



Brussels, 18.12.2020  
SWD(2020) 394 final

**COMMISSION STAFF WORKING DOCUMENT**

**Commission recommendations for Slovenia' CAP strategic plan**

*Accompanying the document*

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

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

{COM(2020) 846 final} - {SWD(2020) 367 final} - {SWD(2020) 368 final} -  
{SWD(2020) 369 final} - {SWD(2020) 370 final} - {SWD(2020) 371 final} -  
{SWD(2020) 372 final} - {SWD(2020) 373 final} - {SWD(2020) 374 final} -  
{SWD(2020) 375 final} - {SWD(2020) 376 final} - {SWD(2020) 377 final} -  
{SWD(2020) 379 final} - {SWD(2020) 384 final} - {SWD(2020) 385 final} -  
{SWD(2020) 386 final} - {SWD(2020) 387 final} - {SWD(2020) 388 final} -  
{SWD(2020) 389 final} - {SWD(2020) 390 final} - {SWD(2020) 391 final} -  
{SWD(2020) 392 final} - {SWD(2020) 393 final} - {SWD(2020) 395 final} -  
{SWD(2020) 396 final} - {SWD(2020) 397 final} - {SWD(2020) 398 final}

## Contents

<b>1. COMMISSION RECOMMENDATIONS FOR SLOVENIA' CAP STRATEGIC PLAN .....</b>	<b>2</b>
<b>1.1 Foster a smart, resilient and diversified agricultural sector ensuring food security .....</b>	<b>2</b>
<b>1.2 Bolster environmental care and climate action and contribute to the environmental- and climate-related objectives of the Union .....</b>	<b>2</b>
<b>1.3 Strengthen the socio-economic fabric of rural areas and address societal concerns .....</b>	<b>3</b>
<b>1.4 Modernising the sector by fostering and sharing of knowledge, innovation and digitalisation, and encouraging their uptake .....</b>	<b>5</b>
<b>1.5 Recommendations .....</b>	<b>5</b>
<b>2. ANALYSIS OF AGRICULTURE AND RURAL DEVELOPMENT IN SLOVENIA .....</b>	<b>8</b>
<b>2.1. Support viable farm income and resilience across the EU territory to enhance food security .....</b>	<b>8</b>
<b>2.2 Enhance market orientation and increase competitiveness including greater focus on research, technology and digitalisation .....</b>	<b>9</b>
<b>2.3 Improve farmers' position in the value chain .....</b>	<b>11</b>
<b>2.4. Contribute to climate change mitigation and adaptation, as well as sustainable energy .....</b>	<b>12</b>
<b>2.5 Foster sustainable development and efficient management of natural resources such as water, soil and air .....</b>	<b>14</b>
<b>2.6 Contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes.....</b>	<b>17</b>
<b>2.7 Attract young farmers and facilitate business development in rural areas . .....</b>	<b>19</b>
<b>2.8 Promote employment, growth, social inclusion and local development in rural areas, including bio-economy and sustainable forestry.....</b>	<b>20</b>
<b>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.....</b>	<b>22</b>
<b>2.10. Cross-cutting objective on knowledge, innovation and digitalisation.....</b>	<b>24</b>

## **1. COMMISSION RECOMMENDATIONS FOR SLOVENIA' CAP STRATEGIC PLAN**

In the framework of the structured dialogue for the preparation of the common agricultural policy (CAP) strategic plan, this document contains the recommendations for the CAP strategic plan of Slovenia. The recommendations are based on analysis of the state of play, the needs and the priorities for agriculture and rural areas in Slovenia. The recommendations address the specific economic, environmental and social objectives of the future CAP 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 Slovenia, 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 agricultural sector in Slovenia consists of a very high share of small-sized, semi-subsistent and small-scale commercial farms and has one the lowest incomes from agriculture in the EU. This is in mainly due to geological and other natural conditions, implying additional costs and income forsaken for agricultural production on roughly three quarters of agricultural land. In part, the structure of Slovenian agricultural sector is conditioned also by the economic development of Slovenia in recent decades, with opportunities for low-paid jobs outside agriculture. Low income from agriculture is also due to moderate factor productivity (which is slightly below EU average) and the low bargaining power of farmers in the food chain despite a recognised tradition of cooperation in several sectors. Moreover, Slovenia has one of the lowest levels of vertical and horizontal integration within the agri-food supply chain in the EU.

Apart from the unfavourable farm structure and low bargaining power of farmers, turning the agricultural sector into a smart, resilient and diversified sector capable of ensuring food security is held back by a number of factors. These include limited access to finance for small farms and to long-term financing, limited access to advice adapted to increased competition, digitalisation, the need for market orientation of agriculture and overall economy, and income instability related to production affected by adverse climatic events.

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

Biodiversity is in a pronounced decline. This is reflected in its farmland bird index, which is below the EU average, and in the “unfavourable-bad” conservation status of half its grassland habitats. The low surface of agricultural area covered with landscape features risks to undermine the ecosystems health and connectivity among habitats. All this requires better farmland management to better protect grassland habitats, including in accordance with the prioritised action framework (PAF), and to reverse the loss of landscape features. The CAP, with its various instruments of green architecture, has an

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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.

important role to play in this given how agriculture contributes to the current situation of biodiversity in Slovenia.

As not all water bodies have achieved good status yet, with agriculture identified as one of the main pressures, there is a further need to boost the synergies between EU water objectives (Water Framework Directive) and the CAP instruments' implementation and to make them more efficient. Use of nitrogen is managed efficiently, with the surplus in the range of the average value for the EU between 2012 and 2015, despite inter-annual variations and some local hotspots with significant nitrogen excess. However, the surplus of phosphorus is much higher than the EU average and should be reduced.

To improve the targeting and assessment of the impacts of environmental-related actions, Slovenia would need to set up a system for monitoring soil quality and adapt the system for monitoring water quality to instruments used to improve water quality. Synergies can be created with the forthcoming EU mission on soil health to coordinate and scale up soil-related activities and soil monitoring.

In recent years, Slovenia has gradually increased organically farmed land to a level that is above the EU average. However, since the vast majority of farmland under organic farming contracts supported by the rural development programme is for grasslands and since related organically reared animals are mostly sold as if they were conventionally produced, organic production is not properly valorised. Improving the valorisation of organic products across the value chain and further expanding into other crops would enable Slovenia to further increase organically farmed land, producing multiple benefits for the environment and providing business opportunities for farmers.

Climate change is expected to alter rainfall patterns, induce more and longer heatwaves and cause water scarcity in coastal regions and the Continental Region. However, the share of land equipped with irrigation systems is very limited. The exposure of soil to extreme weather events is also expected to further exacerbate the soil erosion problem which already results in the highest annual loss of soil per hectare in the EU.

In recent years Slovenia has seen its greenhouse gas (GHG) emissions (non-CO<sub>2</sub>) from agriculture increase much more than the EU average. A slight upward trend in ammonia emissions was also observed recently. The main source of GHG emissions from agriculture is enteric fermentation. This provides opportunities to develop businesses for biogas production, while the main source of ammonia is livestock manure management. Slovenia has one of the highest shares of land covered by forest in the EU, albeit with significant decreases in the CO<sub>2</sub> sink due to ageing and natural disturbances. This provides an opportunity to preserve and boost carbon storage. By remunerating ecosystem services (e.g. via carbon farming approaches) and improving a very poor transformation rate of wood harvested into materials, Slovenia could add value to forest products and create jobs in rural areas.

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

Gross domestic product (GDP) in rural areas of Slovenia is significantly lower than in the EU. One out of three sub-regions in intermediary areas is at a similar level of development as rural areas, with GDP also lower than in rural areas of the EU. Although rural areas cover almost three quarters of Slovenian territory, account for 58% of the population and 58% of employment, they create only 49% of the economy's gross value added.

The unfavourable economic situation in rural areas co-exists with the predominantly small-scale farm structure in Slovenia. These structural challenges are associated with the two-pronged aspect of an unfavourable age structure in the farming sector in Slovenia and rapidly ageing population in rural areas.

The rural economy is therefore in need of upward economic convergence. Boosting investment is needed to further improve the potential for growth and productivity in rural areas. Inhabitants of rural areas and farm family members need more and better jobs. For this to happen, the country needs to develop existing businesses and create of start-ups, together with appropriate protection of agricultural workers, especially those in precarious, seasonal and undeclared employment. There are new economic opportunities for farmers especially in the bioeconomy and in forestry. The strengths of rural areas include a high share of employed people, a low share of unemployed people, and an engaged active population.

With the share of farmers younger than 35 years at only 4.6% and with age categories of farmers skewed towards older categories, the age structure in the farming sector in Slovenia continues to be unfavourable. The farming sector is therefore in need of effective generational renewal.

Effective generational renewal goes hand in hand with vibrant rural areas. Relevant services such as child care, education, medical and transport services and adequate infrastructure are therefore needed in rural areas. Facilitating access to good quality services in rural areas is particularly relevant to women and would help them participate more in the workforce, with the goal of closing the gender gap in employment. The CAP tools must work in synergy with other EU and national funds to ensure better services in rural areas for the benefit of the rural population.

The CAP post-2020 introduces a new specific objective that will allow it to contribute to addressing societal concerns over general health and food, fully in line with the objectives of the Farm to Fork strategy. While achieving a shift in people's diets towards healthier, more sustainable options is mainly down to national policies and public/private initiatives, the CAP can complement this action through appropriate instruments that Member States are recommended to choose in their strategic plans, such as support for producer organisations to increase fruit and vegetable consumption. Slovenia faces important challenges in encouraging consumption that is more in line with national dietary recommendations, moving towards more plant-based diets with lower red meat consumption, a higher intake of fruit and vegetables, and also a reduction in food waste.

When it comes to the use of antimicrobials, the agricultural sector in Slovenia is one of the best performers in Europe. Its use of antimicrobials is well below the EU average and also below the target foreseen by the Farm to Fork strategy. However, a significant improvement is needed in the sustainable use of pesticides. Further efforts are encouraged also when it comes to animal welfare and farm biosecurity, particularly in view of an increased risk of African Swine Fever.

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

The agricultural knowledge and innovation system (AKIS) in Slovenia is considered medium to strong and is positioned halfway along the scale between ‘fragmented’ and ‘integrated’.

There is potential to make more and better use of EU support for knowledge exchange, training, information, and interactive innovation projects under the CAP plans. A well-functioning AKIS (covering not only the agricultural sector, but also any farming and rural activity related to it) will be key to structuring knowledge flows in order to respond to the growing information needs of farmers, provide faster innovation and also better valorisation of existing knowledge to achieve all CAP objectives.

The public advisory service is already actively involved in preparing and disseminating of innovation projects, which marks a positive shift towards innovation support services. Some effort remains to be made to move towards more inclusive advisory services, improving links between public and private advisors.

Slovenia faces important challenges in terms of connectivity and digital skills. On connectivity, the roll-out of fast broadband needs to be improved, in particular in rural areas to bridge the remaining rural-national divide. Digital skills need to be improved in general in Slovenia, in particular in sparsely populated and rural areas where an important share of the population seems to be excluded from digital services also due to the lack of some certain basic digital skills.

#### **1.5 Recommendations**

To address the above interconnected economic, environmental/climate and social challenges, the Commission considers that the Slovenian CAP strategic plan needs to focus its priorities and concentrate its interventions on the following points:

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

- **Mitigating disadvantageous farm structure** by significantly strengthening the cooperation between producers and producer organisations, by increasing market orientation of production and by supporting the primary sector in capturing a higher share of the value added in the value chain by diversifying to higher value added products, such as organic products.
- **Improving the viability of farms** by improving the targeting and distribution of direct payments, notably by taking into specific consideration small-sized farms and semi-subsistence farms (by applying, for example, the complementary redistributive income support for sustainability and the reduction of payments) and areas with natural or other specific restrictions, as well as by advancing in the internal convergence process. Other means need also to be taken into account for the maintenance of the essential farming activity to preserve the natural features.
- **Addressing the large financing gap** identified for agriculture, and to a lesser extent for the agro-food sector, through appropriate instruments, including through investment in processing capacity of agricultural products, **and supporting resilience of agriculture** by improving stability of agricultural incomes affected by frequent and severe extreme weather events and by exposure

of agricultural production to volatile prices of agricultural products through developing appropriate risk management tools.

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

- **Improving biodiversity status** of protected habitats and species, including wild pollinators, **by promoting adequate management of agricultural areas**, through the support for management practices aimed at the maintenance or restoration of the habitats and species' favourable conservation status and an improvement to the size of agricultural area under high diversity landscape features, thus contributing to the **EU Green Deal target on minimum area under high diversity landscape features**. Further enhancing the environmental and climate commitments developed and supported by the CAP through the use of various instruments to improve their efficiency and in accordance with the needs identified in the prioritized action framework (PAF).
- **Fostering sustainable forest management** of forestry land, enhancing multifunctionality, forest protection and restoration of forests ecosystems, in particular after catastrophic events, 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.
- **Encouraging farming practices aimed at improving nutrient** (nitrogen, phosphorous, potassium etc.) **management**, such as reduced and improved fertilisation (including through precision farming) and adequate livestock manure management, in view of reducing nutrient surpluses, including that of phosphorous, to contribute to the **EU Green Deal target on reducing nutrient losses**. Adapting the water quality monitoring system to the CAP instruments used for improving water quality to enable more complete assessment of their impacts.
- **Sustaining current trend in organic production** while improving support to promote further uptake of organic farming methods and practices by drawing lessons from implementation of the current CAP to contribute to the **EU Green Deal target on achieving 25 % of the EU agricultural area under organic farming**. Achieving the Farm to Fork objective of sustainable food systems will require adequate and adapted strategy on increasing the demand for and the supply of organic foods, to which the CAP can contribute. This should include developing of local organic food production and strengthening food chain structures as well as disseminating innovative approaches and information on organic farming.
- **Increasing resilience to climate change** by stepping up climate adaptation measures to address the drought and hail risks and severe soil erosion, while preserving the status of water resources. Measures should include capacity building on climate change adaptation, support for practices enhancing soil health and setting up system for monitoring soil quality as well as investments in more drought-resistant crops and the efficiency of irrigation infrastructure.
- **Mitigating the recent trend of increased GHG emissions from agriculture** by targeting main sources of GHG and strengthen the long-term capacity of forests to

act as carbon sinks, in particular by: investing in adequate forest preservation and harvested wood products, timely replanting of forest, taking into account the projected climate trends for appropriate species selection, and implementing the capacities for wood processing.

- **Strengthening the efforts to reduce ammonia and methane emissions in line with the Methane Strategy**, in particular from the livestock sector, including by improving the livestock manure management.

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

- **Improving potential for growth in rural areas** by fostering development of existing businesses and creation of start-ups in rural areas, including by developing the potential of the bio-economy and forestry. In doing so it will be important to ensure synergies with other EU and national funds.
- **Targeting effective generational renewal** in the agricultural sector through measures aimed at improving business and financial skills, access to finance and accompanying advice on the transfer and succession of farms.
- **Making significant efforts to decrease the use and the risk of chemical pesticides** to contribute to the relevant Green Deal target by promoting low pesticide-input pest management and strengthening the implementation of Integrated Pest Management by professional users.

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

- **Tackling underinvestment in AKIS and strengthening its integration and overall performance** by providing adequate support to accelerate the knowledge exchange, training, information, and innovative projects. These include structuring and strengthening the existing connections among research-education-advice-farming, ensuring access to qualified advice and providing innovation support across the farming community.
- **Accelerating current initiatives and taking new actions to improve fast broadband coverage** in line with the Farm to Fork target on broadband, including reducing the gap between rural and urban areas, and support to strengthen digital skills. In doing so it will be important to ensure synergies with other EU and national funds.



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

In 2019, the primary sector in Slovenia created 2.4% of gross value added of the Slovenian economy. Of the Slovenian territory, 61% is covered with forest, while 36% is agricultural land. High altitudes and steepness have favoured a type of farming based on grassland on 58 % of agricultural land. Arable farming is frequent only in the flat parts of the country, representing 34% of agricultural land. Underlying natural resources which are the main allays of agricultural production are preserved in a varying degree, with water in a better condition than soil. Biodiversity is also quite damaged. At the same time climate has been changing and putting agricultural production and incomes at risk.

Rural areas cover almost three quarters of Slovenia and create 49% of gross value added of the Slovenian economy. Despite a low level of gross domestic product/inhabitant in rural areas, the rural population in 2019 was roughly the same as in 2005. However, rural areas are aging, with the category of people older than 65 years increasing very rapidly while the category of people between 15 and 65 years old decreased significantly. This represents a major challenge and calls for population renewal. Low broadband coverage and lacking business opportunities in rural areas stand in the way to such a process of renewal.

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

In Slovenia, the agricultural income per worker is on average 22% of the average wage in the whole economy between 2005 and 2019<sup>1</sup>. In terms of development in agricultural income, the gap in Slovenia seems to be stable over time.

Agricultural factor income is rather stable in Slovenia since 2007, with only rare small peaks. Slovenia belongs to a group of Member States with the lowest factor income from agriculture<sup>2</sup>. This is due to the large number of smaller non-specialist farms producing predominately for self-consumption. In 2016, 57% of the farms utilised more than 50% of the final production for self-consumption<sup>3</sup>. Many of these farms also have other non-agricultural sources of income that allow the survival of holdings despite their agricultural income levels.

The average economic size, measured in terms of standard economic output, is far behind the EU average. The factor income per worker is lower for smaller farms and increases with farm size (both physical and economic size). It is generally above average for farmers of field crops, granivores, wine and milk farms, whilst on average it is lower in the livestock sectors (for which payments for areas facing natural constraints (ANC) are of utmost importance)<sup>4</sup>. Factor income in ANC is between a third and a half of the average outside ANC areas.

Direct payments play an important role in Slovenia, with direct payments on average 29% of the agricultural factor income in the past 6 years<sup>5</sup>. An estimated 81% of the holdings receive direct payments. Direct payments per worker tend to increase with physical economical farm size in the so-called “professional farms”<sup>6</sup>, though it is highly relevant to take into consideration that Slovenia belongs to the circle of countries with the smallest average size of agricultural holdings<sup>7</sup>. In consequence, these very small farms may not have been included in the analysis<sup>8</sup>. Slovenia has not applied a redistributive payment. Farms below the average physical farm size in Slovenia receive a direct payment that is only about 85% of the average direct payment received in

Slovenia. Slovenia has implemented the Small Farmers Scheme (SFS), though the share of small farmers in the total number of farmers eligible for decoupled direct payments in 2018 was only 1.32%. Between 2015 and 2018, there has been a drop of 60% in the beneficiaries under the SFS, given beneficiaries could receive higher payments by applying to the standard direct payment schemes<sup>9</sup>.

In terms of concentration, the 20% biggest beneficiaries in 2018 received 65% of all direct payments<sup>10</sup>. Slovenia has seen a moderate reduction in the number of farms. However, the agricultural area being farmed has been maintained, as the reduction is caused by a decline in permanent grassland. The concentration process varies greatly between the types of farming, with some experimenting a pronounced reduction (e.g. specialist grazing livestock), whilst others are growing.

The use of risk management tools is currently limited to insurance schemes designed and provided by private insurance companies and subsidized by the Slovenian budget. These tools are for agricultural production affected by adverse climatic events and illnesses of animals but are not widely used. No evidence of risk management tools for agricultural production exposure to market has been found.



Directorate General for Agriculture and Rural Development. *CAP context indicators C.25 Agricultural factor income and CAP context indicator C.26 Agricultural entrepreneurial income*. Income based on EUROSTAT [[aact\\_eaa04](#)], [[aact\\_ali01](#)] and [[aact\\_eaa06](#)], adding back the compensation of employees to the entrepreneurial income and divided by the total number of annual working units. 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.

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

In Slovenia, agriculture employs about 38 400 persons, corresponding to 3.9% of the labour force<sup>11</sup>. Slovenia belongs to countries with the smallest average size of agricultural holdings with 6.8 ha of utilised agricultural area (UAA) per holding in 2016, which remains almost the same (6.6 ha in 2005)<sup>12</sup>. In the same period, the number of farms decreased continuously, but moderately from 77 170 to 69 900<sup>13</sup>. Family farms dominate the agriculture structure, out of which 57% use most of the production for their own consumption<sup>14</sup>. Compared to the EU average, Slovenia has higher agricultural

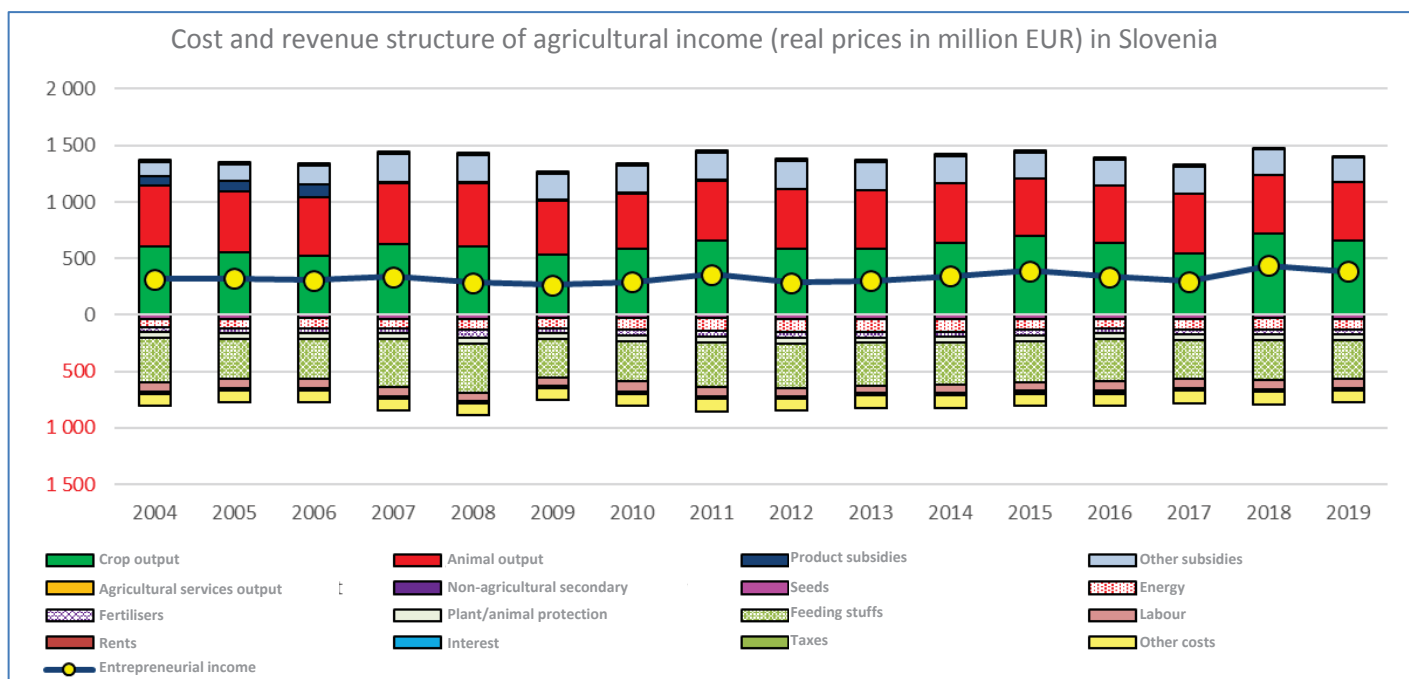
employment and, at the same time, much lower labour productivity in agriculture of 37%<sup>15</sup>. The share of arable land (36%) is significantly lower than the EU27 (61.2%), whilst the permanent grassland is much higher (58% compared to 31% in the EU27)<sup>16</sup>. However, extensive livestock production (grazing below 1 LU/ha of forage area) represents only 26% of the total area or around 44% of the permanent grassland<sup>17</sup>.

Although the labour and agricultural land productivity slightly increased and the labour input decreased by 13 % compared to its 2005 level, the total factor productivity was still below the EU average in 2017 (105 compared to 110 EU average)<sup>18</sup>. Slovenia has high agricultural gross fixed capital formation of 49.17%. It sharply decreased with the financial crisis between 2008 and 2011, but remains stable since 2012 and approaches the pre-crisis levels<sup>19</sup>. However the capital productivity decreased to 86.1% compared to its 2005 level. Investments are made predominantly in machinery and equipment (30%) and agricultural non-residential buildings (50%)<sup>20</sup>. Between 2015 and 2019, over EUR 190 million was provided for investment in agriculture and start-up aid for young farmers, mostly to farms of size above 20 ha. Still the financing gap for agriculture was estimated at EUR 952 million. It mainly concerns small size farms and access to long-term financing<sup>21</sup>.

To a lesser extent, similar difficulties with access to finance have been identified in the agro-food sector with a gap estimated to EUR 127 million. In 2017, the Slovenian agro-food processing industry contributed approximately 1.5% to the total added value and 1.7% to total employment of the national economy. The production value of the sector reached EUR 2.2 billion in 2018. The ten largest companies account for at least half of the revenues of the sector, while 98% of the agro-food companies are small-sized companies with less than 50 employees.<sup>22</sup>

Concerning AKIS, in 2018, the level of R&D spending in agriculture amounted to EUR 22.32 million and EUR 10.8 per capita, compared to EU-28 EUR 3.2 billion and 6.3 per capita.

Slovenia does not cover domestic needs through its food production. The self-sufficiency is higher for animal products (128% for milk) than for plant products (estimated to 48% for fruit or 29% for vegetables)<sup>23</sup>. Overall the agri-food trade balance in Slovenia is negative, but stable between 2008 and 2018<sup>24</sup>.



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

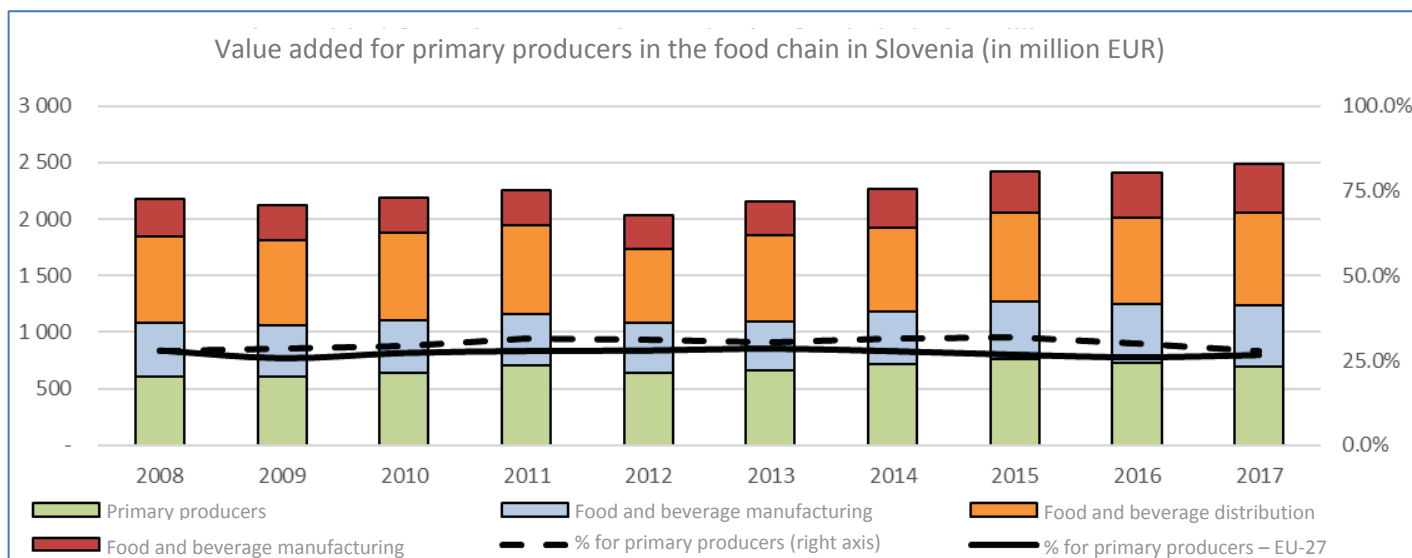
Slovenian farmers have limited bargaining power within the food chain, due to a structure of many small farms and ineffective or, depending on the sector, absent cooperative structures, which means that strong fluctuations in agricultural prices are not fully passed on to the final retail prices<sup>25</sup>.

The value added for the whole food chain has been increasing over time in Slovenia. The value added for primary producers has increased likewise, resulting in a share in the food chain relatively stable (around 30-31%, although with a low figure of 28% in 2017), which is above the EU-average (23% in 2016)<sup>26</sup>. However, the increase of added value for primary producers has been lower than for both distribution (with the highest share) and manufacturing<sup>27</sup>; this stems from the increase of input costs and the limited possibilities for farmers to add value to their products (mainly due to the small size of agricultural holdings and fragmentation of the agricultural land)<sup>28</sup>. Forage plants, milk, wine and cattle are the most important sectors in terms of production value<sup>29</sup>. Some sectors, such as sheep and goats, potatoes, cereals, pigs, and vegetables, show potential for increasing their production volumes and entering into the food chain, raising therefore their value added too<sup>30</sup>.

Despite small size of farms, the level of cooperation between farmers is weak in Slovenia, which finds itself among the EU countries with lowest levels of both vertical and horizontal economic integration within the agri-food supply chain<sup>31</sup>. It is one of the very few EU countries with almost no recognised Producers Organisations (PO), just two in the milk sector and one for fruits and vegetables, and no national strategy in place to develop them and/or allow for the preparation of operational programmes and the financing of operational funds of potential PO<sup>32</sup>. However, although there are around 90 agricultural and forestry cooperatives in Slovenia, there is considerable potential for adding value through cooperative processing and sale<sup>33</sup>. Particularly the development of EU quality schemes can strengthen cooperation between producers, increase their bargaining position in the value chain and therefore allow farms to obtain a bigger share

of the added value. Producers may also establish groups of producers, and a total of ten in different sectors have been recognised so far<sup>34</sup>. No interbranch organisation (IBO) has been recognised so far in Slovenia.

While 10% of farmers have opted for the organic production method, many of their products, especially meat and dairy products, are sold as conventional products. This is due to a combination of two reasons. There is a mismatch between consumer demand for non-meat products and the fact that 82% of organically managed land and supported from the Rural Development Programme is grassland<sup>35</sup>. Besides, there is little cooperation and organisation between the farmers cultivating grassland and rearing animals organically to bring the products on the market as organic products.



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

Agriculture is the third main contributor of greenhouse gas (GHG) emissions after transport sector and energy production. In 2018, agricultural emissions of GHG in Slovenia amounted to 1.72 million tonnes of CO<sub>2</sub> equivalents. The share of agriculture in total GHG emissions in Slovenia was 9.8% in 2018. In the long run, between 1990 and 2018, emissions from the agricultural sector decreased by 7.21%. Between 2005 and 2018 GHG emissions in agriculture in Slovenia decreased marginally by 0.6%. However, recently between 2013 and 2018 Slovenia increased its GHG (non-CO<sub>2</sub>) emissions in agriculture by 4.62% (compared to the EU-27 trend of 1.8%). Nevertheless, Slovene emissions from agriculture accounted to only 0.4% of the total EU GHG emissions from agriculture in 2018. The most important source of GHG emissions in agriculture in 2018 in Slovenia was ruminant enteric fermentation (53.9%), followed by emissions from agricultural soils (25.5%), emissions of N<sub>2</sub>O from livestock manure (19.4%), while emissions from application of urea are not relevant<sup>36</sup>. Peatlands cover only 0.4% of soils in Slovenia<sup>37</sup>.

Slovenia is among the most forested countries in Europe after Finland and Sweden with 61.5% of land in Slovenia<sup>38</sup> covered with forests and 36% consisting of agricultural land.

Permanent grassland accounted to 58% of agricultural land in Slovenia (compared to the EU-27 average of 31%). Since 2014, natural disasters (ice sleet, bark-beetle, wind) in Slovenia damaged roughly 240 000 hectares (ha) of forests and reduced the forest potential of these areas by at least 20%. This has led also to a significant carbon stock loss and in fact, what is unusual, forest land became net emitter between 2014 and 2018 due to natural disasters.

As regards the importance of renewable energy production from agriculture and forestry in total primary energy production, it was quite limited and accounted for about 18%. The share of agricultural sector in the production of total renewable energy in Slovenia in 2018 was low (1.9%) and remained below the EU-27 average (12.1%)<sup>39</sup>. Over half of the renewable energy production (51.8 %) came from forestry sector. Moreover, the production of renewable energy from agriculture and forestry decreased by 11.17% between 2013 and 2015 compared to the EU-27 average trend, which was slightly upward (0.13%). As regards the importance of renewable energy production from agriculture and forestry in total primary energy production, it was quite limited and accounted for about 18 %.

Regarding energy use in agriculture and forestry Slovenia belongs to the member states with the lowest share of agriculture and forestry in total final energy consumption (1.5%) compared to the EU average of 2.9%. Between 2009 and 2018 energy consumption in agriculture and forestry went up by 4.6% compared to the EU-27 average increase of almost 8 %. The direct use of energy in food industry amounted to 1.6% of the total final energy consumption, again below the EU average of 2.9%.

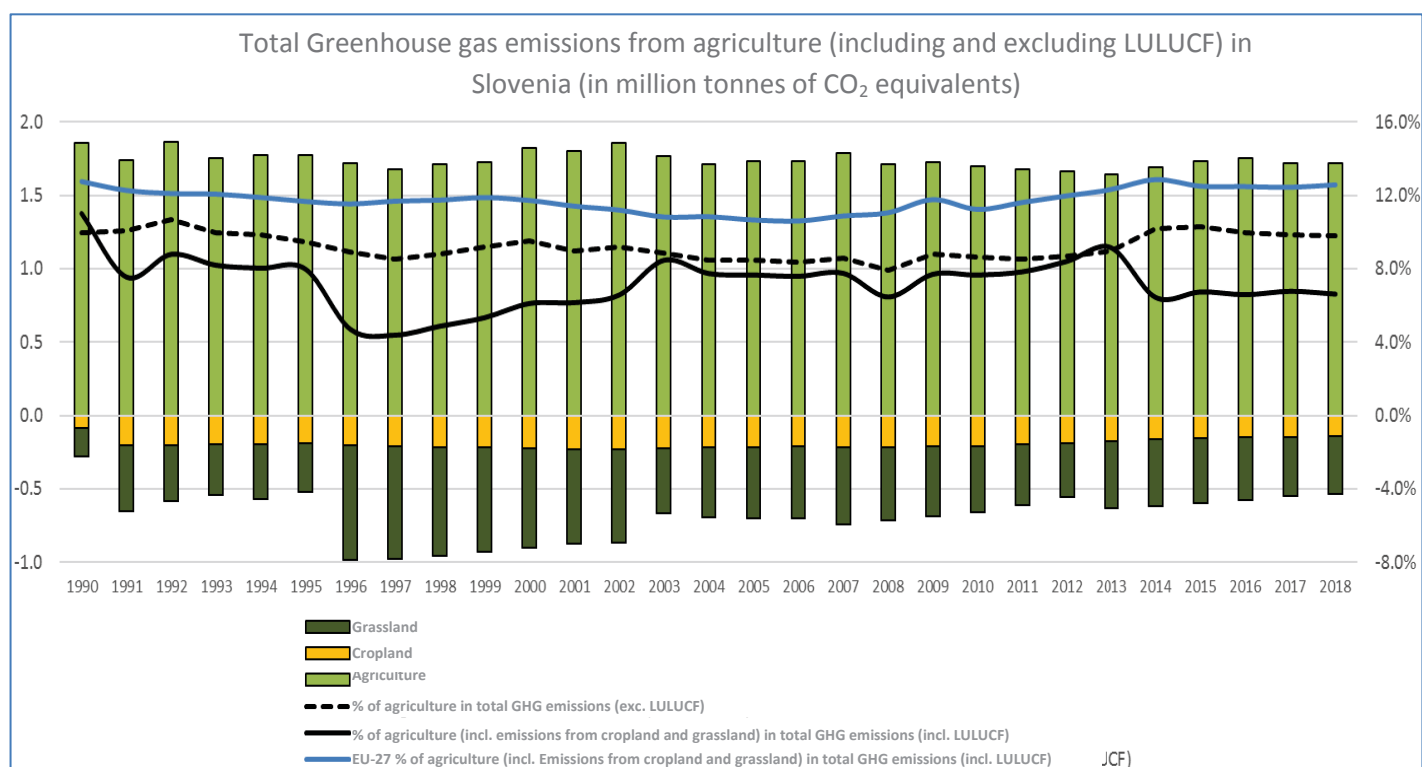
The average air temperature rose in Slovenia by 1.7°C in the period 1961-2010 and according to the projections made by the Slovenian Environment Agency air temperature could by the end of the century rise, depending on the assumption on the amount of GHG emissions, by 1.3°C to 4.1°C. Projections are that there will be more and longer heatwaves. The amount of yearly precipitation in the period 1961-2010 shrunk by 15% in Western Slovenia and by 10 % in Eastern Slovenia, and mostly it shrunk in spring and in summer. The projections are that by the end of the century the precipitation could likely rise by 20% yearly, however with very wet winters and very dry summers<sup>40</sup>. The frequency, intensity and severity of droughts has increased since 2009<sup>41</sup>. Two droughts have been particularly damaging in recent history, 2003 and 2017, affecting vineyards, maize, and grasslands and leading to fodder shortages for the livestock sector.

The main negative impacts of climate change on Slovenian agriculture are expected to be as follows: increased pest and disease occurrence, increase in extreme weather events, in particular droughts, hailstorms, and late frosts. Changing rainfall patterns (increased intense rainfall and reduction of rainfall) will increase water logging and risks of flooding, on the one hand, and lead to water shortages on the other. Moreover, heat stress on livestock will affect productivity. Water scarcity is projected to increase in particular in the Mediterranean region (coastal region) and continental region, which is characterized by permanent crops (olives) and horticulture. Negative impacts on forests are expected from increased frequency of extreme events, such as ice storms, windstorms and droughts, as well as rising summer temperatures and increase in pests and diseases.

In terms of adaptation to climate change, species and varieties of agricultural plants will need to be adapted, taking account of modern crop rotation guidelines and implementing modern technological solutions. This, in turn, will change the practice of many farms to date and have an impact also on the market situation. Moreover, the irrigation systems will need to be updated to be more resource efficient.

Among the instruments available to Member States in the 2014-2020 CAP, Slovenia chose, under greening, a national approach to the permanent grassland ratio obligation and to consider grassland “permanent” if ploughed within a period of five years. Slovenia offered three Ecological Focus Areas (EFA) options (land laying fallow, catch crops and greens cover, and nitrogen fixing crops).<sup>42</sup> Voluntary Coupled Support is available for two climate-relevant sectors: beef and veal as well as milk and milk products from dairy cows. In Pillar 2, Measure 13 (areas of natural constraints) and Measure 10 (agri-environment-climate) are the main measures through which climate action is delivered.

According to the National Energy and Climate Action Plan (NECP) adopted in February 2020, agriculture in Slovenia should reduce its GHG emissions in 2030 by -1 % compared to 2005<sup>43</sup>. NECP identifies the following measures for agriculture: improving livestock production and restructuring, as livestock production is among the largest sources of GHG emissions, reduction of intensive livestock production and related intensive agriculture with measures to promote pasture, promotion of sustainable organic farming, introducing new (green) technologies, encouraging investments to improve overall efficiency of farm, promoting precision farming and providing collection of agricultural biomass (crop residues, slurry, etc.) at the locations of major biogas plants.



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

Ammonia emissions from agriculture in Slovenia decreased between 1995 and 2013 from 17.9 ktonnes to 16.6 ktonnes with a slight increase or stagnation since then to reach 17.1 ktonnes in 2018<sup>44</sup>). However, the slight upward trend can be noted as of 2013. As other sectors have diminished their contribution to NH<sub>3</sub> emissions, the contribution by agriculture to the overall NH<sub>3</sub> emissions is now higher than in the past reaching in 2018

92.24%, slightly below the figure for the EU-28: 92.88%. Livestock farming is by far the main source of the NH<sub>3</sub> emissions in the Slovenian context (90%) compared with 10% coming from crops. These figures differ significantly from the situation in EU-28 where livestock farming makes 73% (crops – 23%) in agricultural sources of NH<sub>3</sub>. Non-dairy and dairy cattle are the main sources of the emissions (15.4 % and 12.4% respectively) followed by the emissions from the use of inorganic fertilisers responsible for 8.3%<sup>45</sup> of the agriculture-related NH<sub>3</sub> emissions. Emissions from livestock are mainly stemming from livestock manure management (45%), followed by emissions from livestock housing and pasturage (33%) and emissions from manure storages (13%)<sup>46</sup>.

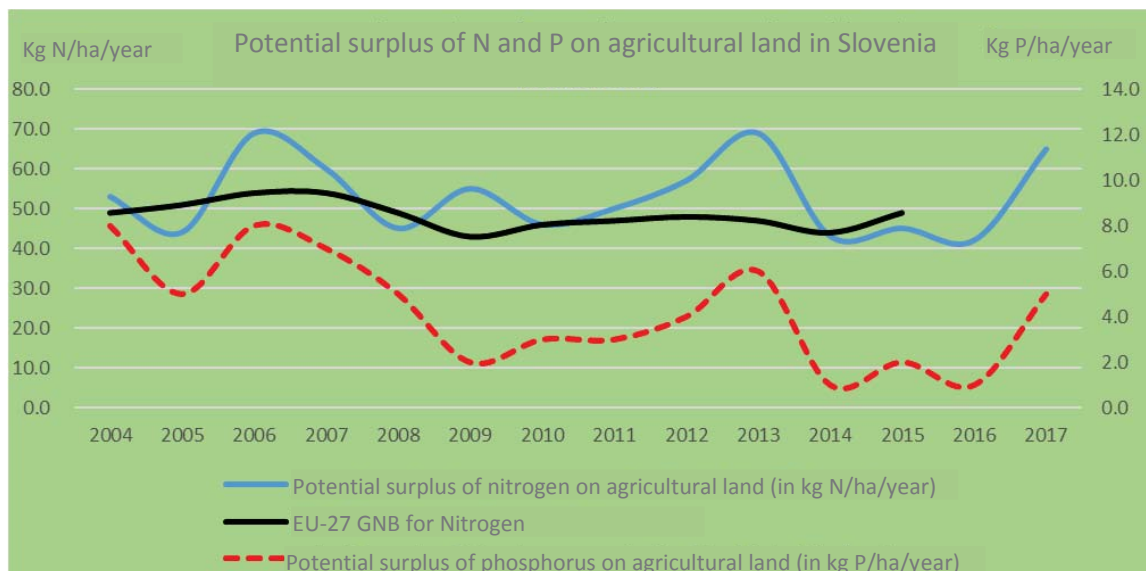
Slovenia's emission reduction commitment is to reduce ammonia emissions by 1% in 2020 and 15% by 2030 compared to 2005. Slovenia is considered to be at medium risk of non-compliance with ammonia emission reduction commitments for the period 2020-2029, and at high risk of non-compliance for 2030 and beyond.

The state of soil in Slovenia raises some challenges for agriculture. On one hand, the quality of the soil expressed in the soil organic carbon (SOC) content is relatively good: mean SOC content in arable land is 40.8 g/kg compared to 43.1g/kg for EU-28. However, Slovenia suffers from a very high erosion rate<sup>47</sup>. While more than 42 % of agricultural area is affected by moderate to severe water erosion (compared to 6.6 % in the EU-28), Slovenia also loses 7.5 tonnes of soil per ha per year compared to the average 2.5 tonnes/ha/year in the EU-28<sup>48</sup>. The soil loss rate is the highest in the south-western regions of Slovenia.

Accelerated soil loss is due to topography and very high rainfall erosivity but is also associated with inappropriate farm management practices and excessive grazing<sup>49</sup>. In 2018, 88%<sup>50</sup> of tillable UAA was under conventional tillage, and 23%<sup>51</sup> of arable land was left bare during the winter months. Modifying these practices by introducing more sustainable agricultural management practices would help contribute to addressing soil erosion problem.

For these reasons 52%<sup>52</sup> of agricultural land in Slovenia has been under rural development contracts to improve soil management (in 2017). According to the evaluation on the impacts of these contracts<sup>53</sup>, there is no systematic monitoring and data collection on soil and soil quality and therefore the impact of these contracts could not be fully assessed. The evaluation recommended to establish a single system for soil monitoring.





European Commission. *CAP context indicator C.40 Water quality*. Based on EUROSTAT [[aei\\_pr\\_gnb](#)]

As the above graph demonstrates, the nitrogen surplus in Slovenia shows a fluctuating tendency over time with an important increase in 2017 from 42 to 65 kg N/ha/year between 2016-2017<sup>54</sup>. The phosphorus surplus follows a rather decreasing trend with, however, an important increase in 2017: from 1 to 5 kg P/ha/year in the same period.

Due to the fluctuating trends, in particular as regards nitrogen surplus, the 4-year averages might provide a more complete picture. Based on CAP context indicator on water quality<sup>55</sup>, the average for surplus of nitrogen in Slovenia reached 49 kg N/ha/year and is slightly higher than the figure for EU-27: 46.5 kg N/ha/year. In case of phosphorous, the 4-year average for Slovenia reached 2.3 kg P/ha/year and is almost four times higher than in the EU-27 (0.5 kg P/ha/year). The application of manure and of inorganic fertilisers are main sources of phosphorous input in Slovenia. As Slovenia displays one of the highest rates of vulnerable soil (pronounced erosion) in the EU and a high phosphorus balance surplus, these two factors combined increase the risk of phosphorus losses<sup>56</sup>.

With regard to the issue of water pollution by nitrates, 11.6% of the ground water stations in Slovenia exceeded the maximum level of 50 mg/l nitrates<sup>57</sup>. These figures shows a better status of groundwater in terms of nitrates content that the averages for EU-28.

One of the main reasons for water pollution is the improper management of manure followed by the use of fertilisers and plant protection products<sup>58</sup>. In this context, it is worth noticing that the Slovenian agriculture is characterized by the relatively high livestock density per ha: 1.07 LU/ha of UAA which is the 9th highest in the EU-27<sup>59</sup>. Although, based on the information from the Commission report on the implementation of Nitrates Directive<sup>60</sup>, in Slovenia the average use of nitrogen and phosphorous originating from animal manure decreased between 2012 and 2014 by more than 5%.

In relation to the Water Framework Directive (WFD), 38% of surface water bodies are in less than good ecological status and approximately 98% are failing to achieve good chemical status<sup>61</sup>. For groundwater, all groundwater bodies are in good quantitative status but around 14 % are failing to achieve good chemical status. Diffuse agriculture (chemical, organic and nutrient pollution with nitrate being the top pollutant) is one of the most significant pressures causing the failure to achieve water-related objectives.

In order to address the problem of water quality, 50% of agricultural land in Slovenia has been under rural development contracts to improve water management in 2017<sup>62</sup>. According to the evaluation of these contracts' impacts<sup>63</sup>, the monitoring of water quality is not adapted to the Rural Development Programme (RDP) implementation leading to an incomplete assessment of these contracts' impact on the water quality. The evaluation has recommended to determine sites relevant for measuring the impacts of such contracts and to monitor water quality with a view to determine the impacts quantitatively.

The share of irrigated area is very limited compared to the EU-27 average and reached in 2016 0.72% of the Slovenian UAA compared to the average of 6.5% for EU-27<sup>64</sup>. However, this figure for Slovenia demonstrates a significant increase: between 2010 and 2016 the share of irrigated area in Slovenia has increased by 178%, the third highest increase in the EU<sup>65</sup>. More than half of this area (63%) was arable land and kitchen gardens<sup>66</sup>, irrigation in agriculture represents only 0.4% in the total water abstraction<sup>67</sup>.

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

Biodiversity in Slovenia is characterised by its richness reflected in above the average size of Natura 2000 network and high nature value farming as well as important landscape diversity. The dominance of farming with low input intensity and the increasing area under organic farming are contributing factors. However, the status of biodiversity in terms of bird indicators and habitats conservation are unsatisfactory and show a downward trend.

The farmland bird index decreased from 95.1 in 2009 to 78.3 in 2018 in Slovenia (for EU-27 in 2017: 82.5)<sup>68</sup>. In the period between 2008 and 2019, the sharpest decline was recorded for meadow birds which declined by 37.8%<sup>69</sup>. In 2019, the Commission launched an infringement procedure against Slovenia concerning the decline of the population of grassland birds and the False Ringlet butterfly and the deterioration of their habitats<sup>70</sup>.

The status of valuable habitats protected under Habitats Directive is expressed in the context indicator "conservation status of agricultural habitats (grassland) (C.36). In Slovenia, half (50%) of grassland habitats are in unfavourable-bad status, 22% in unfavourable-inadequate and 28% in favourable conservation status<sup>71</sup>. With regard to the situation of forest habitats, 77% of such habitats is in a good condition while the remaining 23% in a non-good condition<sup>72</sup>.

According to the Slovenian Prioritized Action Framework (PAF) the main agriculture-related threats to biodiversity are intensification of agricultural use (fertilisation, intensification of mowing regime), conversion into arable land, abandonment of traditional management systems, inappropriate techniques or timing of mowing grasslands, inappropriate application of natural or inorganic fertilisers as well as drainage of land<sup>73</sup>.

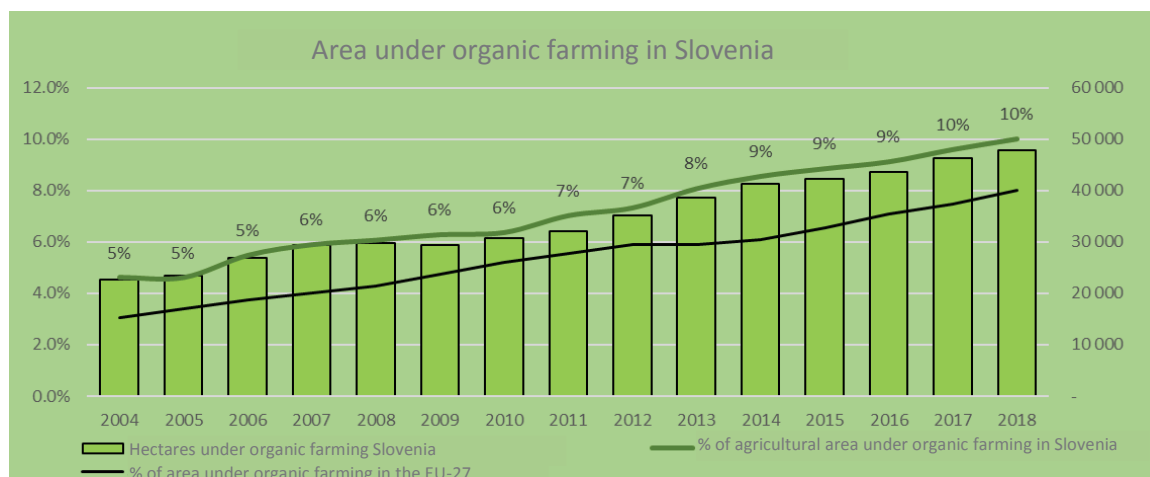
As far as the situation with landscape features in Slovenia is concerned, the surface of agricultural area covered with linear landscape elements is well below the EU average. Fallow land also occupies much smaller part of agricultural area in Slovenia compared to the EU average (0.2% of utilised agricultural area and 4.1% respectively)<sup>74</sup>. On the other hand, based on the 2012 Lucas survey, Slovenia had the high landscape diversity index between 0.75 and 0.8 - above the EU average (0.7)<sup>75</sup>. Also the variations in landscape features diversity between regions were one of the smallest in the EU.

Slovenia activated a majority of possible landscape features in the context of cross-compliance GAEC rules under the system for direct payments, which allows to maintain them. The landscape features thus supported include hedges, ponds, trees in line, groups of trees, isolated trees, terraces and traditional stone walls. In contrast, Slovenia did not activate any landscape features for the purpose of Ecological Focus Area obligation under greening.

In the Slovenian context in 2017, more agricultural area was managed by farms with low input intensity than with high input intensity per hectare: 35.5% against 30% respectively. The area managed by farms with low input intensity is increasing. These figures differ from the EU-27 averages: 36% for high input and 27% for low input intensity<sup>76</sup>.

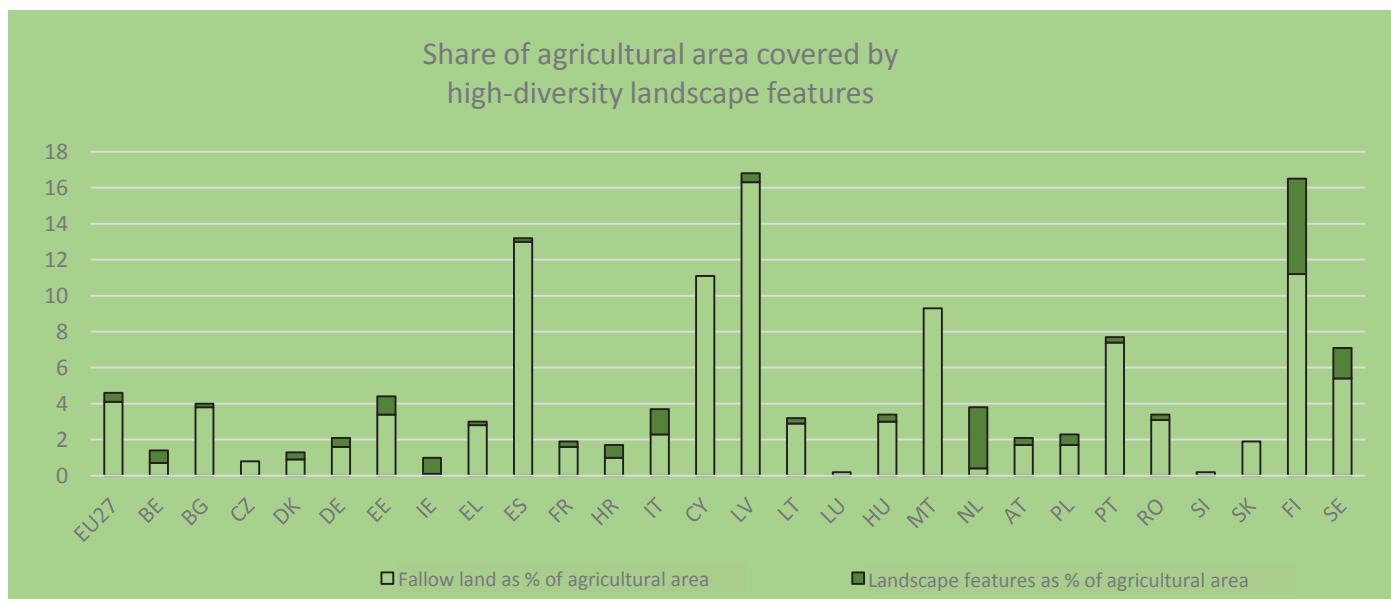
The size of the agricultural area covered by high nature value farming in 2012 was much higher in Slovenia than the average for the EU-28: High Nature Value made up to 75.6% of the Slovenian agricultural area while it was only 32.3% for the EU-28<sup>77</sup>. Slovenia has an extensive network of NATURA 2000 sites which occupy almost 38 % of its territory (compared to the EU average of 20%). These sites represent 45.5% of the Slovenian forest area and 23% of agricultural area (while the averages for the EU are 30% and 11% respectively). To improve biodiversity, 56% of land is under contracts to improve biodiversity and/or landscapes in Slovenia in 2017 compared with 15% for the entire EU<sup>78</sup>.

The total area under organic farming is increasing in Slovenia, covering almost 50 000 hectares in 2019<sup>79</sup>. With more than 10 % of the total utilized agricultural area under organic farming in 2019, the share of agricultural land under organic farming is above the EU-average in 2018 (8%). However, the area under conversion to organic farming has decreased in recent years which affects the potential for a substantial increase to happen.



European Commission. *CAP context indicator C.19 Agricultural area under organic farming*. Based on EUROSTAT [[org\\_cropar\\_h1](#)] and [[org\\_cropar](#)]

With 208 000 beehives and 11 349 beekeepers<sup>80</sup>, Slovenia engages within United Nations to raise awareness about pollination services and bees and promotes the management practices reversing the bee decline. Slovenian programme for improving the production and marketing of apiculture products supports activities for improving bee health<sup>81</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.

\* *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 age structure in farming has remained practically unchanged since 2005 and is markedly skewed towards categories of farm managers with more than 45 years. In 2016, 3 230 or 4.6% of farm managers are younger than 35 years (compared with 5.1% in EU). Between 2005 and 2016, the share of farmers 35 years old or less oscillates between the lowest share of 4.0 % (in 2007) and the highest share of 4.8% (in 2013). For every farm manager younger than 35 years, there are approximately 8 farm managers between 35-54 years old and 12 farm managers older than 55 years. The share of female farm managers younger than 35 years shrunk from 0.9% to 0.7% between 2005 and 2016 (in comparison with share of female farm managers that shrunk from 26% in 2005 to 20% in 2016)<sup>82</sup>.

The transfers of farms are delayed to late ages or do not occur due to challenges of small-scale and semi-subsistence agriculture. Most of farmers start their agricultural activities by way of a transfer of assets and of the managerial function within a family and many young farmers set up with the support of the Rural Development Programmes (RDP). Young farmers have access to advisory service for the preparation of the application forms for the support from the RDP as well as access to other types of advice targeting entire farmer population (e.g. on organic farming and on animal welfare). A one-stop shop advisory service on transfer of farms and its consequences on family revues, tax and inheritance obligations is not available.

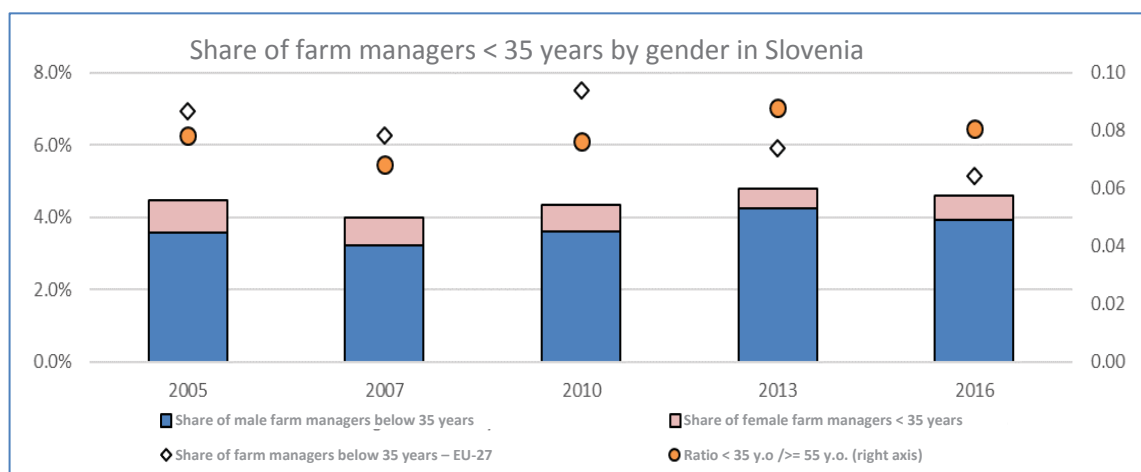
The development of farms, including farms of young farmers, is hampered by a limited participation of farmers on financial market, especially of farms with less than 20 ha of land. In addition, market fails to provide guarantees and loans at preferable conditions

and accessible lending costs. Many young farmers not only lack experience with prior business and possession of a record of the credit history but also report not to consider themselves to be sufficiently literate in finance and business skills to present loan applications<sup>83</sup>.

Agronomic knowledge obtainable in certified programmes and support of advisory service are accessible to young farmers, yet there is little evidence that programmes and services are well adapted to the need for knowledge and skills about financing and market orientation of the sector. Attained levels of agricultural education significantly increased between 2005 and 2016 across all age categories and especially for farmers 35 years old or less. In 2016, 30% of young farmers in Slovenia attained basic and 29% full agricultural education in 2016, which is a way above EU attainments (i.e. with 21% for basic and 22% with full education)<sup>84</sup>.

The RDP 2007-2013 transferred 64 491 ha of agricultural and forestry land<sup>85</sup> and the RDP 2014-2020 so far transferred 7 410 ha of forestry and 26 681 of agricultural land<sup>86</sup>. According to the 2019 Report of the Farmland and Forestry Fund, roughly 54 000 ha of state owned agricultural land have been leased without a reference to a possible priority access for young farmers<sup>87</sup>.

Between 2007 and 2019, 3 761 young farmers were supported for setting up from the RDPs<sup>88</sup>. In terms of direct payments, Slovenia has seen an increase of 15.73% in the number of farmers eligible for the young farmers' payment between 2015 and 2018<sup>89</sup>. Even though there has also been an increase of 8% in the number of hectares held by young farmers between these years, the payment per hectare has suffered a negative variation of -6%<sup>90</sup> for this specific payment.



Share of farm managers <35 years by gender, EUROSTAT. [[ef m farmang](#)]

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

Rural areas cover 73.8% of the territory of Slovenia (in comparison to 45.0% of the EU-27)<sup>91</sup>, house 58.2% of people living in Slovenia (in 2019) (in comparison to 20.8% of the EU-27)<sup>92</sup>, account for 57.7% of employed people in Slovenia (in 2018)<sup>93</sup> and create 48.9% of gross value added created by Slovenian economy (in 2016)<sup>94</sup> and have 51.0%

of bed places in tourist accommodations in Slovenia (in 2016)<sup>95</sup>. The rest of the Slovenian territory are intermediary areas.

Gross domestic product (GDP) in rural areas is 16 343 EUR/inhabitant (in comparison to EUR 19 302 EUR/inhabitant in rural areas EU-27) (in 2016). However, within intermediary areas there are significant disparities: one sub-region out of there sub-regions has GDP higher than rural areas but lower than in rural areas EU-27 (i.e. Gorenjska with 17 200 EUR/inhabitant) whereas Osrednjeslovenska and Primorska sub-regions with respectively 27 700 EUR/inhabitant and with 19 500 EUR/inhabitant are above GDP in rural areas EU-27)<sup>96</sup>. Rural areas also lag markedly behind intermediate areas in purchasing power standard (PPS) compared to EU average (with respectively 72 index points and 106 index points in 2017). In comparison to 2005, the PPS in 2017 in rural areas and in intermediate areas shrunk respectively by 2 and by 6 index points<sup>97</sup>.

In 2016, there were on average 67 non-financial businesses per 1000 inhabitants in Slovenia. However, sub-regional differences in Slovenia are significant: rural sub-regions Pomurska and Zasavska with respectively 39.5 and 41.6 businesses per 1000 inhabitants are on the lower end of spectrum and intermediary sub-regions Osrednjeslovenska region and Primorska with respectively 79.2 and 77.1 businesses per 1000 inhabitants are on its upper end. In 2017, 94.1% of businesses in Slovenia were micro, 4.8% were small businesses, 0.9% were medium-sized businesses and 0.2% were large companies. On average, a Slovenian enterprise employs 4.5 people. The processing industry created in 2017 by far the largest share of value added in Slovenia, i.e. 35.8% of value added (in comparison with 32.25% in Slovenia in 2010 and in comparison with 23.6% in EU in 2016)<sup>98</sup>.

The economy of rural areas has been marked by a structural and economic dependency from the primary sector. With 11.4% share of employed in primary sector in 2016 (in comparison with 3.6% share of employed in the primary sector in the intermediary areas) primary sector continues to play an important role in the structure of the economy in rural areas<sup>99</sup>.

In Slovenia, 41 120 (i.e. 59% of all farms) generate standard output of less than EUR 8 000 (in 2016)<sup>100</sup>. This means that most of Slovenian farms rely on income from non-agricultural sources. Some farms sustain themselves with diversification related to agriculture and some of the family income of Slovenian farms comes from sources other than agriculture and diversification.

Overall, rural areas were not depopulated but have been associated with rapid aging of population. Between 2005 and 2019 the share of people older than 65 years in rural areas grew by 33% whereas the share of people between 15 and 65 years old shrunk by 8%. In contrast to zero population growth in rural areas, the population in the intermediary areas grew by 10% between 2005 and 2019 and had 7-times the net migration of the rural areas<sup>101</sup>.

In 2019, employed persons as a share of total population 15-64 years old people in rural areas was 71.7% (compared to 68.4% in rural areas EU-27). The employment rate in rural areas has been steadily increasing with the recovery from the 2008 crisis. In 2018, 74.8% of men and 66.8% of women in the population 15-64 years old people in rural areas were employed<sup>102</sup>. Compared to the EU average of 4.0%, Slovenia has 3.9% agricultural employment in the total employment (in 2019). In 2016, 43.4% of farm regular work force women<sup>103</sup>.

In 2018, share of unemployed persons as a share of total population 15-74 years old people in rural areas was 4.6% (compared to 6.3% in rural EU-27). In 2018, the youth unemployment rate of 15-24 years old people in rural areas was 7.7% (compared to 14.6% in rural EU-27)<sup>104</sup>. The unemployment rate in rural areas has been steadily decreasing since the recovery from the 2008 crisis for all age categories<sup>105</sup>. In 2018, poverty rate in rural areas was 16.6% (in comparison with 23.6% in rural areas EU-27)<sup>106</sup> and has been steadily decreasing since 2013 when 21.7% of people in rural areas were at risk of poverty<sup>107</sup>.

In 2018, female unemployment in rural areas for age categories 20 to 24 years and from 25 to 49 years was about roughly 3 percentage points higher than male unemployment rate in the same age categories<sup>108</sup>.

Regarding the employment opportunities, significant disparities between cities/urban centres and smaller towns/rural areas are notable. Socio-economic indicators show a major divide between the growing capital that alone attracts skilled people in higher value-added sectors and the rest of the country where gains in employment are concentrated in lower-value-added sectors<sup>109</sup>. In addition, the female (un)employment rate in rural areas might be related also with unmet needs for institutional care or home care<sup>110</sup> and formal childcare services<sup>111</sup>.

To build up the resilience of local communities, three European Structural and Investment Funds support community led local development in Slovenia covering entire Slovenian territory. This engages 37 partnerships build in framework of 37 local action groups which predominantly promote projects cantered on basic services and job creation and to a lesser extent as well on environmental protection and social inclusion<sup>112</sup>.

The share of forest area is 61.5% (in comparison with 39.8% in EU-27)<sup>113</sup>. Gross value added/forest area available for food supply is 234 EUR/ha (in comparison with 200 EUR/ha in the EU) and has increased by 236 % between 2005 and 2017<sup>114</sup>. Forestry sector provides 0,4 % of employment as a share of total population (in comparison with 0.3% in EU-27)<sup>115</sup>. The increment of the growing stock was due to low intensity harvesting, which was in line with strategic forest management objectives. During the period 2007-2012, the increment was about 8.1 Mio. y-1, while the annual cut was roughly 4 Mio. m<sup>3</sup><sup>116</sup>. Most of harvested timber is exported as round wood<sup>117</sup>. Harvesting and management of forests are hampered by the large number of forest owners and small and fragmented tenure.<sup>118</sup>

In 2017, 113 700 people are employed in the bio-economy and the employment in bio-economy has decreased by 17.4% between 2008 and 2017. In 2017, the turnover is EUR 7 billion and has been slightly increasing since 2009, however it is below EUR 7.3 billion in 2008. In terms of added value the largest bio-based sectors in 2017 are food & beverage, agricultural, forestry, wood products and bio-based chemicals<sup>119</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.**

Improving the response of EU agriculture to societal demands on food and health pursues the same objectives as the Farm to Fork strategy, in particular when it comes to the targets set on reducing the use of inputs, such as pesticides and antimicrobials, as well as objectives on animal welfare, sustainable food consumption and addressing food loss/waste. The need for the transformation of the food system in Slovenia to address

societal concerns, and to contribute to sustainable diets, is particularly relevant in view of the issues addressed below.

The challenge of stimulating the shift to healthy and sustainable food consumption is a common EU challenge, considering its health and also environmental impacts. The estimated average prevalence of overweight among adults in the EU is around 52%.<sup>120</sup> In addition, more than one-third (36.9%) of the EU population is pre-obese with a further 14.9% being obese. A significant part of the Slovenian population is overweight (52.5%) or obese (16.2%)<sup>121</sup>. Slovenia is among the countries with currently high consumption of red meat<sup>122</sup>. Furthermore, Slovenia has a high burden from non-communicable diseases due to dietary risk factors expressed as Disability Adjusted Life Year (DALYs) per 100 000 population attributable to diet. Therefore, Slovenia should facilitate a shift towards healthy sustainable diets, more plant-based with less red and processed meat and more fruits and vegetables, whole grains, legumes, nuts and seeds, in line with national dietary recommendations in order to contribute to reducing overweight and obesity rates and the incidence of non-communicable diseases while simultaneously improving the overall environmental impact of the food system. The CAP can complement national policies and private initiatives that are needed to meet this goal.

The sales in veterinary antimicrobial agents show a very positive result and have reduced over time in Slovenia, although a reversal of this trend seems to appear according to the latest available data. However, sales stand well below the EU average. Namely, between 2010 and 2018 Slovenia registered a drop in sales of 8%. The total volume of sales of veterinary antimicrobial agents in 2018 was 7.8 tonnes or 43.2 mg/PCU. As pointed out, this reduction trend is uneven, with the lowest level registered in 2013 at 22.4 mg/PCU, followed by a subsequent increase to 33.4 mg/PCU in 2014 and finally to 43.2 mg/PCU in 2018.<sup>123</sup> This is nevertheless well below the EU average of 118.3 mg/PCU and in line with the Green Deal target to reduce the overall EU sales of antimicrobials for farmed animals and in aquaculture by 50% by 2030.

A DG SANTE report<sup>124</sup> from 2016 concludes that several mostly voluntary policy initiatives aimed at avoiding the need for antimicrobials in animals and encouraging their prudent use has contributed to the relatively low sales of antimicrobials compared with other Member States. Various aspects of these could serve as examples of good practices for other Member States. The further development of policies to promote the prudent use of antimicrobials is part of the revised national strategy for combatting AMR which encompasses both human and veterinary issues in a “One Health” approach.

In relation to animal welfare, the main concerns are twofold. First, 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. Second, the approval and inspection of livestock vessels does not guarantee the compliance of the ship with the requirements in Regulation 1/2005 and therefore does not adequately minimise the risks for the welfare of the animals.<sup>125</sup> Furthermore, farm biosecurity is another challenge. Slovenia is not among the countries affected by African Swine Fever (ASF) but it is in the higher risk category which requires prevention against the spread of the disease.

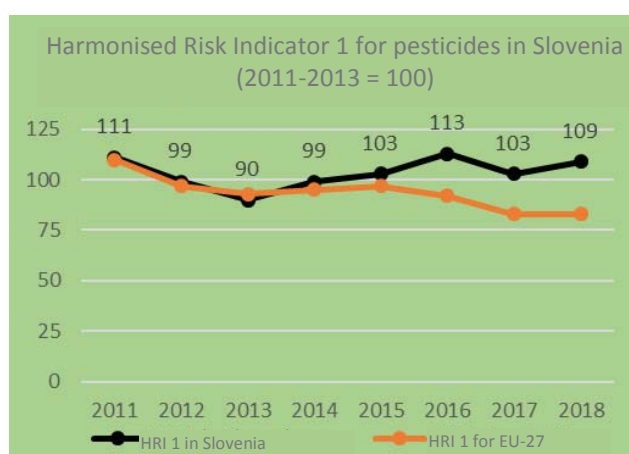
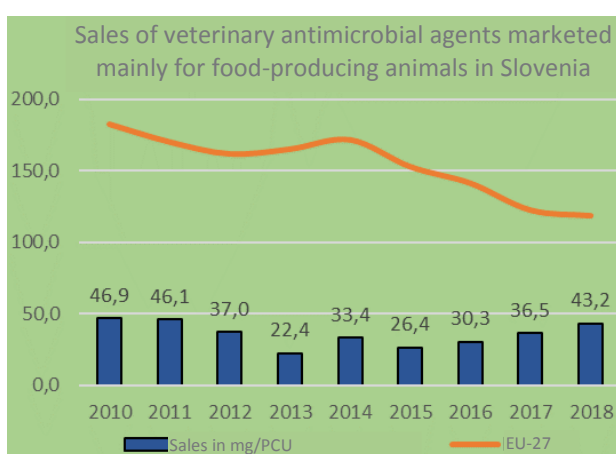
In terms of quantities, 1 171 tonnes of active substances in plant protection products were sold in Slovenia in 2018.<sup>126</sup> The majority (72%) of plant protection products sold were fungicides and bactericides, 22% were sold from the herbicide group and 5% were insecticides and acaricides. Out of total volume of fungicides sold, more than half are



products based on copper and sulphur, which are allowed to be used in organic production.<sup>127</sup>

Based on the harmonised risk indicator 1 (HRI 1) calculated under the Sustainable Use Directive, the use and risk from pesticides increased by 9% in Slovenia between 2011 and 2018, compared to a 17% decline in the EU. This is the sixth highest increase among Member States. Slovenia is listed as the ninth most intensive user of pesticides in the EU based on the kg of active substances sold<sup>128</sup> per hectare of Utilisable Agricultural Area. In 2018, there were 2.5 kg of pesticide active substances sold per hectare of Utilisable Agricultural Area in Slovenia, compared to an average of 2.3 kg/hectare for the EU, although pesticides are also sold intended for use in other sectors than agriculture. Namely, the statistical survey performed in Slovenia in 2017 showed that the use of pesticides in agriculture was only a half of the total sale of pesticides in that year (out of 1,087 tons of active substances in plant protection products sold in 2017, 510 tons were consumed in agriculture)<sup>129</sup>.

Food waste is a growing problem in Slovenia, particularly in terms of food waste that is still edible. The issue of food losses and waste is multi-faceted and takes place in all links of the food supply chain. As in previous years, in 2018 more than half of food waste was generated in households (52% or almost 73 200 tonnes). One third of food waste (almost 42 100 tonnes) was created in catering and other activities in which food is served, e.g. schools, kindergartens, hospitals, people's homes. One tenth of the food waste (around 13 800 tonnes) was generated in distribution and grocery stores. Little less than one tenth (about 10 800 tonnes) of food waste has been generated in food production (including primary food production).<sup>130</sup>



European Medicines Agency, European Surveillance of Veterinary Antimicrobial Consumption (ESVAC). *Sales of veterinary antimicrobial agents in 31 countries in 2018 – trends from 2010 to 2018 Tenth ESVAC Report.* [EMA/24309/2020](https://www.ema.europa.eu/en/press-room/2020/02/WPV-2020-001).

European Commission. *Harmonised Risk Indicator for pesticides (HRI 1), by group of active substance.* As in EUROSTAT [[SDG 02 51](#)]

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

The Agricultural Knowledge and Innovation Systems (AKIS)<sup>131 132</sup> in Slovenia is classified as 'medium strong'. Cooperation between agricultural universities, farmers and local advisors has increased in recent years through roughly EUR 20 million of public support allocated for this purpose in the rural development programme. Still, according

to the [Pro-AKIS study](#) carried out at EU level, Slovenia is positioned half way on the scale from ‘fragmented’ towards ‘integrated’. While key participants are involved in the system, resources are available and farmers can access relevant knowledge, the level of their interactions (e.g. between research and advisers which is a key for establishing knowledge flows) is still limited.

Flows of knowledge from research to practice and back<sup>133 134 135</sup> include connections between research and practice, existing interactive platforms, translation of research results into a practical language understandable for farmers and communicated through the trusted media channels. The high level of integration into the EU research area (ERA) affects the national AKIS favourably. There are good examples of European policies working in synergy (Horizon 2020 and CAP) aimed at connecting actors from research and practice and at disseminating knowledge.

In Slovenia, advisors are a key pillar of the implementation of AKIS. Concretely, they take the initiative for possible projects initiated by farmers, they draft agricultural projects and facilitate operational groups, and help fasten the implementation of innovations. In Slovenia the public side of advisory services is quite well established but some effort needs to be made to move towards a more inclusive system in terms of wider scope of topics.

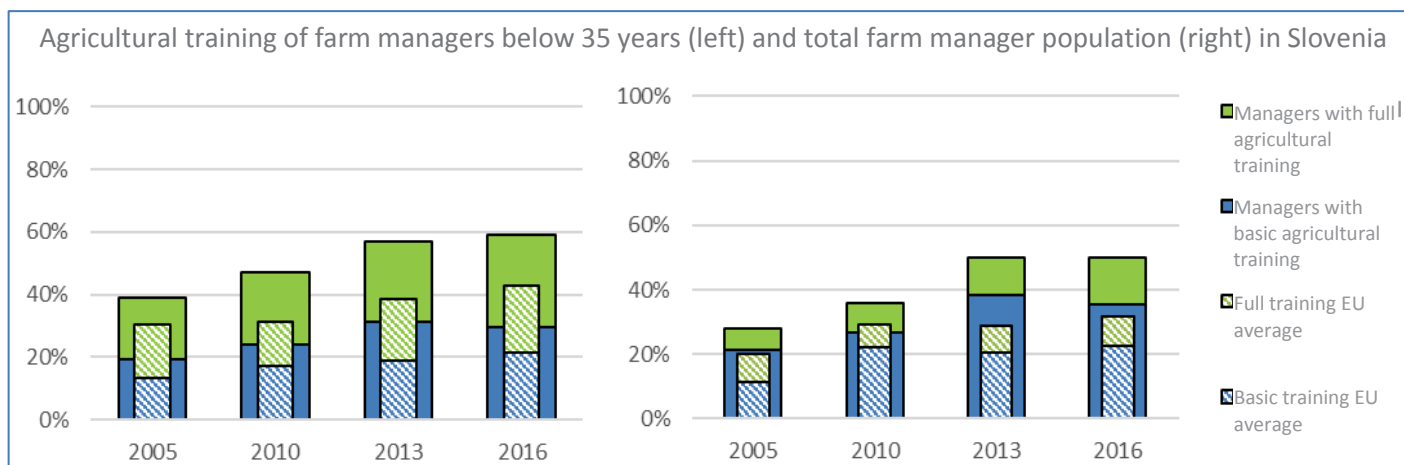
Under the Rural Development Programme 2014-2020, 3.91% of total public allocation was initially programmed for knowledge exchange, advisory services and innovation actions but the subsequent reprogramming led to current level of allocation of 2.85% which is considerably below the EU-28 average of 3.8%. The actual spending for training and cooperation is lagging behind (with respectively 26.6% and 7.4% of the allocation).

The Slovenian Rural Network (SRN)<sup>136</sup> has the objective of fostering innovation in agriculture, food production, and forestry and connect rural areas. Its communication tools include newsletters, audio-visual library, social networks and organisation of workshops and events.

As regards human resources related to National Rural Networks (NRN) less than 5 Full Time Equivalent (FTE) employees support the operation in the 32 network support units across the EU in Slovenia which is in the low number of employees range. Despite this, the NRN has been an important and proven facilitator of knowledge and innovation exchange.<sup>137</sup> Its facilitating role was especially prominent in initial phase of when relevant stakeholders have been animated for the implementation of the innovation cooperation projects in Slovenia. Currently its main role is to support the “EIP I Know point”, i.e. a one-stop shop with information for interested parties in various types of innovative cooperation. Once the projects are implemented it is expected it would facilitate also the dissemination of the outcomes of projects. This experience can provide a good basis for the future national CAP Network for collecting information – e.g. through knowledge platforms – and thus facilitate the implementation of relevant research and innovation results.

Until 2020, 32 operational groups have been launched under the European Innovation Partnership (EIP-AGRI). The innovation fields are diverse, stretching from inventing new diversification activities on farms, to experimenting in digitalisation of forest management and forestry sector and improving the resource efficiency and production techniques in agriculture. According to the Rural Development Programme in total 60 different forms of cooperation are planned to be supported by the end of the period.

In 2016, at least 50 % of farm managers in Slovenia had basic or full agricultural training (in comparison with 32 % in EU-28)<sup>138 139 140</sup>. The share of farm managers with full training (i.e. 14.48%) in Slovenia are well above the EU average of 8.9% of total managers. This share has been steadily increasing since 2005. The share of managers with basic agricultural training is 35.41%. Slovenia has a well developed agricultural education system. Under the Rural Development Programme, transfer of knowledge was so far provided through the training during 639 training days to 59,840 participants (workshops/training/study visits) and through advice to 19,774 beneficiaries.



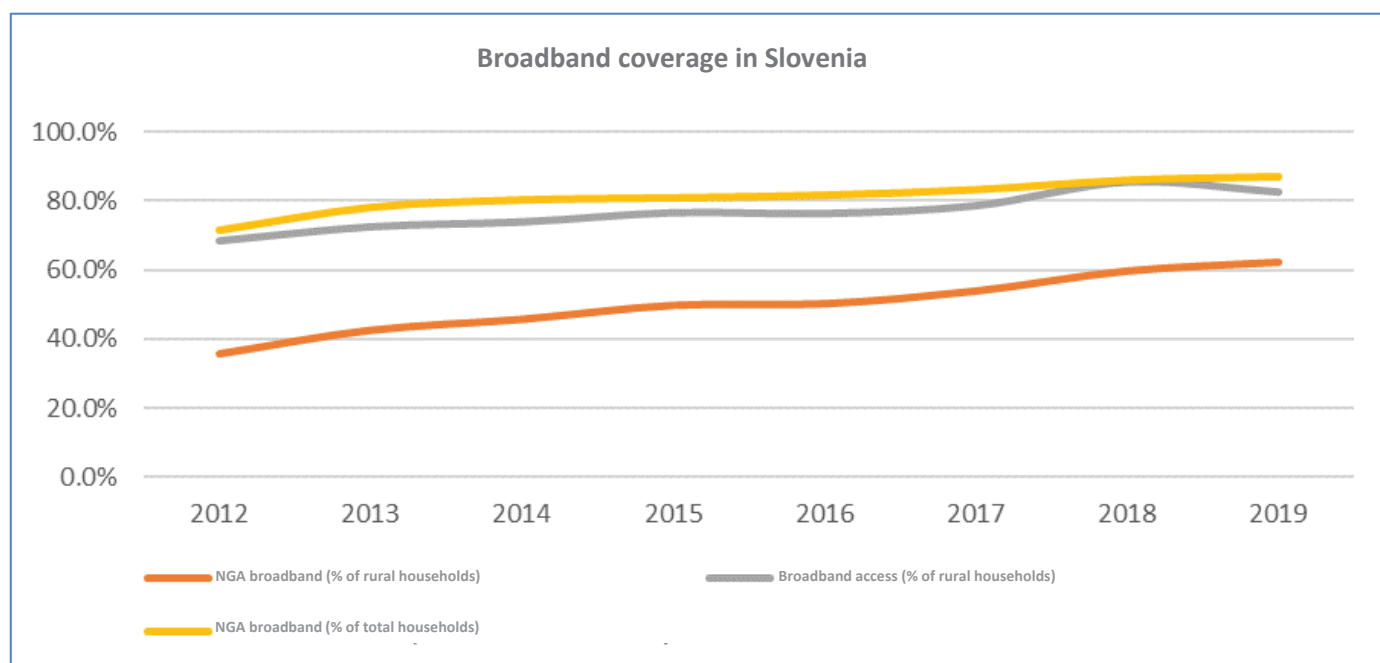
European Commission. CAP context indicator C.24 Agricultural training of farm managers. Based on EUROSTAT [ef\_mp\_training]

In 2019, 37.7% of rural households had no access to Next Generation Access (NGA) broadband infrastructure (in comparison to 40.7 % in rural areas in the EU and 13.1% nationally) and 4.5% of rural households had no access to standard broadband infrastructure<sup>141</sup>. The rolling out of broadband is hampered by a dispersed settlement pattern and hilly and mountainous landscape. Under the European Structural and Investment Funds 2014-2020 roughly EUR 32 million for developing NGA in Slovenia have been allocated. According to the explanations the Slovenian authorities gave in annual meetings, the construction of most of the lacking broadband infrastructure has not yet started due to delays in awarding construction works. Further, 27.2% of the population living in sparsely populated areas have low level of digital skills (i.e. missing some type of basic digital skills) (compared to 31.7% in rural areas in the EU)<sup>142</sup>. Regarding the digital skills as a whole, overall 55% of all inhabitants in Slovenia have basic or above basic digital skills (in comparison with 56% in EU-27).<sup>143</sup>

In the Digital Economy and Society Index (DESI)<sup>144</sup> which considers 5 dimensions, namely connectivity, human capital, use of internet services, integration of digital technologies and digital public services, the country ranks below EU average performing particularly weak as it regard the use of internet services.

Slovenia has so far not opted for the use of satellite-based means to monitor CAP implementation but intends to do so in 2021.

There are four operational Digital Innovation Hubs in Slovenia related to digitalisation of agricultural holdings for forest management planning; digital forest inventory; organic food supply chains; agricultural production system for forestry, in a total of 142 hubs amongst EU members<sup>145</sup> which aim to assist the sector to take up innovative approaches and thus to improve competitiveness through the use of digital technologies.



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

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- <sup>1</sup> European Commission. Common Agriculture Policy context indicator C.26 *Agricultural entrepreneurial income*. Income based on EUROSTAT [[aact\\_eaa04](#)], [[aact\\_ali01](#)] and [[aact\\_eaa06](#)], adding back the compensation of employees to the entrepreneurial income and divided by the total number of annual working units. Note: 2019 data estimated. The Average wage in the economy based on EUROSTAT [[nama\\_10\\_a10\\_e](#)] thousand hours worked using employees' domestic concept and [2019 [nama\\_10\\_a10](#)], item wages and salaries. 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>2</sup> Directorate General for Agriculture and Rural Development. *CAP context indicator C.25 Agricultural factor income*. Based on EUROSTAT [[aact\\_eaa04](#)], [[aact\\_ali01](#)] and [[aact\\_eaa06](#)]
- <sup>3</sup> Farm Accountancy Data Network. *FADN Standard reports*. [YEAR.COUNTRY.SIZ6](#) and own calculations (up to 2018)
- <sup>4</sup> Farm Accountancy Data Network. *FADN Standard reports*. [YEAR.COUNTRY.SIZ6](#) and own calculations (up to 2018)
- <sup>5</sup> European Commission. [CAP indicators – Data explorer](#). CAP Result indicator RPI\_01 Share of direct support in agricultural income.
- <sup>6</sup> European Commission. Directorate General for Agriculture and Rural Development own calculations based on FADN (Farm Accountancy Data Network) data (2015) and CATS (Clearance of Accounts Trailing System) data (up to 2017)
- <sup>7</sup> European Commission. Directorate General for Agriculture and Rural Development own calculations based on FADN data (up to 2018)
- <sup>8</sup> FADN does not take into account very small farms. The small physical size farms considered in the analysis may have a higher income compared to the average with all small physical size farms.
- <sup>9</sup> European Commission. Summary report on the implementation of direct payments [except greening] - Claim year 2018 [[https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key\\_policies/documents/summary-report-implementation-direct-payments-claim-2018.pdf](https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key_policies/documents/summary-report-implementation-direct-payments-claim-2018.pdf)]
- <sup>10</sup> European Commission. Directorate General for Agriculture and Rural Development own calculations based on FADN (Farm Accountancy Data Network) data (up to 2018) and CATS (Clearance of Accounts Trailing System) data (up to 2018)
- <sup>11</sup> European Commission. *CAP context indicator C.13 Employment by economic activity*. Based on EUROSTAT [[lfst\\_r\\_lfe2en2](#)].
- <sup>12</sup> European Commission. *CAP context indicator C.18 Agricultural area*. Based on EUROSTAT [[apro\\_cpsh1](#)].
- <sup>13</sup> European Commission. *CAP context indicator C.17 Agricultural holdings (farms)*. Based on EUROSTAT [[ef\\_m\\_farmleg](#)]
- <sup>14</sup> Republic of Slovenia, Ministry of Agriculture, Forestry and Food. SWOT analysis for the specific No.2 of the CAP Strategic Plan. November 2020.
- <sup>15</sup> European Commission. *CAP context indicator C.16 Labour productivity in the food industry*. Based on EUROSTAT [[nama\\_10\\_a64](#)] and [[lfsa\\_egan22d](#)]
- <sup>16</sup> European Commission. *CAP context indicator C.18 Agricultural area*. Based on EUROSTAT [[apro\\_cpsh1](#)]
- <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 result indicators C.27, Total factor productivity in agriculture*. 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.28 Gross fixed capital formation*. Based on EUROSTAT [[nama\\_10r\\_3gva](#)] and [[nama\\_10r\\_2gfcf](#)].
- <sup>20</sup> Republic of Slovenia, Ministry of Agriculture, Forestry and Food. SWOT analysis for the specific No.2 of the CAP Strategic Plan. November 2020.
- <sup>21</sup> European Commission. European Investment Bank. (2020). *Financial needs in the agriculture and agri-food sectors in Slovenia*.
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- <sup>24</sup> European Commission. [CAP indicators – Data explorer](#). CAP Impact indicator I.06, *Agricultural trade balance*, based on EUROSTAT Comext.

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- 27 European Commission. [CAP indicators – Data explorer](#). CAP Result indicator *RPI\_03 Value for primary producers in the food chain*.
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- 38 FAO Global Forest Resources Assessment <https://fra-platform.herokuapp.com/SVN/assessment/fra2020/extentOffForest/>
- 39 European Commission. CAP context indicator C.43 Production of renewable energy from agriculture and forestry. Based on EUROSTAT [[nrg\\_bal\\_c](#)]
- 40 All data related to climate change and projections from: [http://meteo.arso.gov.si/uploads/probase/www/climate/text/sl/publications/OPS21\\_Porocilo.pdf](http://meteo.arso.gov.si/uploads/probase/www/climate/text/sl/publications/OPS21_Porocilo.pdf)
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- 47 According to the study conducted in 2020 by the Slovenian National Institute for Agriculture, the average soil erosion rate in Slovenia is 3.18 t/ha per year. To take into account a very varied relief in the topography of Slovenia, the study also looked at the erosion rate for the areas outside of the areas with a slope > 50% which represents 345,624 ha of the Slovenia territory. Based on this methodology, an average annual loss of soil due to erosion in Slovenia is 2.63 t/ha per year.
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