COMMON AGRICULTURAL POLICY (CAP) :

WILL CAP STRATEGIC PLANS HELP DELIVER MUCH NEEDED CLIMATE ACTION?

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Published in May 2021 by Climate Action Network (CAN) Europe under its Unify Project.

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The Unify project has received funding from the LIFE Programme of the European Union. The information and views set out in this report are those of the authors and do not necessarily reflect the official opinion of the European Commission

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1. Introduction

The agriculture sector plays a crucial role in combating climate change. If climate-friendly agriculture policies are implemented, they will help countries to mitigate and adapt to climate change by reducing direct emissions, enhancing the carbon sink effect, as well as adapting the food production system to cope with climate change. On the other hand, the agriculture sector is highly exposed to the climate crisis. The worsening impacts of climate change will keep hitting the agriculture sector if countries fail to achieve the objectives of the Paris Agreement and limit global temperature rise to 1.5°C. The European Commission's "Analysis of climate change impacts on EU agriculture by 2050[1]" underlines that grain maize yields in the EU will decline between 1% and 22% and wheat yields in Southern Europe might decrease by up to 49%. The climate emergency will require an in-depth rethinking of the current agriculture model.

Against this backdrop, the design of the EU's post-2022 Common Agricultural Policy (CAP) plays a crucial role in tackling the climate crisis: The agriculture sector generates 12% of the EU's total greenhouse gas emissions and the CAP takes up around one third of the entire EU budget[2].

The European Commission's CAP legislative proposal[3] released in June 2018, claims to be a "reform package" for the future Common Agricultural Policy. However, it is important to remember that it was published before the European Green Deal. Even so, in 2018, the European Court of Auditors[4] had already indicated that the CAP proposal did not reflect a clear increase in environmental and climate ambition.

In May 2020, the Commission published both its Farm to Fork and its Biodiversity strategies to achieve the European Green Deal objectives. These two strategy documents include targets to improve agricultural practices and ensure sustainability of farming and food systems while protecting biodiversity and ecosystems. In particular, the proposals focus on: securing a fair deal and a stable economic future for farmers; setting higher ambitions for environmental and climate action; and safeguarding agriculture's position at the heart of Europe's society.

In October 2020, Member States and the European Parliament finalised their positions on the post-2022 CAP. Currently, EU legislators are negotiating the rules of the post-2022 CAP with an objective to finalise it before mid-2021. Unfortunately, as it currently stands, the CAP fails to take into account the Farm to Fork and Biodiversity Strategies, that are of great importance to ensure sustainability for the agriculture sector.

Once the rules of the post-2022 CAP are agreed, Member States will implement them through "CAP Strategic Plans" designed at national level and monitored by the European Commission. Negotiations between EU lawmakers on the post-2022 CAP are ongoing but Member States have already started developing their CAP Strategic Plans. The development of the CAP Strategic Plans is divided into two main phases: the first one (Phase I) for diagnosis and needs analysis, and the second one (Phase II) on intervention strategy. As the Phase I including SWOT analysis should be already completed, Member States are currently working on prioritizing needs, eco-schemes and reinforced conditionality.

It is clear that to achieve the European Green Deal objectives, the currently negotiated post-2022 CAP and the national Strategic Plans would require serious revisions. Especially because the CAP is missing the central elements of an emissions reduction target for the agriculture sector and effective means to sanction climate- and environmentally-disruptive practices in agricultural activities.

This fundamental design fault now needs to be addressed in the final stages of the post-2022 CAP negotiations (so called trilogues). The CAP should align with the European Green Deal and become an instrument to implement

[1] https://ec.europa.eu/jrc/en/publication/analysis-climate-change-impacts-eu-agriculture-2050
[2] https://www.europarl.europa.eu/factsheets/en/sheet/106/financing-of-the-cap
[3] https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/future-cap_en
[4] https://www.eca.europa.eu/Lists/ECADocuments/OP18_07/OP18_07_EN.pdf

the EU's new climate and energy policies, as well as its Farm to Fork and Biodiversity strategies. Furthermore, CAP Strategic Plans should become a tool for the European Commission to effectively steer the agriculture sector in the direction of the Green Deal's objectives.

In the ongoing negotiations, important questions regarding the environmental and climate performance of the CAP still need to be decided. A crucial innovation is the establishment of eco-schemes, which would redesign a part of the direct payments to farmers, and link them to environmental criteria. The European Parliament, supported by the Commission has proposed to use at least 30% of the budget for direct payments for eco-schemes, while the Council wants only 20%, including some flexibility in the first two years of the CAP implementation period. The latest compromise proposal by the Council is that spending for eco-schemes would start at 22% of direct payments in 2023 and increase to 25% in 2025. Regarding the climate effectiveness of the Budget, the European Parliament supports the target of 40% of the entire CAP Budget, but rejects the Commission proposal to automatically designate 40% of direct payments and 100% of all eco-schemes as "climate-effective". It asks instead for the development of scientifically-based criteria, which, if agreed, could be a useful instrument to assess the climate effectiveness of the Member States' individual CAP Strategic Plans.

Finally, Member States must commit to the correct application of the measures that will be included in future Common Agricultural Policy regulations and increase their climate ambition. They must ensure comprehensive monitoring and periodic evaluations of compliance with the specific requirements. Previous experience has revealed failures in the implementation of priority measures, such as: the limited environmental benefit obtained from crop diversification measures and poor achievement of the objectives of the greening measures.

While assessing the Strategic Plans, the Commission must provide recommendations to increase their climate ambition and their compliance with specific targets of the Farm to Fork Strategy and the Biodiversity Strategy for 2030. Within this EU-wide strategic framework, national CAP Strategic Plans should set explicit national values for the Green Deal targets, in particular to address the current environmental and climate challenges of the agriculture sector.

In this regard, this report looks into **Denmark, France, Germany, Ireland and Spain's** draft post-2022 CAP Strategic Plans. This assessment undertaken within the framework of the Unify project, analyses and monitors the initial phase in the preparation of the national CAP Strategic Plans in the five Member States, specifically focusing on CAP specific objective 4 (CAP specific objective: Agriculture and climate mitigation)[5] for climate change action, through the review of the documents prepared by the Ministries of Agriculture. This report aims to provide a glimpse of draft post-2022 CAP Strategic Plans, how they prioritised the objectives and resulting measures of the CAP to contribute to climate change mitigation as well as sustainable energy, in line with the provisions of the existing climate regulations, and in particular, with the National Energy and Climate Plans.

Being an ongoing process, this assessment focuses on the available working documents (SWOT analysis and identification of needs), the EU recommendations to each Member State and, to the extent we have had access, to the first drafts of the proposal for measures (eco-schemes and Good Agricultural and Environmental Conditions - GAECs) that Member States should be working at the moment. It is important to underline that this should have been an open and participatory process, but this has not been respected in all Member States.

This report also aims to provide recommendations to Member States in order to transform the CAP into a strong, nature-friendly and climate-resilient European agriculture policy and shows how the new CAP Strategic Plans can contribute to achieving EU and national energy and climate objectives in the agriculture sector.

[5] https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/future-cap/key-policy-objectives-future-cap_en

2) Country Assessments:

DENMARK

Denmark's agriculture sector and climate action

Around 60% of Denmark's land is used for agricultural activities, making it the most intensely farmed country in Europe. Being one of world's largest meat producing countries per capita, almost 80% of the agricultural land is used to produce animal feed[6]. This has resulted in a livestock intensive agricultural landscape, where agricultural emissions have remained more or less constant over the past twenty years[7]. In the current CAP-period agriculture emissions declined only 1,3% from 2014 to 2018[8].

The European Commission's recommendations for Denmark's post-2022 CAP Strategic Plan clearly underlines the livestock problem in Denmark:

"Agriculture accounts for 20.14% of total greenhouse gas emissions in Denmark in 2018, an increase from 17.14% in 2008 and nearly double the EU average for greenhouse gas emissions from agriculture of 11.27% in 2018 (2008: 9.70%). The main sources of greenhouse gas emissions in agriculture are enteric fermentation at 34% (mainly cattle, lower than the EU average of about 44%), manure management at 27% (of which swine manure 46% and cattle manure 45%) well above the EU average of about 14%..."

However, despite the clear links between the livestock intensive agricultural system and the failure to reduce greenhouse gas emissions in Danish agriculture, the Commission's recommendations fall short of addressing the need to reduce the number of animals in Denmark.

SWOT analysis and needs identification in relation to CAP Objective 4

Danish SWOT analysis

In accordance with the proposed post-2022 CAP, the Danish government conducted a SWOT analysis to examine what can be done to bring Danish agriculture in line with EU climate and environment goals and objectives[9]. Unfortunately, the SWOT analysis does not capture the steps that need to be taken by the new CAP to deliver the required greenhouse gas emissions reductions in the Danish agriculture sector.

The SWOT-analysis correctly identifies a series of challenges in agriculture sector:

- Agricultural land covers 62% of the Danish land area. This leaves only very little and fragmented space for nature.

- Danish agriculture is becoming increasingly intensive. Over the last 30 years, a third of the bird population has disappeared from agricultural lands.

[6] Holmstrup, G., Schjelde, J., Lundsgaard, R., Nygaard, T., Ogstrup, L. and Iversen Damm, B. (2018) Sådan ligger landet – tal om landbruget 2017. Copenhagen: Danmarks Naturfredsforening og Dyrenes Beskyttelse.
[7] *Danish agriculture has from 2005-2018 delivered only 1.6% GHG-reductions while EU27 agriculture have delivered only 0.1%.*
[8] https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer
[9] https://lbst.dk/tvaergaaende/eu-reformer/reformen-af-eus-landbrugspolitik-efter-2020/#c57304 (SWOT2; in Danish) NB: The DK SWOT analysis was prepared between Nov 2018 and March 2019 for the former DK government. Three months later, after the June 2019 general election, the new parliament endorsed with a 95% majority a new climate law that require all sectors, including agriculture, to deliver much bigger reductions than envisaged at the time the SWOT was written.

- High and rising animal density results in greenhouse gas emissions and pollutes air, soil and waterways with excessive nutrients.

- Field sizes are increasing, resulting in fewer hedgerows, scrubs and field edges to support wild animals and provide natural carbon sinks.

However, the Danish SWOT tries to justify the high greenhouse gas emission from Danish livestock intensive agriculture with the claim that Danish meat production produces exceptionally less greenhouse gases per unit than the rest of the EU. In support of this claim, Denmark provides a graph showing that per kilogram of pig and cow meat produced, the EU, on average, emits about 220% more greenhouse gas compared to Danish meat production (SWOT2 p29). This claim of an exceptionally low emission for Danish meat is mentioned as a central strength in the SWOT and is used as an argument for maintaining climate inaction, as the document argues that the high degree of efficiency makes it difficult to reduce emissions.

In reality, this central claim seems unfounded[10]. The Commission ought to possess enough knowledge of European agriculture to know that the Danish claim is unlikely to be valid. However, the Commission not only fails to question this claim in its recommendations to Denmark, but even repeats it as a fact. The EU is about to distribute €350 billion through the post-2022 CAP, it is crucially important that **the Commission ensures that CAP Strategic Plans are both truthful and ambitious**. In regard to ambition, the Commission's recommendations (Annex2) show that Denmark's emissions per livestock unit (LSU) are higher than EU27 for both enteric fermentation and manure management[11]. Despite the dire need to decrease agricultural emissions, the European Commission is far from giving concrete recommendations to Denmark and only states[12]:

"Promoting climate change mitigation, reducing greenhouse gas emissions, in particular from enteric fermentation and manure in line with the Methane Strategy. Measures could target improved feed management*…"*

Animal enteric fermentation and animal manure account for 59.4% of Denmark's total agricultural emissions. Since 80% of Danish arable land is used for animal feed, a very large share of the remaining agricultural emissions from agricultural soils are also associated with Denmark's intensive animal husbandry. Therefore, the EU needs to strengthen its recommendations to Denmark and ensure that the country cuts emissions coming from animals by at least 50% by 2030.

Lastly, neither the Danish SWOT nor the Commission recommendations to Denmark mention the CO_2 emissions that Danish agriculture generates outside EU territory. Denmark imports about 1.7 million tonnes of soymeal for animal feed each year. An assessment made for the Danish Ministry of Agriculture calculates that in addition to the 11 million tonnes of domestic emissions, Denmark's soymeal import is responsible for another 6.2 million

[10] **Lesschen et al.** (2011) *Greenhouse gas emission profiles of European livestock sectors*, Animal Feed Science and Technology 166–167 https://www.sciencedirect.com/science/article/abs/pii/S0377840111001775
Weiss & Leip (2012) *Greenhouse gas emissions from the EU livestock sector: A life cycle assessment carried out with the CAPRI model*, Agriculture, Ecosystems and Environment 149
https://www.sciencedirect.com/science/article/pii/S0167880911004415
Wirsenius et al. (2020) *Comparing the Life Cycle Greenhouse Gas Emissions of Dairy and Pork Systems Across Countries Using Land-Use Carbon Opportunity Costs*, World Resources Institute Working Paper https://files.wri.org/s3fs-public/comparing-life-cycle-greenhouse-gas-emissions-dairy-pork-systems_0.pdf

[11] Annex 2 details that for enteric fermentation Denmark emits 3.3 tonnes of CO2 per livestock unit, whereas the EU27 emits 2.7 tonnes of CO2. Annex 2 does not calculate manure emissions per livestock unit, but using the same livestock unit values for enteric fermentation, Denmark's manure management emits 2.59 tonnes per unit, while the EU27 manure emits 0.88 tonnes per unit. https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key_policies/documents/cap-strategic-plan-c2020-846-annex_en.pdf

[12]Commission recommendations for Denmark's CAP strategic plan, SWD(2020) 371 final, p6 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020SC0371%2801%29

tonnes of CO2 emissions outside the EU[13]. In the May 2020 Biodiversity Strategy, the Commission promised to *"ensure that EU actions do not result in deforestation in other regions of the world"*[14]. In October 2020, the European Parliament called on the Commission to put forward legislation to stop EU-driven global deforestation through mandatory due diligence[15]. And nine Member States in the Amsterdam Partnership are actively calling for deforestation free value chains[16]. In light of these developments, it is not acceptable that both the Danish SWOT and the Commission's recommendations to Denmark totally ignore the emissions from the agriculture sector that occur outside EU-territory.

Set of priorities for the adequate fulfillment of CAP Key Objective 4 in the Danish territory

To climate-proof the Danish post-2022 CAP Strategic Plan, it is crucial to include the following elements:

- **Cut livestock emissions by 50% by 2030**

Enteric fermentation and manure management account for 59.4% of Denmark's agriculture emissions and 57.8% of agriculture emissions from the EU27. Halving emissions is unlikely to be achieved by optimizing feed and manure management alone, in which case animal numbers also need to be addressed.

- **Remove carbon rich lowland soils from agricultural production and rewet peatlands**

Denmark cultivates about 170,000 hectares of carbon rich lowland soils. Actively ending drainage and cultivation on this comparatively small area could reduce emissions by about 2 million tonnes of CO2. Some of these lowland soils have such low yields that they are only cultivated in order to receive around €300/hectare in CAP payments. The new CAP thus has the opportunity to deliver large emissions reductions from some of the peatlands simply by not paying farmers to cause emissions. A CAP that will help us deliver the European Green Deal must ensure that profitable peatland soils are also taken out of cultivation[17].

- **Substitute imported soy with domestic grass protein production**

The EU's demand for soybeans is a driver of deforestation outside the EU and thus needs to be addressed under the European Commission's 2019 promise to step up action to restore the world's forests[18]. Denmark's import of 1.7 million tonnes of soy meal results in 6.2 million tonnes of CO2 emissions including land use change emissions. In recent years soy meal prices have fluctuated between €280 and €420 per ton[19]. Being dependent on an erratic global soy meal market adds additional economic uncertainty for European farmers. Besides its climate and farm level economic benefits, increasing farm level self-sufficiency in protein feed can also contribute to improve the nutrient balance on the farm.

The wish of Danish farmers to "reclaim" the production of their own protein feed is evident in the rapid re-emergence of broad beans in Danish agriculture in the last few years. Meanwhile, the production of protein feed from grass is an emerging trend[20]. Denmark's protein feed needs could potentially be fully covered domestically[21].

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[13] https://static-curis.ku.dk/portal/files/239904192/IFRO_Udredning_2020_09.pdf (Danish)
[14] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0380&from=EN
[15] https://www.europarl.europa.eu/news/da/press-room/20201016IPR89560/legislation-with-binding-measures-needed-to-stop-eu-driven-global-deforestation
[16] https://ad-partnership.org/
[17] https://ifro.ku.dk/english/staff/?pure=en%2Fpublications%2Fomkostninger-ved-virkemidler-til-reduktion-af-landbrugets-drivhusgasemissioner(c68823af-ba3a-4759-a809-751ebfe3819c).html
[18] https://ec.europa.eu/environment/forests/eu_comm_2019.htm (English)
[19] https://www.indexmundi.com/commodities/?commodity=soybean-meal&months=60&currency=eur (English)
[20] https://www.rd-as.com/grass-protein-factory/ (English)
[21] https://pure.au.dk/portal/files/187801345/Notat_MOF_sp_rgsm_l_om_arealbehov_v_gr_sprotein_1405_2020.PDF (danish)

Grass has many climate and biodiversity advantages. Firstly, by reducing the pressure on the world's forests from soy cultivation. Secondly, grass would replace feed grain and maize silage in Denmark and help reduce nutrient leakage into waterways.

- **Increase soil organic carbon by shifting from annual to perennial crops, increasing density of hedgerow...**

There is potential to replace annual crops (like feed grain and maize) with a perennial crop (grass). Perennial crops and more standing biomass in the agriculture landscape hold multiple environmental benefits, including reduced water demand, reduced pesticide use, reduced tilling, reduced soil erosion, improved biodiversity, reduced nutrient wash off etc. With the right cultivation practices, grass will also increase soil organic carbon, which improves the soil's fertility and resilience while also removing carbon from the atmosphere.

It is essential that the EU imposes detailed guidance on how to maximize soil organic carbon and impose strict controls so it is maintained. EU data shows that grasslands increase soil organic carbon in some EU countries, while it increases emissions in other[22].

FRANCE

France's agriculture sector and climate action

In France, the agricultural sector is responsible for 20% of emissions originating in the country, with a breakdown of 41% for crops (mainly from soil management and nitrogen fertilizer spreading), 48% for livestock (mainly enteric fermentation and liquid manure management), and 11% for energy consumption (farm machinery, greenhouses, other buildings, etc.)[23]. The net emissions France generates outside of the country, which represented the equivalent of 60% of territorial emissions in 2015, must be added to this calculation[24]. Even today, emissions linked to international trade do not mark a substantial break[25]. Food still accounts for 24% of France's overall greenhouse gas footprint[26].

The National Low Carbon Strategy (SNBC)[27] defines national emission reduction targets and sectoral policies. It sets an emissions reduction target of 18% by 2030 and 46% by 2050 (compared to 2015) for the agriculture sector. In order to achieve this objective, the French agricultural model must be radically revised by:

- reducing in the number of livestock in France (by at least 50% by 2050), along with a reduction in the herd sizes and a return of animals to the outdoors (and to pasture for ruminants);
- drastically reducing synthetic fertilizers and soy imports that cause deforestation;
- strongly increasing the use of legumes in rotations along with longer and more diversified rotations;
- diversifying crop and livestock at farm and local level;

[22] https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key_policies/documents/cap-specific-objectives-brief-4-agriculture-and-climate-mitigation_en.pdf (english)
[23] Citepa, Kyoto perimeter, 2017 figures.
[24] https://www.hautconseilclimat.fr/publications/rapport-2019/
[25] https://www.hautconseilclimat.fr/publications/rapport-annuel-2020/
[26] www.iddri.org/sites/default/files/PDF/Publications/Hors%20catalogue%20Iddri/Empreinte-Carbone_Alimentation_France_VF_0.pdf
[27] https://www.ecologique-solidaire.gouv.fr/strategie-nationale-bas-carbone-snbc

- increasing in organic farming areas (to at least 45% of agricultural land in 2050);

- stopping the use of heated greenhouses (excluding seedlings).

The CAP can be a very powerful tool to transform and lead the agricultural sector in the fight against climate change. With this in mind, the French CAP Strategic Plan must be compatible with the objectives of 18% reduction in agricultural sector emissions by 2030 and 46% reduction by 2050. Today, the French CAP Strategic Plan recognises that the country's agriculture is not on the right trajectory to reach the National Low Carbon Strategy's objectives. Following this Strategy, the CAP financial support, either under the Pillar 1 (income-type) or Pillar 2 (project-type)—will have to support climate-friendly practices. CAP financial support must also exclude practices that might worsen the climate crisis.

Assessments of the implementation of 2014-2020 CAP in relation to climate objectives

Successes:

The strong points of the application of the previous CAP are as follows:

- France opened many different Agri- Environment - Climate Measure (AECM) systems, so that each farmer can find one that works;

- France has modulated the value of coupled aid, providing a mark-up for the first cows or ewes; this helps support farms with smaller herds.

Failures:

The weak points of the application of the previous CAP are as follows:

- France adopted a very broad interpretation of the criteria for the green payment under the first pillar, which has made it ineffective. In particular, France has retained the entire list of elements eligible under ecological focus areas (EFAs) including cultivated areas (legumes, etc.). In the end, only 5% of EFAs are real agro-ecological infrastructures (hedges, groves, ponds, etc.)[28]. France has also chosen a very restrictive definition of "sensitive" grassland and has granted a dispensation from crop diversification for single-crop maize, which is not at all justifiable from an environmental point of view;

- Agri- Environment - Climate Measures (AECMs) and conversion to organic agriculture have suffered from a serious lack of budget allocation in France. France has refused to transfer more budget from the first to the second pillar to meet the financing needs of these two measures;

- AECMs are not ambitious enough and are not implemented across the whole country (but only limited to certain zones). As a result, many farmers willing to change their practices in order to reduce their climate footprint are not actually eligible because they are not located where the AECMs are possible;

- Problems in processing aid applications for AECMs and for organic farming have led to serious delays in payments for both types of measures.

Lessons learnt for the post-2022 CAP :

[28] source: evaluation prior to the future post-2020 CAP National Strategic Plan

There are several recommendations that can be made for France to ensure that direct payments for the next period are also ambitious in their support for environment and climate friendly practices:

- setting a higher bar for cross-compliance;
- a grassland criterion applied at the scale of a production basin and much more reactive than the limitation of the decline calculated at the end of the year, plus a broader definition of "sensitive" grasslands to be preserved;
- ecological focus area criterion excluding all cultivated elements (e.g. nitrogen-fixing plants);
- crop rotation diversity criteria based on crop families, not crop varieties (winter wheat and spring wheat can currently count as two different crops).

For the second pillar, more budget should have been transferred from the first to the second pillar and then earmarked for AECMs and conversion to organic farming. This would also have enabled significant expansion of the areas eligible for AECMs.

SWOT analysis and needs identification in relation to CAP Objective 4

Needs:

It is crucial to recall the importance of compatibility and consistency between the national CAP Strategic Plan and France's climate objectives fixed by the National Low Carbon Strategy. These objectives of 18% emissions reductions by 2030 and 46% emissions reductions by 2050 must be emphasised in the national CAP Strategic Plan.

France’s CAP Strategic Plan must also be compatible and consistent with the Ecophyto II+ plan aiming to halve the pesticide use by 2025, the national biodiversity plan and the Nitrate Directive for France. The priorities should be:

- policies for reducing herd size and maintaining and developing sustainable livestock farming;
- higher incomes for farmers, stabilization of agricultural prices, and better regulation of international trade and production volumes;
- upmarketing and reduction of animal products in the catering industry.

SWOT analysis:

In addition, the following opportunities should be added to the SWOT analysis:

- Decline in meat consumption is an opportunity to increase pulse consumption; this may lead to an increase in the cultivation of pulses on French farmland, which would be an asset for crop fertilization, reduction of dependence on synthetic fertilizer imports and resilience to climate change.;
- Raising the incomes of farmers, stabilizing agricultural prices and better regulating international trade and production volumes would act as tools for achieving climate and environmental objectives;
- The food service sector can help reduce meat imports, create strong demand for local sustainable livestock products, raise public awareness on reducing animal products while improving the quality, and increase consumption of organic, local, seasonal and fresh produce. This is on the condition that the food service

sector is supported throughout changing practices (material investments, training, participation in structuring local and regional sectors, etc.).

Set of priorities for the adequate fulfillment of CAP Key Objective 4 in the French territory

Cross-compliance should be strengthened

Cross-compliance in the French CAP Strategic Plan must be greatly strengthened because it currently is not conducive to changes in practices. The criteria chosen are the right ones, but the ambitions are set too low. Indeed, the CAP must be an instrument for widely disseminating climate-friendly practices. Cross-compliance must therefore substantially increase its requirements and in particular include the “Farm to Fork” requirements.

More specifically, cross-compliance must include:

- Crop rotation with a minimum of 5 crops, including 1 legume;
- Permanent grasslands with a ratio calculated at regional level, which will include all herbaceous areas including dry grasslands and heaths and with a minimum of 5 different species of wild flora. A broad definition of the notion of "sensitive grasslands" which must be preserved is also needed;
- Agroecological infrastructures, such as hedges, groves, ponds, etc., excluding cultivated areas (the current "ecological focus areas" include crops). This must cover at least 7% of the utilized agricultural area (UAA) and exclude the use of pesticides;
- The preservation of wetlands and peatlands;
- Soil cover and prohibition of plowing in the direction of the slope;
- Ambitious integration of the Framework Directives on Water, Habitats- Fauna-Flora, Birds, Nitrates and Pesticides as well as animal welfare requirements above minimum standards.

Cross-compliance should be set at EU level so as to be as harmonised and ambitious as possible. Cross-compliance should then be worked out at the national level by making it compatible with the National Low CarboN Strategy, which would be consistent with the Farm to Fork strategy and the EU's international climate commitments under the Paris Agreement.

Greening measures should include the following:

- Crop rotation diversity: increase to at least four different crops per rotation, including a minimum of one legume, with no exceptions;
- 5% ecological focus areas: replace with a graduated system making it possible to increase payments received as more EFAs are established. Importantly, they should be genuine agro-ecological infrastructures (hedges, groves, ponds, etc.). This is because in livestock grazing areas, this measure does not induce farmers to plant legumes since they already have grassland;
- Limitation of grassland loss: remove the possibility of plowing, set a broader definition of "sensitive" grassland;
- A ban on the use of synthetic nitrogen fertilizers (mineral fertilizers) in grassland and on grain legumes.

Eco-schemes should become a higher priority

Eco-schemes should allow the establishment of payments for environmental and animal welfare services. The objective would be to remunerate practices that are favourable for the environment, biodiversity, climate, and animal welfare and not those that merely reduce negative impacts.

Ecosystem and animal welfare services must have a systemic approach and include the reduction of greenhouse gas emissions, improvement of air quality, carbon sequestration, biodiversity, water resources, etc. There would not be a menu to choose from; rather, practices must contribute to all of the issues without leading to negative effects on any one of them.

The implementation of four ecosystem components (agro-ecological infrastructures, crop rotation management, grasslands and organic farming), and two animal welfare components should be ensured.

The idea is to gradually increase the value of ecosystem services according to the level of ambition of the practices, and to enhance collective approaches. However, to avoid the development of industrial farms, there should be a ceiling on the number of salaried employees per farm.

GERMANY

The German agriculture sector and climate action

In 2018, emissions from agriculture in Germany amounted to a total of 63.6 million tonnes of CO2-eq. The main share of greenhouse gas emissions within the agricultural sector was accounted for by methane at 51.2% in 2018 (digestive processes, treatment of manure as well as through storage processes of fermentation residues from renewable resources of biogas plants). Nitrous oxide (N2O) emissions account for 44.2% of total emissions and are mainly produced when mineral and organic fertilizers are applied to agricultural soils, in farm fertilizer management and from storage processes for fermentation residues[29]. Agriculture is the main source of methane emissions (62% of total) and of nitrous oxide emissions (79% of total) in Germany.

[29] https://www.umweltbundesamt.de/daten/land-forstwirtschaft/beitrag-der-landwirtschaft-zu-den-treibhausgas#treibhausgas-emissionen-aus-der-landwirtschaft

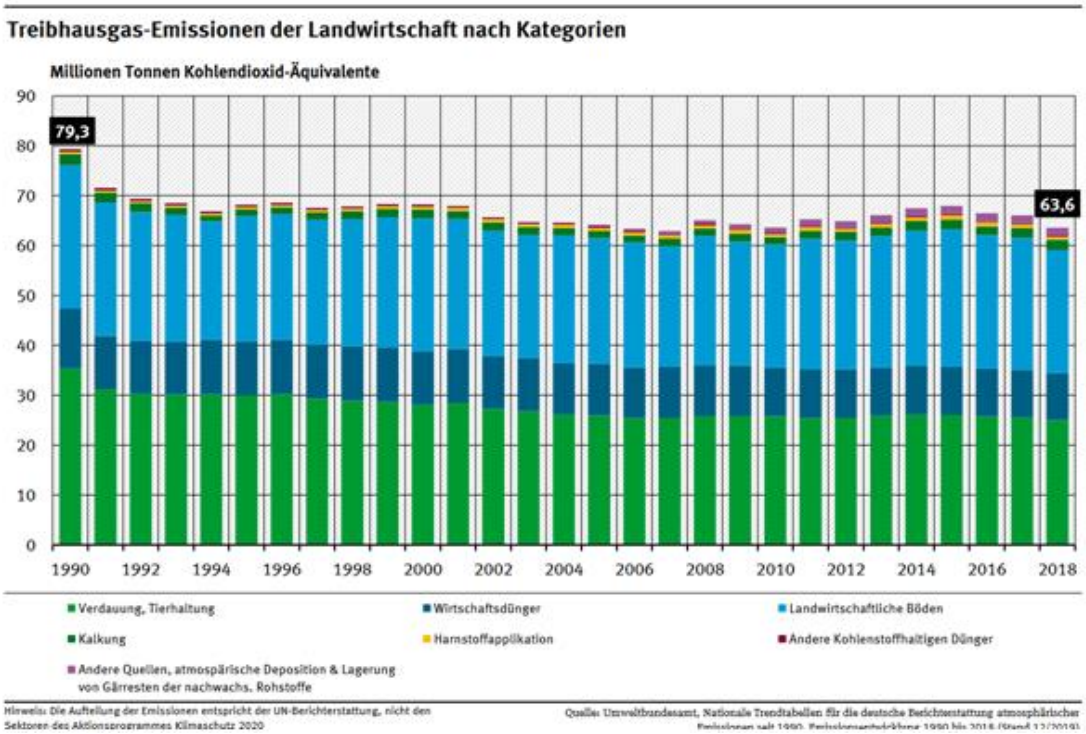


***Figure 1**: Greenhouse Gas emissions from agriculture in Germany (MtCO2-eq)*

Note: Green: Animal Digestion (Methane), Dark Blue: Manure Management (Methane), Light Blue (Agricultural Soils , Nitrous Oxide)[30]

Since 1990, emissions from the agriculture category have decreased by 15.7 million tonnes CO2-eq. This was mainly due to the collapse of the East German livestock sector after the reunification of Germany. Since the mid-1990s, there has been no clear trend in emissions. The relatively strong decrease in recent years, which continued in 2019, (1.6 million tons or about 2.3%) is mainly due to consecutively dry conditions which resulted in a lower application of fertilizer and lower animal stocks as a reaction to higher feed prices[31].

The land use, land-use change and forestry (LULUCF) sector is a net carbon sink in Germany. This is due to the forestry sector and the use of wood products which remove about 70 million tonnes CO2-equivalent. Farmland and Grassland on the other hand are net emitters of CO2, amounting to 31.5 million tonnes CO2-eq. This is mainly due to the agricultural use of drained peatlands and organic soils, which is responsible for about 37% of these emissions, while representing only 7% of the total agricultural area in Germany.

Methane and nitrous oxide emissions from agriculture account for 7.4% of total greenhouse gas emissions, CO2 emissions from agricultural land use for about half that share. Therefore, emissions from agricultural activity and related land use account for about 11% of Germany's greenhouse gas emissions.

[30] https://www.umweltbundesamt.de/sites/default/files/medien/384/bilder/dateien/2_abb_thg-emi-landwirtschaft-kat_2020.pdf
[31] https://www.umweltbundesamt.de/daten/land-forstwirtschaft/beitrag-der-landwirtschaft-zu-den-treibhausgas#emissionsentwicklung

Assessments of the implementation of 2014-2020 CAP in relation to climate objectives

The implementation of the last CAP period has not had a major impact on greenhouse gas emissions in Germany. In 2018, only €30 million of the total €530 million of the European Agricultural Fund for Rural Development was spent on environment and climate measures[32].

These measures mainly focused on reducing the application of mineral fertilizers and a more efficient application and storage of manure. Other measures also have beneficial climate impacts and climate was often mentioned as a second priority. These include cover crops, reduced tillage and the planting of hedges.

In Germany, farmers could meet the requirement to use some areas as "Ecological Focus Areas" by planting them with leguminous plants. This led to a slight increase in the area cultivated with legumes. However, this happened with wide regional variations and mainly in areas where leguminous plants already play a relatively big role in crop rotation[33].

Needs assessment and draft legislation on CAP implementation and strategic plans

The draft needs identification for the national Strategic Plan for the CAP[34] has a focus on the inter-linkage between nutrient, especially nitrate management, and emissions from animal husbandry, especially manure. This is supposed to happen in the context of reducing excess input of nitrogen and emissions of ammonia. Proposed measures include:

- low emission animal husbandry systems
- efficient fertilizer management, including the reduction of mineral fertilizers
- improved storage and application technology for manure, in combination with
- production of biogas from farm manure

These measures are already part of the German Climate Protection Program 2030. However, the needs assessment states that they will only result in an emissions reduction of about 6 million tonnes CO2-eq, about half of the target of 11.8 million tonnes CO2-eq. It is not detailed how this gap can be filled with the measures proposed in the needs assessment. There is only a very general notion that further changes in livestock numbers may be necessary to achieve the climate targets, without providing measures how this can be addressed.

The German National Energy and Climate Plan (NECP) states clearly that the climate performance of animal husbandry crucially depends on overall livestock numbers. Therefore animal husbandry should become more closely linked to the available agricultural area with a maximum of two livestock units per hectare. In the land use sector, the needs assessment foresees the reduction GHG emissions through: renaturation, rewetting and extensification of peatlands, water management of peatlands used for agriculture, paludiculture and the preservation and expansion of grassland.

The emissions from organic soils are to be reduced by 5 million tonnes CO2-eq per year through these measures.

The German NECP expands on these objectives by supporting the proposal to include the protection of peatlands and organic soils in the enhanced conditionality for direct payments. Additional financial incentives are supposed

[32] https://www.bmel-statistik.de/fileadmin/daten/LET-0104012-2018.xlsx
[33] Röder et. al. (2019): Evaluierung der GAP-Reform aus Sicht des Umweltschutzes – GAPEval; Umweltbundesamt, Dessau Roßlau
[34] https://www.bmel.de/SharedDocs/Downloads/DE/_Landwirtschaft/EU-Agrarpolitik-Foerderung/swot-tabellen.pdf;jsessionid=5D822E4BA2301539F2B6B19235B65D88.internet2832?__blob=publicationFile&v=1

to be created for re-wetting organic soils. Unlike the needs assessment, the NECP also contains proposals for the management of grassland. These include higher support payments for farms that at least include grazing as part of their grassland management and/or have a lower livestock density per area. Measures to that effect are currently part of the second pillar measures in some German states. The extent to which the funding and scope of these measures should be expanded is not detailed. Since the climate target for 2030 has been enhanced by the Commission and Parliament, the measures in the NECP must also be adjusted accordingly.

Legal proposals as a framework for the CAP Strategic Plan

In spite of the ongoing trilogue negotiations on the post-2022 CAP, the German government has already approved draft laws which provide a framework for the development of the CAP Strategic Plan. The key provisions from an environment and climate perspective are:

- a larger transfer of funds from pillar 1 measures (mainly direct payments and eco-schemes) to pillar 2 measures (rural development, including agri-environment and climate measures.) Currently 6% of the pillar 1 measures are planned to be shifted to pillar 2, this will increase to 10% in 2023 and increase further to 15% in 2028. It is not determined what these funds will be used for, but they could be sufficient to fund the growth of organic agriculture in Germany to the national target of 20% of the agricultural area by 2030. Germany has not officially signed up to the Farm to Fork target of a 25% share organic agriculture.
- 25% of the (remaining) budget for direct payments are to be used for eco-schemes. The draft law contains a non-exhaustive list of eco-schemes that would be offered to farmers.
    1. A higher share of non-productive land than required in conditionality (3%). This should be used for flowering plants or to maintain strips of old grass in permanent grassland
    2. crop diversity with at least five different crops and a minimum share of 10% of leguminous crops
    3. maintenance of agro-forestry
    4. extensification of the entire area of permanent grassland on the farm
    5. result-based extensive management of specific areas of permanent grassland on the farm to enhance biodiversity, measured by the occurrence of four regionally defined plants
    6. management of arable and permanent crops without chemical crop protection
    7. application of specific farming methods in Natura 2000 regions.

The law does not give further specifics on the design of the eco-schemes which would have to be defined by government regulations. It also leaves open the possibility to include additional eco-schemes through a government regulation.

Both the German National Energy and Climate Plan and the needs assessment for the CAP Strategic Plan state that the national target for emissions reduction from agriculture can only be achieved if livestock numbers are effectively reduced and emissions from peatland and organic soils are reduced. However, none of the eco-schemes listed above directly address these sectors. Also, the proposed conditionality which defines minimum requirements for receiving any CAP payments, most importantly direct area payments, sets no conditions to reduce the climate impacts of animal husbandry. The conditions for the management of organic soils are very limited. There would be a ban on the conversion of grassland on organic soils into arable land. Also, existing arable land on organic soils must not be ploughed lower than 30cm. There doesn't seem to be a ban on converting organic soils not currently used into farmland, also there are no conditions on increasing water levels in areas with organic soils. Hence it is unclear to what extent conditionality would actually help reduce emissions from organic soils.

Recommendations for a German CAP Strategic Plan to achieve climate targets in agriculture

In order to achieve the greenhouse gas reduction target set for agriculture in the NECP and its own climate protection law, the German government needs to act on its own analysis. Livestock numbers have to be reduced and the management of organic soils needs to be improved.

Conditionalities for organic soils and intensive livestock

The current very limited conditionality for the management of organic soils and peatlands needs to be strengthened to ban all changes in management that lead to increased emissions. In addition to the rules proposed, this should include:

- a ban on the conversion of currently non-utilised peatland to any form of agricultural area
- increased drainage that results in lower water levels

For livestock, there should be a requirement for all intensively managed farms (less than two livestock units per ha) to demonstrate that nutrient flows from feed and manure are managed in a way that does not lead to over fertilisation (and hence increased NO2 emissions). This should apply to the areas where the manure is applied as fertiliser.

It should also be checked whether a conditionality can be introduced to require all farms receiving CAP payments to have an animal density of less than three livestock units per ha.

Eco-schemes for the extensification of livestock farming

The currently proposed eco-schemes do not directly address emissions from livestock. Since the greatest reduction potential lies in reducing livestock numbers, and **linking livestock farming to the forage area,** eco-schemes need to be established that provide an incentive to install systems with low livestock densities (less than 1.4 livestock units/ha) for all animals. For ruminants (cattle, sheep, goats), additional schemes should be established to support grazing systems. For omnivores (pigs, chicken), a minimum share of feed should be locally sourced.

These eco-schemes should be combined with second pillar measures for the improvement in animal husbandry conditions, e.g. increased space, access to outside areas, etc.

Eco-schemes for the management of organic soils

Beyond conditionalities that prohibit higher emissions from organic soils, eco-schemes should provide incentives for more climate friendly management such as:

- stopping arable agriculture on organic soils
- very extensive livestock with high water levels
- cultivation of Paludiculture (reed, etc.)

For the last two points in particular, it is necessary to support investments for a change in production systems, with second pillar measures matching eco-schemes.

IRELAND

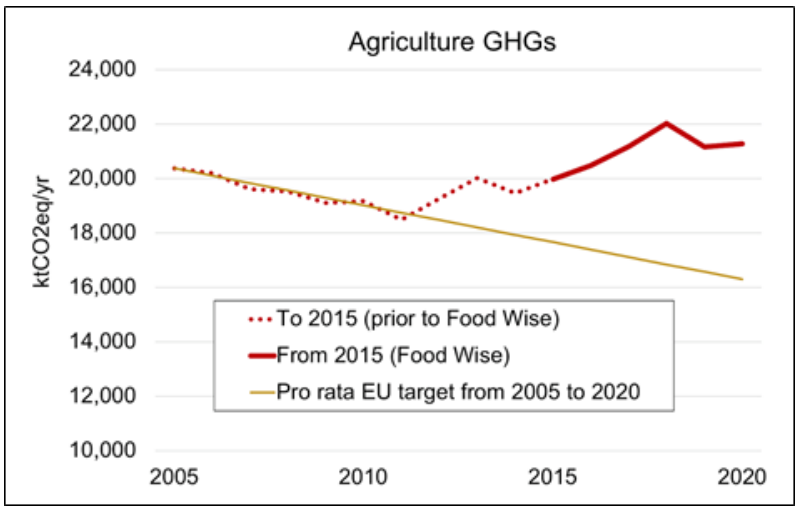
Ireland's agriculture sector and climate action

Agriculture dominates land use in Ireland, accounting for 63% of Ireland's almost 7 million hectares[35]. 60% of the country's agricultural output is beef and dairy products with much of the agricultural area devoted to grassland to support these activities. Crucially, bovine agricultural intensification is increasing rapidly across Ireland, particularly with regard to the dairy herd.

This is a direct result of Irish agri-food policy, notably the ten-year strategies Food Harvest 2020 (adopted in 2010) and FoodWise 2025, which was adopted in 2015 to supersede Food Harvest. These policies were developed separately to the CAP processes at the time, and these agri-food strategies ultimately took precedence over the CAP.

With regard to agricultural emissions, despite national EU Effort Sharing Regulation (ESR) emissions reduction requirements, the annual limit values have been exceeded since 2016. Provisional figures for 2020 indicate that agricultural emissions will exceed 37% of Ireland's total national greenhouse gas emissions and are now approaching half of the ESR emissions. Agricultural emissions increased by 8.7% over the five-year period 2014-19; the sector's methane emissions have increased by 10% and nitrous oxide (N_2O) emissions have increased over 7.7%. Cattle emit over 90% of agricultural methane.

As shown in Figure 2 below, Ireland's agriculture sector greenhouse gas emissions had decreased steadily from 2005 until 2011 under the EU milk quota constraining milk production and EU policies in support of beef cattle extensification. However, Irish Government policy from 2010 with the Food Harvest 2020 and FoodWise 2025 plans had endorsed an industry-developed agri-strategy targeting increasing agricultural growth, particularly dairy expansion and continued levels of beef production. Ireland's agricultural greenhouse gas emissions continue to be strongly correlated with reactive nitrogen inputs to intensive pasture dairy and beef production from chemical fertiliser to increase grass growth, and feed concentrate.



[35] National Parks and Wildlife Service (2019) Ireland 6th National Report to the Convention on Biological Diversity: https://www.npws.ie/sites/default/files/files/NPWS%20Biological%20Diversity%20web.pdf

Figure 2. *Ireland agricultural GHGs in ktCO2eq/year from 2005–2020. Chart from EPA 2020 data[36]. 2020 value is only approximate and is likely an under-estimate as it fails to account for the rise in dairy numbers[37]*

From 2014, dairy cow numbers increased, as a result of FoodWise's "Vision for Growth", by 24% (288,000 cows) to 1,465,000 in 2019, while beef cattle numbers had only decreased by 0.4%. As demonstrated in Figure 3 below, the growth in Ireland's dairy herd is exceptional when compared to the other EU nations. Total dairy cow numbers have reached approximately 1.57 million as of June 2020[38], an approximately 3.7% increase on the 2019 figures.

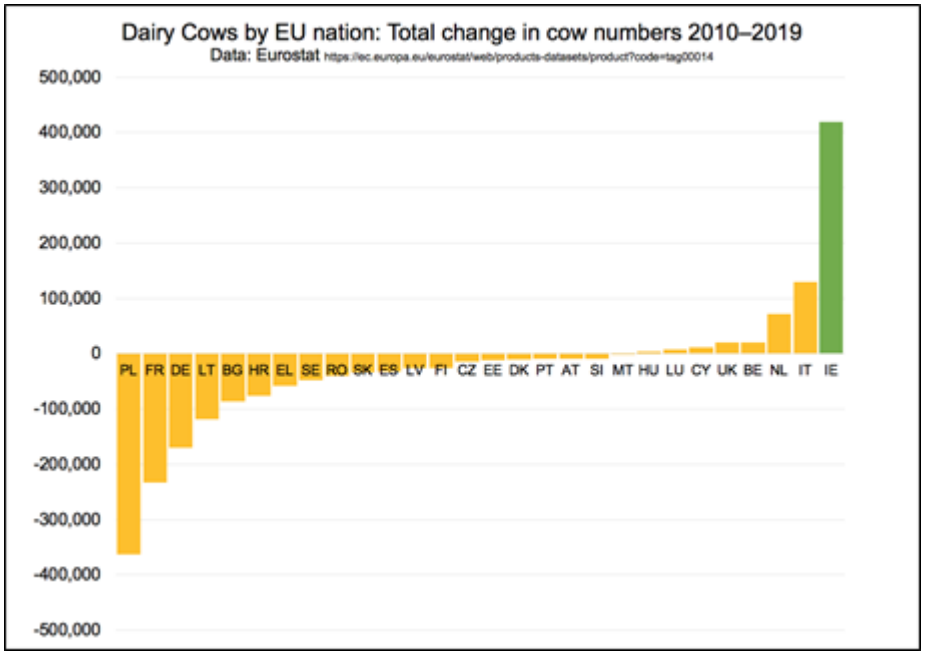


Figure 3. *Total change in dairy cow numbers 2010–2019 by EU Member State, with Ireland shown in green. Data from Eurostat[39].*

In its 2020 roadmap for dairy, the state agency Teagasc[40], in support of Government policy continues to anticipate a further 12% increase in dairy cow numbers before 2027. Teagasc claims that measures – efficiency gains, such as improved breeding, low emissions manure spreading, modest decrease in suckler numbers and changing fertiliser type, from CAN and urea to Protected Urea – will offset the policies of continued expansion[41]. However,

[36] EPA, 2020. Ireland's Provisional greenhouse gas emissions 1990-2019 [WWW Document]. Environmental Protection Agency (EPA). URL https://www.epa.ie/pubs/reports/air/airemissions/ghgprovemissions2019/

[37] Environmental Protection Agency and Sustainable Energy Authority of Ireland (2021) The impact on 2020 greenhouse gas emissions of COVID-19 restrictions: https://www.epa.ie/pubs/reports/air/airemissions/ghgcv-19/SEAI-EPA%20Bulletin%20v1.7.pdf

[38] Total dairy cow numbers in Ireland: https://www.icbf.com/?p=17201#:~:text=Total%20dairy%20cow%20numbers%20for,3.7%25%20from%201%2C514%2C617%20in%202019; There are some differences in dairy cow numbers from different data sources but all seem to hover around 1.5 million in 2020

[39] Eurostat data on changes in European dairy cow numbers: https://ec.europa.eu/eurostat/web/products-datasets/product?code=tag00014

[40] Teagasc is the state funded Agriculture and Food Development Authority – is the national body providing integrated research, advisory and training services to the agriculture and food industry and rural communities.

[41] AgriLand, 2019. Frank O'Mara: Is reduction in the national herd needed? [WWW Document]. Agriland.ie. URL http://www.agriland.ie/farming-news/frank-omara-is-reduction-in-the-national-herd-needed/

the evident failure since 2012 of past similar measures to offset output growth undermines the credibility of these claims.

Irish agricultural growth policy has depended on efficiency measures proposed by Teagasc[42], to cut emissions. These "marginal abatement cost curve" (MACC) reports mention but do not make clear that the measures will *only* result in sectoral absolute emissions if dairy cow numbers *decrease*, contrary to policy and the MACC reports do not set out any regulatory options to ensure that this would occur.

Irish agri-food policy also continues to place a heavy and unrealistic emphasis on increasing annual forest and grassland carbon sequestration to reduce the climate mitigation requirement from agriculture. Managed forest land is already a net emitter, and the forest land use sector is projected to become a net emitter from 2030 onward with average emissions for 2030–2040 projected to be 0.9 million tonnes CO2.

Assessments of the implementation of 2014-2020 CAP in relation to climate objectives

Ireland provides a unique case study in terms of CAP implementation. Instead of adhering to the CAP process to drive agri-food policy, successive Irish Ministers of Agriculture have adopted the practice, without any statutory basis, of defining national agricultural policy by the appointment of largely industry-based AgriFood committees. These committees advise the Department on rolling ten-year industry plans, which are separate to CAP plans. In practice, these committees, which have no legal or statutory constitution or basis, are appointed every five years to set out new ten-year strategies, to supersede the previous strategy. It has been the practice of successive Agriculture Ministers to adopt the recommendations of these committees as the strategy of the Department of Agriculture, Food and the Marine (DAFM), and therefore national Government agriculture policy.

Although CAP processes do occur, they occur in parallel to these industry-driven processes and are ultimately superseded by them. As demonstrated in the preceding section, the last CAP period coincided with significant increases in agricultural emissions.

In 2015, immediately after the start of 2014-2020 CAP period, the industry-led AgriFood committee of the time developed and adopted FoodWise 2025. This, rather than the CAP Plan, became the primary national agri-food policy, and was aimed primarily at significant growth in the agricultural sector, particularly in dairy production, with significant climate implications.

FoodWise 2025 was subject to Strategic Environmental Assessment (SEA) in 2015. The monitoring of FoodWise which has been carried out by a committee within the Department of Agriculture, Food and the Marine shows a range of unforeseen adverse effects which were not projected in the 2015 SEA process:

- Greenhouse gas emissions projected by FoodWise for 2020 to be 18.9 tonnes CO2-eq reached 20.633 tonnes CO2eq in 2019;
- Total cattle numbers as having increased on 2020 projections with dairy cows projected in 2015 to reach 1.395 million by 2020, and actually reaching 1.465 million in 2019;
- Nitrate fertiliser use was also shown to be 367.364 tonnes by 2019, having exceeded the figure projected in FoodWise 2025 for 2020, which was 345,558 tonnes.

However, no effective action was proposed on remediating those impacts as required by Article 10 of the Strategic Environmental Assessment Directive. This breach is currently being investigated by the Legal Affairs Unit of the European Commission.

[42] Teagasc, 2012. A Marginal Abatement Cost Curve for Irish Agriculture
Lanigan, G.J., Donnellan, T., 2018. An Analysis of Abatement Potential of Greenhouse Gas Emissions in Irish Agriculture 2021-2030. Teagasc.

Ireland continues to act preemptively by progressing a new ten-year national agriculture strategy, AgriFood 2030, without addressing the unforeseen adverse impacts of FoodWise 2025 or integration with the new CAP Strategic Plan.

SWOT analysis and needs identification for the Objective 4

Stakeholder Consultation

The previous 2014-2020 national CAP Strategic Plan formulation process was characterised by poor public and environmental NGO engagement. In contrast to this, in 2019 the Irish Department of Agriculture, Food and the Marine (DAFM) established a Stakeholder Forum for the new Irish CAP Strategic Plan, which included three Irish environmental NGO representatives.

Parallel to this, DAFM initiated public consultation processes on the SWOT, the CAP Needs Statement and, most recently in March 2021, on the SEA scoping. In this regard, accommodation of stakeholder engagement and public consultation in Ireland can be deemed to meet a high standard.

This resulted in a comprehensive SWOT analysis statement that was appropriately prepared in line with the European Commission's recommendation that each of the nine specific objectives, including Objective 4, should be addressed individually.

CAP Needs Statement

While there was an effective stakeholder and public consultation on the SWOT analysis, the resulting CAP Needs Statement formulated by DAFM contradictorily sought to support agri-industry expansion while at the same time endorsing the meeting of climate mitigation targets. The Statement thus advanced as "needs" a range of objectives that are irreconcilable and ultimately not consistent with Objective 4.

Set of priorities for the adequate fulfillment of CAP Key Objective 4 in the Irish territory

The current CAP Strategic Plan process is proceeding without any integration with the parallel process being undertaken by the Department of Agriculture-supported AgriFood 2030 Committee. This Committee is formulating the content of a new ten-year AgriFood 2030 Strategy to take over from FoodWise 2025 and which will be adopted as Government policy through DAFM endorsement. The draft strategy was released for public consultation in April 2021. This process is being advanced without regard to the ongoing the CAP Plan process, which will need to be subject to EU regulation and where major consideration of integration with "A Farm to Fork", the European Biodiversity Strategy to 2030 and climate action remain unresolved.

In December 2020, prior to the development of AgriFood 2030 and again not integrated with CAP processes, DAFM adopted Ag-Climatise, a strategy produced by Teagasc (the State agricultural research body)[43] as *"a roadmap designed to help all stakeholders to work together to tackle climate change and air pollution, by clearly explaining what we need to do and when we need to do it by."* Ag-Climatise proposed only to "stabilise" methane emissions, and provided for continuing cattle herd increases to 1.65 million by 2027. The focus of climate action was on gaining efficiency through breeding, fertiliser changes, grassland carbon sequestration, and other land use offsetting. It should be noted that Ag-Climatise is already being used to justify ongoing dairy expansion in production and processing.

Relying heavily on Ag-Climatise, the draft of the AgriFood 2030 Strategy sets out an agenda for developing '*A Climate Smart, Environmentally Sustainable Agri-Food Sector*', a key goal of which is to *"Develop a climate*

[43] https://www.gov.ie/en/publication/07fbe-ag-climatise-a-roadmap-towards-climate-neutrality/

neutral agri-food system so that by 2050, the climate impact of methane is reduced to zero and remaining agricultural emissions are balanced by removals; and improve air quality." The goal is fundamentally misconceived and likely to undermine climate action more broadly in Ireland. The strategy proposes net zero carbon neutrality by 2050 but only a 10% reduction in emissions on an as yet unstated baseline by 2030. It does not show how the ongoing dairy expansion can be compatible with claims that reductions in methane and nitrogen inputs will be achieved.

It is this new AgriFood 2030 Strategy, rather than the new CAP Strategic Plan and Objective 4, that will drive Irish climate action in relation to agriculture.

Ultimately, the new CAP Strategic Plan for Ireland must reconcile the fundamental conflict between the current policies for continued dairy expansion and the need for climate mitigation. The CAP Strategic Plan must be aligned with:

- Ireland's legal obligations for emissions reduction under the Paris Agreement and associated policy;
- The Irish Programme for Government commitment to 7% annual greenhouse gas emissions reductions;
- The EU Farm to Fork Strategy and Biodiversity Strategy for 2030.

It must also provide for diversification in agricultural production to meet the threats and opportunities of a more complex future as well as for a just transition for farmers to support the change needed. However, it appears that the new CAP Strategic Plan will once again be superseded by industry-driven policy, namely AgriFood 2030.

Proceeding with the AgriFood 2030 strategy process is in conflict with the EU CAP Plan regulation and guidance and will undermine progress in relation to Objective 4.

SPAIN

Spain's agriculture sector and climate action

Spain's agriculture is amongst the most vulnerable to climate change impacts in the EU (changes in temperature and rainfall patterns, increase in extreme events or a growing risk of desertification). Thus, to be aware of the negative impacts of climate change in order to properly define the necessary mitigation and adaptation measures, especially with the agriculture sector so heavily exposed.

According to data from the European Environment Agency (EEA), in 2018 GHG total emissions (UNFCCC) at EU-27 level reached 3.8 $GtCO_2eq$., with Spain the fifth-highest emitter with 334.3 $MtCO_2eq$.[44] It is also the third-highest country in terms of agricultural emissions, following France and Germany.

The agriculture sector is the fourth highest in terms o fgreenhouse gas emissions (11.9%) in Spain in 2018, following the top three emitter sectors: domestic transport, industry and energy supply. Emissions from agriculture decreased by -0.6% compared to 2017 and increased by +7.0% compared to 1990, reaching 39,644 $ktCO_2eq$. The origin of direct greenhouse gas emissions from Spain's agriculture is mainly due to enteric fermentation (44.6%), fertilization of agricultural soils (31.1%) and manure management (21.9%). More recent emissions data for the agriculture sector do not show a variation in 2019 compared to the previous year, despite the slight growth in emissions from cattle housing whose emissions increased by +0.6% but are balanced out in the global total with

[44] EEA greenhouse gas - data viewer — European Environment Agency (europa.eu)

emissions from crops that decreased by -1.1%[45]. The Spanish NECP foresees an emissions reduction of 12.3% for livestock and 12.0% for crops by 2030 compared to 1990.

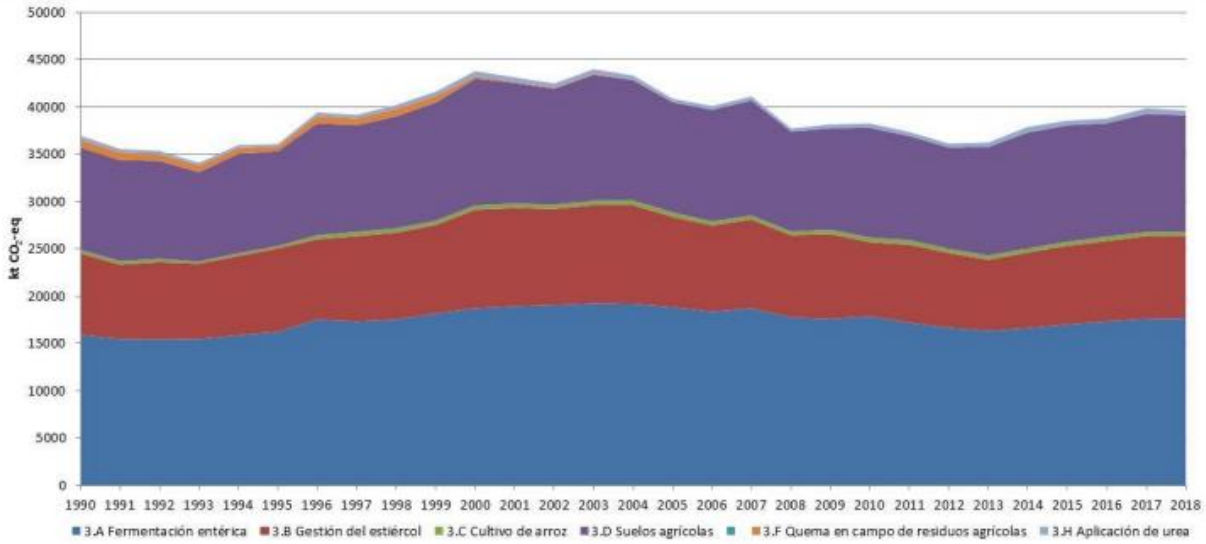


***Figure 4**: Evolution of CO2-eq emissions from the Agriculture sector (CRF 3), Source: National Inventory of Greenhouse Gas Emissions - MITECO, 2020.*

The removals derived from the Land Use, Land Use Change and Forestry (LULUCF) sector in 2018 are estimated at 38.1 million tonnes CO_2eq, representing 11.4% of total national gross emissions, and an increase in net removals of 6% compared to 1990. According to data from the 2020 National GHG Emissions Inventory (series 1990-2018), carbon removals in forest lands constitute the main national sink (87.8%), followed by croplands (which show fluctuations due to changes and rotations between herbaceous and woody crops) and grasslands (even if pastures have been sequestering more carbon than croplands in the whole period, their surface has been reduced in latter years and so has their removal capacity).

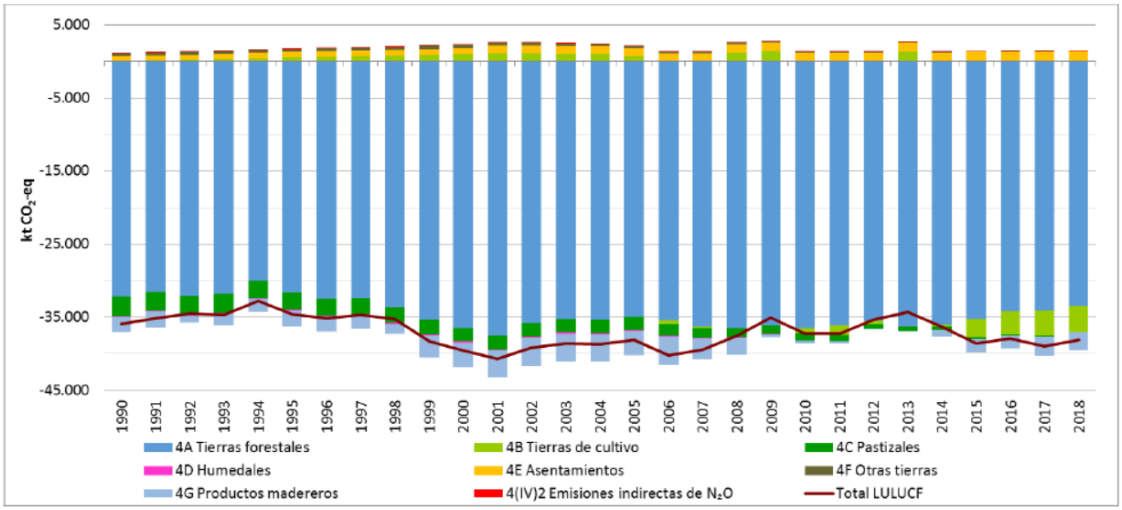


***Figure 5:** Emissions/removals in the LULUCF sector (figures in ktCO2eq), Source: National Inventory of Greenhouse Gas Emissions - MITECO, 2020*

[45] https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/Inventario-GEI.aspx

Despite the current situation, a decline in removals is expected in the coming years mainly due to the mature and old-growth forest biomass, the lack of appropriate sustainable management of forest and soils and the reduction in permanent pastures. This trend is only reversible if additional specific measures are carried out to promote carbon sinks, such as those proposed in the Spanish NECP 2021-2030 for the promotion of agricultural and forest sinks, which represent an opportunity to study and establish synergies with future measures to be included in the framework of the Spanish CAP Strategic Plan.

In Spain, renewable energy production in the agricultural sector was 1,842.5 ktoe in 2018, which accounts for 6.5% of the 28,269.1 ktoe produced in the EU-28 and represents 9.8% of the total renewable energy national production. Likewise, in Spain renewable energy production in the forestry sector was 5,440.7 ktoe in 2018, which accounts for 5.8% of the 94,353.3 ktoe produced in the EU-28 and represents 29% of total renewable energy national production. Direct energy use in agriculture, forestry and food industry in the EU-28 was 59,018.5 ktoe in 2018 (5.6% of total final energy consumption), of which 28,509.8 ktoe (2.7%) corresponded to agriculture and forestry, and 30,508.8 ktoe (2.9%) to the food industry. According to its NECP, Spain aims to achieve 42% renewable energy in 2030, in which agriculture would contribute 0.4%. With these projections, the renewable energy consumption should go from approximately 80 ktoe in 2015 to 278 ktoe in 2030, nearly a fourfold increase in the current renewable energy consumption in agriculture.

Assessments of the implementation of 2014-2020 CAP in relation to climate objectives

The Commission Report "Evaluation of the CAP on climate change and greenhouse gas emissions"[46] presents several examples from Spain, referring to some negative impacts. Due to the model used in Spain to calculate the amount of basic payment rights, more intensive or higher-yielding farms receive higher payments. This is above all applied to irrigated farms located in drier areas, more vulnerable to climate change impacts, that could generate greater vulnerability in the rest of the territory by using water from already over-exploited rivers and groundwater. In addition, the Commission indicates that the impact of direct payments on the greenhouse gas emissions reduction has been very little, rather the opposite: the coupled aid has led to an increase in emissions, as in the case of aid per head of cattle or for crop changes. Moreover, it points out that the Pasture Eligibility Coefficient (PEC) impairs access to direct payments on grasslands, promoting abandonment and increasing fire risk, and mentions other measures of mis-adaptation to climate change with funds from the CAP second Pillar.

According to the reports of the European Union Court of Auditors[47], the current CAP is not helping to alleviate biodiversity loss and climate change. It has also promoted the abandonment of farms with greater social and environmental value, such as agro-ecological ones or those of Natura 2000 Network, both of which are very important in Spain.

SWOT analysis and needs identification in relation to CAP Objective 4

Working subgroup 4, constituted within the Ministry of Agriculture, has helped to prepare the section of the CAP Strategic Plan post-2020 focusing on climate and energy matters, and specifically, in terms of contribution to mitigation and adaptation to climate change, as well as sustainable energy. Among other tasks, the subgroup has carried out a SWOT analysis and an identification of needs in relation to climate change and sustainable energy in order to address Specific Objective 4 of the CAP.

In general, the working subgroup 4 has carried out a correct SWOT analysis and needs identification. However, there are some issues that cause surprise as they may become 'red lines' in the new CAP Regulations due to their

[46] https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cmef/sustainability/evaluation-cap-climate-change-and-greenhouse-gas-emissions_en
[47] https://www.eca.europa.eu/Lists/ECADocuments/OP18_07/OP18_07_EN.pdf

potential harmful impacts. And therefore, their approach should be modified or better focused. These discordant issues are:

- The use of biomass of agricultural and forestry residues as renewable alternatives to fossil fuels should require compliance with strict environmental and territorial criteria, in line with the protection of ecosystems and territorial cohesion.

- The implementation of ICT (information and communication technology), the use of the best available techniques and the introduction of good innovative practices in the agricultural and forestry sector should require compliance with strict social and economic criteria, in line with sustainable development and just transition of rural areas.

- The new knowledge generated needs to be effectively transmitted to the actors within the sector, and not left only at the academic and institutional level.

- Not hiding behind the fact that there are more polluting sectors that contribute more to global warming, or rely on a powerful risk management system, instead of recognizing the important role of the agricultural, livestock and forestry sectors in decarbonization of the Spanish economy and apply the necessary mitigation and adaptation measures.

- Nor should the significant funding received by the CAP be wasted, leaving the bulk of environmental, climate and social measures to other existing financing alternatives.

Set of priorities for the adequate fulfillment of CAP Key Objective 4 in Spain

Based on the SWOT analysis and the identification of needs, the following list of priority objectives focusing on climate and energy should be taken into account. In addition, the implementation of the enhanced conditionality and the new eco-schemes should be directed towards these priorities. Finally, they should be incorporated in the new CAP Regulations to ensure a policy in the agriculture sector that is truly sustainable, just and resilient:

- For low-carbon and net zero farming:
    - Minimizing greenhouse gas emissions in agriculture, livestock and forestry sectors.
    - Increasing the carbon sink capacity of soil in herbaceous and woody crops, pastures/grasslands and forest systems.
- For sustainable and resilient farming:
    - Promoting environmentally and climate-friendly farming practices and the extensification of farming systems that contribute to the reduction and optimization in the use of inputs such as fertilizers, water, imported feeds, energy, etc.
    - Boosting the diversification of production and the inclusion of crops and breeds with the greatest potential for climate change adaptation due to their lower vulnerability.
- For a circular and energy efficient farming:
    - Promoting the use of bioproducts and improving the circular economy in farming practices to decrease resource consumption.

- Favouring savings in farming infraestructures and improving the energy efficiency in farming processes and machinery to decrease energy consumption.

- For clean and renewable energy farming:

  - Increasing clean and low carbon energy consumption, by phasing out fossil fuel gradually in farming infraestructures and processes, and introducing renewable energy or electrical systems not based on combustion in agricultural machinery, and, only on a small scale and always with environmental criteria, alternative green biofuels or renewable gases.

  - Promoting energy self-sufficiency through renewable prosumerism models on built and/or industrial surfaces, adequately supported by environmental criteria, such as solar panels on farm roofs, while the recovery of waste and by-products of agriculture, livestock and forestry origin should not be promoted at large scale.

3. Recommendations for delivering climate action through the CAP

The objective of this assessment of the national CAP Strategic Plans' early documents related to CAP's Key Objective 4 on climate change is to evaluate the coherence and adequacy of the proposals made by each Member State for the application of the new CAP in terms of climate action.

These recommendations for Member States' CAP Strategic Plans should be read in parallel to the recommendations for the post-2022 CAP, in order to deliver the much needed climate action in the agriculture sector.

It is of utmost importance that the post-2022 CAP is guided by the commitments to environmental, climate, and biodiversity protection set in the European Green Deal and its Farm to Fork and Biodiversity 2030 Strategies. It must become an instrument to implement the EU's climate, energy and biodiversity targets, and link them to the performance framework in order to ensure the coherence between these intertwined sectors and give a clear and optimal direction to the policy.

The currently negotiated post-2022 CAP is the last chance to build a competitive, sustainable and resilient agriculture in Europe that is compatible with achieving the EU's climate objectives. Therefore, it should be seriously revised to give clear guidance to Member States' CAP Strategic Plans.

The next CAP should mainstream sustainable farming practices throughout the EU by including strong environmental and social conditionality and safeguards, and empowering climate, nature and animal friendly farming practices through effective support. It is also important to ensure transparency and accountability of Member States during the implementation of the CAP Strategic Plans.

In order to deliver climate action through CAP Strategic Plans, this document makes recommendations to Member States in three categories:

- measures with significant positive impacts on the territory (environmental, social and/or economic), which should be prioritized and included directly in the intervention strategy;
- measures that simultaneously produce positive and negative impacts or have demonstrated their inefficiency in the 2014-2020 period of the CAP, which should be applied only partially or carefully reformulated to become a priority;
- measures with significant and harmful negative impacts, which should be clearly excluded.

In the following table, the report presents for each analysed country a list of climate-friendly measures at national level compiled through eco-schemes and Good Agricultural and Environmental Conditions (GAEC), together with other additional measures not yet mentioned in the CAP Strategic Plans, which are essential to reach a list of key actions to increase climate ambition in the agriculture sector:

	MEMBER STATES "FIT FOR PURPOSE" MEASURES AT NATIONAL LEVEL				
KEY ACTIONS NEEDED TO TRANSFORM THE AGRICULTURE SECTOR	**DENMARK**	**FRANCE**	**GERMANY**	**IRELAND**	**SPAIN**
Crop management	Convert from current annual grain production for animal feed (supplemented with soy protein feed imported from S America) to pulses and perennial grass for both feed and protein	Crop diversification and more legumes' in crop rotation. Development of agroforestry	Crop diversification, including a minimum of 10% legumes and regular periods of fallow land as part of conditionality	GAEC 3 Protection of ground water against pollution. Recommendations: Provide support and incentivisation for diversification into the production of vegetables, fruits, grains, pulses, legumes, etc. Incentivise a shift in the tillage sector, which is currently very pesticide intensive, towards human food production using nature-friendly techniques.	**GAEC 8 / Proposed eco-scheme 3**: Promote crop rotation with soil-improving species and other practices whose objective is the preservation of the soil potential, while prioritising minimal land management and limiting tillage **GAEC 3:** Ban on burning stubble in all crops, except for phytosanitary reasons, while prioritizing incorporation of organic matter into the soil **Additional measure:** Include integrated pest management under conditionality.

Fertilizers' use reduction	Reduce overload of animal nutrient by halving animal population Permanent grass as a capture crop to reduce nutrient leakage	Reduce the use of synthetic nitrogen fertilizers (mineral fertilizers), and ban it in grassland and on grain legumes	Establish a strict monitoring of nutrient balances (Input, Output at Farmgate) for all sources of nutrients. Including mineral fertiliser, manure and leftovers from biogas production. With ambitious reduction plans for areas with nutrient surpluses and high livestock densities. Adherence to these targets should be part of conditionality	GAEC 3 Protection of ground water against pollution. Recommendations: Put in place a declining cap on total national reactive nitrogen (and phosphorus) usage based on an assessment of the total amount and rate of nitrogen inputs from fertiliser and animal feed that is appropriate and sustainable for climate action, air and water quality to bring usage down to 2011 nitrogen inputs levels (296 ktN) within three years, followed by a more gradual, steady reduction thereafter Implement regulatory, voluntary and combined measures to limit and reverse recent dairy expansion. Compensatory measures for farmers should be put in place to incentivise herd reductions	**Proposed eco-scheme 4:** Application of individual fertilization plans, excluding environmentally harmful synthetic fertilisers, for farmers to adjust nutrients to the crop's needs, but only after prioritising other practices such as ground coverage with vegetation or pruning wastes. **Proposed eco-scheme 5:** Implementation and maintenance of living cover plants in crops. **Proposed eco-scheme 7:** Incorporate pruning wastes into the soil in woody crops. **Additional measure:** Recover landscape heterogeneity and auxiliary fauna and flora.
Livestock management	Half the emissions from farm animals (or half the number of animals) Encourage feed self sufficiency at farm level	Less industrial livestock farms. More grassland, in particular natural permanent grassland (as "sensitive" grassland) and at least Limitation of grassland loss.	A cap of less than 3 livestock units per ha as part of conditionality. Incentives for extensive livestock (less than 1,4 livestock units per ha) as part of eco-schemes, with additional incentives for grazing, grassland	Recommendations: Consult with stakeholders and devise regulatory, voluntary and combined measures to limit and reverse recent expansion in the dairy sector. Such measures should include a requirement for dairy farmers to reduce their herds and stocking rates to the level consistent	**Proposed eco-scheme 1:** Extensive grazing only if well managed, such as transhumance**,** including wooded areas and excluding sowing fields and forage meadows that justify false extensifications of farms, and avoiding both overgrazing and undergrazing.

		More space and more access to outdoor.	management, on-farm/local feed production.	with local environmental, and national ammonia and climate constraints.. Put in place compensatory measures to facilitate and incentivise herd reductions and diversification in the beef suckler and finishing sectors. Farmers relying on CAP payments for the bulk of their farm incomes should not be financially worse off by implementing herd reductions on a gradual basis.	**Additional measure:** Less intensive livestock production. **Additional measure:** Improvement of livestock feed and reduction of use of imported feed.
Soil management and conservation	Increase grass perennial crops and trees	Maintenance of minimum ground cover	As part of conditionality Ban on conversion of organic soils to farmland. Ban on conversion of organic grassland to arabbelle land and management resluting in lower water levels. As part of eco-schemes: Incentives to manage grassland on organic soils extensively and with higher water levels Incentives for Paludiculture	GAEC 4 – Minimum Soil Cover. GAEC 5 – Minimum Land Management Reflecting Site Specific Conditions to Limit Erosion. GAEC 6 – Maintenance of Soil Organic Matter Levels through appropriate practices. Recommendations: Cease the drainage of wetlands and peaty soils and cease all peat extraction. Identify areas of agricultural land that require better management of existing carbon stocks and where immediate rewetting is possible.	**GAEC 1**: Maintenance of the absolute surface of permanent pastures. **GAEC 7:** Maintenance of minimum ground cover both in the most sensitive areas and in the whole territory throughout the year. **GAEC 9:** Establish green fallows as Areas of Ecological Interest (min. 5% of "non-productive elements" -landscape elements- without phytosanitary products, excluding intermediate crops and nitrogen fixers)

				Put in place targeted, customized support for the management and rejuvenation of existing carbon stocks. Ensure that measures to promote soil carbon sequestration, rewetting of grasslands and afforestation are done for sound environmental reasons and not with a view to generating unreliable and impermanent carbon offsets.	
Nature and landscape conservation		More agro-ecological infrastructures (hedges, groves, ponds, etc.)	Minimum area in arable land and intensive grassland with permanent landscape features (hedges, trees) Incentives for agroforestry as part of eco-schemes. Payments for sustainable management of FFH areas above compensation of additional cost beyond eco-schemes	GAEC 7 – Retention of Landscape Features and Designated Habitats and Controlling Invasive Species Recommendations: Reward farmers for the public goods HNV farmland provides and improve its viability by promoting recognition and demand for these goods and services. Scaling up locally adapted and financially attractive results-based agri-environment payment schemes. Schemes should support biodiversity, carbon sequestration and water quality including active rewetting and maintenance of bogs, riparian planting, agroforestry, continuous cover forestry and hedgerow conservation.	**Eco-scheme 9**: Implementation and conservation of margins, vegetation islands, multifunctional corridors. **GAEC 4:** Creation of protection strips on the banks of water courses in agro-landscapes. **GAEC 2:** Protection and conservation of wetlands and peatlands. **GAEC 10**: Ban on converting or ploughing permanent pastures designated as environmentally sensitive in 2000 Natura areas

				Review land eligibility criteria under CAP with a guarantee of payments for space for nature and high quality, connected ecosystems on all farms.	
Organic farming		More organic farming More pulses, fruits and vegetables, organics products in the consumption.	Implementation of national objective of 20% organic area by 2030. Assessment if Farm to Fork target of 25% by 2030 can be achieved by 2030 should be assessed in 2025. Increase demand for organic products in public procurement. Cafeterias canteens in schools, universities, public institutions.	Recommendations: Provide support for the scaling up of local and indigenous nature-friendly and organic food production, especially in cereals and pulses for human consumption, as well as fruits and vegetables. National food policy should incentivise and support a greater dietary intake of organic produce and plant-based foods that are sustainably produced.	**Additional measure:** Increase agroecological management. **Additional measure:** Promotion of the Mediterranean diet and the consumption of local products.

				Incentivise a shift in the tillage sector away from producing feed grains for the livestock sector, to producing outputs such as cereals and pulses directly for food consumption to reduce Ireland's reliance on imported food. Strengthen supply chains and the domestic market opportunities for Irish tillage farmers by supporting the production of organic certified cereals and pulses that offer price premiums for the tillage sector	
Transversal action: **Food chain production and consumption**		Less animal's and industrial products, less waste.	Regular (annual) assessment of the expected climate effectiveness of CAP expenses. (Contribution to CAP climate effectiveness target of 40%. Establishment of annual emission reduction targets for agriculture and land use to ensure sufficient contribution to EU reduction target of at least 55% by 2030. If targets are missed, measures need to be adapted immediately.	Recommendations: Ensure that all stages of food production and consumption are in line with an agenda that promotes global health and environmental conservation. This requires a food and agricultural strategy that incentivises a greater dietary intake of organic produce and plant-based foods that are sustainably produced, facilitates a shift away from ultra-processed foods, and supports a drastic reduction in food waste.	**Additional measure:** Reduction of waste in the food chain for national consumption **Additional measure:** Short commercialization chains.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