



# POLICY RECOMMENDATIONS

INCREASING CLIMATE CHANGE MITIGATION AND ADAPTATION

OF THE AGRICULTURE AND FOOD SECTOR

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## Introduction

These recommendations were developed by the partners of the SOLMACC project on the basis of the reports listed on page 11, and benefited from comments of the participants of a policy workshop held on the 27<sup>th</sup> of November 2017, which gathered scientists, policy-makers and NGO representatives. The partners of the SOLMACC project express their deep gratitude to all the participants to policy workshop held on 27 November 2017, and to those who provided comments on the draft recommendations. The views expressed in this document remain the sole responsibility of the SOLMACC partners.

The IFOAM EU Farmers Group, representing national organic farmers organizations, also debated the draft recommendations at a meeting in Reading (United Kingdom) in November 2017. Reflecting also the experience of the organic farmers, farm advisors and partners throughout the project, these recommendations highlight the potential contribution of organic farming and agroecological approaches to mitigating climate change, but are relevant to all European agriculture.

The recommendations outlined do not aim to be exhaustive. They address the establishment of a long-term strategic framework and some of the policy tools necessary to reach the objectives. A number of them are more general than specific, as climate change is not the only challenge that the agriculture sector and the world as a whole need to address, and as setting up a clear long-term direction for the European agriculture sector is an indispensable foundation for more short-term and specific policy measures. The SOLMACC project nonetheless tested concrete farming practices on selected demonstration farms.

### The SOLMACC project

SOLMACC is a demonstration project co-funded by the LIFE financial instrument of the European Union. It aims to promote wider adoption of climate-friendly farming practices that can contribute to reaching the EU's climate change mitigation and adaptation objectives in the food and farming sector. SOLMACC activities and results involved:

- Changing farming practices linked to optimised on-farm nutrient management, optimised crop rotation, optimised tillage systems and agroforestry on 12 organic demonstration farms in Germany, Italy and Sweden;
- Implementing and monitoring 48 farming practices together with farmers, scientists and farm advisors between 2013 and 2018;
- Organising open field days on each farm to allow hundreds of visitors to learn about the benefits of climate-friendly and resilient farming;
- Reducing on-farm greenhouse gas (GHG) emissions of the 12 demonstration farms following the adoption of the new practices, but also increasing biodiversity and improving the soil quality.

### Policy context

The EU has committed to reduce GHG emissions by 40% by 2030. The agriculture sector will be part of this effort, through the **Effort Sharing Regulation** and the **Land Use, Land Use Change and Forestry Regulation (LULUCF) Regulation**, which are part of the **EU Climate and Energy package 2030**. The urgency of the agricultural and wider land use sectors to increase efforts to address climate mitigation and adaptation has increased even more since the adoption of the Paris Agreement, which foresees climate neutrality in the second half of the century. Both sectors have a dual role in achieving this goal because they produce GHG emissions but also have the potential to sequester carbon from the atmosphere. By 2020, Member States will have to deliver national long-term low emission strategies with a 50 years perspective. Before that, they will have to revise their domestic policies to take into account the requirements and implications of the 2030 climate and energy package and the upcoming Common Agriculture Policy (CAP) reform which, according to the Commission, should provide more opportunities for the agriculture sector to reduce emissions. The UN Sustainable Development Goals provide a broader framework that should inform the setting of policy objectives. The preservation of biodiversity is also of crucial importance, and deserves special consideration in designing climate action as biodiversity is significantly impacted by agriculture and food production worldwide, and as trade-offs should be avoided.

Agriculture is a sector that both contributes to climate change and is deeply impacted by its adverse effects. More frequent extreme weather events, unpredictable precipitation and temperature can lead to harvest losses, irredeemable damage to natural resources and the destruction of farmers' economic viability. It is therefore essential to find solutions that will contribute to both greater climate change mitigation, and greater adaptation capacity of food and farming actors.

The **Common Agricultural Policy (CAP)**, which represents 40% of the EU budget, already provides tools and funding to help farmers adopt practices that can reduce GHG emissions, and the need for action in the agricultural sector is increasingly reflected in political statements on the future of the CAP, such as in the Cork 2.0 declaration of September 2016<sup>1</sup> on the future of rural development policy.

Many national and regional governments offer different schemes to encourage the uptake of beneficial practices. This can range from conversion and maintenance payments for organic farming and other land management schemes, to investment support and programmes that offer comprehensive farm advice and extension services for individuals or groups of farmers. In the EU, there are 118 national and regional Rural Development Programmes for the period 2014-2020. Despite this emphasis on climate action as a cross-cutting objective in the CAP, and its potential to support a range of measures on both climate mitigation and adaptation, relatively little action has been taken by Member States so far.

According to a recent Institute for European Environmental Policy (IEEP) study for the Agriculture Committee of the European Parliament<sup>2</sup>, improvements to the CAP should be made to enhance climate action. According to IEEP, firstly, changes can be made to the design of the CAP instruments and measures within the EU regulations. Secondly, action can be taken by Member States to improve the way in which the measures are implemented in their territories, particularly in relation to their Rural Development Programmes. The report highlights that the content of the measures, the way they are targeted and the support provided to farmers to encourage their uptake, for example through the provision of advice, knowledge sharing and training, could be improved.

The "greening" of the CAP and the integration of some environmental criteria in Pillar 1 has not been sufficient to trigger a transition of the agri-food system. Some progress has been made, and support is provided to voluntary action by farmers, but tools that will allow a change of scale are needed.

Public policies do not yet enable the agriculture and food sectors to contribute significantly to the EU objectives and to national targets to prevent dangerous climate change. Measures exist, but not at the scale needed to allow a significant evolution in these sectors. A range of actions can already be taken by the agricultural sector to reduce its emissions, improve its resource efficiency and sequester carbon, but they need to be consistent with a long-term perspective. Uptake of available measures by farmers has to be significantly increased. It is necessary to adopt a more strategic approach for the contribution of agriculture to climate change mitigation and adaptation, and a more systemic approach to achieve greater policy coherence. This should take into account other environmental impacts and the preservation of the natural resources on which food production depends, but also farmers' livelihoods, international trade aspects, and demanding side measures (i.e. encourage European citizens to adopt more sustainable diets). Farmers will need an appropriate amount of technical advice and policy support to shift their agricultural practices. However, relying on individual voluntary initiatives by farmers, companies and consumers will not be enough. Ultimately a transition of agriculture and food production towards agroecology is needed, which will require a significant research effort and a renewed CAP fit for purpose to meet the challenges of the 21<sup>st</sup> century. Those can be achieved through an improved governance and strengthened public participation to the design of our food and agricultural policies.

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<sup>1</sup> [https://ec.europa.eu/agriculture/sites/agriculture/files/events/2016/rural-development/cork-declaration-2-0\\_en.pdf](https://ec.europa.eu/agriculture/sites/agriculture/files/events/2016/rural-development/cork-declaration-2-0_en.pdf)

<sup>2</sup> RESEARCH FOR AGRICULTURE COMMITTEE - THE CONSEQUENCES OF CLIMATE CHANGE FOR EU AGRICULTURE: FOLLOW-UP TO THE COP21 - UN PARIS CLIMATE CHANGE CONFERENCE, IP/B/AGRI/IC/2016-20, February 2017

## Organic farming and agroecology

Precisely because the challenges are manifold, and because food production is a multi-faceted activity with an important range of direct and indirect environmental, economic and social impacts, SOLMACC partners believe that organic farming is well placed to meet a varied range of EU policy objectives, including on climate change mitigation and adaptation.

Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. It combines tradition, innovation and science to benefit the shared environment and it promotes fair relationships and a good quality of life for all involved.

Organic farming and agroecology share common values, principles, practices and objectives. In the European context, organic farmers are to a large extent forerunners and now a substantial part of the agroecological movement. Both organic agriculture and agroecology promote a “closed system” approach which minimises external inputs; they use multiple and diverse crops and/or animals, and they rely on biological processes to build soil fertility and control pests and diseases. Organic farming is not only about input substitution: on the ground, organic farmers experiment and apply a number of practices that are part of agroecology (crop rotation, crop spatial distribution and temporal succession, biological pest control, organic fertilization, intercropping, cover crops, optimised tillage, integration of semi-natural landscapes elements, etc.). Both tend to favour more direct links with customers and to engage with social movements.

The main difference is that products of organic farming are subject to worldwide regulation (Regulation 834/2007 in the EU), laws and private label guidelines. In contrast, agroecology is neither a defined system of production nor a production technique. It is a set of principles and practices intended to enhance the sustainability of a farming system, it is a movement that seeks a new way of food production, and it is a science looking at ways of transforming the existing food system, and of further developing agriculture and adapting it to the changing environment – an approach which is vital for food security<sup>3</sup>.

## Recommendations

### 1 A better integration of agriculture into climate change policies

#### 1.1 Set up long-term national and regional plans to 2050 for climate action in the agriculture sector

The Paris Agreement, with its objective of climate neutrality, foresees a more important role for the land use sector. However, the agricultural sector as such has been relatively absent from the international negotiations at the United Nations Framework Convention on Climate Change (UNFCCC), despite discussions at the technical level, which have remained contentious and achieved little progress so far. At the European level, discussions tend to focus on the level of “flexibility” that should be granted to the agriculture sector, rather than the level of ambition needed and the means to achieve it.

Achieving deep cuts to GHG emissions requires a close link between long-term strategic planning and short-term policy action. Long-term decarbonization strategies are vital for raising ambition and for effective climate policy implementation. They are important at a technical level because they can help countries to identify concrete and feasible pathways to decarbonization based on their national particularities, and then to determine their implications for immediate policies and measures. They can also play an important social and political role by facilitating a concrete discussion between national stakeholders about what long-term decarbonization implies.

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<sup>3</sup> *Feeding the People – Agroecology for nourishing the world and transforming the agri-food system*, IFOAM EU report, 2015. [http://www.ifoam-eu.org/sites/default/files/ifoameu\\_policy\\_ffe\\_feedingthepeople.pdf](http://www.ifoam-eu.org/sites/default/files/ifoameu_policy_ffe_feedingthepeople.pdf)

The proposed Regulation on the Governance of the Energy Union<sup>4</sup> will require that Member States set up National Energy and Climate Plans (NECPs), consistent with long-term strategies. EU leaders also called upon the Commission to develop by 2020 a long-term climate strategy, which will translate the objectives of the Paris Agreement into action. Regional, national and EU long-term climate strategies should explicitly include the agriculture sector. They should also include the use of fiscal instruments to shift taxation from labour to energy use, and the use of public procurements to develop farming systems that have a lesser impact on the climate.

### *1.2 Maintain a high level of ambition for the implementation of the Paris Agreement and for climate action in the agriculture sector at European and national levels*

Changes to their agricultural practices are more likely to be accepted by farmers if it is acknowledged in the first place at the political level that action in the agriculture sector is needed. It is not always the case now, as some governments claim that the agriculture sector should be exempted from any significant action to ensure “food security”, which is an encouragement to continue business as usual.

In the EU, the Effort Sharing Regulation (which includes non-CO<sub>2</sub> emissions from agriculture, methane and nitrous oxide) and the Land Use, Land Use Change and Forestry Regulation (LULUCF, which includes CO<sub>2</sub> emissions from croplands and grasslands) proposals should be adopted by the end of 2018. The EU has committed to an overall target of 40% GHG emissions reduction, compared to 1990. In reality, little action is expected from the agricultural sector beyond existing policies, on average at EU level, as the ESR does not require sector-specific action and most countries expect to meet their targets through action in non-agricultural sectors. On average, agricultural emissions, which are 10% of the EU total GHG emissions, are expected to only be reduced by 2.3% by 2030 with existing policies and to represent one-third of EU emissions by 2050.

In the absence of an ambitious sector-wide approach in Member States to agriculture and land use, the lack of early incentives for action is likely to be delayed (e.g., with regard to the improvement of cost-efficiency of mitigation action and learning and understanding how best to combine mitigation with productivity optimisation). Agriculture and food production will be one of the sectors most affected by the impacts of climate change. It should not be exempted from action and its contribution should be openly discussed in the framework of a wider strategic perspective for food and agriculture.

### *1.3 Set up sub-targets for the agriculture sector, both for 2030 and 2050*

Member States have national GHG emissions reduction targets for 2020 and 2030 through the so-called Effort Sharing Regulation<sup>5</sup>, which covers the transport, buildings, waste and agriculture sectors, with a target of 30% reduction (compared to 2005 levels). National governments have much room for manoeuvre to decide how this reduction will be achieved. National plans should establish sub-targets, or at least target ranges to leave some degree of flexibility, for these sectors to provide clarity on the objectives, both in the mid-term (2030) and longer-term (2050) perspectives.

## **2 A better integration of climate change policies in the agriculture and food sectors**

### *2.1 National strategies for agriculture and food, compatible with long-term decarbonisation strategies*

Member States should establish national strategies for food and agriculture to 2050, consistent with long-term national plans for climate action to 2050, through a multi-stakeholder participatory process. National strategies will help to collectively define objectives and public policy tools. Achieving deep cuts in GHG emissions requires a close link between long-term strategic planning and short-term policy action. Other policies must be compatible with this strategy. Integrated food and agricultural strategies for 2050 will drive

<sup>4</sup> <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/governance-energy-union>

<sup>5</sup> COM(2016) 482 final [http://eur-lex.europa.eu/resource.html?uri=cellar:923ae85f-5018-11e6-89bd-01aa75ed71a1.0002.02/DOC\\_1&format=PDF](http://eur-lex.europa.eu/resource.html?uri=cellar:923ae85f-5018-11e6-89bd-01aa75ed71a1.0002.02/DOC_1&format=PDF)

progress towards climate change goals for agriculture, contribute to other objectives such as biodiversity protection, identify the changes needed regarding the types of production and support public health and farmers' livelihoods.

Long-term national GHG emissions reduction plans and national strategies for food and agriculture to 2050 should be established through a multi-stakeholder participatory process that will ensure a meaningful dialogue between different actors of society.

## *2.2 Action should be taken by the whole food industry*

Action should be taken by the whole food industry, not only by farmers, who are usually constrained by power imbalances within the production chain. Actors of the production chain such as cooperatives, processors and retailers are more and more prescriptive towards farmers, and should bear a bigger share of the effort. The whole chain, starting from before the stage of agricultural production (e.g., entrants, contracts) and up to the final product and communication to consumers, should be involved in and committed to climate action, including at the farm level. Multi-stakeholder participatory processes at the national level can also serve this purpose.

## *2.3 Reframe the "food security" narrative in a sustainability perspective and include environmental and climate objectives in official messages targeted at the agriculture and food sectors*

"Food security", understood in a narrow way, is still too often the dominant narrative used in policy circles to frame discussions on the future of agriculture. It implies that the priority should be the continuous increase of productivity and production to feed a growing world population on a limited amount of land. In reality, this narrative is used to justify "business as usual" and an export-based agri-food system while downplaying the urgency to take action to prevent dangerous climate change. Including environmental imperatives and climate objectives in official messages to policy-makers and to the agriculture and food sectors would ensure a better visibility of the challenge of climate change. The concept of food security should be understood from a sustainability perspective, which takes into account the need to preserve the resources needed to produce food (e.g. soils, water, biodiversity, climate stability, etc.).

## *2.4 Communicate the benefits and co-benefits of adaptation to climate change to farmers, such as soil health and economic benefits of climate-friendly farming practices*

Benefits such as resilience to extreme weather events, e.g., heatwaves or heavy rain will become increasingly relevant for farmers as the impacts of climate change increase. According to the European Environment Agency (EEA)<sup>6</sup>, climate change already has an impact on agriculture and has been found to be one of the factors contributing to stagnation in wheat yields in parts of Europe. Climate change is expected to continue to affect agriculture in the future, and the effects will vary greatly across Europe, e.g., impacting negatively on the productivity of crops and their suitability in certain regions, primarily as a result of extreme heat events and an overall expected reduction in precipitation and water availability. Year-to-year variability in yields is expected to increase throughout Europe due to extreme climatic events and other factors, including pests and diseases.

Many measures based on agroecological approaches to reduce emissions at farm level also bring benefits regarding adaptation, in particular for soils, e.g. soil carbon, soil stability and texture, and an increase of soil water holding capacity. Farmers are likely to be positive towards measures increasing their soil quality. In some cases, these measures also bring economic benefits (e.g. higher crop yields, lower input costs, or diversification of farmer products/income sources). Farmers to farmers exchange groups are a very efficient tool in this respect, and should be supported.

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<sup>6</sup> Climate change, impacts and vulnerability in Europe 2016, an indicator-based report. European Environmental Agency No 1/2017.

### 3 Adopt a system-wide and multi-objective approach

#### 3.1 *Adopt a multi-objective approach to reduce GHG emissions from food production and to transition towards sustainable food systems*

Policies on agriculture and food must prioritise systemic and multi-objective approaches and cannot focus on GHG emissions mitigation alone. Synergistic activities, such as those that result in both climate mitigation and adaptation of the sector to climate change, are indispensable. A systemic approach is essential to reduce GHG emissions linked to food production and consumption in the EU, to help the agricultural sector adapt to climate change while not endangering food security, and to achieve Sustainable Development Goals, in particular on restoration of ecosystems services. A silo approach or a sole focus on mitigation risks leading to further industrialisation of European agriculture, loss of farmers' livelihoods and environmental trade-offs. A better integration of agriculture, food, climate and environmental policies (biodiversity, air quality, water, soils, etc.) is indispensable, together with high standards and enforcement for environmental protection, food safety, antibiotic use in livestock farming and farm animal welfare. Potential trade-offs between GHG efficiency and other positive outcomes need to be openly and carefully discussed through multi-stakeholder participatory processes during the establishment of national agriculture and climate change strategies. Again, in order to achieve a transition to sustainable food systems, the whole value chain needs to be involved and committed to action.

#### 3.2 *Establish a national inventory of emissions to take into account indirect emissions and emissions linked to consumption*

International and EU accounting of GHG emissions is done on a territorial basis. To fully capture the environmental impacts of given agriculture and food systems, it is important to take into account emissions linked to national consumption. Both emissions imported from third countries, and emissions not accounted for in the agriculture or land-using sectors (e.g. fertiliser manufacture) should be taken into account to establish a fair picture of the impact of different farming systems.

While enteric fermentation, fertilizer use and manure management account for a large part of agriculture-related emissions (10-12% of total emissions), they are only part of the story. To get a better idea of the impacts of agriculture and the entire food system, we also need to consider emissions from the production of synthetic fertilizers and plant protection products, as well as fossil fuels used in farming operations. Other aspects are also important, such as soil carbon losses from cropland and grassland management and the conversion of land to agricultural use, and emissions from food processing, the retail sector and food waste and loss. However, even when accounting for these aspects, the picture remains incomplete because the emissions generated from imported food and feed are not included in national GHG inventories, as these apply to national system boundaries. Here as well, in order to establish a national inventory of emissions linked to food production and consumption, the whole production chain needs to be taken into account.

#### 3.3 *Develop methods for optimal assessment of multi-functional farming systems*

Measuring outputs and impacts of farming through single criteria, as it is typically the case – e.g. yields of specific crops, GHG emissions per kilogramme of product – disregard negative externalities and tend to favour “efficiency” approaches, large-scale industrial monocultures and industrial livestock systems. These can achieve high yields only through the intensive use of inputs such as manufactured nitrogen fertiliser and concentrate feed.

Diversified systems are by definition geared towards producing diverse outputs while delivering a range of environmental and social benefits on and off farm, with reduced negative externalities and reduced dependency on external inputs (e.g. fossil-fuels). For an encompassing sustainability assessment of food production systems, it is thus crucial to complement efficiency measures with more systemic aspects that make it possible to address overall production levels (often framed under “sufficiency”), overall environmental impacts, as well as the role certain resources play in a food systems context (often framed under “consistency”).



Multi-objective sustainability assessment tools encompassing all dimensions of sustainability already exist and can be used, including in the context of the CAP<sup>7</sup>.

### *3.4 Take into account the socio-economic benefits of transforming the agri-food system*

Despite improvements over the years and successive reforms, the CAP and other policy frameworks tend to favour industrial systems and export-based production models. This focus has led to the disappearance of millions of farms in the EU, and many of the farmers struggle to make a living because of low and fluctuating prices on the world market, and expensive inputs costs. As part of a strategic and systemic approach to transforming our food and farming systems, during the establishment of national strategies, a number of social and economic aspects need to be taken into account: farmers' income, the evolution of the types of production systems compatible with the preservation of the climate and of natural resources, import/export and commercial balance implications, trade agreements, rural economies and job creation.

In this respect, the capacity of organic agriculture to provide farmers with a livelihood should be taken into account, as the economic performance is often on par with or better than conventional production. Certified organic farmers can sell their products for higher prices, while often incurring lower input costs. This results in higher net incomes compared to conventional farming, increasing the economic resilience of farmers. Moreover, while conventional farmers are often highly dependent on products supplied by agrochemical producers, for which they are obliged to pay set prices, organic farmers have greater sovereignty, with more control over their production processes and the associated costs. In organic production systems, individual farmers are better able to develop production methods themselves and to communicate their needs for market development. Lastly, thanks to their lower energy consumption organic farmers are also less exposed to rising energy prices.

## **4 Trigger a transformation of livestock production**

### *4.1 Establish sustainable levels of livestock production*

Enteric fermentation in cattle and sheep accounts for 41% of GHG emissions from agriculture in the EU-28 – roughly 4% of total GHG emissions. Methane emissions from enteric fermentation are by-products of ruminant digestion. It is essential to establish sustainable levels of livestock production in line with the carrying capacity of land, climate change goals and environmental limits, taking into account the principles of sustainable diets and public expectations for high quality, high welfare and sustainably produced EU livestock products. A transformation of livestock production in most EU countries will be needed, in order to focus on quality rather than quantity. Sustainably produced livestock plays an important role to ensure the cycle of nutrients.

### *4.2 Reduce feed imports from unsustainable production systems*

Reducing the imports of vegetable proteins such as soya, the production of which plays a significant role in deforestation, is essential to reduce the EU's impact on climate change and biodiversity locally and in other countries. Alternative feed with lower impact should be promoted, including consideration of heat-treated, safe, food waste for pigs and chickens. Increased use of European pastures and reduced reliance on imported feed would reduce emissions linked to feed production and associated land use change in the countries where the feed is produced.

### *4.3 Support sustainable grazing on well-managed grasslands*

Rich carbon stocks such as grasslands should be protected. According to FiBL<sup>8</sup>, when adopting a whole food-systems view, a combination of organic agriculture and grassland-based livestock production with reduced

<sup>7</sup> <http://www.ifoam->

[eu.org/sites/default/files/towards\\_a\\_new\\_public\\_goods\\_payment\\_model\\_for\\_remunerating\\_farmers\\_under\\_the\\_cap\\_post-2020\\_report\\_by\\_fibl.pdf](http://www.ifoam-)

<sup>8</sup> [http://www.ifoam-eu.org/sites/default/files/ifoameu\\_advocacy\\_climate\\_change\\_report\\_2016.pdf](http://www.ifoam-eu.org/sites/default/files/ifoameu_advocacy_climate_change_report_2016.pdf)

total production volumes performs well along most environmental indicators and leads to lower GHG emissions. This is mainly achieved via the reduction in total emissions volume from reduced animal numbers and reduced nitrogen application rates. Ruminants are the only animals that can turn grass into energy. Grassland based production with adequate stocking-rates should therefore be supported for ruminants, and concentrate feed imports should be minimised, which would also contribute to the reduction of nitrogen levels.

High quality permanent grassland and carbon-rich soils should be protected and overgrazing should be avoided. Economic support should be provided to sustainable livestock production systems, including more extensive pasture-based, agroecological, organic, and mixed farming systems.

A number of measures linked to stocking rates could help to orientate livestock production towards sustainable grazing on well-managed grasslands:

- Strengthening the legislation of farm welfare and its implementation to ensure that livestock is only kept in relation to land capacity and in proportionate numbers;
- Mandatory environmental impact assessments if enlargement of livestock herds or stables are planned in areas with already high livestock densities;
- Introduction of a compulsory farm gate balance for all farms with livestock above 2 livestock units per hectare (under the Nitrates Directive);
- Support only going to investments in stables that are suited for high animal welfare conditions comparable to organic standard (and only for land related livestock systems with less than 2 livestock units/hectare).

#### 4.4 *Promote sustainable diets and demand side measures*

The delivery of the longer-term (2050) targets in the EU roadmap and in the Paris Agreement imply the contribution of demand-side measures, such as raising awareness on sustainable diets and reduced consumption of animal products, and action on food waste. Support for more sustainable farming methods and grassland-based animal production must go hand-in-hand with changes in food consumption patterns with less and better-quality meat and dairy, including a shift towards more plant-protein based diets and a reduction in food wastage. The issue about what is produced to meet human needs, what is produced for intermediate production purposes (e.g. livestock feed) and what is wasted between the field and the kitchen, needs to be part of the discussion. Public authorities should fund information campaigns for healthy food choices, preferably from organic farming. Procurement policies should also include more sustainability criteria when it comes to the selection of food for schools, hospitals and public canteens, i.e. organic produce, seasonal fruits and vegetables, etc. Sustainable diets also offer substantial benefits from a health perspective.

## 5 Transition the food system towards agroecology

### 5.1 *Fund a flagship research programme on agroecology*

The EU should engage in a food systems transition and move agriculture towards agroecological approaches such as organic farming and agroforestry. Many lock-in factors prevent the dominant food system to change. Policies from the local to the global level need to be re-designed and better integrated, new farming systems based on ecological approaches are needed, new supply chains need to be established, whilst innovation systems, including extension services and education, need to be adapted and developed. Sufficient transition funding for innovation, research and training to support the practical and cultural shift is needed. Only a properly funded EU flagship research programme will be able to make significant advances in the transition of Europe's food systems.

Funds must be provided and opportunities must be created for scaling up the best agroecological systems and integrating them into a coherent supply and value chain. Significant investment is needed to research and develop new economic paradigms that penalise business models contributing to environmental degradation, and reward those that protect and promote biodiversity while eliminating environmental pollution and other harmful practices. Final product prices must reflect the true costs of production by internalising all the

externalities, such as biodiversity loss, water pollution, and GHG emissions. Training and extension work for agroecological production and fair trade must be integrated into academic and vocational education programmes. Furthermore, these programmes need sufficient funding from EU/national level (e.g., easy access to Erasmus+ projects for advisors/farmers). Farmer to farmer training should also be promoted so that farmers can exchange on their practices and on solutions to problems. Multi-actor participatory approaches should be preferred. A food transition towards agroecology involves the development of a more coherent, complementary and consistent EU policy framework. To achieve this, proper research funding is needed to trigger a transition of Europe's food systems.

### *5.2 Establish National Organic Action Plans to develop organic farming*

Organic farming should be developed at the regional and national levels through targets, sufficient & continuous flow of money for conversion and maintenance, as well as farm advisory services and the establishment of Organic Action Plans<sup>9</sup> aimed at developing the whole production and supply chain. Moreover, aspects such as market demand, the origin and availability of inputs (e.g. seeds) and information services should be taken into account when developing these plans, to offer a systematic approach for conversion and maintenance of organic farming.

Organic farming offers a system that helps to reduce environmental impacts compared to conventional farming. Although climate change mitigation is not a primary objective of organic farming, increased conversion to organic agriculture can contribute to the reduction of GHG emissions, while also bringing important benefits such as improved system resilience to the effects of climate change, maintaining or improving biodiversity on farmland, conserving soil fertility, reducing eutrophication and water pollution, and improving food security and farmers' sovereignty.

An increase of the share of organic farming on EU agriculture land would reduce or compensate cumulative GHG emissions from agriculture through increased soil carbon sequestration and reduced nitrogen fertilizer application rates. It would also lead to a reduction of emissions linked to the production of mineral fertilizers and to reduced imports of concentrate feed.

### *5.3 Promote agricultural practices based on agroecological principles*

While there are core features of organic farming, many of the practices that help reduce emissions or increase carbon sequestration in organic agriculture could well be used in conventional agriculture too. This is illustrated by the list of general mitigation practices for agriculture presented in the table in the Appendix, which demonstrates the potential of organic practices for climate change mitigation in agriculture in general. Agroecological approaches and organic agriculture can serve as a best practice example and blueprint to increase the sustainability of agriculture in general.

## **6 Transform the CAP and make it fit for environment and climate action**

### *6.1 Strengthen the support for sustainable farming practices that provide public goods*

In a reformed CAP, all subsidies should be conditional to a systemic environmental and climatic approach, and should provide a meaningful remuneration for this. Agriculture is highly dependent on our climate, environment and natural resources to produce private goods for the market (e.g. farm produce) and public goods for society (e.g. soil fertility, clean water, biodiversity conservation). However, farmers are largely confronted by the need to maximise their price competitiveness for the private goods they produce in an increasingly globalised food system and thus, there is often an insufficient economic motivation for farmers to apply such practices for climate action and the environment.

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<sup>9</sup> Organic Action Plans – A resource manual for the organic food and farming sector  
<https://www.interregeurope.eu/smeorganics/library/#folder=1048>

With these realities, there is, next to business-driven solutions, huge potential to better use public policy to incentivise and reward climate and environmental outcomes, as well socio-economic benefits delivered by farmers at farm level. The majority of agri-environment measures are currently calculated on the grounds of income forgone and costs incurred in applying specific practices, rather than on the basis of the benefits provided to society. These measures have also been complemented by other relevant measures to support infrastructural investments, knowledge transfer and farm advisory and extension services. However, EU's historical experience of agri-environment and other relevant measures supported under the Common Agricultural Policy (CAP) shows that most farmers do not take up these measures in a systematic way.

Therefore, a new deal between citizens and farmers is needed to reward and incentivise those farms that are delivering positive climate and environmental outcomes. The use of public money to support the uptake of environmental and climate friendly practices, not fully recognised by our existing market frameworks, is essential to stimulate efforts to reduce GHG emissions and adapt to climate change. Such rewards and incentives should be part of a wider sustainable agenda including a range of environmental and socio-economic outcomes.

## 6.2 Fully involve environmental authorities and civil society in the reform and implementation of the CAP

Decision-making processes on agricultural issues are usually dominated by representatives of farmers and of the agri-food production chain. Administrations other than agricultural authorities should be fully involved, and civil society, in particular environmental NGOs, should be meaningfully represented. The need for a more open and transparent governance is real at the EU, national and regional levels. Civil society should have a greater role in shaping the next CAP and in implementing it. Opening consultative and decision-making bodies to civil society will ensure better prospective work and better dialogue of the agricultural sector with environmental NGOs.

## Sources and further reading:

### **IFOAM EU/FiBL report**

[http://www.ifoam-eu.org/sites/default/files/ifoameu\\_advocacy\\_climate\\_change\\_report\\_2016.pdf](http://www.ifoam-eu.org/sites/default/files/ifoameu_advocacy_climate_change_report_2016.pdf)

### **Réseau Action Climat report March 2017**

<http://rac-f.org/IMG/pdf/ppaa-v8-web.pdf>

### **Eating better report**

<http://www.eating-better.org/good-livestock-policy-post-CAP-Brexit-meat-dairy-production.html>

### **INRA report**

« Quelle contribution de l'agriculture française à la réduction des émissions de gaz à effet de serre ? » (July 2013)

<http://institut.inra.fr/Missions/Eclairer-les-decisions/Etudes/Toutes-les-actualites/Etude-Reduction-des-GES-en-agriculture>

### **Af'terres 2050 scenario**

[http://afterres2050.solagro.org/wp-content/uploads/2015/11/Solagro\\_afterres2050-v2-web.pdf](http://afterres2050.solagro.org/wp-content/uploads/2015/11/Solagro_afterres2050-v2-web.pdf)

### **IEEP report for the European Parliament**

RESEARCH FOR AGRICULTURE COMMITTEE - THE CONSEQUENCES OF CLIMATE CHANGE FOR EU AGRICULTURE: FOLLOW-UP TO THE COP21 - UN PARIS CLIMATE CHANGE CONFERENCE, IP/B/AGRI/IC/2016-20, February 2017

[http://www.europarl.europa.eu/RegData/etudes/STUD/2017/585914/IPOL\\_STU\(2017\)585914\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2017/585914/IPOL_STU(2017)585914_EN.pdf)

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