

Brussels, 18.12.2020
SWD(2020) 392 final

COMMISSION STAFF WORKING DOCUMENT

Commission recommendations for Slovakia's CAP strategic plan

Accompanying the document

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

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

{COM(2020) 846 final} - {SWD(2020) 367 final} - {SWD(2020) 368 final} -
{SWD(2020) 369 final} - {SWD(2020) 370 final} - {SWD(2020) 371 final} -
{SWD(2020) 372 final} - {SWD(2020) 373 final} - {SWD(2020) 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) 393 final} - {SWD(2020) 394 final} - {SWD(2020) 395 final} -
{SWD(2020) 396 final} - {SWD(2020) 397 final} - {SWD(2020) 398 final}

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1. COMMISSION RECOMMENDATIONS FOR SLOVAKIA'S CAP STRATEGIC PLAN

In the framework of the structured dialogue for the preparation of the common agricultural policy (CAP) strategic plan, this document contains the recommendations for the CAP strategic plan of Slovakia. The recommendations are based on analysis of the state of play, the needs and the priorities for agriculture and rural areas in Slovakia. 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 Slovakia, in its CAP strategic plan, to set explicit national values for the Green Deal targets^a, taking into account its specific situation and these recommendations.

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

The economic performance of Slovakia's agricultural sector is strongly influenced by its dual structure. On the one hand, there are larger, professional farms integrated in vertical chains, with access to capital and land. As farms are getting bigger and investments allow for higher efficiency, there is a considerable outflow of labour from agriculture, resulting in higher income per annual work unit and total factor productivity.

On the other hand, the sector is adapting in line with transition to sustainable food systems (e.g. increasing consumer demand for organic products, higher animal welfare standards, short supply chains) in which the small farms play an important role. In that transition, further use of EU quality schemes could help improve the position of farmers in the food value chain and therefore add value and generate competitive advantages.

In general, Slovakia should better target its measures to tackle disadvantages stemming from natural conditions, size and specific sectoral characteristics in order to help increase the sector's overall resilience. Support for innovative and digital smart solutions, as well as availability of the appropriate risk management tools could be instrumental.

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

Slovak farms and forests are facing major challenges linked to the management of natural resources, especially in light of the intensification of agricultural production and the impacts of climate change.

While the agricultural sector's non-CO₂ greenhouse gas emissions have decreased dramatically since the 1990s, the trend has started to reverse in the recent years due to increasing emissions from the fertilisation of agricultural soils (these account for half of the emissions although they remain relatively low in per ha terms). This is in contrast to the livestock sector (ruminants), which - despite an overall reduction in emissions due to a reduction in the number of livestock - is still relatively emission intensive. As in other

^a 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.

countries in the region, forests' capacity to absorb CO₂ has flattened out because of ageing and pests. This is also the case for grasslands, whereas the CO₂ absorption capacity of croplands has increased. Slovakia's agri-forestry sector has steadily increased its energy production and is also considerably energy efficient when compared to the EU average.

Changing weather patterns are making Slovakia's agricultural sector vulnerable to higher yield variability and crop disturbances due to water imbalances, pests (that also damage forests) and, heat-induced stress for livestock. However, there are some opportunities linked to increased productivity and new crops.

As in many other Member States, the biodiversity situation in Slovakia is continuously worsening especially for bird species, amphibians and reptiles, agricultural and forest habitats in Natura 2000 sites, and aquatic and wetlands ecosystems. A lack of overall variety in landscape features on agricultural land also continues to be a challenge. To address these challenges, Slovakia should expand the use of sustainable practices and environmentally-sound farming systems, and take action to restore habitats and species – especially those included in the Prioritised Action Framework for CAP funding and, in the EU and national species and habitats action plans.

Numbers of hectares of organically farmed agricultural land and of organic farmers show the importance that organic farming has gained in Slovakia over the last decades. This presents a good starting point for Slovakia to contribute to reaching the EU Green Deal target. Nevertheless, conversion to organic farming should speed up, since it has stagnated in recent years.

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

The transition towards sustainable food systems also involves supporting the creation of vibrant rural areas, a better quality of life and greater attention to emerging societal demands.

Since 2010, macroeconomic developments have led to an increase in the level of income per capita in Slovakia. However, the differences between rural and urban areas continue to be high. To ensure that rural areas and communities remain attractive places to live and work, Slovakia needs to reduce the gap in standard of living between rural and other areas. This will require addressing the specific needs and challenges of rural areas and of vulnerable groups, namely the lack of job opportunities and limited access to basic services.

Careful consideration must be given to the specific needs of women in agriculture and rural areas in order to ensure on gender equality and close the gender gaps in employment, pay, pensions and decision-making.

Ensuring the protection of agricultural workers, especially the precarious, seasonal and undeclared ones, will play a major role in upholding the rights enshrined in EU laws that are central to fair EU food system envisaged by the Farm to Fork Strategy.

Farming is key in helping rural communities remain economically viable. However it needs skilled and innovative farmers that can respond to societal demands, from quality food to environmentally friendly products. This entails addressing the sector's relatively

high reliance on more hazardous pesticides, and the limited or delayed access to low risk alternatives in the Slovak market.

Animal welfare concerns also need to be addressed. The persistent practice of docking pigs' tail signals the still inadequate conditions on farms that usually motivate this banned practice. In contrast, sales of antimicrobials for farmed animals remain relatively low while the occurrence of African swine fever proved the importance of biosecurity measures.

Slovakia has very high rates of non-communicable diseases due to dietary risk factors, and efforts are needed to support the shift to a more healthy environmentally sustainable diet in line with national recommendations.

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

A well-functioning agricultural knowledge and innovation system (AKIS) should ensure that knowledge flows between its actors, respond to farmers' growing need for information, to achieve the CAP objectives. In addition to "agriculture", AKIS covers other rural activities related to the landscape, environment, forestry, climate, biodiversity, food and non-food systems.

The Slovak AKIS is quite fragmented and weak. There is also no coherent policy on the development and functioning of the AKIS. Investment is essential to improve knowledge exchange and innovation flows between researchers, advisors, farmers and CAP networks. Improving links between public and private advisors and investing in their training and skills is also of utmost importance. Group projects under the European Innovation Partnership should be set up to help advisors capture and further develop innovative grass roots ideas.

Strengthening the organisation of actors, structuring the exchange s on and uptake of knowledge and innovation, as well as digitalisation are key for a swift digital and green transition towards more sustainable agriculture in Slovakia. The future role of farm advisors should include: (i) tailored services on sustainable management choices, on climate impacts and adaptation options; (ii) helping to initiate and facilitate innovation projects that respond to farmers' needs including on digital technologies, and (iii) helping farmers adapt to a digital landscape.

Much faster broadband needs to be made available in Slovakia's rural areas, as it can help r job and business creation, generational renewal, and the provision of support services that can improve the general quality of life in rural areas. This was highlighted as essential during the COVID-19 crisis.

1.5 Recommendations

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

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

- **Rebalancing the distribution of power in vertical chains** by strengthening the role of producer organisations and the participation of small farmers in them, as well as diversification from conventional agricultural and foodstuffs to sustainable and high added value ones (such as EU quality schemes and organic food).
- **Improving the viability of farms** by better addressing the income gaps among different (professional) farm sizes, sectors and territories through strengthened redistribution by applying, for example, the complementary redistributive income support for sustainability, the round sum payment for small farmers and the reduction of payments, which reflect actual support needs in light of the economic, social and/or territorial objectives.
- **Improving resilience of the agricultural sector** through promotion of risk management tools (including climate risks through a risk transfer mechanism, e.g. crop insurance), or, if needed, introducing new tools on the basis of a systematic risk management strategy.

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

- **Contributing to the EU Green Deal target on organic farming** by fostering a conversion from conventional farming to organic through adequate conversion and maintenance schemes.
- **Halting and reversing the loss of biodiversity**, in particular in conservation trends and status of all protected habitats and species linked to agriculture and the decline in farmland birds and wild pollinators, by promoting sustainable management practices in agricultural area and sustainable forest management, habitats restoration actions in line with priorities defined in the Prioritised Action Framework and by contributing to the **EU Green Deal target on high diversity landscape features** on agricultural land.
- **Increasing resilience to climate change** by increasing water efficiency through modernisation of water infrastructure and rainwater harvesting, crop adaptation and appropriate land management practices improving water retention in soils.
- **Reducing greenhouse gas emissions from agriculture**, in particular by mitigating the emissions from soils through practices leading to more efficient use of inputs; and addressing the intensity of enteric emissions from ruminants by adopting low emission feeding strategies in line with the Methane Strategy.
- **Maintaining and strengthening the carbon sink** in existing forests and implementation of afforestation programmes, by considering projected climate change for the selection of appropriate species.
- **Fostering sustainable forest management and enhancing multifunctionality, forest protection and restoration of forests ecosystems**, particularly after large scale damages, 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.

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

- **Contributing to the EU Green Deal targets on pesticides** by strengthening the efforts to decrease the quantities and risks of most hazardous used pesticides and promoting the sustainable use of pesticides, in particular by ensuring the uptake of integrated pest management practices.
- **Promoting the socio-economic development of rural areas** by supporting the development of economic activities in rural areas through mobilisation of activities in new sectors (i.e. developing the bio-economy) with an appropriate mix of interventions, such as investments into business environment and by investments into basic services. In doing so it will be important to ensure synergies with other EU and national funds.
- **Putting in place more ambitious measures** to support farmers to improve livestock management practices **aimed at higher animal welfare**, especially for pigs and laying hens, as well as better biosecurity.

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

- **Contributing to the EU Green Deal target on broadband** by timely completing investments for fast broadband connection coverage in rural areas, while strengthening digital capacities and skills to foster the digital transition and harnessing the potential of technological advancements for modern, competitive and sustainable agriculture. In doing so it will be important to ensure synergies with other EU and national funds.
- **Strengthening the Agricultural Knowledge and Innovation System**, in particular by interlinking actors and supporting competent advisors which can help the green transition, by setting up interactive innovation projects and innovation support services, and by organising attractive and targeted agricultural training for advisors and farmers.

2. ANALYSIS OF AGRICULTURE AND RURAL DEVELOPMENT IN SLOVAKIA

Agricultural sector, together with forestry, represents around 2.8% of the gross value added of the Slovak economy. Nevertheless, its role is crucial in the provision of food and public goods by using and utilizing resources of rural areas. Agricultural area covers around 47% of the Slovak territory, out of which 62% are designated areas facing natural constraints. The sector is characterized by its dual structure, with a dominant position of large farm and an average size of 75 hectares. This is due to historical reasons as many large cooperatives and state-owned companies were formed during the period of the state collectivization and after 1989 were transformed into private business companies and co-partner cooperatives. Regarding production, Slovakia produces mainly cereals, oilseeds, industrial crops and forage plants while milk, cattle and pigs dominate the animal production.

Rural areas comprise 46% of the Slovak territory and host 37% of population. The socio-economic conditions differ across the regions of Slovakia. The lack of labour opportunities, as well as, limited access to basic services remain the main challenges.

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

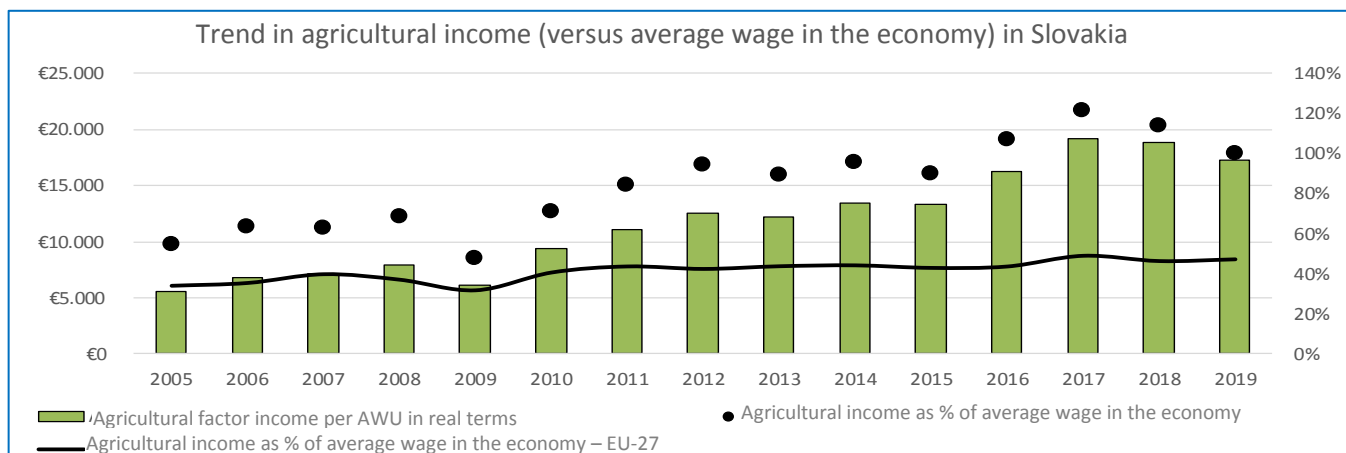
The average entrepreneurial income per worker more than quadrupled between 2005 and 2018, ultimately reaching EUR 16 600 per worker, which slightly exceeds (+4%) the EU average.¹ The increasing productivity, linked to the considerable outflow of labour force, contributed to this increase (see 2.2). This level exceeds (+10%) the average wages in the Slovak economy, which ratio is more favorable than the EU average (i.e. -53%).² Similarly, the agricultural factor income also improved spectacularly between 2005 and 2018 (from EUR 5 500 to EUR 18 800 per worker), after which it slightly exceeds (+13%) the EU average.³

EU subsidies play a key role in the farms' revenues and thus in their continued existence. Though this share gradually decreased primarily due to the increasing factor income over the years, 58% of the factor income still came from subsidies in 2018: 44% from direct payments, 13% from the rural development programme and further 2% from other subsidies.⁴ These shares show in fact much higher values (often above 100%) in case of small/medium farms, and a gradual decrease in particular above EUR 750 000 of economic size due to the higher efficiency of larger farms.

There are only few and relatively weak measures with redistributive effect in favour of smaller than average farms (the obligatory reduction of payments and the young farmer scheme subject to area ceiling). At the same time, their limited impact is actually neutralized by other support decisions (larger farms benefit more from environmental subsidies⁵). This is visible from the very narrow difference in the amount of direct payments per hectare (EUR 235 per hectare on average in 2018, with hardly any differences among the various farm sizes)⁶, as well as the respective indicator.⁷ The uniform rate (EUR 140 per hectare in 2018) of the Single Area Payment Scheme, which represents 58% of the direct payments envelope and covers 97% of the utilised agricultural area, also contributes to this effect.⁸ The highly concentrated allocation of direct payment (20% of farms receive 94% of direct payment) thus mirrors the similarly high concentration of land (also 20% / 94%, which is in fact the highest in the EU).⁹

Nonetheless, an analysis of the factor income highlights various needs for income support, depending the following factors:

- Farm size: Half of the Slovak farms are below EUR 4 000 of economic size¹⁰, many of these actually semi-subsistence farms often below the minimum requirements for direct payments (only 72% of all holdings benefit from direct payments); these farms only cover 2% of the utilised agricultural area and give non-scaling share (1%) of the national standard agricultural output. With regard to professional farms, the factor income generally increases with the farm size, but with important ups and downs. Only economic sizes above EUR 500 000 show relatively stable high values; these farms cover 64% of utilised agricultural area, give 74% of the standard output and are substantial employers.¹¹
- Agricultural sector / type of farming: Sheep & goat and cattle farms generate the lowest factor income, whereas ‘mixed crops and livestock’ farms the highest. Slovakia currently provides coupled support to 7 sectors (beside sheep & goat and beef, also in the dairy, protein crop, sugar beet, fruit & vegetables and hop sectors), with a support corresponding to 15% of the direct payments envelope. Some of these sectors (sugar beet, certain vegetables) already show signs of economic recovery, whereas in others (e.g. sheep & goat, cattle) the factor income without subsidies remains still low.¹²
- Regional differences: 62% of utilised agricultural area are located in areas facing natural or specific constraints (ANC) (25% in mountain area), whose increased support under the rural development programme does not fully compensate for their handicap, especially in the mountain areas. These areas predominantly produce livestock, also complemented with arable crops in ‘other ANC’.¹³
- Systematic risk management approach is still lacking in Slovakia. To address income volatility arising from e.g. climatic risks, only very limited commercial insurances are available with low uptake; though the state aid scheme for commercial insurance in agricultural primary production (implemented since 2019) will probably bring improvement. There are no mutual funds, forward, or futures contracts.¹⁴ Since the climate change is expected to affect the frequency and intensity of extreme weather events, leading to further vulnerability of production, adequate risk management tools in place should become a norm for Slovakia. The exposure to sanitary and phytosanitary risks is also more and more requiring appropriate solutions (see also point 2.4).



Source: DG AGRI, based on EUROSTAT¹⁵

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

According to last Farm Structure Survey (2016), there were more than 25 000 farms in Slovakia (+9%/2013).¹⁶ Crop sectors (mainly cereals) generated almost 60% of total agricultural output in 2019.¹⁷ While agricultural area remains stable (around 1.9 million hectares) between 2005-2016, the area with permanent crops declined by 30%, mainly due to lower competitiveness to imports.¹⁸ This was acknowledged by granting a voluntary coupled support to fruit & vegetables sectors.

The number of livestock units (dairy cows, sheep & goats, cattle) continues to decrease (by almost 160 000 in between 2005-2016).¹⁹ In some cases (e.g. dairy cows), this development is also a result of an increasing efficiency, ongoing restructuring and modernisation of production systems. Therefore, coupled support might have prevented even further decline. However, some sectors have showed an adaptation to changing consumer demand. For example, there is an increasing trend of organic milk production²⁰ and also extensive livestock production systems provide conditions for a higher animal welfare and overall better quality of animal products which meet the consumers' demand. The agricultural area for extensive grazing (an area under grazing livestock production below 1 livestock unit per hectare of forage area) increased between 2007-2013 by 9 pp to 41% of utilised agricultural area.²¹ Organic land is also increasing (see 2.6).

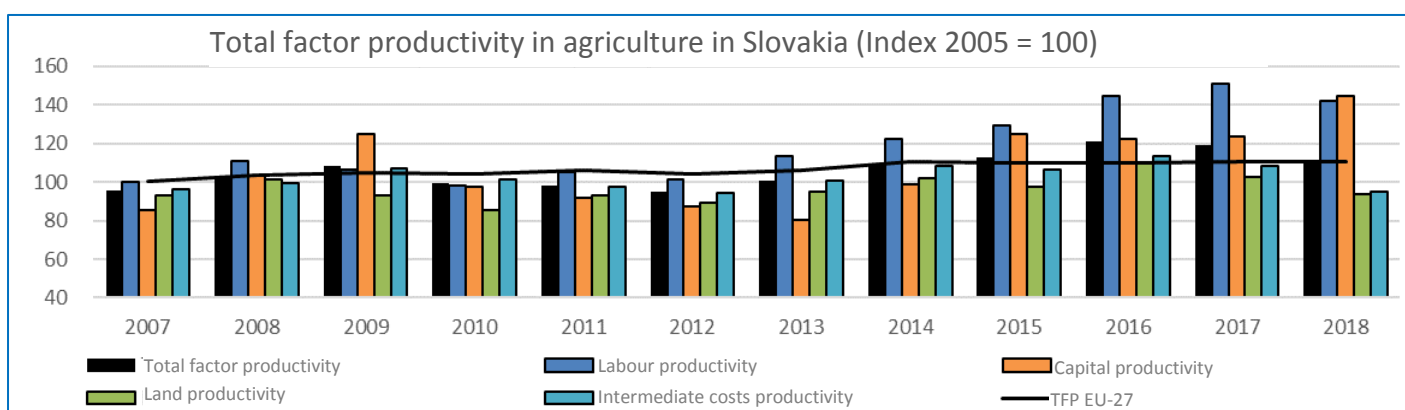
The agri-food trade balance of Slovakia is negative and declining, mainly due to increasing imports of products other than agricultural commodities²² (e.g. meat, processed dairy products, fruit & vegetables), thus increasing competition for domestically produced food. On the export side, agricultural commodities represent the greatest share, followed by food preparations with the greatest value contribution (e.g. chocolate, confectionery, ice cream).²³

Among all EU countries, Slovakia recorded the 6th highest annual growth in total factor productivity (TFP) in 2007-2017 (around 2 pp annually).²⁴ Labour productivity growth was driven strongly by the outflow of labour (-56% between 2005-2017) whereas returns on investments showed some stabilization. Land productivity could face considerable challenges in the future.²⁵ The land management (including access to land, land consolidation, conditions of land rentals, industrial competition) should require extra attention. In addition, as land productivity is linked to yields, development and acceptance of innovations will be crucial in order to face challenges linked to climate change and provide a competitive advantage for Slovak farmers.

After a period of stagnation, the level of investments in the Slovak agri-food sector has been increasing since 2016. In 2018, total investment was 21% higher compared to 2013. However, there is still a financing gap estimated at EUR 37 million. Around 77% of the gap value relates to small-sized enterprises (below 50 employees). In terms of financial products, the gap mainly relates to short and long-term investment loans.²⁶

The age of managers is playing an important role in the use of innovations (see also 2.7). Therefore, supporting generational renewal and access to land for young farmers would also benefit the overall sector in its adaptation to new challenges.

Moreover, adequate support to R&D and reinforced interlink between different actors (users and producers of knowledge and innovation, advisors) will be needed to trigger productivity gains in agriculture (see also 2.10).



Source: EUROSTAT for TFP and DG AGRI for partial productivities²⁷

2.3 Improve farmers' position in the value chain

In 2017, primary production captured roughly 34% of the total value generated along the food chain (7 pp above the EU average). This value remains volatile on annual basis in contrast to food processing and distribution, which both showed analogous trends and a stable increase since 2013. In absolute terms, the value added for primary producers in Slovakia is higher in 2017 compared to 2008.²⁸

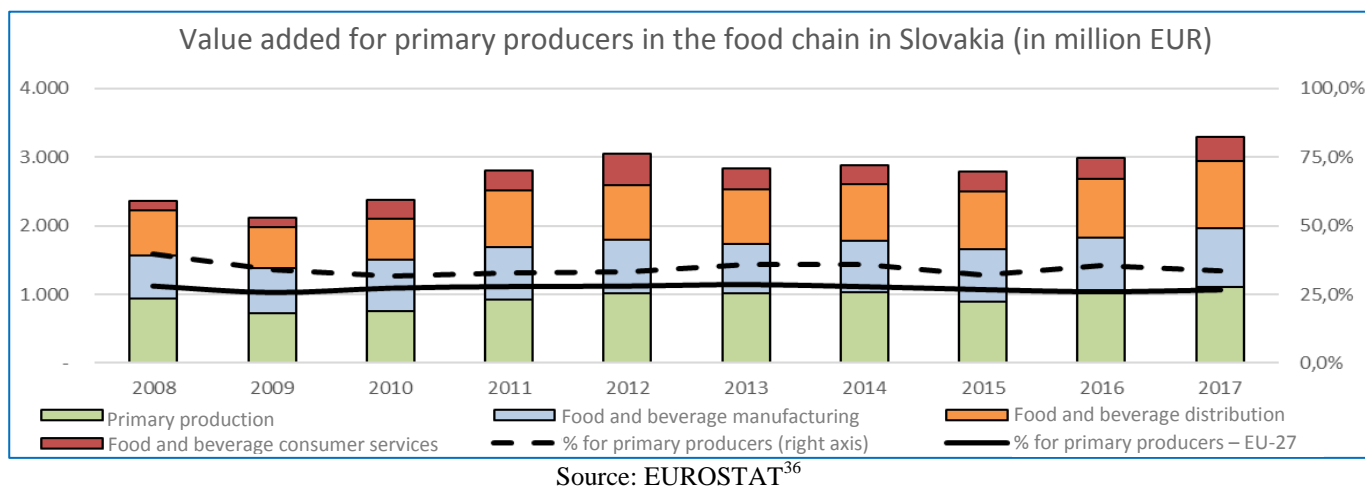
Incorporated farms (12% of all farms, mainly limited liability companies, joint stock companies and co-operatives; in some cases established by foreign investors) farm 80% of agricultural area and represent 83% of standard output in 2016. This illustrates their relatively stronger position in vertical chains compared to farms owned and operated by natural persons, of which around 70% are farms where the farm household consumes more than 50% of final production.²⁹

The activities of primary production provide for living of around 52 600 people, compared to 56 500 in food manufacturing and 79 500 in food and beverage service activities.³⁰ 51% of food retail turnover comes from the wholesale channel. In absolute term, it is growing continuously since 2010 following a drop in 2009 due to financial crisis. There is also an increasing demand in food service.³¹ Therefore, the guaranty and stability of employment could be considered higher in those stages of the food supply chain compared to primary production.

In order to safeguard and strengthen the position of farmers in the food supply chain, besides other measures, producer organisations (POs) could be established. In particular, POs should mainly focus on small and medium-sized agricultural holdings for which this kind of co-operation would help to create economies of scale and thus provide long-term economic and social sustainability despite their sizes. Only 5 POs were recognised in 2019³² and these were mainly established in view of funding opportunities provided. Small farms are at a loose end as these POs are dominated and managed by large farms with already large economies of scale and strong bargaining power.³³ No Interbranch Organisation has been recognised so far and no cooperatives are active in Slovakia.

However, some grass-root initiatives of short supply chains like farmers' markets, fruit & vegetables boxes, sales from farms have gained a popularity in Slovakia, although not having necessarily a strong institutional and/or financial support. These are in particular relevant to smaller farms. In addition, impacts on local economy could be observed as well as a recognition and preservation of cultural heritage.

The value creation at farm level in Slovakia is also re-inforced by EU and national quality schemes (e.g. Znacka kvality). In 2019, there were 29 Slovak products registered in EU quality schemes³⁴ and more than 1 300 of Znacka kvality.³⁵ Develop the quality aspects and increase consumers' interest in EU and national quality schemes would also strengthen the position of farmers/producers and lead to obtaining a higher share of the added value.



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

Compared to the EU levels, Slovak agriculture contributes three times less to the country's overall greenhouse gases (GHG) emissions.

In 2018, non-CO₂ GHG emissions from agriculture in Slovakia were lower by 55% compared to 1990 while the EU emissions were reduced by 21% in the same period. However, since mid-2000s emissions from agriculture have been increasing at a higher rate than the EU average: +4.5% compared to the EU's -0.74% in the period 2005-2018, and +3.2% in the period 2013-2018 compared to the EU's +1.8%.³⁷ The emissions of methane (CH₄) and nitrous oxide (N₂O) per hectare of utilised agricultural area in Slovakia are below the EU-average (2015).³⁸

As of 2018, 51% of agricultural emissions relate to agricultural soils (EU: 38%), 36% to enteric fermentation of livestock, primarily cattle (EU: 44%), another 10% to manure management (EU: 14%).³⁹ The emissions per livestock unit (LSU) from enteric fermentation place Slovakia above the EU average (2016: 2.75 TCO₂eq, EU: 2.67 TCO₂eq) while those from manure are below the EU average (2016: 0.43TCO₂eq, EU: 0.48TCO₂eq). Emissions from soil per hectare are also below the EU average (2018: 0.73TCO₂eq, EU: 0.94TCO₂eq). Between 2013 and 2018, emissions from agricultural soils increased by 11% (EU: +2%) while those from ruminants fell by 5.5% (EU: +2%).⁴⁰

Considering the land use, land use change and forestry (LULUCF) sector, forestland is a substantial CO₂ sink and, within agricultural land both cropland and grassland are sinks, though grassland to a smaller extent. The sink role of forests has decreased compared to the 1990s and stabilised in mid-2000s, except 2012 and 2013, years where the removals were much higher. CO₂ removals from croplands increased in the period 2013-2018 by 15% in contrast to the EU average emissions' increase of some 12% and those from grasslands decreased by 44% (EU: reduction of emissions by 9%).⁴¹

Following a decrease in 2003/2004, the share of permanent grassland in utilised agricultural area stabilised at around 27%, below the EU average of 31%.⁴² The share is similar for areas under direct payment system.⁴³ Peatlands cover only 0.1% of Slovak soils.⁴⁴

Production of energy from forest and agriculture increased by 64.5% between 2013 and 2018 with a substantial increase in several related agricultural sources, the stronger being the anaerobic fermentation (+171%). Per unit production of energy exceeds the EU average both as regards vegetal materials and residues sources (1.36 Gigajoule/ha, EU: 1.04) and especially biogases from anaerobic fermentation (8.71 Gigajoule/LSU, EU: 3.93). In 2018, almost 18% of renewable energy in Slovakia came from agriculture (EU: 12%) and 56% from forestry (EU: 41%), bringing the total to 74%.⁴⁵

Energy consumption in Slovak agriculture and forestry (2018 data) as a share of total final energy consumption equals 1.3%, less than the EU average of 2.9%.⁴⁶ In 2018 final energy consumption by agriculture/forestry per hectare of utilised agricultural area (69 kg oil eq) was less than half of the EU average (168 kg oil eq) and in the period 2013-2018 has been increasing at a lower rate than the EU average (1.7%, EU: 8%)⁴⁷. The energy use in food production (2018 data) of 1.5% is about half of the EU average (2.9%).⁴⁸

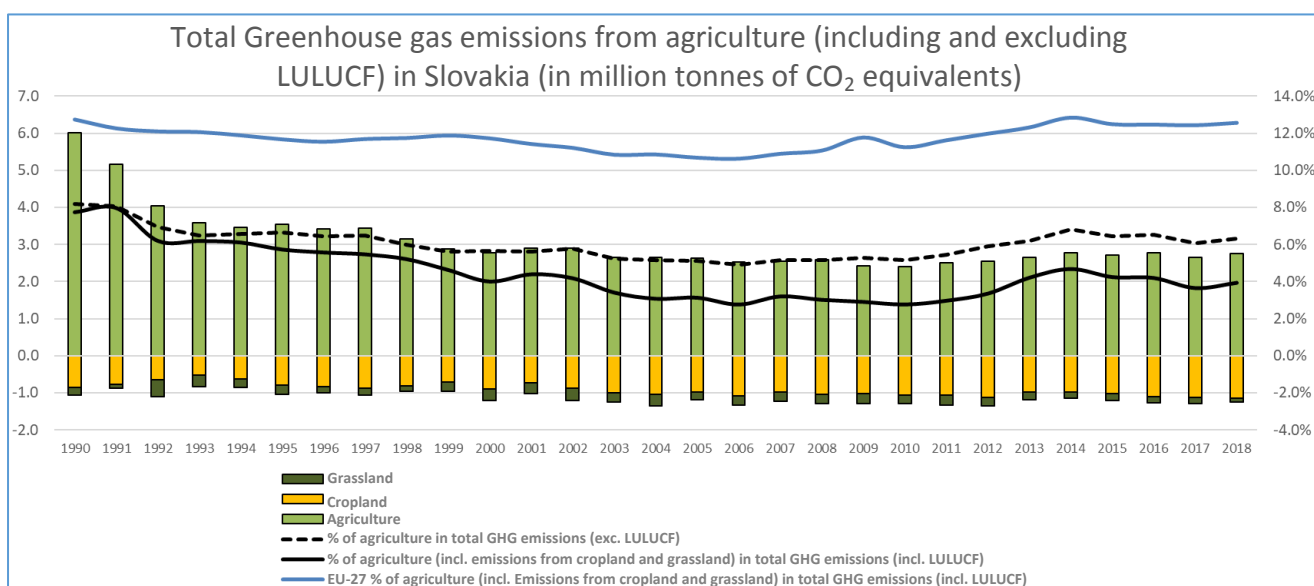
In the current rural development programme, less than 1% of funds were programmed to facilitate the supply and use of renewable sources of energy. Only very little of this has been spent by 2019 (0.98%)⁴⁹, mainly due to low interest leading to low uptake by potential beneficiaries.

In terms of climate adaptation, like other countries in the continental region of the EU, Slovakia faces changing weather patterns (wet, warmer winters and hotter, drier summers), and increasing risk of soil erosion. This makes Slovakia's agriculture vulnerable to higher yield variability, disturbances to crop growth due to water imbalances/insufficient soil moisture reserves especially in light soils in the southern part of the country, increased heat stress for livestock and risks of new/more pests/diseases/weeds due to higher temperatures and longer vegetation period, as exemplified by the increasing damage of bark beetle to parts of Slovak spruce forests, and the decrease of feed production and production on natural pastures due to droughts. In contrast, opportunities could come from new crops/varieties, longer vegetation period's positive impact on grasslands and tuber

crops and reduction of moisture loving pathogens. Climate impacts will influence regionalisation and shift location of crops grown, such a more pronounced presence of durum wheat, maize and other thermophilic crops in the northern parts of the country taking advantage of warmer temperatures and greater water availability.⁵⁰

The National Energy and Climate Plan of Slovakia (NECP)⁵¹ foresees a reduction in agricultural emissions compared to 1990s level supported by a reduction in livestock breeding, lower use of fertilisers and slowdown in agricultural activities. From 2017 onwards, the document projects an initial decrease of emissions and their return to 2017 levels by 2040. While emissions from fertiliser management and enteric fermentation are projected to fall, those from agricultural soils would increase. This is attributed to a projected further decline in livestock inventory and ensuing replacement of organic fertilisers with the industrial ones. Within the LULUCF sector, natural calamities and aging have reduced forests' CO₂ removals after 1990s. The projections show the increase in removals until the end of the 2030s, then a falling trend that would stabilise in the late 2030s. The removals by arable land and grasslands are also projected to decrease.

The NECP lists agriculture among the sectors with the greatest potential for GHG reductions (reducing losses and recycling nutrients) emphasising manure and slurry management/storage and animal feeding as possible mitigation measures, in continuation of the rural development programme support. It also notes the need to renew forests.



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 Slovakia, agriculture is the major producer (92.8%) of ammonia emissions (NH₃). Emissions from livestock production represent 81.1% and from crops 18.9%.⁵² While between 1990-2011 the emissions decreased (mainly due to reduction of livestock numbers see 2.2), from 2012 to 2017, a slight rise was observed due to an increased use of inorganic nitrogen fertilisers.⁵³ In 2018 the emissions reduced by 13% (27.96 Gg) against 2017 (32.21 Gg).⁵⁴ An assessment of the risk of non-compliance with the emission reduction commitments under Directive (EU) 2016/2284 (NEC Directive), based on a joint analysis of the quality of projections, the credibility of the policies and measures selected

for adoption in the National Air Pollution Control Programmes, and the projected margin of compliance, concluded that, for both 2020-29 and for 2030 and beyond, Slovakia would be at low risk of non-compliance with the emission reduction commitment for ammonia.⁵⁵

Agricultural practices influence soil viability, while agriculture production is reciprocally dependent on soil quality. In order to assess soil productivity and quality, soil organic carbon (SOC) stocks is used. In 2015, SOC stocks (Mt/ha) in Slovakia was higher on grasslands (62.4 Mt/ha) in comparison to arable land (47 Mt/ha). Mean organic carbon content of arable land remains stable over the last years (22.60 g/kg, EU: 43.1 g/kg).⁵⁶ However, there is significant relationship between SOC stocks and agro-climatic regions in Slovakia (e.g. positive correlation was observed on arable land of Danubian and Zahorie lowlands, negative correlation was observed on arable land of north-eastern Slovakia).⁵⁷

Soil erosion caused by water is one of the most widespread soil degradation form in Europe. In 2016, the mean rate of soil erosion caused by water on utilised agricultural area (incl. grassland) was 2.2 t ha⁻¹ year⁻¹ (2.5 t ha⁻¹ year⁻¹ in the EU). In Slovakia, 6.7% of agricultural area is under a risk of severe soil erosion (EU: 6.6%)⁵⁸, mountain areas having a higher probability of being impacted due to the combined factors of slopes' steepness and length influencing significantly the soil loss. Areas having regular problems with muddy floods and denudation of soil particles have been currently identified. These unfavourable phenomena may be prevented by appropriate management and application of technical measures, such as water level ditches, erosion-control weirs, terraces and others.⁵⁹ A high share of arable land is left without soil cover during winter, 43% in 2016⁶⁰ which is double the EU average of 23%. Soil cover limits the risk of soil erosion, nutrient and pesticide run-off. The share of conventional tillage in an arable area is also high, with 70.5%⁶¹ and more sustainable agricultural management practices would be beneficial. In the future, Slovakia can address these key issues in synergy with activities under the Horizon Europe mission on Soil Health.

Besides ammonia, agriculture is considered as a key source of water pollution by nutrients, organic substances and pesticides.⁶² A potential surplus of nitrogen and phosphorus on agricultural land can serve as an indicator of potential water pollution. The nitrogen surplus in Slovakia is slightly decreasing, ranging from a maximum of 50 kg N/ha per year in 2007 and a minimum of 16 kg N/ha per year in 2016 (47 kg N/ha per year, the EU average 2012-2015). The deficit of phosphorus is increasing, thus depleting soils in Slovakia over time.⁶³

During the period 2016 – 2019, 12% of the groundwater monitoring stations had nitrate concentrations above the maximum limit of 50 mg/l. An increasing trend is observed. Designated nitrate vulnerable zones represent an area of 13 685 km² of the national territory and 55% of agricultural area.⁶⁴ Although nitrogen surplus is below the EU average, there are hotspot areas with high nitrogen loadings due to agricultural intensity (e.g. Zitny ostrov⁶⁵) that require special attention.

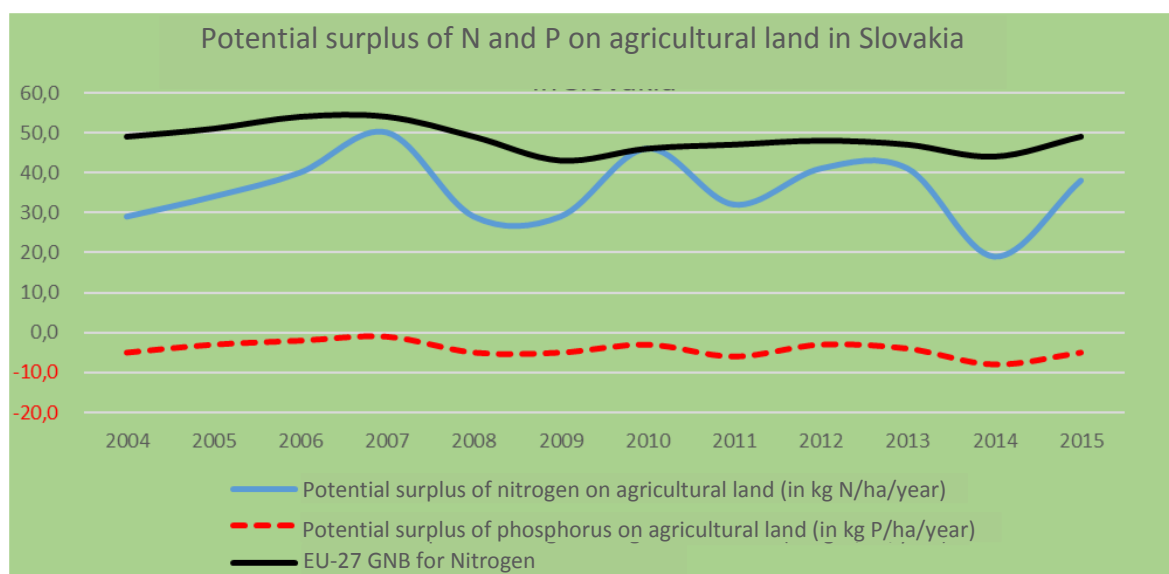
In terms of the Water Framework Directive, 44% of surface waters are in less than good ecological status and 2% are failing to achieve good chemical status. For groundwater 3% are failing to achieve good quantitative status and 26% are in unknown quantitative status and 11% are failing to achieve good chemical status with 26% in unknown chemical status. The most significant pressure on surface waters was diffuse agricultural pollution and this was one of the pressures affecting groundwater. In terms of impacts for surface waters the most significant were altered habitats due to morphological changes, organic pollution, nutrient pollution and chemical pollution. For groundwater the most significant

impacts were chemical pollution and abstraction exceeding the available groundwater resource.⁶⁶

In 2016, 3.9% of utilised agricultural area was equipped for irrigation in Slovakia (down from 9.6% in 2005) compared to the EU average 8.9%. The irrigated area covered 1.5% of utilised agricultural area.⁶⁷ The share of irrigation in total water abstraction in agriculture ranged between 2012-2017 from 3.2% to 3.9%, therefore remained relatively stable.⁶⁸

The rural development programme targets to support 20.6% of utilised agricultural area to improve soil and water management. Even if 82.2% of this target have so far been achieved, the evaluation of the rural development programme interventions identified that only few of them (notably integrated production and grass strips on arable land) had a positive impact on soil conservation status and only in terms of reduction of potential erosion. As regards the change of soil organic carbon, no significant effect of interventions was observed mainly because interventions did not include management practices focused on soil organic carbon increase. On the other hand, interventions under agri-environment-climate measure and organic farming resulted in an annual average reduction of 24.64 kg/ha of fertilisers' use and thus might have contributed to the groundwater quality.⁶⁹ It should be noted that overall, the inorganic fertiliser consumption increased in Slovakia and reached its highest level in 2018 with 129 000 tonnes of nitrogen.⁷⁰ This is mainly due to the decrease in the use of organic fertilisers resulting from the reduction in livestock breeding.

Further agricultural practises that could contribute to more resilient soil ecosystems includes crop diversification: in 2018, 89% of arable land (EU: 74%) was subject to crop diversification, linked to application of greening in Slovakia.⁷¹



Source: EUROSTAT [[aei_pr_gnb](#)]⁷²

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

In 2018, 30% of Slovakia's land area was covered by Natura 2000 sites (EU: 18%). The agricultural and forest areas under Natura 2000 sites accounted for 16% of utilised agricultural area (including natural grassland) and 46% of the total forest area,

respectively.⁷³ In spite of efforts over the last years, there has been a delay in approving management plans for Natura 2000 sites.⁷⁴

For the reporting period 2013-2018, only less than a third (22.7%) of agricultural habitats (grasslands) showed a favourable conservation status, while the rest was in an unfavourable conservation status. As regards those forest habitats, which are covered by Annex I of the Habitat Directive, 65.5% remain in an unfavourable conservation status out of which 10.3% showed even a decreasing trend.⁷⁵

The Farmland Bird Index as a barometer of change for the biodiversity of agricultural landscapes has also a negative trend in Slovakia. Over the period 2005 - 2018, the overall population index declined by 17%⁷⁶, while only a minor decrease (4%) was observed in areas where agri-environment-climate measure of the rural development programme was implemented.⁷⁷

The Prioritised Action Framework (PAF) indicates that for grasslands the main pressures identified are natural processes related to abandonment, followed by shrub encroachment, lack of proper management by grazing or mowing, intensive agriculture, alien and problematic species and development. For cropland and permanent crops, the main pressures is intensive agriculture, using of crop monocultures and intensive use of pesticides and fertilisers. For forests, the main pressures identified are forestry, alien and problematic species and extraction and cultivation of biological living resources. Species related to forests as the Western Capercaillie (*Tetrao urogallus*) and the Black Grouse (*Tetrao tetrix*) are in unfavourable-bad conservation status, which is strongly linked to the appropriate way of managing forests and other mountain habitats due to the strong decline in their populations. The Commission has launched infringement procedures on those issues.

The PAF identifies the following needs in Natura 2000. For grasslands: restoration and support of grazing including infrastructure; support of mosaic, irregular mowing (with a frequency adapted to each habitat); support of manual mowing or mowing by light mechanization. Dealing with impact of secondary succession and eradication of invasive species; Preventing the transformation of the natural and the semi-natural habitats and habitats of species to agricultural land. For cropland: reintroduction of appropriate agricultural practices for solving the problem of land abandonment, including mowing, grazing, burning or similar measures; restoration of traditional small landscape elements and balks in agriculture country; removal or management of drainage and irrigation; infrastructures in agriculture (restoration of wetland habitats and wet meadows by removing drainage infrastructures); restore and create wetlands in the country. In addition, there is a need to prioritize financial support to the following main types of Natura 2000-related communication and awareness raising measures.

While in 2018 the share of fallow land represented 1.9% of utilised agricultural area (EU: 4.1%), the share of linear landscape elements (grass margins, shrub margins, single trees bushes, lines of trees, hedges and ditches) was close to 0% (EU: 0.6%).⁷⁸ Slovakia will need to considerably improve this in order to contribute to the European Green Deal target of at least 10% of the EU agricultural area under high-diversity landscape features by 2030.

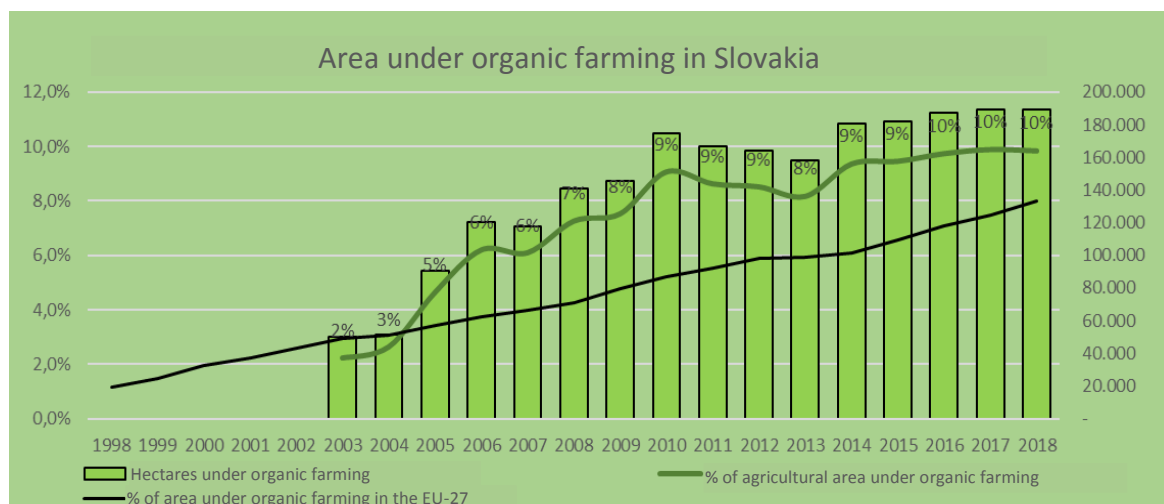
In 2019, Slovakia reported 136 116 hectares of arable land as ecological focus areas (EFA). Slovakia, likewise most of Member States, heavily uses catch crops (47.2%) and nitrogen fixing crops (27.8%) for fulfilling EFA requirements.

As regards farming intensity (input intensity per hectare), in 2017, 61.3% of utilised agricultural area was managed by farms with high input intensity and 20.2% with low input intensity. These figures differ from the EU averages: 36.3% for high input and 27% for low input intensity. Moreover, Slovakia is characterized by a high share of agricultural area used for extensive grazing (39.3%, EU: 19.8%).⁷⁹

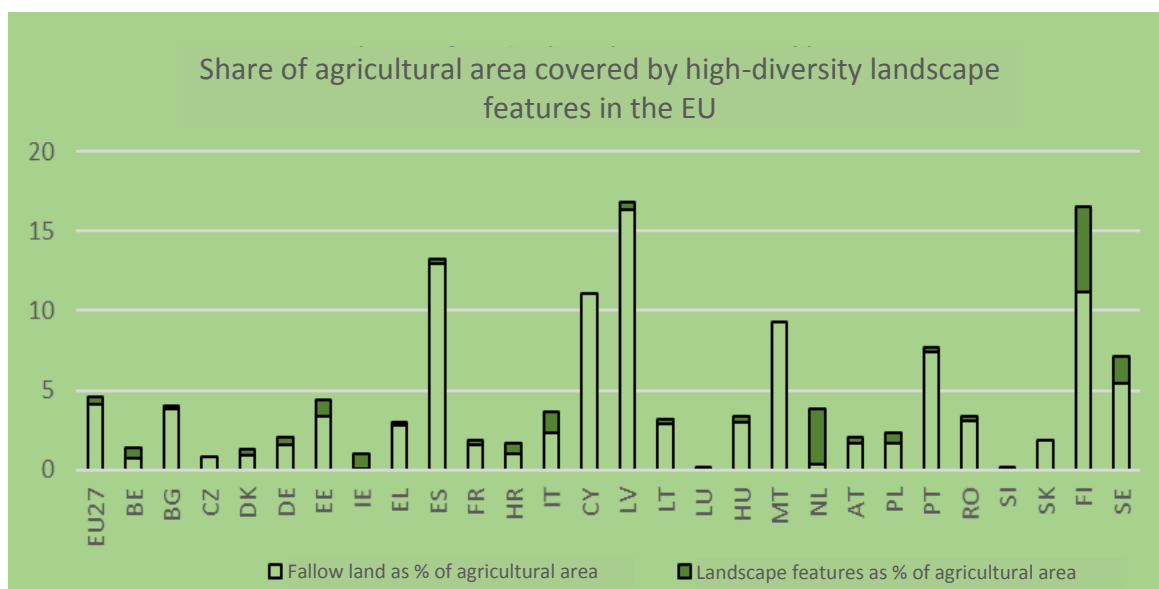
The share of organic farming on utilised agricultural area has been increasing since 2003. In 2018, Slovakia reached a share of almost 10% (EU: 8%). More than 83.6% of organic area received CAP support in 2018. The number of organic producers increased from 362 in 2012 to 439 in 2017 as well.⁸⁰ However, this increasing trend has slowed down in the last years: 182 000 ha in 2015, 187 000 ha in 2016, 189 000 ha in 2017 and 2018.⁸¹ By ensuring a further increase of the area under organic farming in the future, Slovakia could contribute to the European Green Deal target on achieving 25% of the EU land under organic farming by 2030.

In 2018, Slovakia reported 17% of utilised agricultural area and 2% of forest land under contracts supporting biodiversity and/or landscapes financed from the rural development programme.⁸² However, the level of implementation, when comparing different interventions, was unbalanced, mainly due to beneficiaries' preferences for certain interventions that are easier to implement.

The evaluation of the rural development programme interventions identified areas for future improvements in this objective. Regarding agriculture, evaluators recommended to introduce support for High Nature Value farming (type 2 - Farmland dominated by low intensity agriculture or a mosaic of semi-natural and cultivated land and small-scale features) in order to reverse the declining trend in this type of farming. Concerning forestry measures, they proposed to extend the eligible area for support under Natura 2000 sites under forest-environmental-climate commitments and to target investment support to forests having a potential being converted to a high nature value forest area.



Source: EUROSTAT [[org_cropar_h1](#) and [org_cropar](#)]⁸³



Source: DG AGRI based on Eurostat and JRC based on LUCAS survey⁸⁴

* 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

Slovakia has the 2nd highest share of young farmers (11.1%) in the total number of farm managers in 2016 (EU: 5.1%). Whereas the EU average decreases after 2010, in Slovakia there was a change of trend in 2007 and the share has been increasing since then. The ratio of young managers to elderly in Slovakia is 0.24, meaning that for each young farmer, there are 4 farmers older than 55 years, and is among the highest in the EU (following Austria and Poland). The percentage of female young farmers has been increasing over years up to 2016, where the ratio of young female managers to male managers is 23.4%.⁸⁵

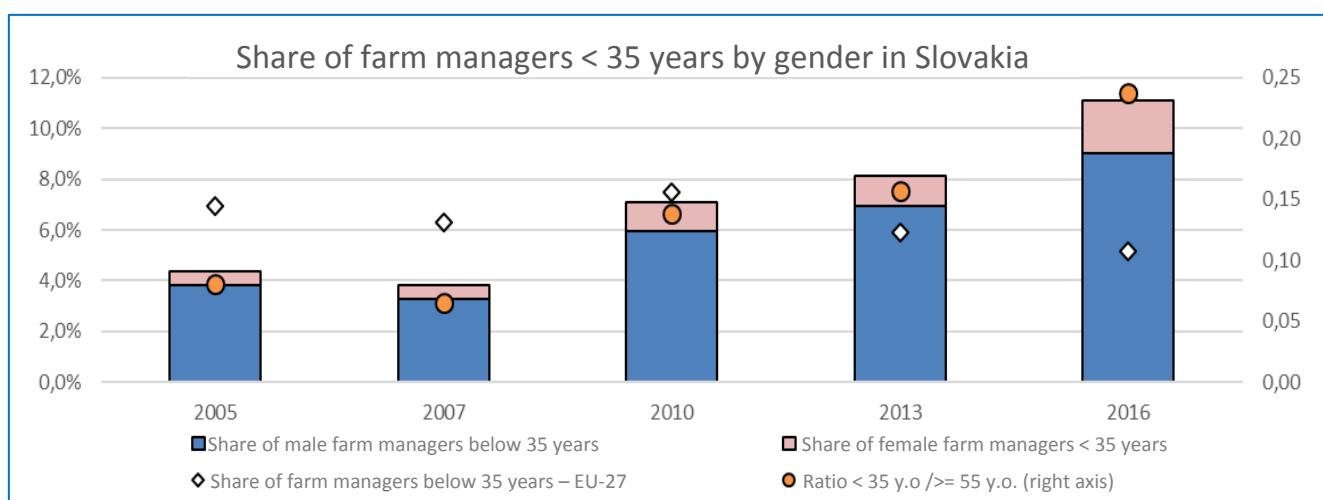
Access to land is one of the main barriers faced by young farmers in Slovakia, given the limited availability of land for sale or rent. Young farmers with CAP support manage only 22 840 ha of land in Slovakia, and mostly run small first-generation family farms. The average size of a young farmer's farm is 38 ha, which is significantly below the EU average (80.7 ha).⁸⁶ In general, in the EU young farmers tend to have bigger and more specialized farms. In Slovakia, they also encounter administrative barriers stemming from national legislation that creates difficulties in the access to land.

They also face serious difficulties when trying to access the capital in particular they have a low access to loans due to poor credit history, a lack of assets that could be used as collateral and because they are often considered economically unviable. They have a higher demand for investment, face higher costs from starting their business, and therefore have lower returns from their farming activities, which reduces their profitability and access to credit.⁸⁷

Access to knowledge is another of the main challenges, since Slovakia is among the countries with lowest agricultural training of young farm managers, both basic and full training, and far below the EU average (28%, EU: 43%).⁸⁸ Furthermore, the share is slightly decreasing over the years, in clear contrast to the EU average. The insufficient level of education or skills makes banks consider the young farmers in a riskier category. Moreover, the lack of knowledge adds difficulty to the setting up and also risks viable operation and thus remaining in business in particular in the first years.

Slovakia is already implementing different CAP instruments to encourage generational renewal. Under Direct Payments, Slovakia earmarked an average of 0.33%⁸⁹ of the annual financial envelopes for 2015-2020 to the payment for young farmers. On average (till 2018), this financed 62 EUR/ha annual support for 650 young farmers, each with some 41 ha. As regards the rural development programme, 347 young farmers (almost 50% female) have been provided with the start-up aid support (12.2 million EUR) by 2019.⁹⁰

In 2016, nearly 18 000 new business were created in rural areas. The number has decreased after reaching a maximum in 2014 with over 32 000.⁹¹



Source: EUROSTAT [ef_m_farmang]⁹²

2.8 Promote employment, growth, social inclusion and local development in rural areas, including bioeconomy and sustainable forestry

Slovakia covers an area of 49 035 km², comprising a population of around 5.4 million. Predominantly rural areas represent 46.1% of this area (EU: 44.6%), the share of rural population is especially high 37.4% (EU: 20.8%) and there is no depopulation trend (population even slightly increased in rural areas +0.1%/ 2015).⁹³

After the slump in 2009, the employment rate was increasing both at the national level as well as in rural areas. In 2019, it reached 66.8% (age category 15-64) and 73.4% (age category 20-64), but remained slightly below the EU average for rural areas as well as below a national average (respectively 68.4%, 73.4%). However, some convergence between the national average and the trend in rural areas has been observed in last years. The employment rate remains higher for males.⁹⁴ As regards the unemployment rate, Slovakia belongs to the Member States where the gap in unemployment rates, between those living in cities and rural areas, is the widest.⁹⁵ The total unemployment rate (age category 15-74) in rural areas remains above the EU level (8.4% / EU level 6.3%), the same applies for youth unemployment rate (age group 15-24) in rural areas (17.8% / EU level 14.6%).⁹⁶

Agricultural labour force is still predominantly male. In 2016, the share of women was only 26.6%⁹⁷ while the female farm holders rate was 19.9% (EU: 28%).⁹⁸

Despite a limited increase in 2018 to 19%, the rural poverty rate in Slovakia follows a declining trend and remains below the EU average (24%).⁹⁹ However, substantial regional

disparities are present in economic and social areas and certain groups (e.g. Roma) are in a particularly vulnerable position¹⁰⁰ and thus require targeted actions for social inclusion.

The overall strong economic recovery and expansion following the 2009 financial and economic crisis is slowing down. In spite of the growth recorded also in rural areas, there is a significant gap when comparing GDP per capita in rural and urban areas (59.1% versus 186.7% of the EU average). Rural areas in Slovakia are also lagging behind when comparing them with the EU level (71%).¹⁰¹ Certain rural areas still lack basic infrastructure (water, sewage and fast broadband infrastructure), essential public services and labour opportunities.¹⁰² Since Community-led Local Development (LEADER) is lagging behind, the local development strategies (110), which cover almost 60% of rural population and aim to support tailored local development in rural areas, have not been fully implemented yet.

Rural areas have a potential in terms of development of the bioeconomy, which is still not sufficiently used. Although turnover of bioeconomy has increased substantially between 2008 and 2017, the turnover per person employed in the bioeconomy represented only 60% of the EU average. Agriculture and the food sector remain the main sectors contributing to the bioeconomy (60.2% share on turnover in 2017). In 2017, more than 167 000 persons were employed in bioeconomy sectors.¹⁰³

Forests are important renewable resources, providing a wide range of benefits to society including employment and economic development, in particular in rural areas. In Slovakia, the forest area has slightly increased since 1991 by 1.2% reaching 1.9 million ha in 2020 (40.1% of total area)¹⁰⁴ slightly above the EU level (39.8%). While a significant rise of fellings has taken place in the last decades, especially sanitary logging in reaction to forest disturbances such as bark beetle infestations or storm damage, the intensity of the forest exploitation is still considered as sustainable as the felling is lower than the increment of growing stock.¹⁰⁵ In 2018, the ratio of forest fellings to increment reached 82.2%.¹⁰⁶ Meanwhile, the total growing stock in forests increased from 401.6 million m³ over bark in 1990 to 537.67 million m³ over bark in 2020 (33.9% increase). In addition, in the same period, the “density” of forest, the growing stock per hectare also increased from 211 m³/ha to 279 m³/ha, meaning that there are more wood/biomass in the forest, also representing higher carbon storage.¹⁰⁷ Total employment in forestry shows a downward trend. In 2018, it accounted for 17 900 persons (forestry and logging).¹⁰⁸ Between 2009 and 2019, the gross value added from forestry and logging activities increased by 60% reaching 634 million EUR while the total output was almost doubled from 781 million EUR to 1 143 million EUR.¹⁰⁹

2.9 Improve the response of EU agriculture to societal demands on food and health, including safe, nutritious and sustainable food, as well as animal welfare

Antimicrobial resistance (AMR) is linked to the excessive and inappropriate use of antimicrobials in human and animal healthcare.

The sales of veterinary antimicrobial agents in Slovakia expressed as milligram per population correction unit (mg/PCU) were at 49.3 mg/PCU in 2018, significantly below the EU average (118.3 mg/PCU).¹¹⁰

In terms of animal welfare, tail docking of pigs remains a routine practice in Slovakia despite being forbidden by the EU rules. Tails are usually docked to prevent pigs from stress-induced tail biting in response to negative environmental and management factors. The percentage of pigs reared with intact tails in Slovakia has barely changed since 2016.

Biosecurity is equally a challenge. Slovakia is among the countries affected by African swine fever (ASF) and among countries which need to revise/upgrade registration of certain farms, animal ID and animal movements.

With annual fluctuations, the sales of pesticides in Slovakia increased in the 2011-2018 period; the majority of pesticides sold are 'herbicides, haulm destructors and moss killers' followed by 'fungicides and bactericides'.¹¹¹

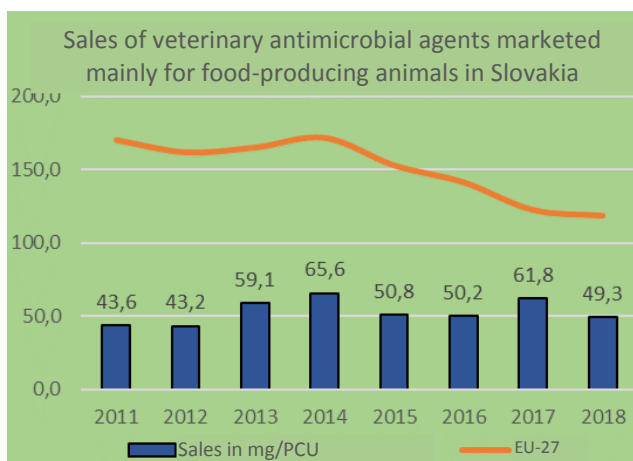
In terms of risks stemming from pesticides, a more precise picture of the situation is provided by the Harmonised Risk Indicator 1 (HRI 1). The HRI 1, which weights the volume of pesticides placed on the market according to the actual risk of active ingredient decreased by 16% in Slovakia in the 2011-2018 period (EU: 17%) but the candidates for substitution comprised a relatively high proportion of the total pesticides sales in the period 2015-2017.

In terms of placing plant protection products on the market, Slovakia experiences delays in approval/authorisation processes, especially for minor uses. The REFIT survey indicated a limited availability of low-risk products authorised in the Slovak territory and concerns for availability of herbicides, bactericides and acaricides.

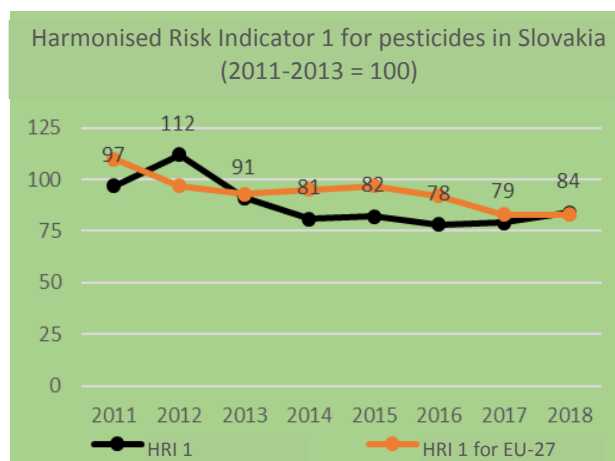
While a National Action Plan under the Sustainable Use Directive (SUD) was adopted in 2012, no revision has yet been submitted to the Commission. There is a need to significantly improve the system of controls on the implementation of the general principles of the Integrated Pest Management for all types of professional users of plant protection products.

Slovakia has a very 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.¹¹² The DALY's value is influenced by a number of dietary factors. On consumption trends, Slovakia has a very low consumption of fruits and vegetables - some 47% of population in Slovakia indicates not to include fruit and vegetables in their daily diet, a higher proportion compared to the EU average (36%).¹¹³ The proportion of obese persons in the population (14%, 2017 data) decreased since 2008s and is slightly below EU average (15%). Notwithstanding, a significant part of the population, above the EU average, is overweight and the share of overweight and pre-obese persons has been on an increase in the 2008-2017 period.¹¹⁴ Actions should focus on shifting towards healthy sustainable diets, in line with national recommendations, in order to contribute to reducing overweight, obesity and the incidence of non-communicable diseases while simultaneously improving the overall environmental impact of the food system. This would include moving to a more plant based diet with less red meat and more fruits and vegetables, whole grains, legumes, nuts and seeds.

Data on food loss and waste in primary production and processing is not yet available. The recent National Waste Prevention Programme (2019-2025)¹¹⁵ gives little attention to food loss and waste occurring at the primary production level and the early stages of the supply chain. This could be tackled in the future national food waste prevention programme as required by Article 29(2a) of the Waste Framework Directive 2008/98/EC.



Source: DG AGRI after ESVAC, Tenth ESVAC Report (2020)¹¹⁶



Source: EUROSTAT [[aei hri](#)]¹¹⁷

2.10 Cross-cutting objective on knowledge, innovation and digitalisation

The Pro-AKIS study¹¹⁸, carried out at EU level, marked Slovak Agricultural Knowledge and Information System (AKIS) as quite fragmented in terms of the level of integration of AKIS actors, and as weak, which means that it lacks resources. Moreover, there is no coherent policy targeting the development and functioning of the AKIS.

Consultancy and vocational training to stakeholders is provided by the state enterprise Agroinstitut, s.p. and National Forest Centre which are training providers that may deliver an accredited training course to agricultural as well as forest advisors. It also operates the information and communication web portal of the Agricultural Advisory System. Current central register of agricultural advisors comprises 101 accredited advisors.¹¹⁹

Although Research and development (R&D) plays generally a critical role in the innovation process, R&D investment in Slovakia remain low. In 2018, the government support to agricultural R&D was only of 2.1 EUR/inhabitant (EU: 6.3 EUR/inhabitant).¹²⁰ Agricultural science and research make little contribution to the development of agriculture, food, forestry and other related sectors of the national economy.¹²¹

In the programming period 2014 – 2020, 3.2% of the rural development programme funds were programmed to foster knowledge transfer and innovation in agriculture, forestry and rural areas (EU: 3.6%), covering trainings, advise and cooperation projects; 25 cooperation projects were scheduled under the framework of the European Innovation Partnership (EIP). However, the implementation of these measures is delayed and little progress has been achieved so far. No EIP operational group has been reported to the Commission yet, though support efforts with a specific focus on EIP have been organised by the Slovak National Rural Network.¹²²

Regarding agricultural training of farm managers, 23% of all farm managers participated in a basic or full agricultural training in 2016 (EU: 31.6%). This share is rather low but stable over time since 2010. Compared to the EU, the share of farmers that participated in a full agricultural training¹²³ is similar in Slovakia (9.3%).¹²⁴

Digitalization offers many possibilities for farmers to address challenges of a sustainable agricultural production. However, it needs to be accompanied by appropriate digital skills and digital infrastructure. Moreover, fast internet is a key enabler for job and business

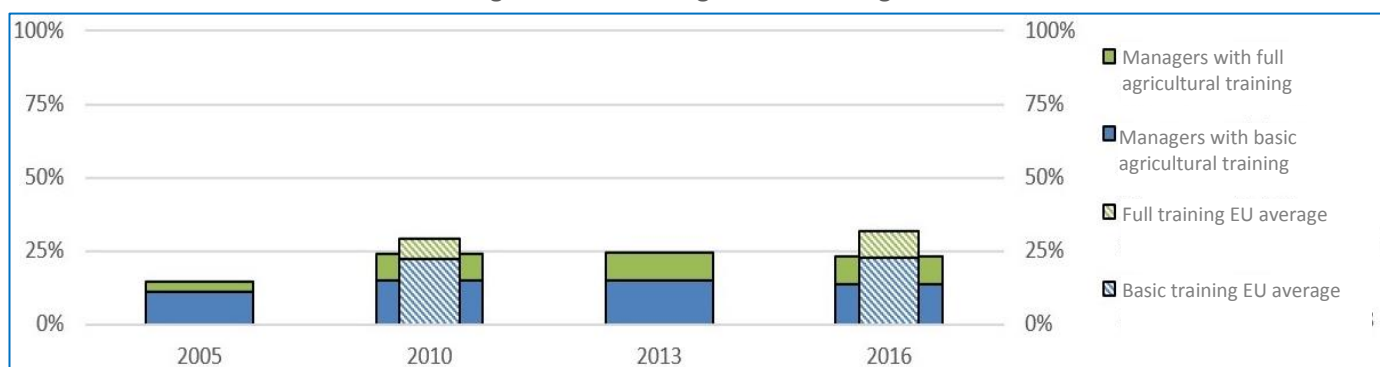
creation in rural areas, as well as for improving quality of life by supporting services in areas such as healthcare, education, entertainment, and e-government.

Slovakia ranks 22nd among all EU countries in Digital Economy and Society Index DESI 2020 ranking which considers 5 dimensions, namely connectivity, human capital, use of internet services, integration of digital technologies and digital public services. The share of Slovaks who declare to have some digital skills is low. Only 27% of Slovaks have above-basic digital skills (EU: 33%).¹²⁵ In 2019, the gap in digital skills between city-dwellers and people living in rural areas was 10 pp.¹²⁶ Among all EU countries, Slovakia ranks low on fast broadband coverage (24th position in DESI). In 2019, only 45% of rural households were covered by fast broadband internet access (EU: 59%), compared to 76% in Slovakia entire population.¹²⁷ Closing the fast broadband coverage gap can enhance opportunities for farmers and rural dwellers.

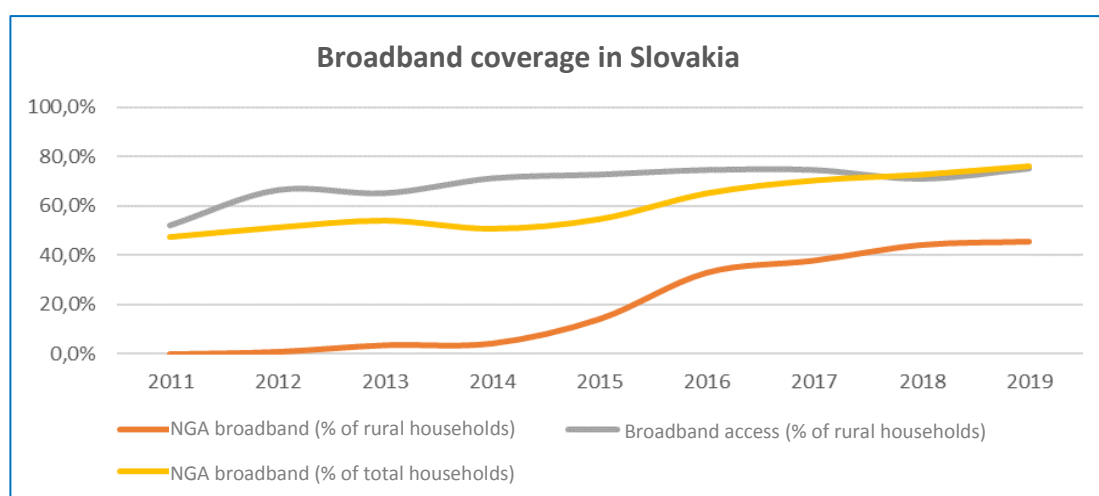
There is no operational Digital Innovation Hub in Slovakia related to agriculture and forestry.¹²⁸

Slovakia has not opted for the use of satellite-based means to monitor CAP implementation and is currently not part of EU projects dealing with the uptake of new technologies for the modernisation of CAP administrations, CAP controls and interactions with farmers.

Agricultural training of farm managers



Source: DG AGRI¹²⁹



Source: DESI report¹³⁰

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- ¹ Directorate General for Agriculture and Rural Development. *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.
- ² Directorate General for Agriculture and Rural Development. *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 [[nama_10_a10](#)], item wages and salaries.
- ³ European Commission. *CAP context indicator C.25 Agricultural factor income*. Based on EUROSTAT [[aact_eaa04](#)], [[aact_ali01](#)] and [[aact_eaa06](#)].
- ⁴ Directorate General for Agriculture and Rural Development own calculations based on FADN data (up to 2018).
- ⁵ Directorate General for Agriculture and Rural Development own calculations based on FADN data (up to 2018).
- ⁶ Directorate General for Agriculture and Rural Development own calculations based on FADN data (up to 2018).
- ⁷ Directorate General for Agriculture and Rural Development own calculations based on CATS (Clearance of Accounts trailing System) data (2015-2017). CAP result indicator [R6 Redistribution to smaller farms](#).
- ⁸ Directorate General for Agriculture and Rural Development own calculations based on Member State notifications via ISAMM.
- ⁹ Directorate General for Agriculture and Rural Development own calculations based on CATS (Clearance of Accounts Trailing System) data (up to 2017).
- ¹⁰ According to the FADN definition, the ‘economic size’ of an agricultural holding is measured based upon its total Standard Output (expressed in euro), i.e. the standard value of its agricultural output.
- ¹¹ Data with regard to physical size: Directorate General for Agriculture and Rural Development own calculations based on FADN data (up to 2018); data with regard to economic size: Farm Accountancy Data Network. FADN Standard reports. [YEAR.COUNTRY.SIZ6](#) and own calculations (up to 2018).
- ¹² Farm Accountancy Data Network. FADN Standard reports. [YEAR.COUNTRY.TF14](#) and own calculations (up to 2018).
- ¹³ Farm Accountancy Data Network. FADN Standard reports. [YEAR.COUNTRY.ANC3](#) and own calculations (up to 2018).
- ¹⁴ [Study on risk management in EU agriculture](#) (Directorate-General for Agriculture and Rural Development (European Commission), ECORYS, Wageningen Economic Research; 24/08/2018) and Ministry of Agriculture and Rural Development (MoARD) and Ministry of Finance (MoF)(2019). *Revízia výdavkov na pôdohospodárstvo a rozvoj vidieka. Záverečná správa* (Review of Agriculture and Rural Development Expenditure. Final Report), July 2019. Bratislava.
- ¹⁵ Directorate General for Agriculture and Rural Development. *CAP context indicators C.25 Agricultural factor income and CAP context indicator C.26 Agricultural entrepreneurial income*. Income based on EUROSTAT [[aact_eaa04](#)], [[aact_ali01](#)] and [[aact_eaa06](#)], adding back the compensation of employees to the entrepreneurial income and divided by the total number of annual working units. Note: 2019 data estimated. The Average wage in the economy based on EUROSTAT [[nama_10_a10_e](#)] thousand hours worked using employees domestic concept and [[nama_10_a10](#)], item wages and salaries.
- ¹⁶ EUROSTAT. [[ef_m_farmleg](#)].
- ¹⁷ EUROSTAT. [[aact_eaa01](#)].
- ¹⁸ European Commission. *CAP context indicator C.18 Agricultural area*. Based on EUROSTAT [[apro_cpsh1](#)] and EUROSTAT. [[ef_m_farmleg](#)].
https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorer.html?select=EU27_FLAG,1
- ¹⁹ EUROSTAT. [[ef_m_farmleg](#)].
- ²⁰ EUROSTAT. [[org_aprod](#)].
- ²¹ European Commission. *CAP context indicator C.33 Farming intensity*. Based on FADN –Agri-environmental indicator “Intensification/Extensification”.
https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorer.html?select=EU27_FLAG,1
- ²² Highly standardised products mostly traded in bulk (cereals, vegetable oils...).
- ²³ Directorate general for Agriculture and Rural Development based on [COMEXT](#).
- ²⁴ 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.
https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorer.html?select=EU27_FLAG,1

- 25 European Commission. *CAP context indicator C.22 Farm labour force*. Based on EUROSTAT [[ef lf main](#)].
https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorer.html?select=EU27_FLAG,1
- 26 Fi-compass (2020) *Financial needs in the agriculture and agri-food sectors in Slovakia*. Study report. 72 pages.
https://www.fi-compass.eu/sites/default/files/publications/financial_needs_agriculture_agrifood_sectors_Slovakia.pdf
- 27 European Commission. *CAP context indicator C.27 Total factor productivity*. Based on EUROSTAT [[aact eaa05](#)], [[aact eaa04](#)], [[aact ali01](#)], [[apro cps1](#)] and [[ef mptenure](#)] and FADN.
- 28 European Commission. *CAP indicators – Data explorer*. CAP Result indicator RPI_03 Value for primary producers in the food chain.
- 29 EUROSTAT. [[ef m farmleg](#)].
- 30 EUROSTAT. [[lfsa egan22d](#)].
- 31 EUROSTAT. [[sbs na dt r2](#)] [[sbs sc sca r2](#)].
- 32 European Commission. *CAP indicators – Data explorer*. CAP Output indicator OIM_05 Producer organisations.
- 33 Michalek, J., P. Ciaian & J. Pokrivcak (2018) *The impact of producer organisations on farm performance: A case study of large farms in Slovakia*. European Commission, Joint Research Centre, EUR 28793 EN, doi:10.2760/463561
https://publications.jrc.ec.europa.eu/repository/bitstream/JRC108059/jrc_po_report.pdf
- 34 European Commission. *CAP indicators – Data explorer*. CAP Output indicator OIH_02 Quality policy.
- 35 Ministry of Agriculture and Rural Development (MoA). *Značka kvality*.
- 36 European Commission. *CAP indicators – Data explorer*. CAP Result indicator RPI_03 Value for primary producers in the food chain.
- 37 European Environmental Agency (EEA). *EEA greenhouse gas – data viewer*.
<https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>
- 38 EUROSTAT. *Statistics Explained, Aggregated emissions of CH4 and N2O per hectare of UAA, 2015*.
- 39 European Environmental Agency (EEA). *EEA greenhouse gas - data viewer*, EUROSTAT.
<https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>
- 40 European Environmental Agency (EEA). *EEA greenhouse gas – data viewer*.
<https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>
- 41 European Environmental Agency (EEA). *EEA greenhouse gas - data viewer*.
<https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>
- 42 European Commission. *CAP indicators – Data explorer*. R.12_PI Share of grassland in total UAA.
- 43 European Commission, DG Agriculture and Rural Development analysis based on Member States' notifications pursuant to Regulation (EU) No 1307/2013.
- 44 European Commission, Joint Research Centre. *Relative cover (%) of peat soils (0–30cm), per country*.
- 45 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.
- 46 European Commission. *CAP context indicator C.44 Energy use in agriculture, forestry and food industry*. Based on EUROSTAT [[nrg bal s](#)].
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
https://ec.europa.eu/eurostat/statistics-explained/index.php/Agri-environmental_indicator_-_energy_use
- 47 EUROSTAT. [[tai04](#)].
- 48 European Commission. *CAP context indicator C.44 Energy use in agriculture, forestry and food industry*. Based on EUROSTAT [[nrg bal s](#)].
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
https://ec.europa.eu/eurostat/statistics-explained/index.php/Agri-environmental_indicator_-_energy_use
- 49 Annual Implementation Reports: Annual Implementation Report (AIR) of Rural Development Programme of Slovakia, 2019.
- 50 Among others, LIFE project AgriAdapt Webtool for Adaptation. *EU climate change risks for Continental countries*.
- 51 The Slovak Republic, Ministry of Economy (MoE). *Integrated National Energy and Climate Plan for 2021 to 2030*.
- 52 European Environmental Agency (EEA). *Air pollutant emissions 1990-2018 – data viewer*.
<https://www.eea.europa.eu/data-and-maps/dashboards/air-pollutant-emissions-data-viewer-3>

-
- 53 Ministry of Environment (MoE). *Národný program znižovania emisií SR* (National Air Pollution Control Programme Slovakia), Bratislava, 2020.
https://cdr.eionet.europa.eu/sk/eu/nec_revised/programmes
- 54 European Environmental Agency (EEA). *Air pollutant emissions 1990-2018 – data viewer*.
<https://www.eea.europa.eu/data-and-maps/dashboards/air-pollutant-emissions-data-viewer-3>
- 55 Ricardo Energy & Environment. *Review of the National Air Pollution Control Programme – Slovakia*. European Commission, DG Environment, ED12960 – Issue Number 2, 2020.
https://ec.europa.eu/environment/air/pdf/reduction_napcp/NAPCP%20review%20report%20SK%20FIN%20AL%2015Jun20.pdf
- 56 European Commission. *CAP context indicator C.41 Soil organic matter in arable land*. Joint Research Center (JRC) based on LUCAS Land Use Survey 2015
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- 57 BARANČIKOVÁ, G., MAKOVNÍKOVÁ, J., SKALSKÝ, R., TARASOVIČOVÁ, Z., NOVÁKOVÁ, M., HALÁS, J., KOCO, Š., GUTTEKOVÁ, M. *Changes in organic carbon pool in agricultural soils and its different development in individual agro-climatic regions of Slovakia*. Agriculture (Poľnohospodárstvo), vol. 59, 2013, no. 1, pp. 9-20.
[https://content.sciendo.com/configurable/contentpage/journals\\$002fagri\\$002f59\\$002f1\\$002farticle-p9.xml](https://content.sciendo.com/configurable/contentpage/journals$002fagri$002f59$002f1$002farticle-p9.xml)
- 58 European Commission. *CAP context indicator C.42 Soil erosion by water*. Original source: Joint Research Center (JRC).
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- 59 Roman Výleta et al 2017 *Monitoring and Assessment of Water Retention Measures in Agricultural Land*. IOP Conf. Ser.: Earth Environ. Sci. 95 022008.
<https://iopscience.iop.org/article/10.1088/1755-1315/95/2/022008/pdf>
- 60 EUROSTAT. [[ef mp soil](#)] and [[ef lus main](#)].
- 61 EUROSTAT. [[ef mp prac](#)] and [[ef lus main](#)].
- 62 European Commission. *Commission Staff Working Document - Second River Basin Management Plans – Member State: Slovakia*. SWD(2019) 54 final.
<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=SWD:2019:54:FIN&qid=1551205988853&from=EN>
- 63 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.
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- 64 European Commission. *Commission Staff Working Document - Report from the Commission to the Council and the European Parliament on the implementation of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources based on Member State reports for the period 2012-2015*. SWD(2018) 246 final.
https://eur-lex.europa.eu/resource.html?uri=cellar:dab860df-4f7e-11e8-be1d-01aa75ed71a1.0001.02/DOC_4&format=PDF
- 65 Slovak Hydrometeorological Institute (SHI). *Kvalita podzemných vôd Žitného ostrova 2017 – 2018* (Groundwater quality on Žitný ostrov 2017-2018).
http://www.shmu.sk/File/Hydrologia/Publikacna_cinnost/Publikacie_kvality_PzV/KvPzV_2017_2018_Z_O_kvalita_PzV.pdf
- 66 European Commission. *Commission Staff Working Document - Second River Basin Management Plans – Member State: Slovakia*. SWD(2019) 54 final.
<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=SWD:2019:54:FIN&qid=1551205988853&from=EN>
- 67 EUROSTAT. [[ef poirrig](#)] and [[aei ef ir](#)].
- 68 European Commission. *CAP context indicator C.39 Water abstraction in agriculture*. Based on EUROSTAT [[env wat abs](#)].
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- 69 Annual Implementation Reports: Annual Implementation Report (AIR) of Rural Development Programme of Slovakia, 2018.
- 70 EUROSTAT. [[aei fm usefert](#)].

- 71 European Commission. *CAP Indicators - Data explorer*. CAP Output indicator OID_07_2a Crop diversification.
- 72 European Commission. *CAP context indicator C.40 Water quality*. Based on EUROSTAT [[aei_pr_gnb](#)].
- 73 European Commission. *CAP context indicator C.34 Natura 2000 areas*. Based on NATURA 2000 Barometer and European Environmental Agency, Corine Land Cover 2018.
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- 74 European Commission. *Commission Staff Working Document – The EU Environmental Implementation Review 2019 Country Report - SLOVAKIA*. SWD(2019) 116 final.
https://ec.europa.eu/environment/eir/pdf/report_sk_en.pdf
- 75 European Environmental Agency (EEA). *Conservation status and trends of habitats and species*.
<https://www.eea.europa.eu/themes/biodiversity/state-of-nature-in-the-eu/article-17-national-summary-dashboards/conservation-status-and-trends>
- 76 European Commission. *CAP context indicator C.35 Farmland birds index (FBI)*. As in EUROSTAT [[env_bio2](#)], original source: EBCC, BirdLife, RSPB and CSO.
https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorer.html?select=EU27_FLAG,1
- 77 Annual Implementation Reports: Annual Implementation Report (AIR) of Rural Development Programme of Slovakia, 2018.
- 78 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.
- 79 European Commission. *CAP context indicator C.33 Farming intensity*. Based on FADN. Agri-environmental indicator “Intensification/Extensification”.
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- 80 European Commission. *CAP Indicators - Data explorer*. CAP Output indicator OIH_03 Organic farming.
- 81 EUROSTAT. [[org_cropar](#)].
- 82 European Commission. *CAP Indicators - Data explorer*. CAP Result indicator R.07 Share of land under contracts supporting biodiversity and/or landscapes and forest.
- 83 European Commission. *CAP context indicator C.19 Agricultural area under organic farming*. Based on EUROSTAT [[org_cropar_h1](#)] and [[org_cropar](#)].
- 84 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.
- 85 European Commission. *CAP context indicator C.23 Age structure of farm managers*. Based on EUROSTAT [[ef_m_farmang](#)].
- 86 Fi-compass, 2020, *Financial needs in the agriculture and agri-food sectors in Slovakia*, Study report, 72 pages.
https://www.fi-compass.eu/sites/default/files/publications/financial_needs_agriculture_agrifood_sectors_Slovakia.pdf
- 87 fi-compass, 2020, *Financial needs in the agriculture and agri-food sectors in Slovakia*, Study report, 72 pages.
https://www.fi-compass.eu/sites/default/files/publications/financial_needs_agriculture_agrifood_sectors_Slovakia.pdf
- 88 European Commission. *CAP context indicator C.24 Agricultural training of farm managers*. Based on EUROSTAT [[ef_mp_training](#)].
- 89 European Commission. DG AGRI data from MS notifications via ISAM.
- 90 Annual Implementation Reports: Annual Implementation Report (AIR) of Rural Development Programme of Slovakia, 2019.
- 91 EUROSTAT. [[urt_bd_hgn2](#)].
- 92 EUROSTAT. [[ef_m_farmang](#)].
- 93 European Commission. *CAP context indicator C.01 Population*. Based on EUROSTAT [[demo_r_gind3](#)]; *CAP context indicator C.03 Territory*. Based on EUROSTAT [[reg_area3](#)] and [[urt_d3area](#)]
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- 94 European Commission. *CAP context indicator C.05 Employment rate*. Based on EUROSTAT [[lfst_r_ergau](#)]
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf

-
- ⁹⁵ European Commission. *Commission Staff Working Document - Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the impact of demographic change*, SWD(2020) 109 final.
https://ec.europa.eu/info/sites/info/files/commission-staff-working-document-impact-demographic-change-17june2020_en.pdf
- ⁹⁶ European Commission. *CAP context indicator C.07 Unemployment rate*. Based on EUROSTAT [lfst_r_lfu3rt]
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- ⁹⁷ European Commission. *CAP context indicator C.22 Farm labour force*. Based on EUROSTAT [ef_lf_main]
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-indicators-doc-c22_2018_en.pdf
- ⁹⁸ Franic, R. & Kovacicek, T. *The professional status of rural women in the EU*. PE 608.868 - May 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)
- ⁹⁹ European Commission. *CAP context indicator C.09 Poverty rate*. Based on EUROSTAT [ilc_peps11]
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- ¹⁰⁰ European Commission. *Commission Staff Working Document - Country Report Slovakia 2020*. SWD(2020) 524 final.
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020SC0524>
- ¹⁰¹ European Commission. *CAP context indicator C.08 GDP per capita*. Based on EUROSTAT [nama_10r_3gdp] and [nama_10r_3popgdp]
https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/cap-context-indicators-table_2019_en.pdf
- ¹⁰² European Commission. *Commission Staff Working Document - Country Report Slovakia 2020*. SWD(2020) 524 final.
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020SC0524>
- ¹⁰³ European Commission. *The bioeconomy in different countries*.
https://ec.europa.eu/knowledge4policy/visualisation/bioeconomy-different-countries_en
- ¹⁰⁴ Food and Agriculture Organization of the United Nations (FAO). *Global Forest Resources Assessment 2020*.
<https://fra-platform.herokuapp.com/SVK/assessment/fra2020/extentOfForest/>
- ¹⁰⁵ European Environmental Agency (EEA). *EEA indicator assessment - Ratio of forest fellings to increment*.
<https://www.eea.europa.eu/data-and-maps/indicators/forest-growing-stock-increment-and-fellings-3/assessment>
- ¹⁰⁶ Ministry of Environment (MoE). *Indicator sets – Sustainable forest management*.
<https://www.enviroportal.sk/indicator/detail?id=4061>
- ¹⁰⁷ Food and Agriculture Organization of the United Nations (FAO). *Global Forest Resources Assessment 2020*.
<https://fra-platform.herokuapp.com/SVK/assessment/fra2020/extentOfForest/>
- ¹⁰⁸ EUROSTAT. [lfsa_egan22d].
- ¹⁰⁹ EUROSTAT. [for_eco_cp].
- ¹¹⁰ 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/2020/09/wcms_743092).
- ¹¹¹ EUROSTAT. [aei_fm_salpest09].
- ¹¹² European Commission. *EU burden from non-communicable diseases and key risk factors*.
<https://ec.europa.eu/jrc/en/health-knowledge-gateway/societal-impacts/burden>
- ¹¹³ EUROSTAT. [hlth_ehis_fv3e].
- ¹¹⁴ EUROSTAT. [sdg_02_10].
- ¹¹⁵ Ministry of Environment (MoE)(2018). *Program predchádzania vzniku odpadu Slovenskej republiky na roky 2019-2025*. (Waste prevention programme of the Slovak Republic for 2019-2025).
<https://www.minzp.sk/hladat/?words=Program+predch%C3%A1dzania+vzniku+odpadu+>
- ¹¹⁶ 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/2020/09/wcms_743092).

-
- ¹¹⁷ European Commission. *Harmonised Risk Indicator for pesticides (HRI 1), by group of active substance*. As in EUROSTAT [[SDG 02 51](#)].
- ¹¹⁸ EU SCAR AKIS. *Preparing for Future AKIS in Europe*. Brussels, 2019. European Commission. https://ec.europa.eu/knowledge4policy/publication/preparing-future-akis-europe_en
- ¹¹⁹ Agroinštitút Nitra, š.p. *Pôdohospodársky poradenský systém*. (Advisory services system). <https://www.agroinstitut.sk/sk/centralny-register-poradcov/?start>
- ¹²⁰ EUROSTAT. [[sdg 02 30](#)].
- ¹²¹ Ministry of Agriculture and Rural Development (MoARD) and Ministry of Finance (MoF)(2019). *Revízia výdavkov na pôdohospodárstvo a rozvoj vidieka. Záverečná správa* (Review of Agriculture and Rural Development Expenditure. Final Report), July 2019. Bratislava. <https://www.mpsr.sk/institut-podohospodarskej-politiky/47-184-1>
- ¹²² Annual Implementation Reports: Annual Implementation Report (AIR) of Rural Development Programme of Slovakia, 2019.
- ¹²³ Being an equivalent of at least two years of full-time training following compulsory education and completed at an agricultural college, university or other institute of higher education in agriculture.
- ¹²⁴ European Commission. *CAP context indicator C.24 Agricultural training of farm managers*. Based on EUROSTAT [[ef mp training](#)] https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorer.html?select=EU27_FLAG,1
- ¹²⁵ European Commission. *Commission Staff Working Document – Digital Economy and Society Index (DESI) 2020*. SWD(2020) 111 final. <https://ec.europa.eu/digital-single-market/en/desi>
- ¹²⁶ EUROSTAT. [[isoc_sk_dskl_i](#)].
- ¹²⁷ European Commission. *Commission Staff Working Document – Digital Economy and Society Index (DESI) 2020*. SWD(2020) 111 final. <https://ec.europa.eu/digital-single-market/en/desi>
- ¹²⁸ European Commission. *Smart specialization platform*. <https://s3platform.jrc.ec.europa.eu/home>
- ¹²⁹ European Commission. *CAP context indicator C.24 Agricultural training of farm managers*. Based on EUROSTAT [[ef mp training](#)].
- ¹³⁰ European Commission. Digital Economy and Society Index. DESI individual indicators – 1b1 Fast BB (NGA) coverage [[desi 1b1 fbbc](#)].