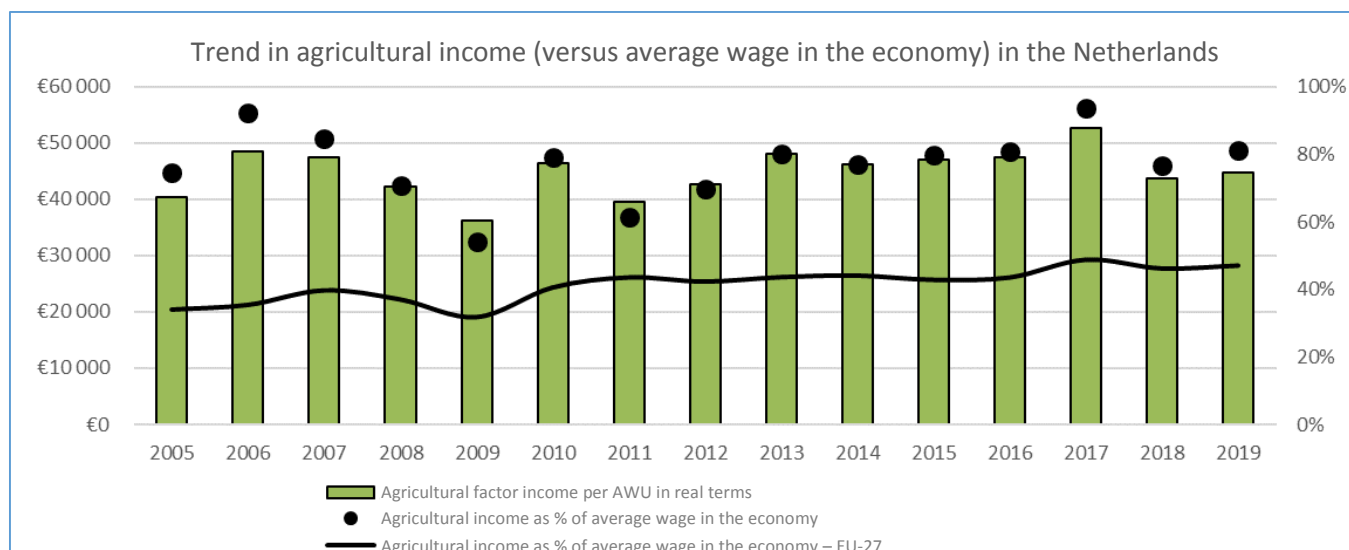
Compared to European average, Dutch farmers earn a relatively high income at about EUR 47 000 per worker between 2015 and 2019<sup>4</sup>. At the same time, Dutch agricultural income equals about 80% of average wages in the Dutch economy (2012 to 2018)<sup>5</sup>. Income from secondary on-farm activities is limited around 3% of the agricultural output in the Netherlands, although it has been growing in recent years<sup>6</sup>. In addition, large differences exist in farm income between farms of different sizes and between agricultural sectors. Incomes are higher for the largest economic farm sizes. Income is on average lower for cattle farms and fruit producers in the Netherlands as compared to other sectors. Most sectors see fluctuations in income over time.

On average direct payments form only about 10 to 15% of the Dutch farm income in the last 10 years (compared to 24% for the EU average)<sup>7</sup>. However, these payments play a much more significant role in land-based sectors where they contribute to stabilising farm income, such as dairy (around 25%) and cattle (around 30%), whereas for horticulture and granivores it is (close to) 0%<sup>8</sup>. At least 20% of farms earn an agricultural income below the poverty standard each year<sup>9</sup> (EUR 25 000 in 2017).

The Netherlands has moved to a flat rate payment for the basic payment scheme during the 2014-2020 programming period with small-size farms receiving about the same direct payment per hectare as large size farms. Nonetheless, farm income is increasing with physical farm size in the Netherlands.

High intensity of agriculture, characterised by high production standards, knowledge and innovation, and a favourable climate allow Dutch farmers to produce high yields. The Dutch economy and its agri-food sector are internationally oriented, with the consequence that farm income is more sensitive to external events as compared to other EU Member States. For livestock, the sector is characterised by a high concentration of intensive farms. In combination with a reliance on export – the Netherlands has an environment that has the potential to facilitate the spread of pests and epidemic diseases that can affect production levels and yields<sup>10</sup>. The capacity of the sector to effectively manage animal and plant disease risk relies on individual farmers making effective risk management decisions to manage collectively the risk to the wider sector<sup>11</sup>.

To address the volatility experienced by Dutch agricultural incomes through variations in production levels, risk management instruments and strategies are deployed, such as crop insurances (uptake < 25%) covering climate risks and sanitary risk, while (veterinary) mutual funds for livestock are mandatory in the Netherlands. In the current rural development programme, the Netherlands has a specific risk-management measure for multi-peril crop insurance. With 2725 farms, the uptake has already exceeded its own target value. Livestock insurance systems exist as well; however, the uptake of these insurance schemes is currently limited to around 5% to 10% by farmers<sup>12</sup>.



Source: DG AGRI based on EUROSTAT [[aact\\_eaa04](#)], [[aact\\_ali01](#)] and [[aact\\_eaa06](#)]

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

The Dutch agricultural sector is characterised as a productive, innovative and export-oriented sector with intensive agricultural production that in majority is based on cost-price-reduction and increasing economies of scale. Farmers in the Netherlands are inclined to apply labour-saving techniques (profitable only for a certain farm size) and land-saving production techniques (often accompanied by an intensification of land use) to lower final product prices. A high population density makes land a scarce and expensive resource while the relatively high labour price in the Dutch agricultural sector creates pressure to replace labour by automation.

Its large-scale production capacity, together with its central location in Europe, its transport infrastructures (seaports, roads, railway lines and airport) and its high level of logistical knowledge, makes the Netherlands the second largest net exporter of agricultural products in the world, after the US. In 2019, it exported agri-food products in value of about EUR 93 billion.<sup>13</sup> In terms of trade balance in agri-food products, the Netherlands are a net exporter (with a positive balance amounting to EUR 30 billion), whereby the surplus with EU countries is much larger (above EUR 29 billion) than with third countries (less than EUR 1 billion). Exports to immediate neighbours have a particularly high share in agri-food trade: in 2018 Germany, Belgium, the United Kingdom and France alone absorbed more than a half of the Netherlands' exports of agri-food products. In terms of commodity types, ornamental horticulture products, dairy and eggs, meat, vegetables and fruit were the most exported.<sup>14</sup>

In terms of the international competitiveness of the Dutch agricultural sector, even though the Netherlands is still leading in the EU agri-food market, other countries are

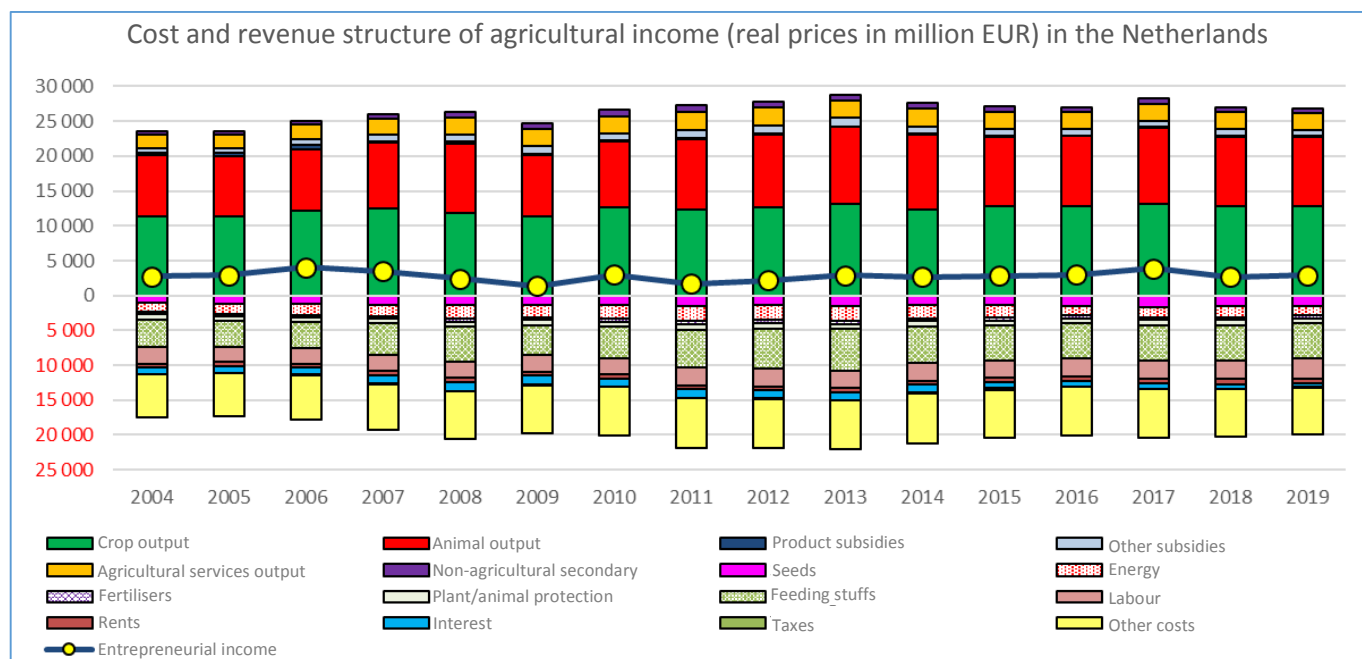
slowly but steadily gaining ground. Measures to contain external effects of agriculture on the environment, landscape and society often increase products costs in the short term and can thus reduce the competitiveness of the sector. For instance, Spain and Denmark are strengthening their position, respectively, in the vegetable market and in the pigmeat market. Germany and France are also strengthening their position, at the Netherlands' expense, in the dairy market<sup>15</sup>.

The total number of farms in the country declined from 82 000 to 56 000 between 2005 and 2016 - an average of 3% per year. The number of very small and small farms fell sharply (-56%) and the number of physically large and very large farms increased considerably (+ 53%).<sup>16</sup> In the same time period, average farm size increased from 24 to 32 hectares, well above the EU average (15 ha). Moreover, total Dutch agricultural area declined from 1.92 million hectares in 2005 to 1.8 million hectares in 2016, whereas the number of livestock increased by 6.7% to 6.8 million livestock units. Accordingly, the livestock density (calculated as total number of livestock units/total utilised agricultural area) increased from 3.32 in 2005 to 3.80 in 2016 (versus 0.73 in the EU).<sup>17</sup>

The total factor productivity in agriculture (TFP, which compares a country's total output volume relative to the total input volume used in production of such output) has slowly but steadily increased over the last decade in the Netherlands, moving from 105 in 2013 to 108 in 2018 (average growth rate of 0.7%, while the EU average is 0.9%).<sup>18</sup> Furthermore, the Netherlands are the top performer in terms of labour productivity in agriculture in the EU, with a sectorial index amounting to 371.5 (EU27 average is 100).<sup>19</sup> The recent increase in labour productivity was partly due to the outflow of labour (-11% between 2005 and 2017). While in the period between 2000 and 2010, the average annual investment in the agricultural sector was around EUR 3 billion, between 2010 and 2018 an increasing trend was reported in the Netherlands, with an average annual investment in capital formation amounting to EUR 4.5 billion.<sup>20</sup> With a gross fixed capital formation in agriculture equal to EUR 4.7 billion in 2018 (representing 44% of the Gross Value Added in agriculture) the Netherlands recorded the third highest figure among Member States.<sup>21</sup> Anyway, high land price and high labour costs in the Dutch agriculture result in an overall low return on equity compared to other sectors, such as supply, processing and retail.<sup>22</sup> The majority of farms in the Netherlands are too small to obtain market-based remuneration for labour and capital from agricultural activities, with the consequence that additional income from non-agricultural activities is often required.<sup>23</sup>

As regards the role of finance in the agricultural sector, around 28% of the Dutch farmers applied for financial support in 2017, mostly for medium and long-term loans. Most farmers applied for bank loans to finance investments especially in new machinery, equipment, facilities and for purchasing land. Under the current rural development program, the Dutch authorities promote investments in sustainability and modernisation of the agricultural sector through grants for investments in physical assets, as well as through grants for investments specifically for young farmers up to and including 40 years. The programme also supports the improvement of the agricultural structure through investment in land parcelling and relocation. Besides the national rural development plan, a number of government instruments also provide financial support to Dutch farmers.

Despite all of this, the demand for finance in the Dutch agri-food sector is expected to increase in the coming years, as green policy interventions (such as encouraging more circular and sustainable businesses) are likely to drive the need for further investments. Despite this perspective, the financing gap in the agricultural sector is estimated around EUR 251.4 million, and it mainly concerns small to medium-sized farms and long-term loans, although access to short-term finance in the form of credit lines may also be needed.<sup>24</sup>



Source: EUROSTAT. [[aact\\_eaa01](#)]

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

Vegetables and horticulture, dairy, and pig meat production are the most important sectors in terms of production value in the Netherlands in 2019 (vegetables and horticulture (39%), dairy (20%) and pig meat (12%))<sup>25</sup>. Farmers are well engaged in downstream activities (e.g. vertical integration, development of new products with a higher added value, innovation, new markets).

The share of the value added in the food chain for primary producers hovers around 25% and since 2011 is slightly decreasing over time in the Netherlands. This share is roughly in line with the EU-average of 27%<sup>26</sup>. Retail is well concentrated as in other Member States. Producer organisations may help producers to balance the market power of concentrated retail trade.

In the Netherlands, the number of recognised producer organisations (including associations and trans-border organisations) is quite low (11) compared to the number of agricultural cooperatives (194)<sup>27</sup> and to the number of farmers (56 000 in 2016). Traditionally, the level of organisations of farmers is high. In the fruit and vegetables sector, the number of members of producer organisations is around 2 000<sup>28</sup>. However, in recent years the level of organisation of farmers (under the EU Fruit and Vegetables scheme) in the Netherlands decreased, but it is still above the EU average (55% versus 49%). Among the 11 recognised producer organisations, 8 are specialised in fruit and vegetable production (compared to 15 in 2010). Different internal factors (i.e. high degree of vertical integration) lead to a decline in interest in the EU support scheme for producer organisation in the fruit and vegetable sector. However, the sector is still

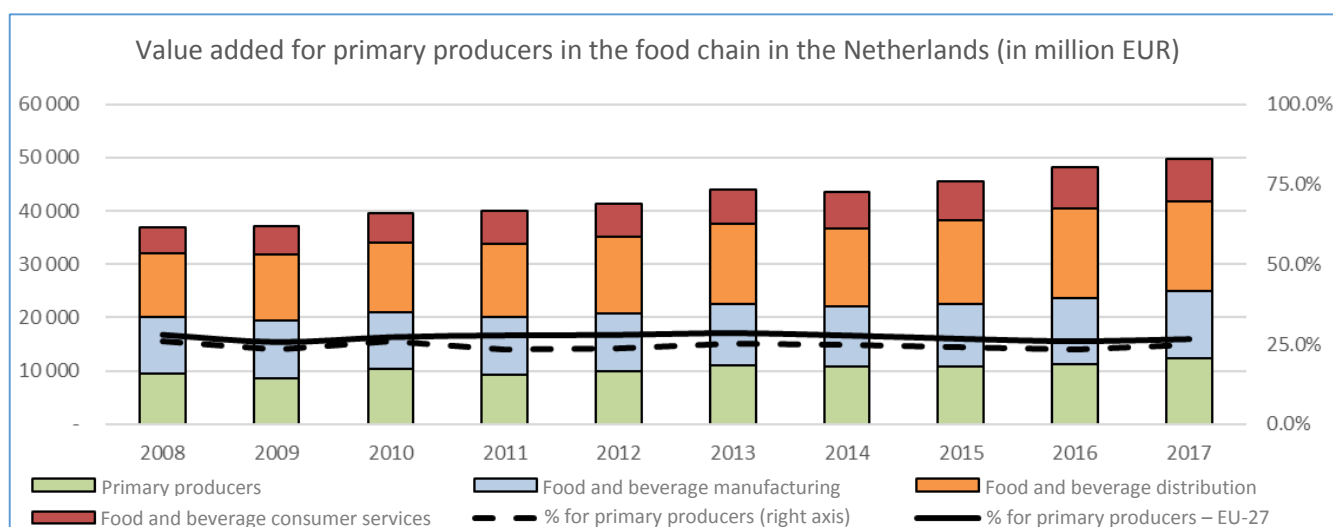
interested in the scheme. Nine interbranch organisations have been recognised so far in the Netherlands and contribute to vertical cooperation in the food chain.

Recognising existing cooperatives in the meat sector, eggs, milk and dairy sectors as producer organisations, with more clear derogation to competition rules and the possibility to implement operational programmes in the near future could favour the increase of added values in those sectors.

In the Netherlands, there are 31 EU protected quality signs (protected designations of origin, protected geographical indications and traditional specialties guaranteed), among which 11 are registered for agricultural products and foodstuff other than wine, spirit drinks and aromatised wines)<sup>29</sup>. Further development of EU quality schemes would allow strengthening farmers' position in the value chain, and therefore generating more value added.

The Commission's Farm to Fork Strategy calls for a more plant-based diet with more focus on fruit and vegetables, better animal welfare and protein transition. The Netherlands currently implements a range of policy measures to enable a dietary shift in line with national guidelines, e.g. by providing information to consumers about healthy and more sustainable choices regarding diets and the sustainability of products. In 2019, products labelled with sustainable food traits account for a market share of 14%<sup>30</sup>. This includes the "*Beter leven*" label, a well-known label for Dutch consumers indicating higher levels of animal welfare. The Netherlands recognises that clear and reliable consumer information is an important challenge<sup>31</sup>, part of a protein transition. The country can build on its relatively diverse arable and horticultural sector to expand plant-based production into new markets, especially by focusing on fruits and vegetables for human consumption.

There is no national legislation in place on unfair trading practices in the Netherlands. However, actions to transpose the UTP Directive<sup>32</sup> by May 2021 into national legislation are on track.



Source: European Commission. [CAP indicators – Data explorer](#). CAP Result indicator RPI\_03 Value for primary producers in the food chain.

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

Greenhouse gas (GHG) emissions of the Dutch agricultural sector are primarily caused by the release of the so-called non-CO<sub>2</sub> greenhouse gases, methane (CH<sub>4</sub>) and nitrous

oxide (N<sub>2</sub>O) in livestock farming, while CO<sub>2</sub> emissions are caused by burning fossil fuels in greenhouse horticulture.

In the Netherlands, the total emissions of greenhouse gases from agriculture decreased between 1990 and 2018 with 26.4% (-20.6% in EU-27). However, since 2003 emissions have been stable and slightly increased in most recent years (an increase of 5.63% between 2013 and 2016 and a subsequent decrease of 3.40% between 2017 and 2018)<sup>33</sup>, due to the abolition of milk quotas in 2015, which led to the growth of the dairy herd and, to a lesser extent, to an increased use of fertilisers. Overall, between 1990 and 2018 the reduction of greenhouse gases was 17.7% from livestock, 28.2% from manure management and 42.4% from agricultural soils<sup>34</sup>. Nevertheless, the Netherlands has the highest emissions of greenhouse gases (CH<sub>4</sub> and N<sub>2</sub>O) per hectare of agricultural area, more than four times the EU-27 average. In 2018, 12.08 Tg CH<sub>4</sub> originated from livestock (8.27 Tg from enteric fermentation and 3.18 Tg from manure management). This reflects the higher levels of intensification of agricultural activities for the country<sup>35</sup>.

In 2018, 9.1% of total greenhouse gas emissions came from agriculture (EU-27 average 10.1%): 29.3% from agricultural soils (EU-27 average 38.4%) and 70.5% from livestock considering both enteric fermentation and manure management (EU-27 average 57.9%). With regard to the latter, 25.1% of GHG emissions came from manure management (EU-27 average 14.3%) and 64.3% from enteric fermentation (EU-27 average 43.8%).

A significant share of farmland in the Netherlands is on peat land (coverage 15.6%, the fourth in EU-27 after Finland, Estonia and Ireland)<sup>36</sup>, which is an important source of greenhouse gas emissions in the agricultural sector. Concerning the land use, land use change and forestry (LULUCF) sectors, besides the significant role of forest as a CO<sub>2</sub> sink, where agricultural soils are concerned, both grasslands and croplands add to the emissions. However, in the period 2013-2018, there has been a reduction in emission from both cropland (-14.1% vs. 11.6% EU-27) and grassland (-9.9% vs. 9.4% EU-27)<sup>37</sup>.

The share of forest area on the total territory of the Netherlands is 11%, well below the EU-27 share (39.8%). In the period 2000-2010, the area under forests increased by 3.9%, followed by a 2.3% reduction between 2011 and 2015, significantly due to selective cuts to foster natural regeneration of ageing Dutch forests<sup>38 39</sup>. Since then, the forest cover slightly increased, but in order to promote carbon stock, the Climate Agreement established in 2019 envisages the reduction of deforestation and afforestation of new areas.

The Netherlands have recognised the expected increase of extreme weather events, such as storms, heavy rain, hail, drought, extreme heat and floods due to climate change, as major threats to crops and livestock production. A government-commissioned economic impact analysis estimated the economic impact of the 2018 drought on Dutch farmers to be in the range of EUR 375 million and EUR 1.9 billion<sup>40</sup>.

Although leaving farmers the initiative to make their own choices, the government supports knowledge development, targeted research (e.g. drought resistant cultivars) and subsidises insurance policies.

The Dutch adaptation programme (*Delta programme*<sup>41</sup>) focuses on impacts of increased rainfall, droughts, sea level rise and heat. Different levels of government are working together to develop strategies, programmes and measures to make agriculture land and rural areas more resilient to these impacts. The main challenges are linked to: the restoration of the sponge functions of nature areas in combination with agricultural land

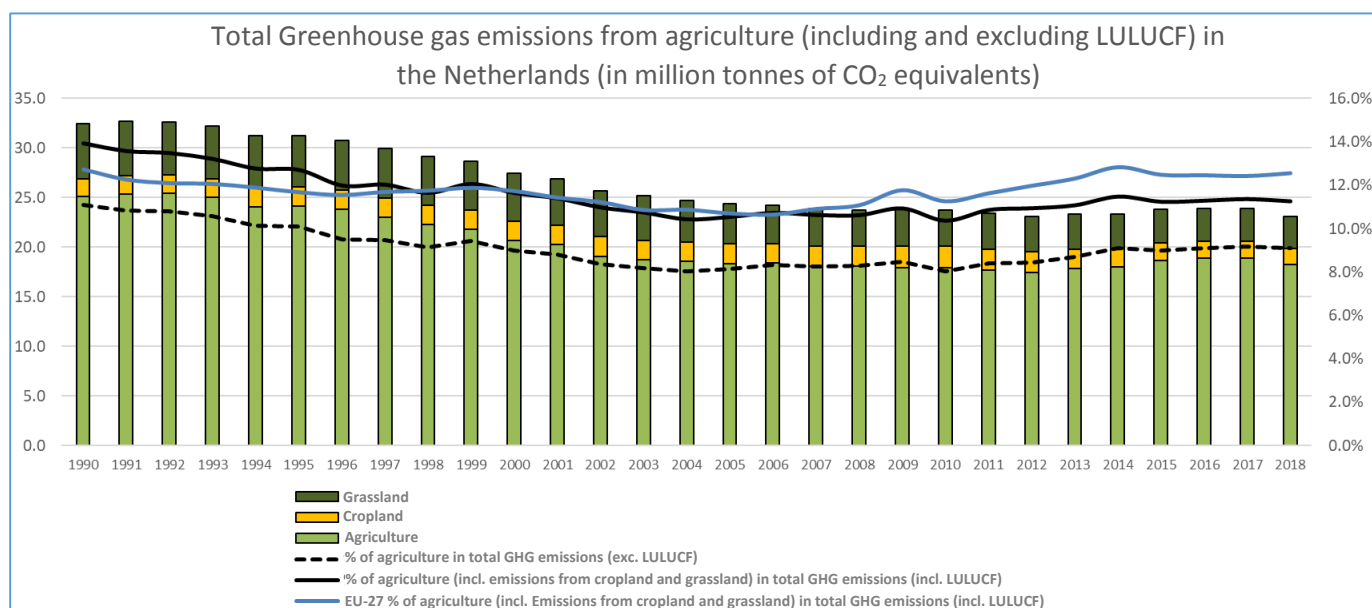
and rural areas; the need to change agricultural practices, such as grassland management to enhance carbon sequestration and appropriate use of lowland peatland/wetland and the of risk salinisation of delta areas due to sea level rise, to be addressed through the development or enlargement of fresh water lenses.

From an energy point of view, the direct use of energy in agriculture and forestry is far higher than the EU-27 average: 1 659 kg of oil equivalent per hectare of agricultural area and forestry vs. 150 kg.

The Netherlands aims to achieve 27% overall share of renewable energy by 2030. The current Dutch agricultural sector relies mostly on fossil fuels and is in a transition to bio-based renewable energy sources. The production of renewable energy from agriculture and forestry is on the rise; the average annual growth rate between 2010 and 2015 was 25.6%. Renewable energy from agriculture in 2018 is 37% of the total production of renewable energy, representing the highest share in the EU, well above the EU-27 average (12.1%). On the other side, the production of renewable energy from forestry (23.7%) is considerably below EU-27 average (41.4%).<sup>42</sup> About 5% of the energy consumption by agriculture and forestry comes from renewable energy sources.

Currently, almost 60% of renewable energy consumption comes from biomass.<sup>43</sup> As regards the direct use of energy in agriculture and forestry, these sectors cover 8.1% of the total final energy consumption in the Netherlands, the highest share in the EU and three times more than the 2.9% EU-27 average. Air pollution impacts should always be taken into due account when assessing the use of biomass combustion for energy (particulate matter emissions). Same for energy consumption in food processing, where the Dutch industry has again the highest share: 4.8%, same as Belgium, compared to 2.9% for EU-27.<sup>44</sup>

In terms of GHG emission, as regards agriculture, the projected emissions in 2030 should be 9.05% lower than in 2013<sup>45</sup>, to be achieved through the following actions: reduction of methane emissions in livestock farming; reduction of peatland CO<sub>2</sub> emissions and CO<sub>2</sub> storage through afforestation, prevention of deforestation and sustainable use of soils; reduction of food waste; increase sustainability of greenhouse horticulture.



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**

In Netherland, the share of agricultural area at risk of soil erosion was in 2012 less than 1% clearly below the EU average<sup>46</sup>. The Netherlands has an average soil loss rate by water of 0.3 tonnes per hectare per year compared to a European mean average of 2.46 tonnes per hectare per year, which indicates soil erosion is low on average<sup>47</sup>.

Nevertheless, the actual soil loss rate can vary strongly within the Member State depending on local conditions. Water erosion occurs mainly in the loess areas in South Limburg and wind erosion in the Veenkoloniën, sandy areas in North Brabant and Drenthe and Bollenstreek<sup>48</sup>.

In addition, in 2015, the mean soil organic carbon content amounts to 32.2 grams per kilogram (on average 43.1 gram/kilogram at EU level)<sup>49</sup>. In 2016, 84%<sup>50</sup> of tillable land was tilled conventionally, and more sustainable management of soil would be beneficial.

As regards quantitative aspect, the land scarcity is a big issue in Netherland due to the high population density (more than four times the EU average of 118/km<sup>2</sup>). Soil sealing is becoming a concern while the Netherland ranked second highest in the EU according to 2015 Eurostat data, with 12.1% of artificial land<sup>51</sup>

As regards water issue, in terms of the Water Framework Directive (WFD) all groundwater bodies were in good quantitative status and 13% of groundwater bodies were failing to achieve good chemical status. The situation is worse for surface waters where all surface water bodies were in less than good ecological status and 52% of surface waters were failing to achieve good chemical status. Diffuse pollution from agriculture is the most significant pressure on surface waters and second most significant pressure on groundwaters.

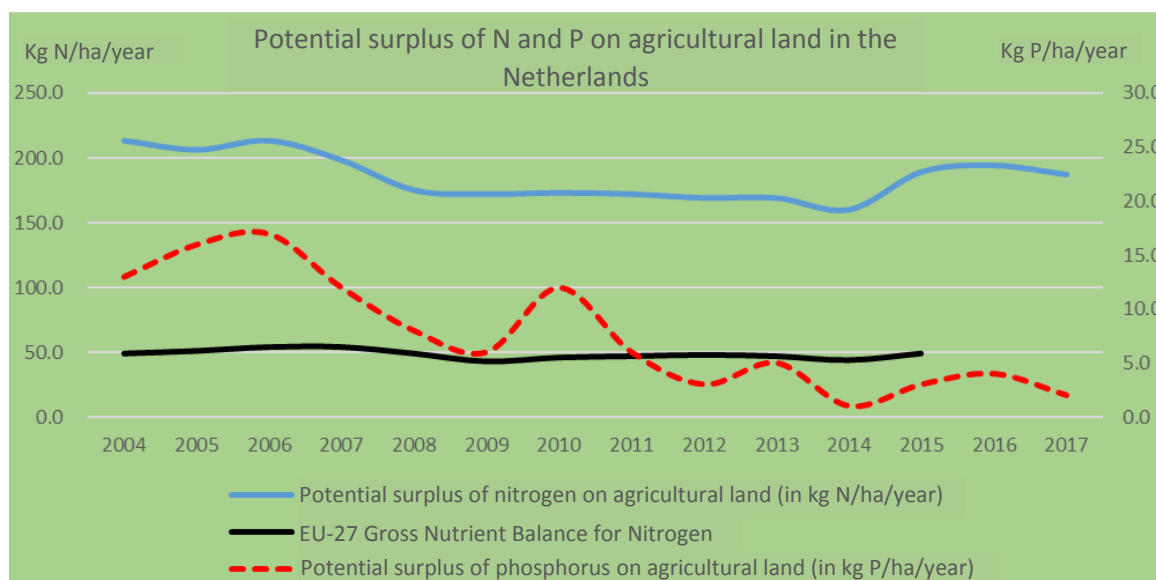
The Netherlands has an action programme for the Nitrates Directive covering the whole territory. It has been granted a derogation (EU) 2020/1073 for nitrogen originating from livestock manure in connection with an action programme, on the basis of scientific evidence and on a number of conditions, including phosphate and nitrogen not exceeding the 2002 level respectively (172.9 million kg and 504 million Kg)<sup>52</sup>.

As regards water quality and nutrients, the significant intensification of livestock farming activities after the end of the milk quota system has resulted in an increase in cattle numbers, representing an additional challenge to the management of nutrients in the country. This has pushed phosphate levels beyond the limits in 2015 and in 2016, thus posing additional concerns about water quality. The Netherlands took additional measures among which the implementation of phosphate reduction scheme in 2017 and the introduction of the phosphate production rights for dairy cattle as of 2018.

After a downward trend recorded from 1990 to 2005-2007, the nitrogen surplus has slightly increased and is still high for European standards (200 kilograms of nitrogen per hectare per year in 2016 vs. 50 at EU level), while phosphorus surplus decreased substantially over time from 30 to less than 3 Kg/ha/year<sup>53</sup>. In addition, 13.8% of groundwater stations report poor quality in terms of Nitrogen concentration in excess of 50 mg/l, mainly located on sandy soils<sup>54</sup>. Despite of some improvement, around 40-60% of the sites monitored are not yet in compliance with the Nitrate total water content<sup>55</sup>.

On air quality: among different air non-CO<sub>2</sub> pollutant sources, agriculture is the main source emission of ammonia (86% of total ammonia emissions). Ammonia emissions are stable or even increasing since 2010, after decreasing by almost 50% between 1990 and 2000. The Netherlands are found to be at high risk of non-compliance with the ammonia emission reduction commitments for both 2020-2029 and for 2030 and beyond<sup>56</sup>. It should also be noted that a relatively high share of other air pollutants in the Netherlands originate from agricultural sources: 22% of the total reported emissions of nitrogen oxides, 39% of the total reported emissions of non-methane volatile organic compounds and 9% of the total fine particulate matter emissions. Both ammonia and nitrogen oxides emissions to air are of relevance for their contribution to nitrogen deposition to water and ecosystems.

The nitrogen deposition in the Netherlands is still too high to ensure a good biodiversity protection<sup>57</sup> (about 40% of deposition originates from agriculture). The critical nitrogen deposition value, which is the limit above which there is a risk that the quality of the habitat will be significantly affected, is exceeded in 70% of nature areas in 2016. The existing nitrogen problem in the Netherlands requires doing more for biodiversity both in nature reserves and on farmland. Consequently, possible approaches to reduce the nitrogen deposition value under the critical level for all Natura-2000 areas are suggested<sup>58</sup>. This can be achieved by both nature restoration in the Natura 2000 sites and by focussing on reducing NH<sub>3</sub> emissions, with a territorial-based approach in the country given their more direct relationship between emission and deposition, and to a minor extend NO<sub>x</sub> emissions. Possible solutions in which emission reductions could be sought for agriculture are about reducing livestock numbers and supporting transition to circular agriculture, as well as technical measures such as investments in low-emission stables and reducing the nutrient pollution through the use of inorganic fertilisers and animal feed.



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 decreased over time, slightly stronger than the EU average<sup>59</sup>. Between 2000 and 2017 the average decline was 35%. For the Netherlands, this index covers 27 species amongst which 21 species are declining. For example, populations of the oystercatcher (*Haematopus ostralegus*), the black-tailed godwit (*Limosa limosa*) and the skylark (*Alauda arvensis*) have declined by more than 60% between 1990 and 2015. The latest 2013-2018 reporting on the status and trends of bird populations, particularly for wet meadow birds and farmland birds, while indicating very limited improvements, it also showed a higher proportion of decreasing long term trends (39% compared to 34% in the previous 2008-2012 report). Of major concern are wet meadow birds (such as black-tailed godwit) and farmland birds (in particular turtle dove) that continue to decline mainly due to intensive agricultural practices (grassland management, drainage, use of fertilisers/chemicals) combined with the impacts of climate change. A decreasing trend is also observed for the population of bees and butterflies-species associated with agricultural landscape, with a decrease of 70% over a span of 20 years<sup>60</sup>.

According to the latest report<sup>61</sup> on the conservation status of habitats and species covered by the Habitats Directive, only 11.54% of the *habitats'* assessments were favourable in 2013-2018 (EU 27: 24.06%), while 34.62% are considered to be in unfavourable–inadequate status (EU27: 39.73%), 53.85% are unfavourable – bad (EU27: 32.32%) and the remaining is unknown. In the Netherlands, all grassland habitats are reported as being in an unfavourable conversation status<sup>62</sup>. As for the *species*, 26.25% of the assessments were favourable in 2013-2018 (EU 27: 31.25%), while 30% are considered to be in unfavourable-inadequate status (EU27: 35.27%), 38.75% unfavourable-bad status (EU27: 19.64%) and the remaining is unknown.

In addition, a low share of agricultural area (4%) is designated under Natura 2000, while the EU-27 average is 11%. The share of forest area under Natura 2000 is 37.4%. By early 2018, 13.3% of the national land area of the Netherlands was covered by Natura 2000 (EU average 18.1%). Special areas of protection (SPAs), under the Birds Directive, covered 11.5% (EU average 12.3%) and Sites of community importance (SCIs), under the Habitats Directive, covered 8% (EU average 13.8%). Still certain situations of non-compliance exist in relation to the insufficiency of the network (SPAs and SCIs) and qualitative aspects of some management plans in place<sup>63</sup>.

Another critical factor for biodiversity is desiccation which is present in over 90% of the area of groundwater dependent nature. About two thirds of nature reserves suffer from at least one pressure and mostly from a combination of nitrogen deposition and desiccation. This is already acknowledged by the Netherlands in the Prioritised Action Framework (PAF) 2021-2027, where in addition to addressing the nitrogen issues also hydrological measures appear. To date, habitat fragmentation, atmospheric nitrogen deposition, desiccation and acidification are still major threats to terrestrial biodiversity in the Netherlands. While spatial connectivity is improved and the natural area increased by the National Ecological Network (which includes the Natura 2000 sites and other national nature networks), spatial requirements for some species will still not be met<sup>64</sup>.

Only 23.6% of the utilised agricultural land is defined as managed with low input intensity, 25.6% as medium and 51% with high input intensity. None of the utilised

agricultural land is utilised for extensive grazing<sup>65</sup>. Among other concerns, highly intensified agriculture across the country creates specific challenges to be addressed, such as drainage/desiccation.

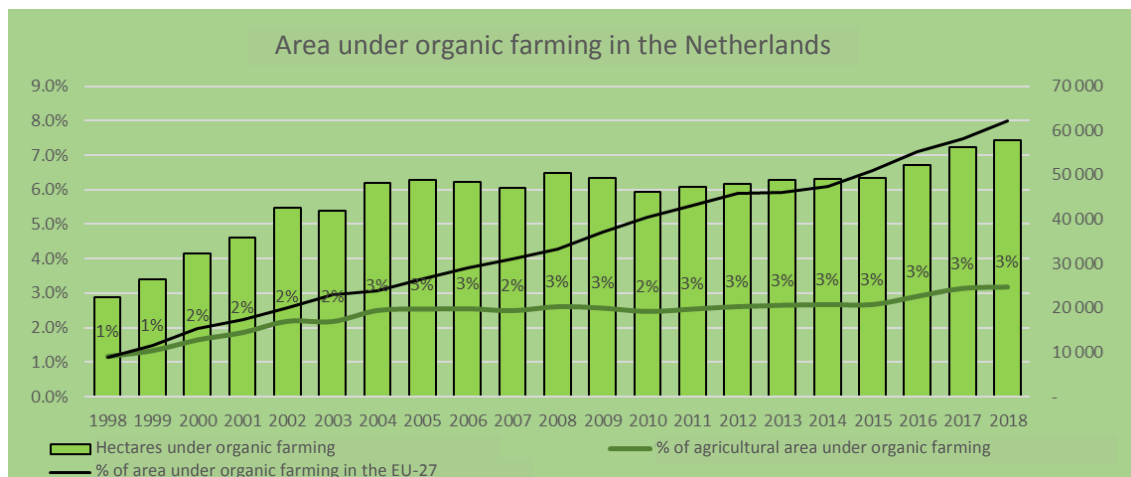
Estimates show that about 3.4% of the agricultural area in the Netherlands is covered with landscape features like grass margins, shrub margins, single tree bushes, lines of trees, hedges and ditches<sup>66</sup>. However, the Netherlands keep currently most of landscape features outside of the eligible area for direct payment under Pillar I. So pending the development of a reliable registration system, currently only few landscape features located in eligible areas are known.<sup>67</sup> In addition, 0.4% of agricultural land is laying fallow in 2018. As the biodiversity strategy aims to have at least 10% of agricultural area under high-diversity landscape features, there is gap to bridge up to 2030. The EU average of some elements like fallow and linear elements is 4.6% in total with 4.1% fallow land and 0.5% linear landscape elements in agricultural area<sup>68</sup>. The Netherlands is one of the Member States where the number of Landscape Features activated in GAEC (7) is non-existing<sup>69</sup> (*and has not included hedges, ponds, ditches, trees in line, group of trees, isolated trees, fields margins, terraces or traditional stone walls in its notification for GAEC7*), nor are hardly any landscape features activated under the Ecological Focus Areas for 2019.

Ecological Focus Areas in the Netherlands cover 218 399 hectares (out of 1.78 million hectares of agricultural area), and constitute mainly of 97.3% catch crops, 2.2% nitrogen fixing crops and very small share of landscape features (0.1%), bufferstrips/fieldmargins (0.3%), fallow land (0.04%) and others (0.07%)<sup>70</sup>.

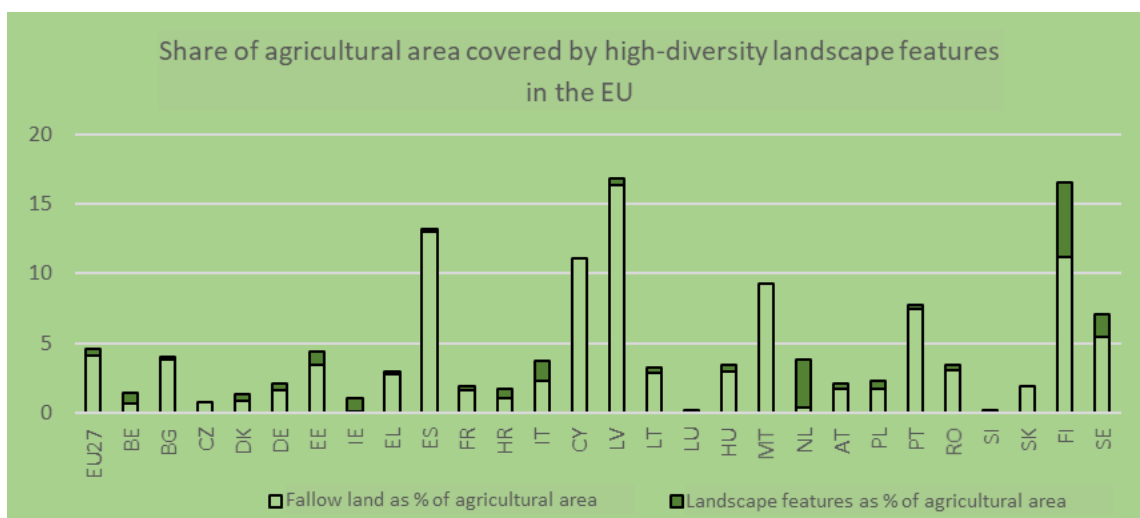
Permanent Grassland covers 42% (758 761 ha) of the Utilised agricultural area (UAA), of which 59 925 ha (3.3% of UAA) is situated in Natura 2000 areas and all of it designated as ESPG (environmental sensitive permanent grassland). This ratio has been stable over the last 4 years (data from 2019<sup>71</sup>).

The area covered under agro-environmental-climate measures under the second pillar is currently 4.3% or 86 065 hectares<sup>72</sup> of the agricultural area, with a target value of 5.87% (112 250 ha); these measures are implemented through the agrarian collectives which work area-based and focus mainly on maintaining and restoring 5 types of habitats for enhancing biodiversity on farmland. This model of collective approach aims at an optimisation of joined efforts for nature where efficiency gain for biodiversity is highest<sup>73</sup>.

The Farm to Fork strategy put forward aspirational targets to improve sustainable food systems. Based on the targets of agricultural area under organic farming, its share has been stable as percentage of the agricultural area between 2005 and 2015 after which it started to increase steadily. The area under organic farming (3.2%) is low compared to European standards (8% on average in 2018), however, the Netherlands do not use any CAP support to stimulate the conversion to organic. In addition, no national target or strategy exists in the Netherlands to increase the area under organic farming.



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



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

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

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

The number of farms in the Netherlands is steadily decreasing, with an average annual reduction of 3% (2% decline EU average in 2013). As a result, between 2007 and 2016, the total number of farms has decreased by 27% for the Netherlands<sup>74</sup>. Whilst the numbers of very small and small farms have fallen considerably (-56%) between 2010 and 2017, the numbers of large and very high large farms increased significantly (+53%)<sup>75</sup>.

The Netherlands has a low share of farmers below 35 years in the total number of farm managers (4.1% in 2016) compared to EU average (5.1%). Whereas the EU-trend decreased between 2010 and 2016, an increase of the share of Dutch young farmers can be observed in between 2013 and 2016 (see figure below). Also only 7% of these young farm managers is female. This is larger than the national average of 5.3%, but much lower than the EU average of 30.4% of female farm managers.<sup>76</sup>

Young farmers are well educated in the Netherlands compared to the EU average (only 20% with just practical experience). The average level of education of Dutch farmers is good: 72% have agricultural training and 28% have only practical experience. This is a good result compared to the European average, where 71% has only practical

experience.<sup>77</sup> The share of farmers below the age of 35 with at least 2 years of training (full agricultural training) is higher than at the total number of farmers in the Netherlands.<sup>78</sup> The high level of education among young rural people also offers job opportunities with a good income alternative outside the agricultural holding and this in a tight labour market.

The agricultural income of young farmers exceeds by on average 9% the income of the other Dutch farmers for the period 2014-2018. The average agricultural income in the Netherlands is amongst the highest in EU-28.<sup>79</sup>

Some sectors have a stronger attraction to young farmers than to Dutch farmers in general. For example, 67% of the young farmers are specialised in grazing livestock against 53% of all farmers. Around 24% of the young farmers are specialised in field crops whilst 17% of all farmers and finally only 1.4% of the young farmers are specialised in horticulture against 14% of all farmers.<sup>80</sup>

In 2016, 62% of the Dutch farm managers of over 51 years of age have no successor. This means that in the next 15 years approximately 20 000 farms will disappear or that the farm business succession will be organised through extra-family business takeover resulting in an increase of scale of the existing farm businesses.<sup>81</sup>

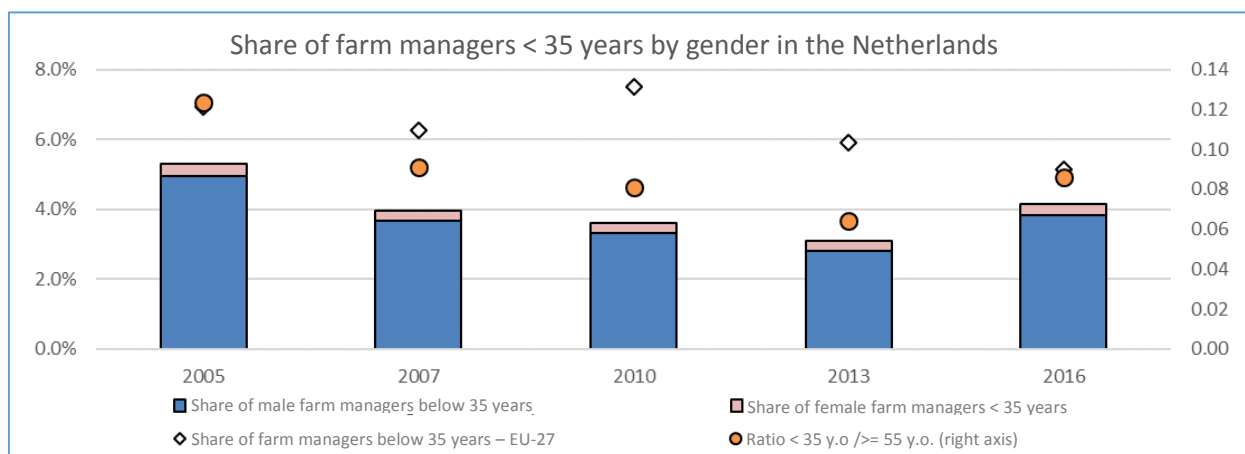
The transfer to the next generation of farmers, requires a large amount of finance to buy out the assets of the retiring generation. Access to sufficient capital to take over a farm in the Netherlands is a constraint due to the high value of the farmland. The limited availability on the land market combined with demand for land for economies of scale and the demand for non-agricultural functions, represent a great pressure on the land price. The average land price in The Netherlands in 2018 was EUR 70 320 per hectare which is the highest within the EU.<sup>82</sup> A high land price together with a high capital intensity and the increasing in scale result in a high market value of holdings (an average balance sheet value of EUR 3 million). In addition, the return on assets is low, 0,8% in 2015 (1.3% EU-28).<sup>83</sup>

The financing gap for The Netherlands primary agriculture sector is estimated between EUR 73 million and EUR 303 million, of which about 22.3% might be attributed to young farmers. Young farmers and new entrants face difficulties in accessing finance due to insufficient own resources and collateral.<sup>84</sup>

Several support systems already exist in the Netherlands to favour the succession of farms. In addition to a favourable tax regime for family farm successions, the current government encourages the farm business acquisitions by young farmers with farm business acquisitions guarantee fund of EUR 75 million and this from January 2020. There is also the support within the CAP. Under Pillar II, the Netherlands chose not to support young farmers (up to 40 years included) with the installation grant but with an investment subsidy scheme. The amount granted was more than EUR 21 million at the end of 2018. The total available budget for the entire period is EUR 35.76 million. The young farmers are also eligible for a top-up on the per-hectare premium under the first pillar of the CAP. In 2018, the Netherlands dedicated EUR 13.76 million to the young farmer payment to support 7 382 farmers or a bit more than 350 000 hectares (equal to 1.94% of the total direct payment envelope).<sup>85</sup>

In the Netherlands, LEADER is the tool used for small and medium business development. In the current programming period, 319 new projects could be started under LEADER.<sup>86</sup>

The financing gap of the Dutch agri-food sector is estimated to be EUR 251 million. Small and medium-sized enterprises (SMEs) account 90% of the financing gap. Long-term loans hold the largest share of the gap. The financing gap is driven by the rejections of loans by start-ups and small-sized enterprises due to the lack of track records and the risk aversion by banks, in particular when it comes to financing innovations. There may be possibilities to develop new financial instruments (including under the EAFRD) to support access to credit for start-ups and innovative projects, for which banks seem to adopt a conservative approach and display a reluctance to provide finance.<sup>87</sup>



Source: EUROSTAT. [[ef\\_m\\_farmang](#)]

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

About 2% of the area in the Netherlands is rural whereas 47% of the surface area classifies as intermediate in 2016. This is particularly lower than the EU average where 45% of the area is rural and 46% is intermediate<sup>88</sup>. Moreover, according to the definition of rural-urban typology: 74.2% of the Dutch population lives in urban areas, 25.2% in intermediate areas and only 0.6% of the population lives in these few rural areas<sup>89</sup>. The definition of rural population by degree of urbanisation (DEGRUBA), defines that 10.3% of the population lives in rural areas in 2019<sup>90</sup>, and according to the same definition the rural territory is 34.3%. It illustrates the particular characteristics of the Netherlands as a very densely populated country in which distances are relatively short and there are, in general, not many differences between employment figures in rural and urban areas. In fact, employment figures are slightly higher in rural areas (81.4% in 2019) than in urban areas (76.6%), and considerably higher than the average employment rate in rural areas in the EU-27 (68.4%). The rural employment rate for males (85.9% in 2019) is higher than for females (76.7%)<sup>91</sup> whereas the youth unemployment in rural areas (aged 20-24) stood at 4.2% in 2019<sup>92</sup>. On the other hand, the gross domestic product (GDP) per capita is higher in urban areas (136, measured as an index where total EU GDP equals 100) than in rural areas (111) according to data for 2016<sup>93</sup>. Thirdly, the poverty rate in the rural areas is lower in the Netherlands (12.8%) compared to the EU (23.5%)<sup>94</sup>. Furthermore, the poverty rate in the Netherlands is higher in cities (19.8% in 2018), than in rural areas.

Population is increasing in urban areas (+2.7% between 2015 and 2019), whereas the rural population is slightly decreasing (-0.2%) in the same period<sup>95</sup>. Behind the averages, several small, rural villages are at risk of a shrinking population in the Netherlands. These are mainly located in the Northern provinces and the province of Zeeland<sup>96</sup>. These

areas or “*krimpregios*” are characterised by an aging population with younger generations and higher-educated people moving to urban areas. In addition, public transport availability is sometimes limited in those regions. The lack of jobs, higher unemployment rate and lower education level in these lagging areas as compared to the Dutch average increases the risks that basic services will disappear<sup>97</sup>. Data for 2015 shows that participation in informal voluntary activities in rural areas (84.3%) or cultural or sport activities (88.3%) is significantly higher in the Netherlands than elsewhere in Europe (23.7% and 60.1% respectively)<sup>98</sup>. These strong community ties are important in the small rural villages in the Netherlands, but can get under pressure with an aging population. Broadband access through glass fibre can be an important pre-condition to make or keep rural areas attractive for start-ups. In this regard, next-generation broadband access in rural areas is almost completed with 96% of households covered in 2019<sup>99</sup>.

The family farm model in Dutch agriculture is still dominant with 67% of the agricultural labour force being family labour. 26% of the agricultural labour force is women, however, only 5% of farm managers are women in 2016 (the lowest in the EU)<sup>100</sup>. Whereas the Dutch agricultural sector is among the largest exporting countries in the world, only 2.0% of the labour force works in the agricultural sector in 2017 (coming from 2.7% in 2010), while 1.7% is employed in the food industry<sup>101</sup>. The high competitiveness, which builds upon economies of scale and mechanisation, stimulates an outflow of labour from the sector. Nevertheless, the greenhouse horticulture in the Netherlands producing vegetables and flowers is labour intensive, relying mostly on seasonal labour from predominantly Central and Eastern Europe. About one fifth of them work at or below the minimum wage<sup>102</sup>. The bulk of unfair practices that affect migrant farmworkers in the Netherlands can be defined as “regulated precariousness” embedded in migrant workers’ high degree of dependency on their employers and shaped by skewed power relations in the agri-food chain<sup>103</sup>.

Agricultural land covers two-third of the total surface area in the Netherlands<sup>104</sup>. Despite the spatial coverage, the primary sector accounts for only 1.9% of the gross value added in 2018, slightly higher than the EU-average (1.6%)<sup>105</sup>. Even though the primary sector employs only a small proportion of the total labour force, the agri-business provides a relatively large contribution to the Dutch economy. However, given the high population density and scarce land, urban spread, forestry and recreation put pressure on the area of agricultural land that is expected to continue declining in the future. Given the environmental challenges related to climate, the Netherlands must strike the right balance in the future between agriculture, renewable energy production, life, work and recreation in rural areas.

With respect to the bio-economy and forestry (covering 11% of the area in 2020<sup>106</sup>) in the Netherlands, both sectors are growing over time in terms of output. The bio-economy has a turnover around 115 billion per year, employing around 350 000 persons in 2015. Food and beverages take up the largest share in the total turnover (63% in 2015)<sup>107</sup>.

## **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.**

Considering the actions to reduce Antimicrobial Resistance (AMR) in the Netherlands, one of the relevant primary indicator in the Farm to Fork Strategy are the sales of veterinary antimicrobial agents in food-producing animals in the Netherlands, which is 57.5 mg/PCU (population correction unit based<sup>108</sup> on the Tenth ESVAC report in 2018).



The sales follows a downward trend which flattened in recent years, at a level of 49% of the EU average sales (EU-27: 118.3 mg/PCU). Clear achievements have already been made in this respect as sales reduced by 61% between 2010 and 2018 especially as a large part of livestock herd consists of pigs and veal calves. Additional secondary indicators assessing the progress in reducing AMR are the sales of antimicrobials that are most critical for public health, for which the latest national monitoring stated a reduction to an absolute minimum in livestock<sup>109</sup>. Furthermore, the prevalence of resistant *E.coli*'s in broilers further reduced, but remained status-quo in pigs, and was slightly increased in veal-calves. The Netherlands should continue to implement measures to maintain its downward trend for the overall sales of antimicrobials to contribute to the EU Farm to Fork target and ensure that all the necessary measures are in place for a smooth implementation of the new provisions of Regulation (EU) 2019/6 on veterinary medicinal products applicable as from 2022.

Linked to the intensive nature of the agricultural production in the Netherlands, the sales of plant protection products in active ingredient per hectare is one of the highest in the EU on arable land<sup>110</sup>. The total sales of pesticides is stable around 10 to 11 million kilogrammes of active ingredient, though a 10% reduction was observed in 2018. The Harmonised Risk Indicator 1 (HRI1) which estimates the trends in risk from pesticide use for human health and the environment, shows a downward trend of minus 23% in 2018 compared to the baseline of 2011-2013. Despite this reduction in risk from pesticides use, further efforts are needed especially as regards implementation of the Sustainable Use Directive, including the implementation of Integrated Pest Management on arable farming systems<sup>111</sup>, and the verification of its proper implementation at farm level. As alternative to toxic products such as neonicotinoids, only a limited number of low-risk products are available, but substantial effort is being undertaken to improve the situation. In addition, the Netherlands has developed a vision for the future of crop protection in 2030, called "Towards resilient plant and cultivation systems", which will be taken into account in the review of the national action plan.

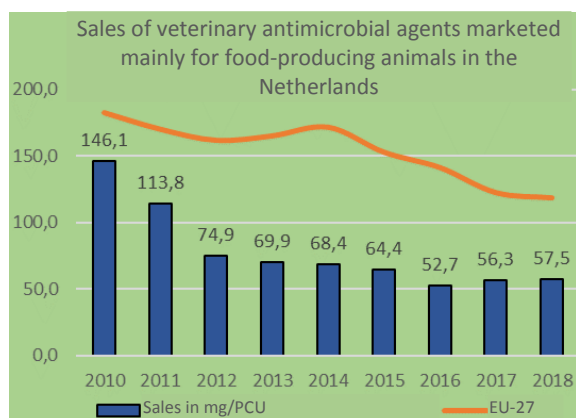
Animal welfare is another priority area for the Farm to Fork strategy, which is absolutely vital for the sustainability of food systems and increasingly important for consumers when making their food-choices. In relation to animal welfare, the main issue in the Netherlands is that the tail docking of pigs is a routine practice, although this is prohibited as a routine measure by EU rules. 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 start to decrease. Furthermore, dairy cows live on average for only three lactations due to the demands of high milk production, leading to animal welfare and health problems on farm. The Netherlands reports recent improvements in this area.

Animal welfare-friendly produced food falls generally under consumers' demand for "sustainable" food and food products, which encompasses organic food, Fairtrade, Rainforest Alliance and many others. The overweight rates reported in the Netherlands currently stand at 47%, compared to an EU average of 52%. Regarding obesity (*BMI* >30), the number stands at 12.7%, while the EU-average is 14.9%<sup>112</sup>.

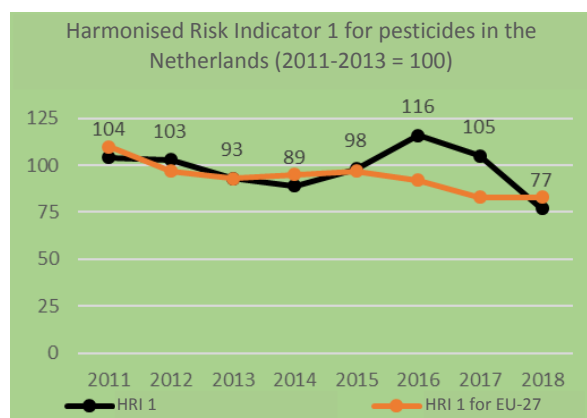
The Netherlands has a comparatively low burden from non-communicable diseases due to dietary risk factors expressed as Disability Adjusted Life Year (DALYs) per 100 000 population attributable to diet<sup>113</sup>. Part of the Netherlands' population is overweight or obese, while estimated consumption of red meat is high<sup>114</sup> and consumption of fruits and vegetables low<sup>115</sup>. Efforts should focus on shifting towards healthy sustainable diets, more plant-based with less red and processed meat, more fruits and vegetables, whole grains, as well as nuts, seeds and pulses, in line with national dietary recommendations,

in order to contribute to reducing overweight and obesity and the incidence of non-communicable diseases, while simultaneously improving the overall environmental impact of the food systems.

Food waste in the Netherlands is estimated between 105 and 145 kg/person<sup>116</sup> and households (consumers) are responsible for a share of 27 to 39% in the total food waste cycle. In food production and processing, the main food waste is attributed to losses during the process and in supermarkets with shelf life compliance. The Netherlands has committed itself to the Sustainable Development Goal (SDG) 12.3 which states a 50% reduction of food losses and food waste by 2030 (baseline year 2015). To reach this very ambitious target, the Dutch government will focus both on the consumer through campaigns, as well as on the food production and processing sector<sup>117</sup>.



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



Source: EUROSTAT [aei\_hri]

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

The Dutch Agricultural Knowledge and Innovation System (AKIS) operates very much at an international level and according to the OECD<sup>118</sup>, it is a global forerunning system. However, despite the substantial financial resources invested in it (“strong”), the AKIS stays “fragmented” because the various types of AKIS actors collaborate insufficiently, as well as the different levels (national/regions). This is the result of long-term public-private investments and the collaboration between research, industry and governments, creating a highly innovative and technologically advanced agricultural sector. However, this approach may also create a lack of local and publicly available knowledge and farmers’ involvement, which is key to influence transitions in Dutch farms.

While more large-scale firms and intensification provide for more private research and innovation investments, public funding for interactive interventions and for advice has been and is being reduced. Starting in the 1980s, this has led to a gradual shift from knowledge as a public good to knowledge as a *marketable* product<sup>119</sup>.

In 2014-2020, the Netherlands programmed 8.1% of their total rural development envelope (EU financing + national contribution) under the measure for knowledge transfer and information actions and co-operation/EIP. This is far above the EU-28 average of 3.3%.<sup>120</sup> However, by August 2020 only 15% of the funds under these measures was spent, though respectively 65% and 81% of the measures’ budget was already committed in projects. The key issue for the future CAP will be to ensure uptake and effectiveness of the funding invested, and to make the measures/interventions more attractive and targeted to farmers’ needs.

In 2016, the share of farm managers that attained at least a basic agricultural training was 78% (the same share for managers under 35), which is far above the EU average

(43%)<sup>121</sup>. In 2019; through rural development funding, 6534 training days were provided for a total of 6473 participants.

Concerning the role of advisory services, privatisation has led to a disintegration of the knowledge distribution system and a lack of throughput of knowledge towards farmers. Currently, there are no public advisors. In general, Dutch farmers are close with many advisors and have their own networks for obtaining the knowledge they need. However, this adds to the complexity of the Dutch AKIS system and creates barriers to SMEs that do not have the resources to pay for private advisory services<sup>122</sup>. The Netherlands do not make use of rural development funding to support advisory services. More efforts are needed on impartial advice for example related to societal challenges.

The 2014-2020 EIP Operational Groups are a success and have involved Dutch farmers in the process of knowledge co-creation and innovation, strengthening knowledge flows within the projects and between the projects resulting in an effective impact on the field. Furthermore, their representatives also influence, inter alia, the Research & Development demand, the innovation policy and educational funding<sup>123</sup>. To date, there are 202 officially reported EIP Operational Groups in the Netherlands, exceeding its target of 90 EIP groups<sup>124</sup>. The main themes concern plant production & horticulture and animal husbandry & welfare, followed by farming/forestry competitiveness & diversification.

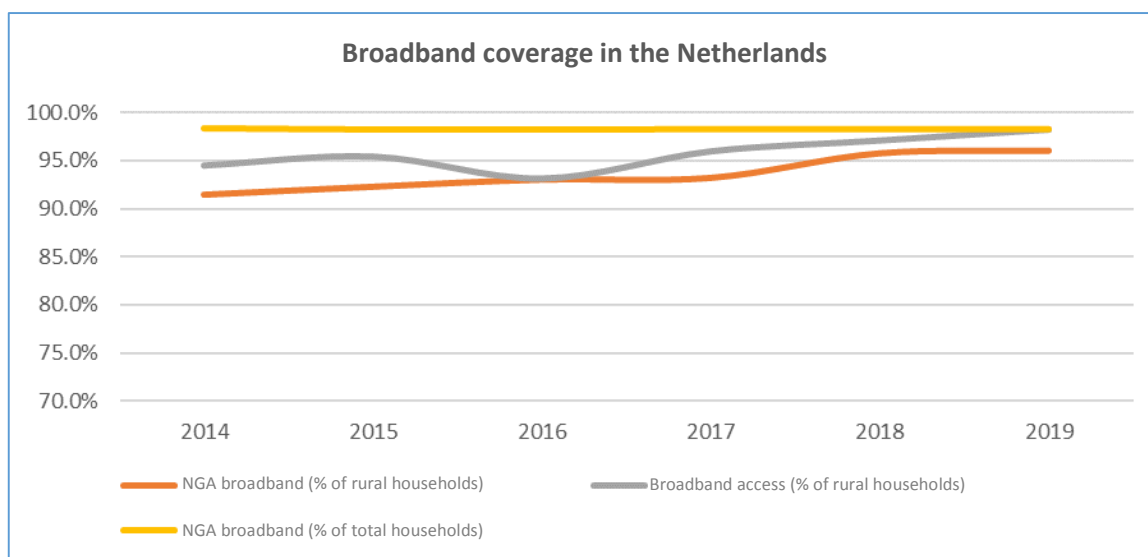
The Netherlands' planned budget for the national rural network (NRN) for 2014-2020 amounts to only EUR 1.7 million (EU average is EUR 12.1 million)<sup>125</sup>. Due to the fragmentation of funding between the provinces for the EIP, more efforts to exchange knowledge at national level, for example through the CAP network, may be needed to spread scientific outcomes publicly, and to exchange info on complementary or possible duplication of efforts. The NRN plays already an active role in dissemination of project results, connecting the people across the provinces and stimulating them in learning from each other<sup>126</sup>. This experience can be the basis for the future national CAP network to intensify such actions and play a key role in promoting synergies between the CAP and European Research Area. The best way to do so is to keep in close touch with the Horizon National Contact Points and to intensify the spreading of the information on the EIP website. Moreover, by collecting and disseminating information, the CAP can finance interventions that help to make use of up-to-date scientific information for agricultural practices, for instance through the CAP network and knowledge platforms and by setting up advisory back-offices where the latest knowledge and innovation is collected and shared with the field advisors and the farmers.

In the Netherlands, digitalisation of the primary sector is seen as an important accelerator with particular focus on smart farming (or precision farming) based on data-driven smart decision making, robotics/mechanisation and Internet of Things-solutions. Regional initiatives establish platforms bringing together farmers and other actors from different sectors in an open innovation approach<sup>127</sup>. Moreover, there are several digital innovation hubs and public, public-private and private R&I networks and clusters in the Netherlands and many dissemination infrastructures and repositories exist.

The Netherlands have advanced digital infrastructure and technologies in agriculture. Looking at the Digital Economy and Society Index (DESI) 2020 ranking, which considers rural and urban areas, the Netherlands ranks 4<sup>th</sup> out of 28 EU Member States, indicating its top performance and solid and steady digital growth in terms of connectivity, human capital, use of internet services, integration of digital technology and digital public services. It is among the top performers in connectivity, with near-complete fast broadband and 4G coverage in both urban and rural areas. The Netherlands has not yet opted for the use of satellite-based means to monitor CAP implementation but is

currently part of EU projects dealing with the uptake of new technologies for the modernisation of CAP administrations, CAP controls and interactions with farmers. Concerning training, 81% of individuals living in cities and 77% of individuals living in rural areas have at least basic overall digital skills<sup>128</sup>.

Source: European Commission. *Digital Economy and Society Index*. DESI individual indicators – 1b1 Fast



BB (NGA) coverage [[desi\\_1b1\\_fbbc](#)]



Source: EUROSTAT [[ef\\_mp\\_training](#)]

- <sup>1</sup> Algemene Rekenkamer. *Aanpak mestvervuiling veehouderij. Vervolgonderzoek duurzaamheid veehouderij 2019*. Den Haag, 2019.
- <sup>2</sup> Directorate general for Agriculture and Rural Development, *Building Stronger Agricultural Knowledge And Innovation Systems (AKIS) to foster advice, knowledge and innovation in agriculture and rural areas*. April 2019 [https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key\\_policies/documents/building-stronger-akis\\_en.pdf](https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key_policies/documents/building-stronger-akis_en.pdf)
- <sup>3</sup> Innovation support services are a new obligation in Art 13(4)
- <sup>4</sup> European Commission. *CAP context indicator C.25 Agricultural factor income*. Based on EUROSTAT [[aact\\_eaa04](#)], [[aact\\_ali01](#)] and [[aact\\_eaa06](#)]. All the latest data for the context indicators is available on the [EUROPA website](#). For more information about the Common Monitoring and Evaluation Framework (CMEF) to assess the performance of the Common Agricultural Policy is available [here](#).
- <sup>5</sup> European Commission. *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>6</sup> EUROSTAT. [[aact\\_eaa01](#)]
- <sup>7</sup> European Commission. *CAP Indicator Dashboard* [CAP indicator dashboard: Farming Income support](#)
- <sup>8</sup> Farm Accountancy Data Network. *FADN Standard reports*. Report [YEAR.COUNTRY.TF14](#)
- <sup>9</sup> Wageningen University and Research. *Agrimatie – informatie over de agrarische sector*. Inkomen uit bedrijf. Wageningen University and Research centre
- <sup>10</sup> OECD. *Strengthening Agricultural Resilience in the face of Multiple Risks. Chapter 8 Resilience to animal and plant health in the Netherlands*. [OECDlibrary](#). 2020.
- <sup>11</sup> OECD. *Producer Incentives in Livestock Disease Management*. OECD Publishing, Paris, 2017. <https://dx.doi.org/10.1787/9789264279483-en>.
- <sup>12</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>13</sup> Directorate general for Agriculture and Rural Development based on [COMEXT](#)
- <sup>14</sup> Berkhout, P., van Doorn, A., Geerling-Eiff, F., van der Meulen, H., Tacke, G., Venema, G., & Vogelzang, T. *De landbouw en het landelijk gebied in Nederland in beeld – een houtskoolschets van de SWOT voor het GLB*. Wageningen Economic Research, Wageningen. Rapport 2019-058. 103 pages. <https://doi.org/10.18174/498882>
- <sup>15</sup> See note 14
- <sup>16</sup> See note 14
- <sup>17</sup> European Commission. *CAP context indicator C.21 Livestock units*. Based on EUROSTAT [[ef\\_lsk\\_main](#)], [[ef\\_lsk\\_poultry](#)], [[ef\\_lsk\\_bovine](#)] and [[ef\\_lus\\_main](#)].
- <sup>18</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>19</sup> European Commission. *CAP context indicator C.13 Employment by economic activity*. Based on EUROSTAT [[lfst\\_r\\_lfe2en2](#)]
- <sup>20</sup> Fi-compass. *Financial needs in the agriculture and agri-food sectors in The Netherlands*. Study report, 2020. 75 pages. [https://www.ficompass.eu/sites/default/files/publications/financial\\_needs\\_agriculture\\_agrifood\\_sectors\\_Netherlands.pdf](https://www.ficompass.eu/sites/default/files/publications/financial_needs_agriculture_agrifood_sectors_Netherlands.pdf).
- <sup>21</sup> European Commission. *CAP context indicator C.28 Gross fixed capital formation*. Based on EUROSTAT [[nama\\_10r\\_3gva](#)] and [[nama\\_10r\\_2gfcf](#)]
- <sup>22</sup> See note 14
- <sup>23</sup> See note 14
- <sup>24</sup> See note 20
- <sup>25</sup> EUROSTAT. [[aact\\_eaa01](#)]
- <sup>26</sup> European Commission. *CAP indicators – Data explorer*. CAP Result indicator RPI\_03 Value for primary producers in the food chain.
- <sup>27</sup> European Commission. *Producer and interbranch organisations*, complemented by the Netherlands for 2020
- <sup>28</sup> European Commission - [2018 Dutch Annual report in the fruit and vegetables sector](#)

- <sup>29</sup> AND-International, Directorate-General for Agriculture and Rural Development, ECORYS. *Study on economic value of EU quality schemes, geographical indications (GIs) and traditional specialties guaranteed (TSGs)*. Publication Office of the EU, Brussels 2020. 144 pages. <https://op.europa.eu/en/publication-detail/-/publication/a7281794-7ebe-11ea-aea8-01aa75ed71a1>
- <sup>30</sup> See note 14
- <sup>31</sup> See note 14
- <sup>32</sup> Directive (EU) 2019/633 of the European Parliament and of the Council of 17 April 2019.
- <sup>33</sup> European Environmental Agency (EEA). *EEA greenhouse gas – data viewer*. <https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>
- <sup>34</sup> See note 33
- <sup>35</sup> EUROSTAT. *Statistics explained* – Archive: Agri-environmental indicator – greenhouse gas emissions. 2017.
- <sup>36</sup> International Mire Conservation Group and International Peat Society The distribution of peatland in Europe, *Mires and Peat, Volume 1*. ISSN 1819-754X2006. 2006.
- <sup>37</sup> See note 33
- <sup>38</sup> Ministry of Economic Affairs and Climate Policy. *Integrated National Energy and Climate Plan 2021-2030 – The Netherlands*. Version 0.4 final version. November 2019. 170 pages. [https://ec.europa.eu/energy/sites/ener/files/documents/nl\\_final\\_necp\\_main\\_en.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/nl_final_necp_main_en.pdf)
- <sup>39</sup> Food and Agriculture Organisation of the United Nations (FAO). *Global Forest Resources Assessment – 1a Extent of forest and other wooded land*. FAO 2020. <https://fra-platform.herokuapp.com/NLD/assessment/fra2020/extentOfForest/>
- <sup>40</sup> Hussen, Karel van, Ilse van de Velde, Rianne Läkampen Susanne van der Kooij (2019). *Economische schade door droogte in 2018*. ECORYS, Rotterdam
- <sup>41</sup> Ministry of Infrastructure and Water Management, *Delta Programme 2019 Continuing the work on the delta: adapting the Netherlands to climate change in time*. 2018 <https://www.government.nl/topics/delta-programme>
- <sup>42</sup> European Commission. *CAP context indicator C.43 Production of renewable energy from agriculture and forestry*. Based on EUROSTAT [[nrg\\_bal\\_c](#)] and [[nrg\\_cb\\_rw](#)], and Strategie Grains
- <sup>43</sup> See note 38
- <sup>44</sup> European Commission. *CAP context indicator C.44 Energy use in agriculture, forestry and food industry*. Based on EUROSTAT [[nrg\\_bal\\_s](#)]
- <sup>45</sup> See note 38
- <sup>46</sup> European Commission. *CAP context indicator C.42 Soil erosion by water*. Original source: Joint Research Center <https://esdac.jrc.ec.europa.eu/themes/indicators-soil-erosion>
- <sup>47</sup> See note 46
- <sup>48</sup> See note 14
- <sup>49</sup> European Commission. *CAP context indicator C.41 Soil organic matter in arable land*. Joint Research Center (JRC) based on LUCAS Land Use Survey 2015
- <sup>50</sup> EUROSTAT. *Statistics explained* – Archive: Agri-environmental indicator – tillage practices. ISSN 2443-8219. 2020.
- <sup>51</sup> European Commission. *Commission Staff Working Document – The EU Environmental Implementation Review 2019 - Country Report - THE NETHERLANDS*. SWD(2019) 133 final. Brussels 2019. [https://ec.europa.eu/environment/eir/pdf/report\\_nl\\_en.pdf](https://ec.europa.eu/environment/eir/pdf/report_nl_en.pdf)
- <sup>52</sup> See note 51
- <sup>53</sup> European Commission. *CAP context indicator C.40 Water quality*. Based on EUROSTAT [[aei\\_pr\\_gnb](#)] and European Environmental Agency as in [Waterbase – Water Quality, CSI020](#), based on data reported to EIONET
- <sup>54</sup> See note 53
- <sup>55</sup> See note 14
- <sup>56</sup> European Commission. Report from the Commission to the European Parliament and the Council on the progress made on the implementation of Directive (EU) 2016/2284 on the reduction of national emissions of certain atmospheric pollutants. COM(2020) 266 final. <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596794534116&uri=CELEX:52020DC0266>.
- <sup>57</sup> See note 14
- <sup>58</sup> TNO. *factsheet stikstofemissies en depositie in Nederland*, 14 oktober 2019 <https://www.tno.nl/nl/over-tno/nieuws/2019/10/factsheet-stikstofemissie/>.
- <sup>59</sup> European Commission. *CAP context indicator C.35 Farmland birds index (FBI)*. As in EUROSTAT [[env\\_bio2](#)], original source: EBCC, BirdLife, RSPB and CSO



- <sup>60</sup> NEM, De Vlinderstichting, CBS, index 1992-2012 and Kleijn, D., R.J. Bink, C.J.F. ter Braak, R. van Grunsven, W.A. Ozinga, I. Roessink en T. Zeegers. *Achteruitgang insectenpopulaties in Nederland: trends, oorzaken en kennislacunes*. 2018.
- <sup>61</sup> See note 51
- <sup>62</sup> European Commission. *CAP context indicator C.36 Conservation status of agricultural habitats*. Original source: [European Environmental Agency](#)
- <sup>63</sup> See note 51
- <sup>64</sup> Ministry of Economic Affairs. *The convention for biodiversity – Fifth National Report of the Kingdom of the Netherlands*. The Hague. April 2014. <https://www.cbd.int/doc/world/nl/nl-nr-05-en.pdf>
- <sup>65</sup> European Commission. *CAP context indicator C.33 Farming intensity*. Based on FADN –Agri-environmental indicator “Intensification/Extensification”
- <sup>66</sup> See note 14
- <sup>67</sup> Ecorys. *Study Landscape Elements*. final report, 11 November 2019, on demand of Ministry of Agriculture, Nature and Food quality, the Netherlands, <https://www.rijksoverheid.nl/documenten/rapporten/2019/11/11/studie-landschapselementen---eindrappor>
- <sup>68</sup> Directorate General for Agriculture and Rural Development. Based on EUROSTAT for land laying fallow and Joint Research Center based on LUCAS survey for estimation of landscape elements.
- <sup>69</sup> Joint Research Centre. *Good Agricultural and Environmental Conditions*. Database on implementation of GAEC standards [https://myintracomm.ec.europa.eu/dg/agri/policy/direct\\_support/Pages/GAEC.aspx](https://myintracomm.ec.europa.eu/dg/agri/policy/direct_support/Pages/GAEC.aspx)
- <sup>70</sup> Member state notifications to the Directorate general for Agriculture and Rural Development. 2019.
- <sup>71</sup> European Commission, Directorate-General Agriculture and Rural Development analysis based on Member States’ notifications pursuant to Regulation (EU) No 1307/2013
- <sup>72</sup> Member state notifications to the Directorate general for Agriculture and Rural Development.
- <sup>73</sup> Regiebureau POP. *The Rural Development Program 2014-2020 in the Netherlands*. October 2016. [https://enrd.ec.europa.eu/country/thenetherlands\\_en](https://enrd.ec.europa.eu/country/thenetherlands_en)
- <sup>74</sup> EUROSTAT. [[ef\\_m\\_farmang](#)]
- <sup>75</sup> See note 14
- <sup>76</sup> See note 74
- <sup>77</sup> European Commission. *CAP context indicator C.24 Agricultural training of farm managers*. Based on EUROSTAT [[ef\\_mp\\_training](#)]
- <sup>78</sup> See note 14
- <sup>79</sup> See note 5
- <sup>80</sup> See note 74
- <sup>81</sup> See note 14
- <sup>82</sup> EUROSTAT. [[apri\\_lprc](#)].
- <sup>83</sup> Farm Accountancy Data Network (FADN). EU Farm Economics Overview based on 2015 (and 2016) FADN data. [https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/eu-farm-economics-overview-2015\\_en.pdf](https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/eu-farm-economics-overview-2015_en.pdf)
- <sup>84</sup> See note 20
- <sup>85</sup> European Commission. CAP indicator dashboards – [Data explorer](#). Output indicator OID\_12 Payment for young farmers
- <sup>86</sup> Member state notifications to the Directorate general for Agriculture and Rural Development. 2019.
- <sup>87</sup> See note 20
- <sup>88</sup> European Commission. *CAP context indicator C.03 Territory*. Based on EUROSTAT [[reg\\_area3](#)] and [[urt\\_d3area](#)]
- <sup>89</sup> European Commission. *CAP context indicator C.01 Population*. Based on EUROSTAT [[demo\\_r\\_gind3](#)].
- <sup>90</sup> EUROSTAT. [[ilc\\_lvho01](#)].
- <sup>91</sup> European Commission. *CAP context indicator C.05 Employment rate*. Based on EUROSTAT [[lfst\\_r\\_ergau](#)]
- <sup>92</sup> European Commission. *CAP context indicator C.07 Unemployment rate*. Based on EUROSTAT [[lfst\\_r\\_lfu3rt](#)]
- <sup>93</sup> European Commission. *CAP context indicator C.08 GDP per capita*. Based on EUROSTAT [[nama\\_10r\\_3gdp](#)] and [[nama\\_10r\\_3popgdp](#)]
- <sup>94</sup> European Commission. *CAP context indicator C.09 Poverty rate*. Based on EUROSTAT [[ilc\\_peps11](#)]
- <sup>95</sup> European Commission. *CAP context indicator C.01 Population*. Based on EUROSTAT [[demo\\_r\\_gind3](#)].

- <sup>96</sup> Copus, A., Kahila, P., Daz, T. Kovacs, K., Weber, R., Ortega-Reig, M., and Meredith, D. *Interim report ESCAPE European Shrinking Rural Areas: Challenges, Actions and Perspectives for territorial Governance*. ESPON Escape project. 2020. 60 pages.
- <sup>97</sup> De eerstelijns. *Creatieve oplossingen voor arbeidsmarktproblematiek in krimpregio's*. <https://www.de-eerstelijns.nl/2018/05/oplossingen-arbeidsmarktproblematiek-krimpregios/>
- <sup>98</sup> EUROSTAT. [ilc\_scp20] and [ilc\_scp02]
- <sup>99</sup> European Commission. *Digital Economy and Society Index*. DESI individual indicators – 1b1 Fast BB (NGA) coverage [desi\_1b1\_fbbc]
- <sup>100</sup> Franic, R. and Kovacicsek, T. *The professional status of rural women in the EU*. European Parliament study 2019. [https://www.europarl.europa.eu/RegData/etudes/STUD/2019/608868/IPOL\\_STU\(2019\)608868\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2019/608868/IPOL_STU(2019)608868_EN.pdf)
- <sup>101</sup> European Commission. *CAP context indicator C.11 Structure of the employment*. Based on EUROSTAT [nama\_10r\_3empers]
- <sup>102</sup> Open Society Foundations. *Are Agri-Food Workers Only Exploited in Southern Europe? Case Studies on Migrant Labour in Germany, the Netherlands, and Sweden*. July 2020. <https://www.opensocietyfoundations.org/publications/are-agri-food-workers-only-exploited-in-southern-europe>
- <sup>103</sup> Open Society Foundations. *Are Agri-Food Workers Only Exploited in Southern Europe? Case Studies on Migrant Labour in Germany, the Netherlands, and Sweden*. July 2020.
- <sup>104</sup> European Commission. *CAP context indicator C.31 Land cover*. Based on European Environmental Agency, Corine Land Cover 2018
- <sup>105</sup> EUROSTAT [urt\_10r\_3gva]
- <sup>106</sup> Food and Agriculture Organisation of the United Nations (FAO). *Global Forest Resources Assessment – 1a Extent of forest and other wooded land*. FAO 2020. <https://fra-platform.herokuapp.com/NLD/assessment/fra2020/extentOffores>.
- <sup>107</sup> Joint Research Centre. *Jobs and Wealth in the European Union Bioeconomy*. <https://datam.jrc.ec.europa.eu/datam/mashup/BIOECONOMICS/index.html>
- <sup>108</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](https://ema.europa.eu/en/press-room/2020/05/wcms_684846).
- <sup>109</sup> Wageningen Bioveterinary Research (WBVR) in collaboration with the Food and Consumer Product Safety Authority (NVWA), the National Institute for Public Health and the Environment (RIVM) and the Netherlands Veterinary Medicines Institute (SDa). *MARAN report – Monitoring of Antimicrobial Resistance and Antibiotic Usage in Animals in the Netherlands in 2017*. [https://www.wur.nl/upload\\_mm/7/b/0/5e568649-c674-420e-a2ca-acc8ca56f016\\_Maran%202018.pdf](https://www.wur.nl/upload_mm/7/b/0/5e568649-c674-420e-a2ca-acc8ca56f016_Maran%202018.pdf)
- <sup>110</sup> EUROSTAT [aei\_fm\_salpest09] for sales of pesticides and [apro\_cpsh1] for the number of hectares
- <sup>111</sup> European Commission. *Harmonised Risk Indicator for pesticides (HRI 1), by group of active substance*. As in EUROSTAT [SDG\_02\_51]
- <sup>112</sup> EUROSTAT. [SDG\_02\_10].
- <sup>113</sup> Joint Research Centre, Health Knowledge Gateway: <https://ec.europa.eu/jrc/en/health-knowledge-gateway/societal-impacts/burden>
- <sup>114</sup> red meat being defined as beef, lamb and pork, 106,62 g/per capita/d, net of waste in the EU 2010, GBD study 2017
- <sup>115</sup> EUROSTAT. [hlth\_ehis\_fv3c]
- <sup>116</sup> See note 14
- <sup>117</sup> See note 14
- <sup>118</sup> OECD. *Innovation, Agricultural Productivity and Sustainability in the Netherland*. OECD Food and Agricultural reviews, OECD Publishing, Paris, 2015. <http://dx.doi.org/10.1787/9789264238473-en>
- <sup>119</sup> Kania J., Vinohradnik K, Knierm A. *PRO AKIS – Prospects for Farmers' Support: Advisory Services in the European AKIS*. AKIS in the EU: The inventory – Final Report Vol. II. Krakow, Poland, 2014. 422 pages [https://430a.uni-hohenheim.de/fileadmin/einrichtungen/430a/PRO\\_AKIS/Synthesis\\_Report/SYNTHESIS.REPORT.VO.L2.FINAL.REPORT\\_08\\_07\\_2014\\_VOL\\_II.pdf](https://430a.uni-hohenheim.de/fileadmin/einrichtungen/430a/PRO_AKIS/Synthesis_Report/SYNTHESIS.REPORT.VO.L2.FINAL.REPORT_08_07_2014_VOL_II.pdf)
- <sup>120</sup> European Commission. *CAP Indicator - Data explorer*. CAP output indicator OIR\_01 Total public expenditure
- <sup>121</sup> European Commission. *CAP context indicator C.24. Agricultural training of farm managers*. Based on EUROSTAT [ef\_mp\_training] For an explanation of basic and full agricultural training, see:



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[https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key\\_policies/documents/context-indicator-fiches\\_en.pdf](https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key_policies/documents/context-indicator-fiches_en.pdf)

<sup>122</sup> See note 119

<sup>123</sup> See note 119

<sup>124</sup> European Commission. *EIP-AGRI – Projects – operational groups*.

<https://ec.europa.eu/eip/agriculture/en/eip-agri-projects/projects/operational-groups>

<sup>125</sup> European Network for Rural Development (ENRD). *Year 5 screening on NRN programming and action plans*. January 2020.

[https://enrd.ec.europa.eu/sites/enrd/files/y5\\_rdp\\_screening\\_nrns\\_summary\\_report.pdf](https://enrd.ec.europa.eu/sites/enrd/files/y5_rdp_screening_nrns_summary_report.pdf)

<sup>126</sup> Regiebureau POP. *Jaarverslag 2019*. <https://regiebureau-pop.eu/verslagen-uitvoering-pop3>

<sup>127</sup> Regiebureau POP. *Jaarverslag 2019*. <https://regiebureau-pop.eu/verslagen-uitvoering-pop3>

<sup>127</sup> EU SCAR AKIS. *Preparing for Future AKIS in Europe*. Brussels, European Commission, 2019. 375 pages. [https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key\\_policies/documents/report-preparing-for-future-akis-in-europe\\_en.pdf](https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key_policies/documents/report-preparing-for-future-akis-in-europe_en.pdf)

<sup>128</sup> Eurostat [[isoc\\_sk\\_dskl\\_i](#)]