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Commission recommendations for Ireland´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

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Contents

1. COMMISSION RECOMMENDATIONS FOR IRELAND´S CAP STRATEGIC PLAN

In the framework of the structured dialogue for the preparation of the CAP strategic plan, this document contains the recommendations for the CAP strategic plan of Ireland. The recommendations are based on analysis of the state of play, the needs and the priorities for agriculture and rural areas in Ireland. The recommendations address the specific economic, environmental and social objectives of the future common agricultural policy and in particular the ambition and specific targets of the Farm to Fork Strategy and the Biodiversity Strategy for 2030. As stated in the Farm to Fork Strategy, the Commission invites Ireland, in its CAP Strategic Plan, to set explicit national values for the Green Deal targets[1], taking into account its specific situation and these recommendations.

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

Animal products dominate agricultural production in Ireland. In 2017 they accounted for around three quarters of total output. Of this output, cattle accounted for nearly 30 percentage points and milk production for just under 32. Over time, there has been an increase in livestock numbers. This has had an impact on the environmental footprint of Irish agriculture. Bearing in mind the increasing environmental challenges (described in the next section) Irish agriculture has to cope with, a closer link between income support and environmental performance should be considered.

In Ireland, the average agricultural entrepreneurial income is about 39% of average income in the whole economy (2005 to 2019). The gap widened during the economic crisis of 2008-2009. Since 2010 it has recovered, but remains lower than in the EU-27[1]. Against the backdrop of a significant increase in the total value added of the food chain between 2012 and 2016, the share of Irish farmers in the value chain fell from close to 20% in 2008 to just around 18% in 2016[2]. This is below the long-term EU average of roughly 25%.

There is a lot of uncertainty in the agricultural sector. The vast majority of Irish agricultural products are exported, with 40% destined for the UK market. Access to finance could hamper the sustainable development of the sector. This means there is potential for new financial instruments.

Agricultural income fluctuates considerably. This is because of general domestic and international economic developments, but also because agricultural income is highly dependent on direct payments and payments for areas with natural constraints (ANC), due to the predominant specialisation in livestock. Ireland should therefore continue improving the effectiveness of the direct payments and other income support measures, in particular to better target farms with higher income support needs and territorial differences such as smaller farms and farms in areas with natural constraints. The concentration of direct payments in Ireland is relatively high, reflecting the remaining link to historical references. Ireland is encouraged to continue its efforts to pursue internal convergence.

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[1] It concerns the targets related to use and risk of pesticides, sale of antimicrobials, nutrient loss, area under organic farming, high diversity landscape features and access to fast broadband internet.

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

Ireland has various advantages from the point of view of achieving the future CAP environment- and climate-related specific objectives. These includethe highest prevalence of grassland in the EU, very large areas of carbon-rich peat soils and a well-established network of biodiversity-rich hedgerows. However, various pressures and problems are evident. Greenhouse gas emissions from farming are on the rise (including those from grassland and peatland). Ireland is missing its targets for cutting ammonia emissions (on the contrary, they are increasing). Nutrient discharges into water are a major problem. Many habitats and species are also suffering – as outlined in the country's Prioritised Action Framework drawn up pursuant to the Nature Directives. One of the main reasons for this is the substantial growth in livestock numbers, but there are other reasons too. To make matters worse, the uptake of organic farming is very low compared to what it is in the rest of the EU.

Taking steps to improve nutrient management is key to remedying this situation. In addition to contributing to reaching the farm to fork strategy nutrient losses target, better nutrient management would help mitigate climate change while improving air and water quality and reducing pressure on biodiversity in some areas. It is also a matter of urgency to halt the serious deterioration of Ireland's peatlands – large stores of carbon which are also important for biodiversity. Increasing coverage of trees – very low in Ireland – has substantial potential for carbon sequestration, energy production and the support of ecosystems, provided the species mix is improved compared with recent trends. Organic farming, which has low levels of uptake in Ireland and the subject of a target in the farm to fork strategy, should play a greater role in the agricultural sector. By taking the steps outlined above and other, additional steps, Ireland should improve the conservation status of its grassland and heathland habitats. To adapt to climate change, which manifests itself in the form of changing weather patterns, the country should tackle the matter of the availability of fodder. Finally, there is scope overall to increase the contribution made by Ireland's income support to achieving environment- and climate-related objectives. Given the challenges the country faces, it is important that this happens.

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

The transition towards a more sustainable agricultural sector and rural areas, requires Ireland to address one of the most important social challenges for European agriculture: generational renewal. The proportion of total farm managers accounted for by young farmers fell from 10.7% in 2005 (of which 9.8% men, 0.9% women) to 6.1% in 2016 (5.6% men, 0.5% women). Although above the EU average, the decrease of the young farmer population is very significant (over 40%) and the trend remains negative, despite theimplementation of a multifaceted set of EU and nationally financed measures. Improving generational succession and entrance of young farmers depends on more favorable conditions for access to land and finance – the main challenges for young farmers. Ireland needs to continue addressing generational renewal.

Ireland fares better than other Member States in its sales of antimicrobial agents, which are low. The assessment of the Irish National Action Plan on the sustainable use of pesticides in 2019, and the results of web-based surveys, demonstrate that the official control system has several shortcomings that require further action to be remedied ([3]). More generally, Ireland has the potential to reap significant benefits from encouraging integrated pest management.

Ireland needs to make progress on the issue of tail docking of pigs as this remains a routine practice with no significant change in farm conditions recently. Furthermore, actions are also needed to improve the viability of male calves from the dairy herd in locally based production systems.

Furthermore, Ireland should also make an effort to shift towards healthier, more environmentally sustainable diets.

Of the Irish territory 89% is rural (double the EU-27 average, 10% consists of intermediate regions and 1% is urban. In 2017, most people lived in rural areas (60%), followed by urban areas (28%) and intermediate areas (12%). The purchasing power in urban areas is double the EU average, whereas in rural areas it is around or below the EU average. The area covered by forests is smaller than the European average. The turn-over in the bio-economy is gradually increasing. To further develop the bio-economy, renewable energy and the development of new bio-based products would help. In Ireland, the agricultural, food and tourism sectors together provide 15% of employment. Over the last 10 years, this figure has remained stable, with tourism on the rise. Long distances to basic services may hamper future development in rural areas.

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

Ensuring the protection of agricultural workers, especially precarious, seasonal and undeclared ones, will play a major role in ensuring the respect of rights enshrined in legislation that is an essential element of the fair EU food system envisaged in the farm to fork strategy.

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

Modernisation and innovation are crucial for tackling the challenges identified in the previous paragraphs, to develop a competitive and sustainable agricultural sector. A well-functioning agricultural knowledge and innovation system (AKIS) should deliver knowledge flows between its actors responding to the growing information needs of farmers, for speeding up innovation and better valorisation of existing knowledge to achieve the CAP objectives. AKIS does not only cover agriculture, since farming and rural activities by nature relate to: the environment, climate, biodiversity, landscape, food and non-food systems including processing and distribution chains, consumers and citizens, to name a few.

Ireland has one of the strongest and most integrated AKIS in the EU, including effective training programmes, peer-to-peer learning programmes and well-run advisory services linked to research. AKIS seeks to bring about regular and structural interplay between information, knowledge, advice, innovation, training, education and research. However, since the interaction with private advisors that receive training from the public advisory service is not yet up to speed, a stronger back-office serving all Irish advisors may improve the situation

There is also a need to put innovation support services in place. Advisors need support to help garner individual grassroots innovative ideas and develop them by setting up and implementing European innovation partnership (EIP) operational group innovation

projects. Having innovation support services in place is a new obligation for Member States (Article 13(4)).

There are currently 23 Irish operational groups up and running under the EIP,focusing mainly on biodiversity, nature and landscape management. Their outcomes could feed into advisor-facilitated farmer-led discussion groups or into demonstration programmes. The Irish EIP approach has so far been very successful, combining bottom-up calls for expressions of interest with themed calls and including a preparatory step for the proposals. Further diversifying EIP calls and making them continuously open is advisable, as well as seeking participation in cross-border operational groups.

Ireland has made significant progress over the last decade in rural broadband coverage. Next Generation Access (NGA) broadband is now available to 90% of rural households. However, very high capacity network coverage (21%) is less than half the EU average (44%). In rural areas, it is substantially lower, only 7% compared to the EU average of 20%.

Ireland ranks highly in the Digital Economy and Society Index 2020 and Teagasc has developed a range of digital tools to support its countrywide advisory services. Continuing on this path would be good practice. The primary objective of these digital tools is to support evidence-based decision making at farm level by combining data from different sources[4].

Ireland has not yet opted to use satellite-based ways to monitor CAP implementation. However, it is involved in EU projects dealing with the uptake of new technologies to modernise CAP administration, CAP controls and interactions with farmers.

1.5 Recommendations

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

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

- **Support farmers in capturing higher share in the value chain** by assisting innovation and diversification of products and markets (ranging from exports to local and agro-tourism), investments in quality aspects (including environmental labelling, EU and other quality schemes, organic farming) and by encouraging the recognition of Producer Organisations as well as the formation of new ones where relevant.

- Support the ability of Irish farmers to invest in sustainable practices, **by improving access to finance**, including through supporting new or improved financial instruments.

- **Improve the viability of farms,** specially medium-sized farms and farms in areas facing natural constraints by increasing the fairness and the efficiency of income support, in particular via internal convergence and by applying, for example, the complementary redistributive income support for sustainability and the reduction of payments.

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

- Encourage a **general move towards more sustainable farming practices** by improving the environmental and climate-related performance of **income support** – through appropriate requirements and schemes, including support for carbon farming.

- Ensure a widespread improvement in **nutrient management**, thereby helping to achieve the **Green Deal target on reducing nutrient losses** (as well as other targets and objectives, as indicated in section 1.2 above) – through optimised fertilisation (and potentially limited fertilisation in some cases), improved manure management and a wider transition to precision farming. Appropriate design of elements of conditionality will be essential in achieving these shifts (especially to ensure action in hotspots), and funded support schemes may also be needed.

- Encourage improvements to the efficiency of **enteric fermentation** in farmed livestock in line with the Methane Strategy, including through support for advice, innovation and management practices, as appropriate.

- Halt the deterioration of Irish **peatlands** and encourage their restoration – including through appropriate design of elements of conditionality, and potentially through funded schemes for carbon farming and more extensive grazing.

- Step up efforts to encourage **tree-planting** in various configurations – including agro-forestry systems – and with species mixes which are appropriate in terms of biodiversity, adaptation to climate change, carbon sink capacity and resistance to pests and diseases. Support may be necessary not only for afforestation but also for advice on species selection and on effectively integrating woodland into farm management.

- Make significant efforts to **increase the area farmed organically -** thereby helping to achieve the **Green Deal target on organic farming** (as well as other targets and objectives). Support for conversion to and maintenance of organic farming may be appropriate, but steps to develop the market (whether supported through the CAP or not) may also be needed.

- Improve the **conservation status of grasslands and heathlands**. Beyond relevant contributing elements included in some of the recommendations above, Ireland should take steps to maintain extensive grazing, extend the area of species-rich grasslands, adapt mowing practices to habitat needs and prevent harmful burning of vegetation – through appropriate design of the relevant elements of conditionality, and where necessary through funded schemes.

- Improve the **resilience of the farming sector to climate risks** such as water stress on grassland and fodder crops - for example, by supporting partnerships between livestock and arable farms and the creation of fodder reserves.

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

- **Improve animal health and welfare** in line with consumer expectations, by putting in place more ambitious measures to support farmers to improve livestock management practices, especially for pigs and male dairy calves.

- **Contribute to the Green Deal target on reducing the use and risk of pesticides** via schemes fostering a switch to sustainable farming practices (including integrated pest management).

- **Continue improving access to land and finance for young farmers** and new entrants, including by targeting inheritance constrains and supporting cooperation between farmer generations.

- **Increase social inclusion in rural communities** by supporting improvements in basic services and their accessibility. In doing so it will be important to ensure synergies with other EU and national funds.

- **Develop the bio economy** by supporting renewable energy production from agriculture and forestry as well as supporting diversification into other non-food areas.

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

- **Support further integration of the Agricultural Knowledge and Innovation System**, strengthening links between research, advisors, education, the farming community and interactive innovation projects, in particular organise innovation support services, support peer-to-peer learning and dissemination to all Irish advisors.

2. ANALYSIS OF AGRICULTURE AND RURAL DEVELOPMENT IN IRELAND

The agricultural sector plays an important role in Ireland's economy, contributing 6.7% of GNI in 2018. The sector employs approximately 164 400 people, representing 7.1% of total employment. Outside Dublin and the mid-east region the agricultural sector provides between 10% and 14% of total employment highlighting the importance of the sector to the economy especially in rural and coastal areas[5].

In 2017, most people in Ireland lived in rural areas (60%), followed by urban areas (28%) and intermediate areas (12%). This is in contrast to the population divide at EU level, as almost half the EU population lives in urban areas (44.7%) and only one-fifth lives in rural areas. Ireland also has a unique characteristics regarding population density; with urban areas 3 times denser populated than the EU average and rural areas more sparsely populated. In Ireland 2 out of 5 residents are registered in the Dublin area. This population divide is also reflected regionally, with higher densities in the southern and south-eastern counties, while central and northern counties exhibiting lower population densities. The purchasing power in the urban areas is double the EU overall average, whereas in rural areas it is around or below the EU average.

The agri-food sector is export-orientated accounting for 9.5% of Irish merchandising exports in 2019. Agri-food sector exports have grown by 63% since 2010 to approximately EUR 14.5 billion, in 2019. The volume of agri-food products exported continued to grow for the tenth year in a row, up 6% on 2018. Payments to farmers totalled EUR 1.8 billion including Basic Payment Scheme, Rural Development and Forestry Payments. Over 52% of farm households had an off-farm income employment source in 2018[6].

Ireland has many natural advantages when it comes to food production. Weather conditions are ideal for rearing livestock and growing numerous crop types. The Irish climate also supports a long, grass-growing season, 80% of the agricultural land is covered in grass. This grass-based system is more efficient and environmentally sustainable than intensive indoor animal feeding systems. (European Commission, 2019). Agriculture accounted for more than a third of all GHG emissions in Ireland in 2018 (this can be partly explained by Ireland's lack of heavy industry); making it the largest contributor to GHG emissions nationally. This is compared to an EU-28 average of 9.8%. Agriculture accounts for virtually all (99.1%) of ammonia emissions in Ireland. The expanding dairy herd is a major contributor to increasing emissions. The total number of dairy cows has increased by just over 40% since 2010, largely in response to the economic opportunity arising from the abolition of milk quotas. Agriculture is the most common pressure effecting habitats, with more than 70% of habitats being impacted by pressures relating to agricultural practices.

The area of forest is estimated to be 11% of the total land area of Ireland. This compares to a European (EU-27) average of 40%[7]. Forest cover is estimated to be at its highest level in over 350 years. Of the total forest area, 391 358 ha or 50.8% is in public ownership. Forest protection schemes are marginal in Ireland, having the lowest share of forest under protection (below 3%) in the EU. The Irish protected forest is still managed via "conservation through active management", meaning there is no forest in Ireland where no human interference occurs. In order to maintain the climate change benefits of Irish forests the current national afforestation programme needs to be continued, with increased levels of afforestation over the next two decades[8] with consideration of the adaptation needs. The share of total farm managers accounted for by young farmers in

Ireland fell from 10.7% in 2005 (of which 9.8% men, 0.9% women) to 6.1% in 2016 (5.6% men, 0.5% women)[9].
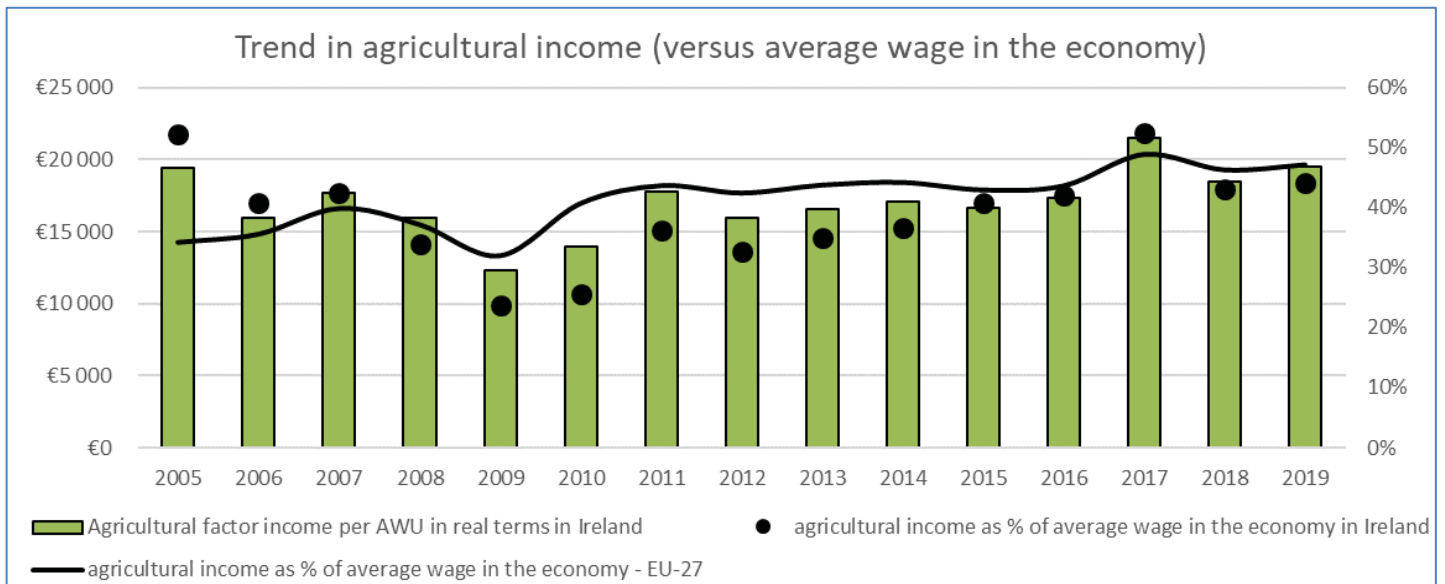
2.1 Support viable farm income and resilience across the EU territory to enhance food security

In Ireland, the average agricultural income is about 39% of income in the whole economy (2005 to 2019). The gap widened during the economic crisis of 2008-2009 but recovered since 2010. It remains slightly lower than in the EU-27[10].

The average agricultural factor income fluctuates from year to year (it dipped in 2008-2009, peaked in 2017 and stays more stable since). Direct payments form as much as 49% of the agricultural factor income and payments under rural development are also considerable - around 16% (2018)[11]. The relatively high share of direct payments and rural development support in the income can be related to the specialisation in livestock sector. In the period 2015-2018, 20% of the beneficiaries farmed about 49% of the land and received 56% of direct payments. The direct payments are significantly more concentrated than the land, which reflects the remaining link to historical references in the value of basic payment entitlements[12].

The factor income increases with physical farm size[13] up to the biggest class where it decreases (except 2018), while the direct payment per hectare does not change significantly between farm physical size. As regards the economic class, the income constantly grows with bigger economic size, while the direct payment per hectare increases, except for the class of EUR 100 000 to EUR 200 000. Concerning sectors, the income shows higher values for cereals oilseeds and protein crop farms and dairy farms. These two sectors still receive a relatively high direct payment per hectare. On the other side, cattle and sheep farms have the lowest income and the lowest direct payment per hectare while their factor income would on average be negative without support. The income is considerably lower in areas facing natural constraints (ANC) by about 40%, while the total direct payment and ANC payment per hectare is only slightly higher in ANC areas. This income difference is even more significant as those areas represent 77.5% of the agricultural area[14].

In Ireland, the veterinary risks have been addressed with compulsory private-publicly funded mutual funds. Although the level of price risk is considered high (i.e. in some sectors like dairy), there is no specific risk management tool for this. Nevertheless, private initiatives exist such as flexible loan arrangements taking into account the price volatility as well as fixed price contracts. Risk management tools under rural development programmes have not been developed due to a lack of interest and uptake within the farm community, on one side, and lack of sufficiently available funding, on the other side[15].

9

Trend in agricultural income (versus average wage in the economy)

Source: DG AGRI based on EUROSTAT[16]

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

Employment in the Irish agri-food sector accounts for approximately 173 000 jobs, or 7.7% of total employment[17]. The total number of farms in Ireland decreased slightly from nearly 139 900 in 2010 to nearly 137 600 in 2016. Over the same period, the average farm size was roughly stable, fluctuating around 32 hectares[18]. Despite recording growth in the total organic area of over 100% between 2012 and 2018, Ireland still has a small share (below 3%) of agricultural land under organic management compared to the EU-27 average of 8% (Eurostat, 2020). Ireland has one of the strongest and most integrated Agricultural Knowledge and Innovation Systems (AKIS) in EU including effective training programmes with well-functioning advisory services linked to research[19].

Agricultural production in Ireland is dominated by animal products. In 2017 these accounted for just under 78% of total output (of which cattle accounted for nearly 30 percentage points and milk production for just under 32) in comparison to the EU-28 as a whole, where animal output accounts for just under 40% of total output[20]. The beef sector accounts for the largest percentage of farms at 58% (comprised of cattle other at 30% and cattle rearing at 28%). The percentage of farms in the remaining subsectors are dairy at 17%, sheep at 15%, tillage at 7% and mixed livestock at 1%[21].

Uncertainty in the agriculture sector in Ireland is high. There is a potential for new financial instruments, with an investment gap estimated to be between EUR 822 million and EUR 1 billion. Around 68% of the gap value relates to medium-sized farms, increased efficiency and sustainability could be key for the overall competitiveness of the sector[22]. The vast majority of Irish agricultural products are exported, accounting for 9.5% of total merchandising exports, and 11.2% of imports in 2019[23]. With 40% of agri-food exports destined for the UK market, any form of increased trade frictions between Ireland and the UK will have a negative effect on the sector[24]. 90% of Irish beef and milk (milk equivalent) output is exported. In the case of beef, 55% of this is sold to the UK. For dairy products, the reliance on the UK market is lower with around 22% of the value of exports going to that market[25].

10

Since beef farming is economically less viable and more exposed to developments on the UK market compared to the diary sector, the areas of the country more dependent on beef farming, such as the West, are more at risk of being adversely affected than regions with a larger concentration of profitable dairy farms. The average income on cattle rearing farms in 2018 was just one-eighth of the income on dairy farms[26]. The sector is also vulnerable to the effects of low beef price. High labour and land rent costs in Ireland underlie the high total economic costs of beef production relative to EU and international competitors[27]. The productivity of Irish farms was pushed downwards by the financial crisis of 2007-2008 but started to recover from around 2012. Productivity of labour, capital and land were all above the 2005 level in 2017[28].
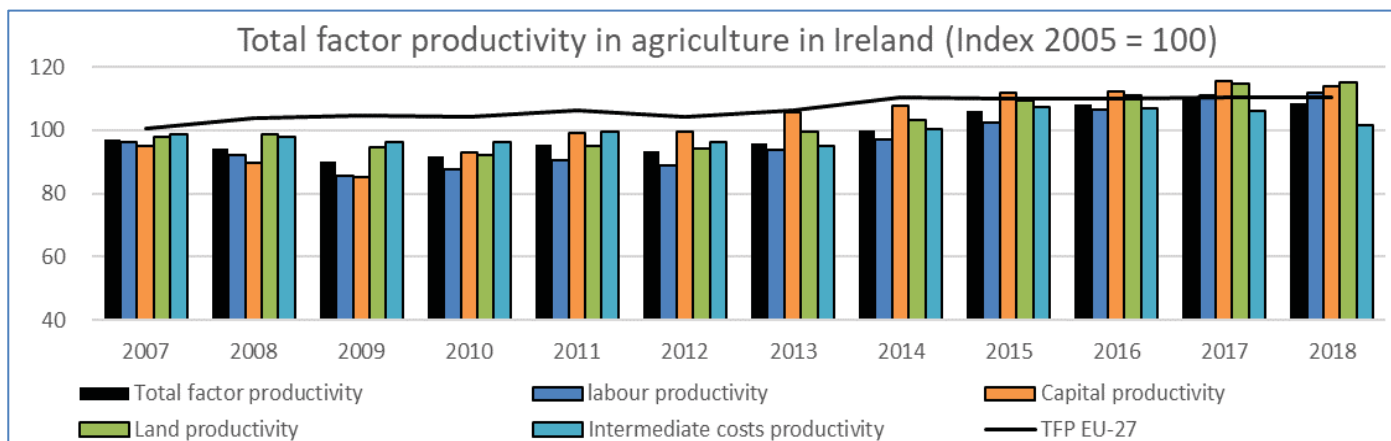

Source: EUROSTAT and FADN[29]

2.3 Improve farmers' position in the value chain

The last ten years have seen a significant increase of the output of the Irish agricultural "industry": +34% when comparing the 3-years-average periods of 2017/19 to 2010/12. The total intermediate consumption has increased at a lower rate on the same period (+20%) which enabled an increase of the Irish agriculture gross value added at basic prices about EUR 1.2 billion (+73% from 2010/12 to 2017/19)[30]. In this context, the Irish farmers' share in the value chain declined from close to 20% in 2008 to just around 18% in 2016[31]. This is below the long-term EU average of roughly 25%. Ireland's food and drink manufacturers account for the largest share and this share has been growing between 2008 and 2015. The agriculture in Ireland is specialised in dairy (31.9%) and cattle (29.5%); when including forage plants (12.3%), those three sectors represent close to 75% of the Irish agricultural output in value at basic prices in 2017. The other livestock sectors represent about 12.5% of the agricultural output value: pigs (6.3%), sheep & goat (3.4%), poultry (2%). Additionally to the forage plants, 10% of the Irish agricultural output is related to the plant sector: cereals (4%) and potatoes (1.6%), vegetables & horticulture (3.6%) and fruits (0.7%).Ireland has some national legislation specifically addressing unfair trade practices (UTPs) in the food chain, which is only applicable towards retailers. Ireland has only four recognised producer organisations (POs)[32]: two in the fruit and vegetable sector and two in the beef sector[33]. The share of fruit and vegetables production marketed by the POs is about 71%[34]. Cooperatives are particularly strong in Ireland but are usually not recognised as POs. More than 95% of the cow milk deliveries was managed by processing, and to a lower extend collecting, cooperatives in 2016[35]. There are no recognised Interbranch organisations (IBOs)[36]. The export market is of main importance in the Irish context. Bord Bia/Irish Food Board is a state body with the functions to promote, assist and develop the marketing of Irish food

11

and livestock and the production, marketing and consumption of horticultural product. There are five Subsidiary Boards (Meat and Livestock, Consumer Foods, Dairy, Quality Assurance and Horticulture).

Ireland already has in place a number of Sustainable Quality Assurance schemes for a variety of agricultural products and is working on further developments. The Bord Bia Quality Mark sets standards and promotes also the Ireland origin; it concerns a wide range of foods including bacon, beef, chicken, duck, lamb, pork, turkey, pre-packaged meals containing meat; fruit, vegetables and eggs. Different grass fed labels on dairy and beef are developed especially in Ireland with notably the Verified Grass Standards). Regarding the EU quality labels, there are 11 protected quality signs (PDO, PGI) in Ireland, among which 8 are registered for agricultural products and foodstuff other than spirit drinks. The use of EU quality labels scheme seems underexploited and could be further considered in view of improving the position of farmers in the value chain[37].

Source: EUROSTAT[38]
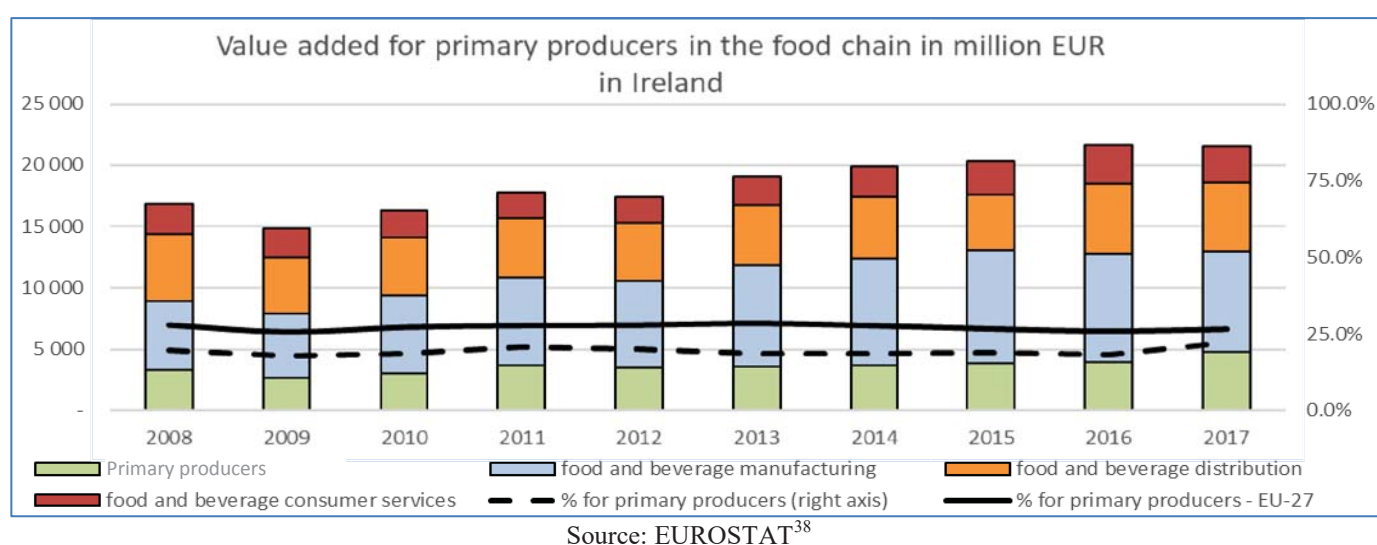
2.4 Contribute to climate change mitigation and adaptation, as well as sustainable energy

Ireland presents a very particular profile with regard to specific objective 4, having the highest level of permanent grassland in the EU: at 91% [in 2015 – *N.B. SWOT figure, compare with ours]* this is almost three times the EU average of 31%. Furthermore, the country is home to very extensive peatlands, which cover more than 20% of total land surface area[39]. This means that Irish soil is a huge store of carbon. And yet the country faces very serious challenges in respect of climate change – and these are strongly linked to agriculture.

The stark fact is that Ireland's total net greenhouse gas (GHG) emissions from farming (including non-CO_2 and CO_2 emissions) have been rising in absolute terms since 2011, reaching 26.2 million tonnes CO_2 equivalent in 2018[40]. The very high proportion of total national GHG emissions made up by agriculture (35.3% in 2018)[41] can be partly explained by Ireland's lack of heavy industry. Nevertheless, it is clear that the ongoing expansion of the cattle herd, especially dairy cattle (see specific objective 5) is pushing emissions higher, as are to some extent increases in the use of synthetic fertiliser (see specific objective 5). Enteric fermentation accounted for 58% of agricultural non-CO_2 GHG emissions in 2018, manure management for 10% and agricultural soil for 30%[42]. Non-CO_2 emissions from farming climbed in total in the period 2013-2018 (by 8%) as

12

well as individually in all three of the categories mentioned above (by 9.6% for enteric fermentation, by 7.5% for manure management and by 6.2% for soil management)[43]. Notable in connection with emissions from manure management is the expansion of areas awarded a derogation under the Nitrates Directive (see specific objective 5).

Pressures from growing livestock numbers are added to by long-established habits in the management of Ireland's peatlands. These have been drained on a large scale over the years – for the purposes of peat extraction, farming and afforestation - to the point where 80% are degraded. Although trees are no longer permitted to be planted on peatlands, in 2017 active drainage and peat extraction was still taking place on 56 000 ha. It is estimated that drained peat soils release around 20 tonnes CO_2 per hectare per year[44].
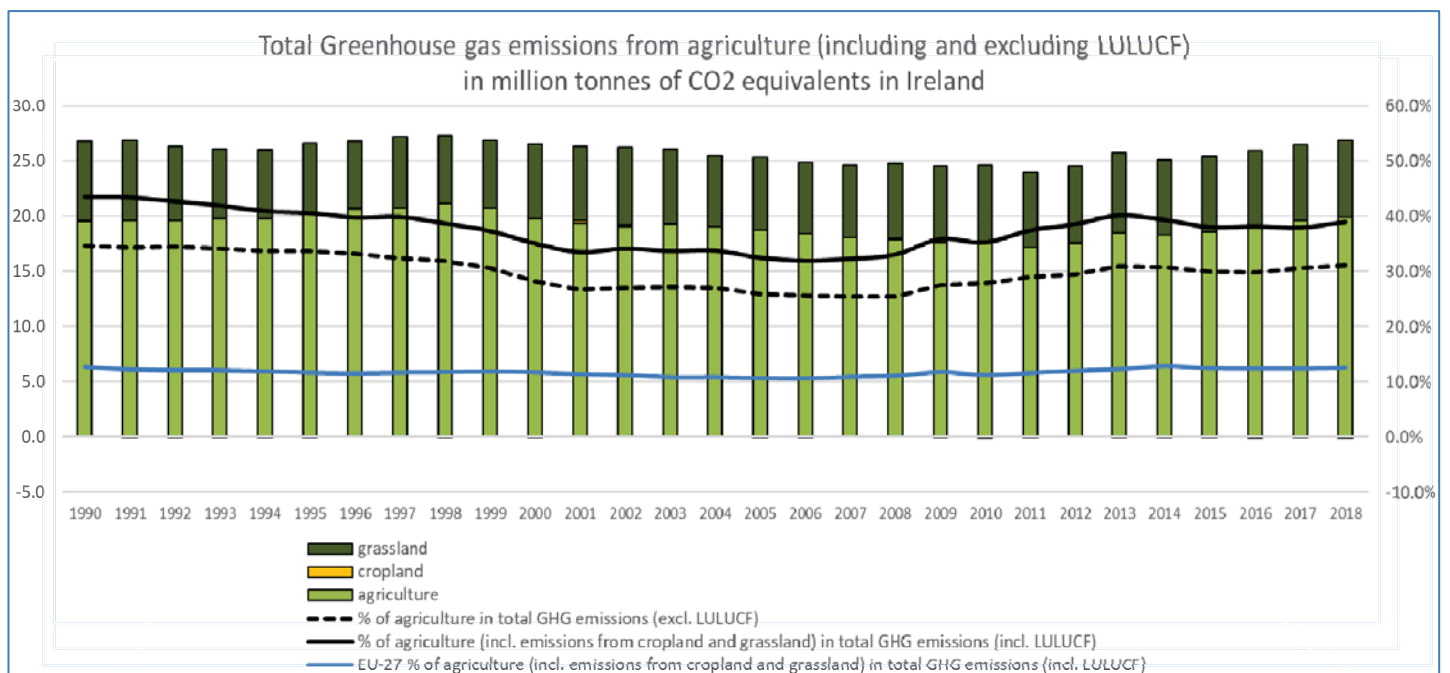
One type of carbon sink which is only thinly present in Ireland is forest and woodland. Dominated by grass, Ireland has a forest cover of only 11% (compared with an EU average of 40%); only Malta and the Netherlands have proportionally lower coverage[45]. Ireland aims to lift the figure to 18% by 2046, but under a current forestry plan, planting rates have been well behind the 8 000 ha per year needed to achieve this (recent figures have been around 5 500 ha per year or less). Moreover, Ireland's grasslands have high carbon emissions, and as a result there are positive net emissions from land use, land use change and forestry (LULUCF).

Among the factors reported as discouraging farmers from increasing woodland coverage on their land are an over-reliance on certain species – now being addressed to some extent (see specific objective 6) – but also wider traditional attitudes[46].

A low level of tree cover forms part of the picture of modest production of renewable energy in Ireland from agriculture and forestry: 2.6% of the country's total renewable energy production came from farming in 2018 (EU: 12%) and 19% from forestry (EU: 41%)[47]. Of course different countries will favour different sources of renewable energy to some extent, but in any case the biogas and biomethane sector in Ireland is seen as being still at an early stage of development[48], while Ireland's forests are not expected to keep pace for much longer with the combined needs of the national wood panelling and wood-based energy sectors[49]. On the other hand, Ireland's use of energy in agriculture and forestry (42 kg oil equivalent per hectare in 2018) is modest by EU standards[50].

Finally, Irish agriculture is seen as vulnerable to climate change because of farmers' growing specialisation. A majority of farmers are unconvinced by possible benefits of diversifying on the farm for the time being, research suggests[51]. And in general terms, higher rainfall in the autumn and winter brought about by climate change is likely to lead to additional nutrient leaching, soil erosion and pollution from agricultural land into freshwater systems. Not only the higher rainfall but also hotter and drier weather in the summer are expected to threaten yields and thus the availability of fodder.

In response to these various issues, Ireland's National Energy and Climate Plan sets out various pathways for action – including in relation to: farming practice in general, and soil management specifically; diversification within agriculture; and expansion of forestry planting[52].

13

Total Greenhouse gas emissions from agriculture (including and excluding LULUCF) in million tonnes of CO2 equivalents in Ireland

Source: European Environmental Agency[53]

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

The situation in Ireland with regard to specific objective 5 shows points of concern in relation to each of the three natural resources in question.

Two essential background influences stand out. First, livestock numbers have been rising substantially. 33% of bovine livestock are owned by 10% of farmers occupying 14% of agricultural area. This means the involvement of industry in finding solutions is essential as these farmers are less dependent on CAP for income support. A pilot project the Agricultural Sustainability Support and Advisory Programme provides 30 free advisors to farmers through a combination of State and dairy industry funding. This State/industry approach should be encouraged to use all possible levers to cause on farm change. The cattle herd numbered 6.6 million head in 2019, compared with 5.9 million in 2010 (+11%), and there had also been increases in numbers of sheep (+22%) and pigs (+7.3%)[54]. Second, there has been a growing use of synthetic fertilisers: sales increased by 10% year-on-year in 2018, as they had done in 2017, however there was a 10% decrease in 2019[55]. All recent Teagasc published roadmaps are aiming to reduce fertiliser use by 2030.[56] Ireland is one of a small number of Member States to have legally binding limits for nitrogen and phosphorus through its Nitrates Action Programme (SI 605/2017). 21% of Irish soils are at agronomic optimum for phosphorus, potassium and lime and this is an area that offers considerable potential for gains in fertiliser use efficiency.

Against this backdrop, Ireland's ammonia emissions from agriculture pose a significant problem. These make up 99% of the country's total ammonia emissions[57] – the highest proportion in the EU – and have been climbing since 2011, reaching 117 000 tonnes in 2017[58]. Emissions exceeded legal limits under the NEC Directive in 2016 for the first time. For both 2020-29 and for 2030 and beyond, Ireland has been found to be at high-risk of non-compliance with the emission reduction commitment for ammonia[59]. The period 2014-2016 also saw increases in emissions of nitrous oxides (+3.6%) and non-methane volatile compounds (+2%). Almost 36% of the total reported emissions of

14

nitrogen oxides, almost 40% of the total reported emissions of non-methane volatile organic compounds and 8% of the total fine particulate matter emissions in Ireland come from agricultural sources[60].

The quality of Ireland's rivers is falling: there was a net decline in status in 128 river water bodies (5.5%) between the periods 2010-2015 and 2013-2018, and an overall rise in the percentage of surface water bodies reporting poor status (to 18% in 2013-2018 from 15% in 2007-2009). As Ireland's Environmental Protection Agency reports: "Water quality is getting worse after a period of relative stability and improvement". On the other hand, in 2013-2018 92% of groundwater bodies (accounting for 98% of the country by area) were in good chemical and quantitative status – though since 2013 there has been a 6.5% increase in the percentage of groundwater sites with average nitrate levels above 25 mg/litre[61].

The main problem lies in nutrient pollution, with a third of rivers and a quarter of estuaries failing to meet nutrient-based environmental quality standards[62]. When examined for the country as a whole, Ireland's use of nutrients presents a mixed picture. Ireland's potential nitrogen surplus on farmland stood at 41 kg/ha/year in 2017 – lower than the EU average (47 kg) though on an upward trend since 2011 (after a decline in 1995-2011)[63]. The country's potential phosphorus surplus was 20.0 kg/ha/year in 2015 – significantly above the EU average of 1.0 kg (and rising since 2008), though this may reflect efforts at rectifying past depletion. But whatever the overall picture, nutrient discharges to water are reported to have been increasing since 2013 because of higher cattle numbers and increased fertiliser use – and indeed, the area benefiting from a derogation from the Nitrates Directive (with regard to the limit of 170 kg of nitrogen per hectare per year from manure) increased by 34% between 2014 and 2018[64]. The 2018 derogation report confirms that, since 2013, water quality is decreasing in areas with increased agricultural pressure, in particular in the south and south-east of Ireland. Nitrogen emissions are a particular concern in the south and south-east, whereas phosphorus concentrations are too high in various parts of Ireland[65].

Pressures in terms of water quality contrast with the situation in terms of water availability: Ireland is amply blessed with rain and is therefore not a significant irrigator. Values of the Water Exploitation Index+ in Ireland have typically been between 2% and 2.5% since the year 2000[66]. However the large volumes of rain and regularity of storms have been shown by Teagasc research to overwhelm mitigation measures that have been put in place to protect and enhance water quality.

Ireland's soil shows generally positive characteristics – especially its mean soil organic carbon content: 127 g/kg in soil under all land cover types (versus 47 g/kg in the EU)[67] and 82 g/kg on arable land (the highest in the Union)[68]. Nor is there significant pressure from erosion by water (the recent average rate has been 0.96 t ha^{-1} yr^{-1}, versus an EU average of 2.5 t ha^{-1} yr^{-1})[69], or from soil sealing (which was just over 1% in 2015)[70],

On the other hand, more specifically, Ireland's peatlands are under threat (see specific objective 4).

89% of Ireland's tillable UAA is conventionally tilled[71].

Note that the impact of activities to improve nutrient management, preserve peatlands and manage soil in Ireland could be increased by linking them to research, innovation and demonstration activities available under the forthcoming Horizon Europe Mission on Soil Health and Food.
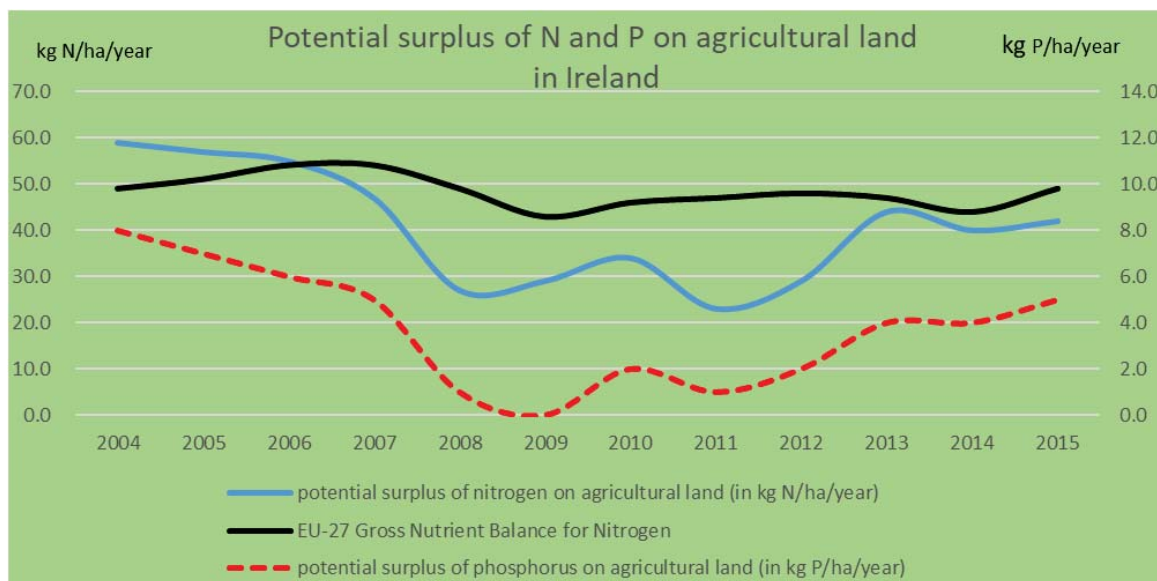
Source: EUROSTAT[72]

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

Ireland benefits from potential advantages with regard to specific objective 6 – for example, the highest share of farmland given to permanent grassland in the EU, a large presence of peatland (see specific objective 4) and a well-established network of hedgerows, which support rich biodiversity. Nevertheless, there are causes for concern.

On the one hand, the Farmland Bird Index stood at 107 in 2016 (compared with the reference value of 100 in the year 2000)[73]. On the other hand, other, related figures paint a less positive figure. For example, according to the Countryside Bird Survey, bird populations fell by 8% between 2005 and 2014 in the case of farmland species and by 8.7% in the case of shrubland/peatland species (though just 0.2% in the case of woodland species)[74].

Grassland habitats of EU interest, affected by agriculture and reported on under the Habitats Directive, have not improved in status for the most recent reporting period (2013-2018): none (of the six) has favourable conservation status, 17% have "unfavourable – inadequate" status and for the remaining 83% the designation is "unfavourable – bad"(For comparison: in the EU as a whole, 43% of grassland habitats have this last designation)[75]. At the same time, all three heathland habitats have "unfavourable – bad" status (which is especially significant as 20% of the EU's wet heaths are located in Ireland). For both habitat types there have been related declines in bird populations species[76] – for example, the breeding population of the lapwing Vanellus vanellus has undergone a long-term decline of 56%. Furthermore, grassland butterfly species are significantly under threat[77].

It should be understood that just 3.6% of Ireland's agricultural area lies in Natura 2000 zones, compared with 11% in the case of the EU[78] (Only 4% of permanent grassland in Natura 2000 zones is classified as "sensitive")[79]. But in any case, similar problems

16

related to farmland habitats are observed more generally, even though monitoring of flora and fauna outside Natura 2000 zones needs improvement. As in many countries, in Ireland there has been a long-term decline in populations of pollinators: 30% of bee species are now considered threatened with extinction in Ireland[80].

Key pressures on grasslands and heathlands include land use intensification – or, in some areas, abandonment – as well as inappropriate mowing practices and harmful burning of vegetation. Peatlands are under threat (see specific objective 4), which is a negative influence for biodiversity[81].

At the same time, Ireland's native woodlands are in some respects in a poor state: small and fragmented, they lack full ecological functionality. Forest-planting takes place but is reportedly too dependent on a single species; native woodland accounts for just 27% of the country's total wooded area[82]. However, the establishment of native woodlands are supported through national scheme. 18% of Ireland's forest area is in Natura 2000 zones (compared with 30% in the EU as a whole)[83].

Around 0.9% of Ireland's UAA is taken up by "linear landscape features" such as hedgerows (2018 estimate). This is somewhat higher than the EU average of 0.6%, whereas Ireland has less fallow land (0.1% of UAA, compared with 4.1% in the EU)[84].

Finally, uptake of organic farming is low in Ireland, covering 2.6% of UAA in 2018[85] – almost completely made up of permanent grassland[86]. In proportional terms this figure marked an increase from 10 years earlier (the total was 0.9% of UAA in 2008), much of this growth having occurred in the last year recorded.
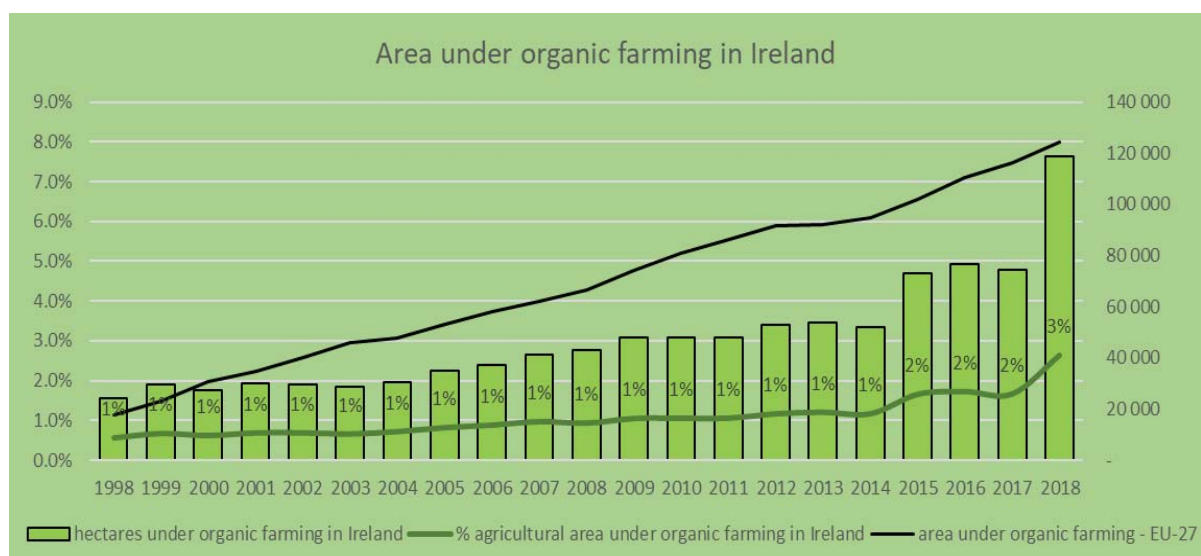
Source: EUROSTAT[87]
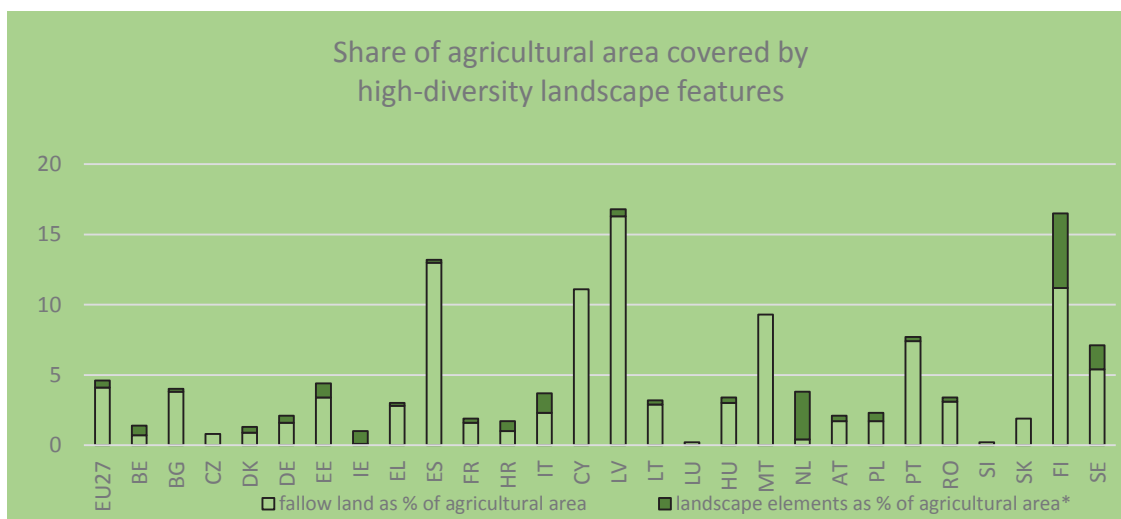
Source: EUROSTAT and JRC[88]

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

In Ireland, the share of total farm managers accounted for by young farmers fell from 10.7% in 2005 (of which 9.8% men, 0.9% women) to 6.1% in 2016 (5.6% men, 0.5% women)[89]. Although the share of young farmers is above the EU average, the decrease of the young farmer population is very significant (over 40%) and the trend is still negative (except for the group of less than 25 years old where a positive trend can be observed). The percentage of female young farmers is extremely low. The economic trend in terms of standard output per farm is, however, positive since 2007 where the young farmers have higher standard output then the older age categories. The age tranche of the farmers younger than 25 years also shows a positive development in terms of increasing average hectares per farm and number of farms with animals. Moreover, 44% of young farmers have full agricultural training and a further 20% have basic training. Thus, the rate is twice the EU-28 average (2016)[90].

The main challenges that the young farmers face are the access to land and access to finance. There is a strong link between both as one of the main driver for access to finance is the need for land rent/purchase. Access to land is difficult because of inheritance law and unwillingness of older farmers to release land which is embedded in cultural and historical reasons. The access of new entrants without farming family tradition is more difficult. Generally, less than 1% of land is made available for purchase every year. Most of the land is made available to rent on a short-term basis. With the help of national schemes the market on long-term lease starts to develop, in particular in some more viable sectors (dairy). Concerning the access to finance, lack of collateral and credit history are the main constraints. Thus, young farmers face serious difficulties in securing the long-term lending they require for investing, mainly in livestock, machinery and equipment[91].

Ireland implements several CAP measures with effect on the generational renewal. The young farmer payment amounts to 1.65% of the Direct payment envelope and is above the EU average and close to the maximum of 2%[92]. The beneficial conditions to receive payment entitlements from the national reserve enhance the payment. Both have positive effect on enabling a new generation to enter the farming sector. The additional investment support help in bringing young farmers into partnerships[93]. On the other hand, the criterion for attaining certain level of skills and knowledge to access young farmer

payment and investment aid at the higher rate lead to an increase in knowledge among young farmers. The CAP measures have been accompanied by several effective national measures facilitating the start-up, access to land, inheritance and generational transition[94].
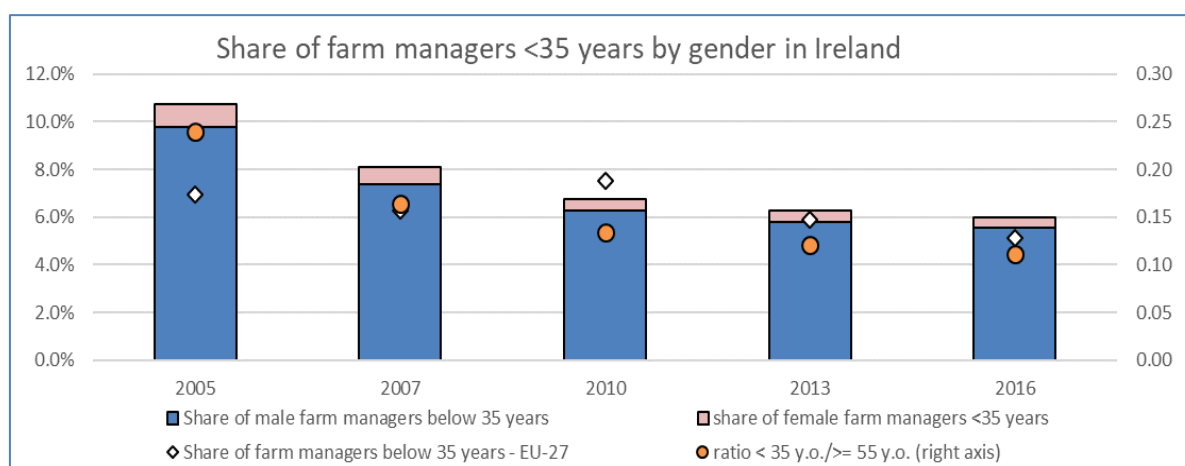
Source: EUROSTAT[95]

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

Based on the rural-urban typology, 89% of the Irish territory is rural, 10% is intermediate regions and 1% urban. The Irish rural area proportion is double compared to the EU-27 average[96]. Furthermore, Ireland has the youngest population within the EU[97]. In 2017, most people in Ireland lived in rural areas (60%), followed by urban areas (28%) and intermediate areas (12%). At EU level, almost half the EU population lives in urban areas (44.7%) and only one-fifth lives in rural areas[98]. Ireland also has unique characteristics regarding population density; with urban areas 3 times denser populated than the EU average (IE 1 439 inhabitants/km^2 vs. EU 444) and rural areas more sparsely populated (IE 46 inhabitants/km^2 vs. EU 51)[99]. In Ireland 2 out of 5 Irish residents are registered in the Dublin area. This population divide is also reflected in regionally disaggregated population density figures, with higher densities in the southern and south-eastern counties, while central and northern counties exhibiting population densities <50 inhabitants/km^2. The Irish total population grows at high pace (IE 4.3% between 2012 and 2017 vs. EU 1.4%); especially rural population growth is at EU record level (IE with 2.8% second highest growth level, while EU rural population decreased overall by 0.5%), while Irish urban population growth is also very high (IE 6.9% vs. EU 1.6%)[100]. Ireland is one of the 16 Member States with recent population density increases, mainly in urban areas[101]. Looking into the future, it is expected that the population divide between Dublin and the rest of the country will deepen, with western regions loosing inhabitants between now and 2032[102].

The Irish employment rate of the working-age population (15 to 64 years) in rural areas has been steadily increasing since 2012, moving from 59% in 2012 to 68% in 2019. As a positive recent trend, Ireland drew level with the EU average in 2014 and since then improved rural employment equal to the EU's pace, but not yet reaching the pre-2008 levels. But, the gap between male and female employment rates remained significant, with females reaching 10-12 percentage points lower employment rates compared to males (in 2019 63% female vs 75% male)[103]. Looking at the regional types, Ireland belongs to the 17 EU Member States where rural areas have lower unemployment rates than urban areas. However, within the category of rural areas, the dominant category in Ireland, Irish unemployment rates of 6.3% are slightly above EU average of 6.1%. By

comparison, the youth unemployment rate (15-24 year olds) in rural Ireland at 13.7% in 2017 is almost double the general Irish unemployment rate, though, below the EU average of 15%[104].

In Ireland, the agricultural, food and tourism sectors together provide 15% of employment. Over the last 10 years, this overall figure remained stable, with tourism gaining importance (IE with 7.5% has the 5th biggest share of tourism jobs in the EU) and agriculture losing jobs. Still, the Irish agricultural sector provides a higher share of jobs as compared to the EU average (2017 IE 4.7% vs EU 3.8%)[105]. Ireland is characterised by a high proportion of family farmers in the total labour force (above the EU average)[106], while the share of female farmers with 19% in 2016 is one of the lowest in the EU[107]. In terms of GDP per capita (purchasing power standards) Ireland is the leading economy in the EU with the highest average between 2013-2015, reaching 150% of the EU average[108]. This is mainly due to the high purchasing power in urban areas, double (i.e. 209%) the EU overall average. Rural areas (94%) and intermediate regions (102%) range around the EU average. Dublin and the south-west are above 120%, while the border region to Northern Ireland and the Midlands are between 60-80% of the average. This confirms the general pattern that GDP per capita in the EU is lower in rural areas than in urban regions[109]. In 2016, one out of four citizens across all types of region is at risk of poverty and social exclusion (24.2%), which is slightly above the EU average (23.5%). Differentiated by type of region in Ireland, dwellers in cities (23.9%) and in intermediate regions (27.4%) are more likely to become poor than rural people (22.4%), contrary to the most common pattern in the EU where rural inhabitants tend to be more exposed to poverty[110]. Taking the availability of formal childcare services as a further proxy for social exclusion, financial constraints are confirmed to be the main reason for citizens across types of region for not making use of them (approximately 40% of uncovered needs in 2016). However, rural dwellers also indicate the distance to service providers as a significant constraint in this respect (approximately 7% of uncovered needs in 2016)[111].

LEADER has been in operation in Ireland since 1991, on rural communities across the country. The current implementation is going well. Long-term impacts refer to a positive change that has resulted due to LEADER investments that may have not been possible otherwise. They can be tangible, such as a much-needed community amenity or service, or something intangible, like an increased sense of community pride or well-being[112].

Forestry and bio-economy in Ireland are in their infancy. Ireland has a very high agricultural area coverage, significantly above average (IE 68% vs EU 46%). Therefore, forest coverage is quite low at 11% (EU 40%)[113]. Despite the low forest coverage, Irish employment in forestry stands at the EU average of 0.2% of total employment[114]. Between 2000 and 2012, the Irish forest area increased by 1.1%, pairing with the overall EU growth rate. However, looking back a bit further, Ireland increased the forest cover between 1990 and 2015 by 55%. Ireland has a forestry programme in place, with dedicated schemes to facilitate afforestation among other to contribute to climate action. Most challenging is to create economic and social incentives to promote forestry as an alternative to other land uses such as agriculture[115]. The contribution of Irish forestry to the country's renewable energy production is at around 19% one of the lowest in the EU[116]. Forest protection schemes are also marginal in Ireland, having the lowest share of forest under protection (below 3%) in the EU. The Irish protected forest is still managed via "conservation through active management", meaning there is no forest in Ireland where no human interference occurs[117].

20

The bio-economy – consisting of the sectors agriculture, forestry, food and beverages, paper, wood and bio-based chemicals/pharmaceutics – provides in Ireland around 8% of all jobs. However, the Irish bio-economy consists mainly of the traditional use cases like agriculture (4.7 percentage points out of the 8% jobs) and the food-sector (2.5 percentage points out of the 8% jobs), hugely centred around the dairy business. The turnover in the bio-economy is gradually increasing over recent years, where in 2015 47% was realised in the food industry and 37% in the chemicals/pharmaceutical industry, leaving agriculture a share of 12%[118]. To develop the bio-economy further, Ireland set out a national policy statement with latest update in 2019[119], listing coherence of sectors, the development of new bio-based products and their output markets and access to EU funding and other financial instruments for finance leveraging.

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.

In 2018 the annual sales of antimicrobial agents for food producing animals was at 46.0 mg/PCU, showing a slight decline over the last years, which is well below the 2018 EU average of 118.3 mg/PCU[120].

Assessment of the implementation of the Sustainable Use Directive demonstrate that there are still gaps in many areas of the Irish national action plan, as well as serious weaknesses in the official control system to ensure the implementation of integrated pest management. This concerns training and certification of pesticide operators, inspected equipment in use, derogations, promotion of low pesticide-input pest management and controls for integrated pest management[121].

Harmonised risk indicator 1 (HRI 1), is calculated using the quantities of pesticide active substances that are placed on the market, with a weighting based on the classification of the active substance, in accordance with Reg. EC 1107/2009. According to the ESTAT calculation of the HRI 1, the use and risk linked to pesticides reduced in Ireland by 31% in a period of 2011-2018, compared to a 17% decline in the EU[122]. Ireland, is therefore in right trend to decrease the use of pesticides and fulfil the Farm to Fork objectives. In addition, no major issues have been identified as regards HRI2.

In relation to animal health and welfare, one of the main issues in Ireland is that the tail docking of pigs is a routine practice, although this is prohibited by EU rules. Tail docking is routinely practiced to prevent tail-biting. Tail-biting is an abnormal behaviour. A wide range of environmental, dietary and husbandry factors have been identified as risks for tail-biting. Tail-biting may not be completely eradicated, but risks can be considerably reduced with correct management. Actions are also needed to improve the viability of male calves from the dairy herd to provide an option to integrate into locally based production systems[123].
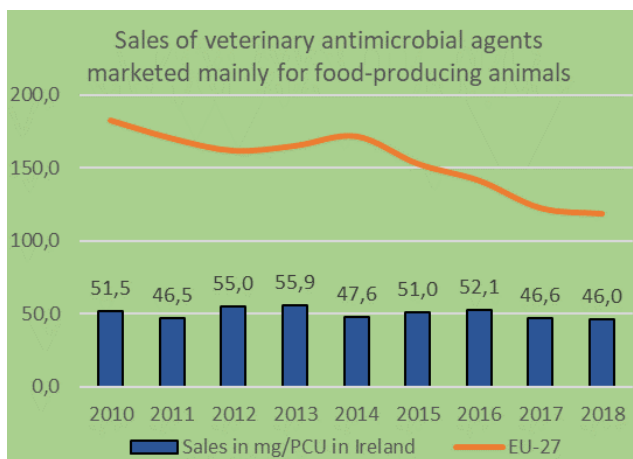
Source: ESVAC[124]
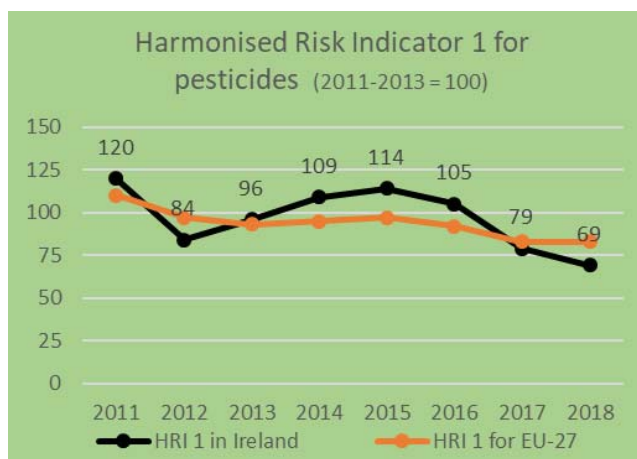
Source: EUROSTAT[125]

A significant part of the Irish population is overweight or obese[126], also Ireland has a high estimated consumption of red meat[127]. Efforts should focus on shifting towards healthy sustainable diets, in line with national recommendations, in order to contribute to reducing rates of 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.

Concerning food loss and waste in primary production and processing of food no data is yet available. Moreover, the National Waste Prevention Programme (2016-2020)[128] could give more 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.

2.10 Cross-cutting objective on knowledge, innovation and digitalisation

Ireland has one of the strongest and most integrated Agricultural Knowledge and Innovation Systems (AKIS) in EU, including effective training programmes and well-functioning advisory services linked to research[129]. The key actor in the Irish AKIS is Teagasc – the Agriculture and Food Development Authority. Teagasc is the national body providing integrated research, advisory and training services to the agriculture and food industry and rural communities. There is also a good level of cooperation between different research institutes and universities in Ireland. However, the interlinkage with private advisors that do receive training is still not fully developed; a stronger back-office may be useful. There is also a potential to create innovation support services.

The National Rural Network (NRN) or other entities have organised networking activities connecting research actors such as universities and partners of Horizon 2020 projects with farmers, advisors and rural businesses. This experience can be the basis for the future national CAP network to intensify such actions and play a key role in promoting synergies between the CAP and European Research Area (ERA). A way to do so is to keep in close touch with the Horizon Europe National Contact Point and to intensify the use of the EIP website to share information. Moreover, by collecting and disseminating information, the CAP can finance interventions that help to make use of up-to-date scientific information for agricultural practices, for instance through the CAP network and its knowledge platforms and knowledge reservoirs, and by setting up

22

advisory back-offices where the latest knowledge and innovation is collected and shared with the field advisors and the farmers.

In the programming period 2014-2020, Ireland programmed 4.9% of its total rural development envelope (EAFRD + national contribution) under rural development measures for knowledge transfer and information actions, advisory services, farm management and farm relief services and co-operation-EIP. This is above the EU-28 average of 3.6%[130]. At the end of 2019, approximately 94 000 participants had received training financed under these measures, which included more than 17 000 participants in the Knowledge Transfer scheme[131].
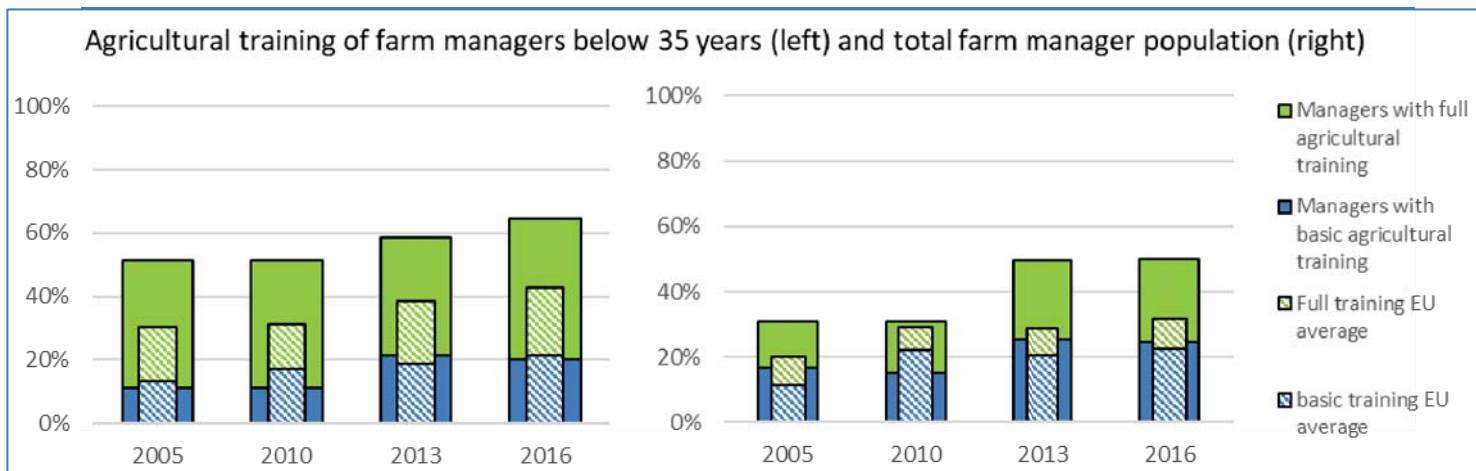
The European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI) contains EIP operational groups (OGs) that are set up by interested parties such as farmers, researchers, advisors and businesses involved in the agricultural and food sector. The different actors in the OGs work together on concrete, practical solutions to a problem or innovative opportunity. The goal of these innovation partnerships is the experimentation of new ideas and practices, which, if successful, can be used by farmers on a wider scale in order to improve productivity, enhance resource efficiency and pursue practices that lead to more sustainable farming. There are until now 23 Irish operational groups up and running[132]. The OGs in Ireland overall have a strong focus on biodiversity / nature / landscape management. The Irish EIP approach has so far been very successful. Scaling up some of the most successful projects to regional or national level is a further step to take. The Irish NRN is promoting innovation actively and is communicating well[133].

In 2016, half of farm managers in Ireland had received agricultural training (25% full training, 25% basic training only). This marked an increase from 2010 - when the figures were 16% for full training, 15% for basic training. The share of farmers that have acquired full agricultural training (meaning any training course continuing for the equivalent of at least two years' full-time training after the end of compulsory education and completed at an agricultural college, university or other institute of higher education in agriculture) is larger in Ireland than in the EU as a whole[134].
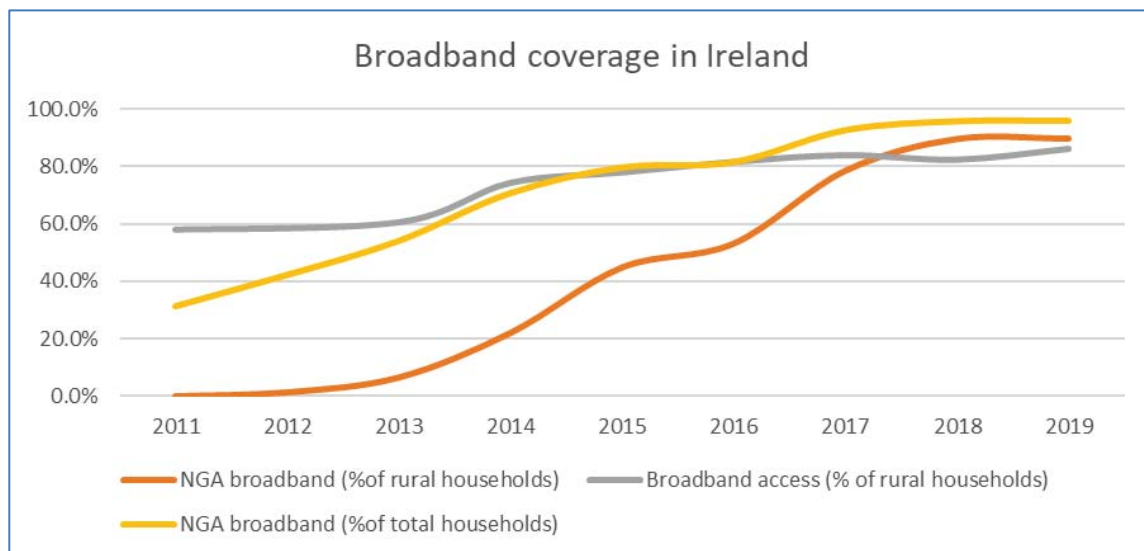
In general, Ireland ranks highly in the Digital Economy and Society Index 2020 and Teagasc has developed a range of digital tools to support its advisory services across Ireland. The primary objective of these digital tools is to support evidence-based decision making at farm level by combining data from different sources[135]. Ireland has not yet opted for the use of satellite-based means to monitor CAP implementation but is currently part of EU projects dealing with the uptake of new technologies for the modernisation of CAP administrations, CAP controls and interactions with farmers.

In rural broadband connectivity, Ireland has made strong progress over the last decade. As the graph below shows, Next Generation Access (NGA) broadband is now available to 90% of rural households, while it was non-existent in rural Ireland back in 2011[136]. However, todays businesses often need better than NGA, looking at access to very high capacity network (VHCN). Almost one third of SMEs find the lack of IT infrastructure in Ireland (vs 19% EU-27) an obstacle to expansion or relocation in the country. Ireland is one of the EU's most expensive countries for broadband, and performs weakly in VHCN coverage, at 21%, at less than half the EU average (44%). In rural areas, this coverage is substantially lower, only 7% vs 20% EU average, adding a digital divide within the country to that with other EU Member States. Ireland is taking action to address the issues around IT infrastructure in rural areas. However, it is also important to invest in digital skills. Many jobs requires strong digital skills, and the relatively low level of

digital skills (in rural areas and the agricultural sector) in Ireland is a barrier for greater uptake of innovation[137].

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

Source: EUROSTAT[138]

Source: Digital Economy and Society Index[139]

1   Eurostat - National Accounts and Economic Accounts for Agriculture
2   https://ec.europa.eu/info/sites/info/files/food-farming-
    fisheries/by_country/documents/analytical_factsheet_ie.pdf
3   DG SANTE proposals for country-specific recommendations on F2F objectives, Ref.
    Ares(2020)4578850 - 03/09/2020
4   EU SCAR AKIS (2019), Preparing for Future AKIS in Europe. Brussels, European Commission,
    https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key_policies/documents/report-
    preparing-for-future-akis-in-europe_en.pdf
5   Department of Agriculture, Food and the Marine - Annual Review and Outlook for Agriculture, Food
    and   the   Marine   2020   -
    https://www.agriculture.gov.ie/media/migration/foodindustrydevelopmenttrademarkets/agri-
    foodandtheeconomy/publications/aro2020/AnnualReviewandOutlookofDAFM2020Final031120.pdf
6   Department of Agriculture, Food and the Marine - Annual Review and Outlook for Agriculture, Food
    and   the   Marine   2020   -
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7   FAO 2020 Global Forest Resources Assessment, Internet access to the database, e.g.: https://fra-
    platform.herokuapp.com/AUT/assessment/fra2020/extentOfForest/
8   Department of Agriculture, Food and the Marine - Annual Review and Outlook for Agriculture, Food
    and the Marine 2019
    https://www.agriculture.gov.ie/media/migration/foodindustrydevelopmenttrademarkets/agri-
    foodandtheeconomy/publications/DepartmentAgricultureAnnualReviewOutlook2019200919.pdf
9   European Commission - Analytical factsheet for Ireland: Nine objectives for a future common
    agricultural policy
    https://ec.europa.eu/info/sites/info/files/food-farming-
    fisheries/by_country/documents/analytical_factsheet_ie.pdf
10 Eurostat - National Accounts and Economic Accounts for Agriculture, 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.
11 Directorate General for Agriculture and Rural Development own calculations based on FADN data
12 Directorate General for Agriculture and Rural Development own calculations based on FADN and
    CATS data (up to 2018)
13 The biggest physical size class in Ireland is up to 200 ha (DG AGRI - FADN standard reports).
14 Directorate General for Agriculture and Rural Development own calculations based on FADN data.
15 Directorate-General for Agriculture and Rural Development, ECORYS, Wageningen Economic
    Research, Study on risk management in EU agriculture, 2018, ECORYS study
16 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.
17 Department of Agriculture, Food and the Marine (2019) Fact Sheet on Irish Agriculture.
    https://www.agriculture.gov.ie/media/migration/foodindustrydevelopmenttrademarkets/agri-
    foodandtheeconomy/publications/December2019Factsheet201219.pdf
18 European Commission. CAP context indicator C.17 Agricultural holdings (farms). Based on
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