

How innovation contributes to the Sustainable Development Goals

**agri-food chain
coalition**



The Agri-Food Chain Coalition (AFCC) is a joint initiative representing 12 leading industry associations across the agri-food chain, united in their call for sustainable, solution-orientated and innovative policies that benefit the EU and beyond.

agrifoodchaincoalition.eu



What does sustainability mean in the agri-food system?

Climate change and a growing population are challenging the agri-food sector to meet society's food demands while preserving the environment and natural resources. The partners of the Agri-Food Chain Coalition (AFCC) are committed to addressing these challenges and are encouraging innovative solutions for a more sustainable agri-food sector.

The coalition is a joint initiative representing 12 leading sector associations across the agri-food system, working together towards more sustainable, solution-orientated and innovative European policies.

The innovative solutions the sector is generating aim at supporting the Sustainable Development Goals (SDGs) launched by the United Nations in 2015. This booklet showcases some of the initiatives taken by the AFCC partners.

The AFCC partners are aware of the fact that sustainability is not a solo journey but rather a common effort towards shared goals. This is why we are joining forces to demonstrate examples of the sector's efforts and initiatives to meet the SDGs and trigger a debate around what else can be done to boost sustainable practices to provide the best food to our fellow citizens.

The following pages will present the challenge encountered, the initiatives taken, and some examples of the results achieved by members of the agri-food chain coalition in relation to the Sustainable Development Goals.



The Sustainable Development Goals



Agri-coops for Gender and Generational Balance



challenge

An absolute majority of farm managers (of which very few are women) in the EU-28 is aged 55 or over, which means they were approaching or beyond the regular pension age. Agricultural co-operatives rise from family farms and contribute to their preservation and future development. In most co-operatives across the EU, there are very few young people or women among the board members or management staff, for that reason, the active participation is highly valued, as future managers that can ensure their continuity and their gender-balance in board positions.

initiative

The LeadFarm Project aims to get a generational and gender balance in the co-operative agricultural sector through strengthening the capabilities of young farmers (men and women) in order to ensure the generational shift in their family farms and co-operatives. In addition, this project will review the communications and engagement structures with young farmers to establish the best way to engage with them.

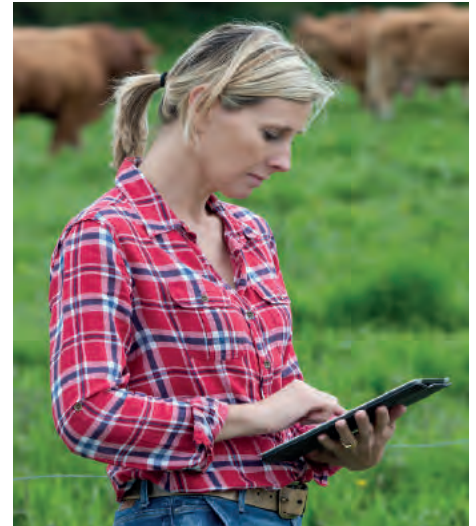
Cogeca members: ICOS (Ireland), Coop de France & AGACA of Cooperativas Agroalimentarias (Spain) are part of this important project.

results

Provide the agri-food co-operative sector with new and innovative training contents and tools for fostering knowledge in Basic farm management and Co-operative culture and values among their younger members (women & men). Improve and update pedagogical, methodological and procedural skills and technical knowledge of participating organisation's trainers, especially of organisations offering Vocational Educational Training (VET).

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leadfarm.eu/the-project/



innovation

Creation of an open-source ICT platform to support learning with interactive management of contents and tools, 6 Co-operative games to promote co-operative values and a Virtual Training course for trainers (Training of Trainers-ToT)

LeadFarm

Improving cooperatives through a new and innovative young farmer leadership



Reducing the environmental impact of animal farming



challenge

The increasing global demand for food of animal origin has been accompanied by rising concerns among consumers and communities on the environmental impact of animal farming.

Consequently, there has been growing pressure on available feed resources, as well as the need to bring sustainable innovation to animal farming in order to feed the animals and the population, while at the same time reducing the environmental footprint.

initiative

The Specialty Feed Ingredients industry is dedicated to developing products which are added in small quantities to feed to improve its nutritional value or to prevent spoilage, e.g. vitamins and antioxidants. Certain ingredients such as amino acids, enzymes or probiotics contribute to reducing the environmental impacts of animal husbandry, for example Green House Gas (GHG) emissions, acidification and eutrophication.

To measure such an impact, IFIF and FEFANA have launched the Specialty Feed Ingredients Sustainability (SFIS) Project.

results

The overall results of the study demonstrate that the use of specific ingredients in animal diets, specifically amino acids and phytase modifies the feed composition (less protein and phosphorus sources) and improves its digestibility. Such innovative diets result in a notable diminution of Green House Gas emissions, cutting the Global Warming Potential by 3-15%.

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fefana.org ifif.org

Specialty Feed Ingredients Sustainability (SFIS) Project



innovation

Supplementing animal diets with specific specialty feed ingredients can help reduce the environmental footprint of animal farming





Plant breeding innovation for sustainable farming



challenge

Over the past 100 years, the world population has grown exponentially, creating an ever-increasing demand for food. In the meantime, climate change and increased temperature are affecting the environmental conditions in which our crops are growing. Farmers need improved crop varieties to face many challenges like extreme weather conditions, pest outbreaks, etc. They are also expected to preserve biodiversity and increase productivity, by optimizing natural resources, for instance, using less land or water.

initiative

Every seed is packed with a huge potential. Plant breeding innovation is vital to develop varieties that are more resilient to climate change and better tailored to the diverse needs of farmers and consumers. The latest breeding methods, such as CRISPR CAS, need to be part of the breeder's toolbox to help breeders and farmers to better cope with the challenges of a more sustainable and yet highly productive agriculture under climate change. Plant breeding innovation is essential to develop climate smart crops, with increased drought and heat resistance, and improved water use efficiency.

results

Thanks to plant breeding innovation, farmers can continue to grow varieties that better meet consumer demands, even under the challenges of higher sustainability requirements. Farmers will continue to be able to produce more nutritious, tastier, healthier, more convenient and more varied plant-based food. Innovative breeding tools also help to develop vegetable and fruit varieties with increased shelf life and thus, reduce food waste. As a result, consumers can continue to enjoy an even higher quality and plentiful supply of varied crops and food with less waste in the agri-food chain.

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innovation

New knowledge, new methods, new products can help provide new opportunities – for plant breeders, farmers, for our environment and for healthy food for Europe's consumers



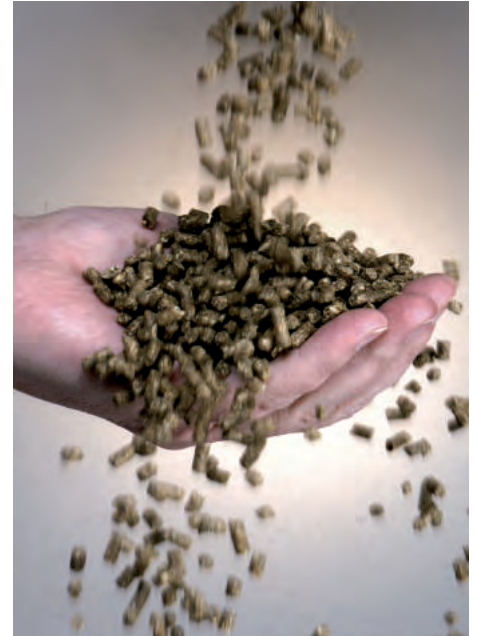


Tools for emission reduction strategies



challenge

Livestock farming is asked to play its part in reducing GHG emissions in order to meet climate change reduction targets. Feed is a primary target for reduction strategies, as it represents the largest share of the environmental footprint of animal products such as meat, milk and eggs. An LCA methodology and a functional database are needed to allow for the reliable and consistent measurement of the environmental footprint of feed production so it can contribute to the integration of climate change measures into national policies, strategies & planning (SDG 13.2) and respond to chain requests for low-emission feed.



initiative

In 2014 FEFAC started co-developing the Product Environmental Footprint Category Rules (PEFCR) that holds the methodology for the measurement of the environmental footprint of feed consumed by food-producing animals. In parallel, FEFAC worked with partners from other feed industry associations (IFIF, AFIA, ANAC) under the Global Feed LCA Institute (GFLI) to develop a database with statistical datasets on key feed ingredients.

results

In spring 2018 the European Commission published the PEFCR Feed and the public version of the GFLI secondary database as the official tools to calculate the environmental footprint of different feed formulations. Both tools are free, publicly available and have created an unprecedented level of transparency, harmonisation, robustness and credibility in reporting the environmental impact of compound feed production.

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innovation

Access to a tool to assess the environmental footprint of feed formulation will spur the use of innovative animal nutrition and feed processing solutions that can help livestock farmers to reduce GHG emissions



Ensuring productivity through healthy animals



challenge

Half of the 900 million poor depend directly on livestock for livelihoods and two thirds of those livestock keepers are women.

Globally animal diseases cause productivity losses estimated at 20% annually. With 70% of income in the world's poorest countries coming from livestock, ensuring better animal health is a strong pathway out of poverty.

initiative

300 million of the world's poorest rural families are affected by peste de petits ruminants (PPR), a highly contagious goat and sheep disease that kills 30-70% of infected animals. As disease knows no borders, initiatives to halt the spread in developing countries also serve to protect Europe's livestock from trans-boundary diseases.

A safe and potent vaccine is widely available and being used in vaccination campaigns to help support the FAO and OIE eradication target for a PPR-free world by 2030. Although our PPR vaccines provide life-long immunity, they require continuous refrigeration, limiting their utility in developing countries.

results

Research efforts to provide evermore effective solutions are progressing towards the development of a thermostable vaccine against a PPR strain for use without a cold chain for up to 30 days. This will greatly facilitate the delivery of vaccination in the global eradication of PPR. A successful eradication is estimated to yield the permanent elimination of the negative socio-economic impacts of the disease and result in savings of USD 1.8 billion a year.

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innovation

Continued research enables evermore effective animal health solutions



OIE PHOTO COMPETITION

Improving food security and protecting natural resources



challenge

As the world population grows to over 9 billion by 2030 and beyond, providing and improving food security, both globally and in Europe, will be a major challenge. Ensuring improved crop yields and resource efficiency of agricultural production, whilst safeguarding the environment, will be increasingly important.

initiative

Agricultural technologies, including genetically modified organisms (GMOs), play an important role in helping to tackle global and European food security challenges, where farmers are allowed to use these technologies. Through improving the quality of seeds to include desirable traits, GM crops can lead to higher productivity of crops, lower food prices, and reductions in energy consumption, water use and CO₂ emissions.

results

Today, Spain is the EU leader in planting insect resistant GM maize, which is resistant to the corn borer plague that can cause losses of up to 30%. Bt maize accounts for about one third of all maize grown in Spain. In addition to significantly increasing yields in affected areas, other benefits include lower use and costs of inputs like crop protection products, fuel, and water, and a higher fixation of carbon with important benefits for biodiversity.



innovation

Insect resistant maize reduces CO₂ emissions and allows Spain to be less dependent on maize imports

Benefits of Bt Maize cultivation in Spain (1998-2015)

Higher yields in affected areas, averaging between 7.4% and 10.5%.

Water savings equivalent to the use of almost 750.000 citizens

Net carbon fixation of 849,935 t CO₂ eq., equal to ending emissions associated with 25,004 cars in Spain for a year.

Farmers' margins improved by up to 147 € per hectare

Reduction of maize imports by over 1m tons

Source: Areal, Francisco. Benefits of Bt maize in Spain (1998-2015)

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Increasing Environmental Sustainability



challenge

How can agriculture contribute as much as possible in the fight against climate change in processes in which agricultural machinery are used?

An easy way of reducing CO₂ emissions of agricultural machines is to target individual machines and components. However, in this area, the potential for further decrease of CO₂ emission is low and expensive. The entire process chain should rather be taken into account.

The aim of this research project is to contribute to CO₂ reduction in agricultural processes in which machinery are used in the most optimal and cost-effective way.



initiative

Leading manufacturers of agricultural machinery are working on a holistic approach to reduce CO₂ emissions in agricultural production processes in this joint research project. For this purpose, model farms will be used to simulate the process chains in order to assess the influence of efficiency-enhancing measures. From this, important recommendations for action can be derived for farmers, manufacturers of agricultural machines and politicians.

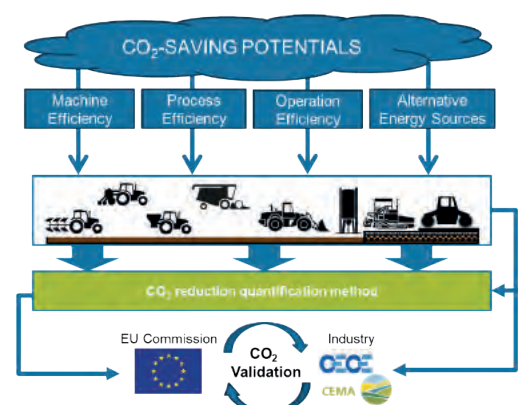
innovation

The potential for CO₂ reduction lies in an optimized process chain

results

The end result will be recommendations and a tool that allow to make the right choices for the optimal reduction of CO₂ emissions in various agricultural cultivation process steps and in the entire process chain. The project is expected to be finalized in September 2019.

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Bringing circularity in the crop protection's value chain



challenge

Packaging for plant protection products plays a key role in protecting users, the public and the environment from unnecessary exposure to crop protection products; but once the product is used, packaging becomes waste, and increasingly, a resource for recycling programmes.

In our industry's effort to contribute to a circular economy and the UN SDGs throughout our value chain, we have made important commitments and have set industry standards to ensure packaging used in our operations are disposed of responsibly.

initiative

The crop protection industry is taking the lead to responsibly steward its products by maximising the collection and recovery of empty pesticide containers. The programme strengthens farmers and operators' safety when handling plant protection products, and protects the environment, in line with the principles of the circular economy.

It provides farmers with training and best practices to minimize risks at source (in particular with rinsing methodologies) and maximise the use of the entire product while ensuring safety of operators. The scheme delivers collection and recovery services to retrieve packaging waste from farms, preventing littering and facilitating its recycling.

results

In 25 years, the project has successfully worked with national authorities throughout the waste management phase leading to 11 established CMS programmes operating in Europe resulting in a 72% collection rate of the total volume of containers introduced into the market in 2017 the majority of which was recycled. Over 70% of this plastic material was recycled in new products after careful selection of safe end-uses.

The industry has also introduced pilot CMS projects in 7 countries, with for example Bulgaria collecting over 90% of the containers shipped after just 4 years of implementation. The programme aims at achieving an operational system in all European countries in the coming years.

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innovation

The Container Management Scheme (CMS) provides support for users to easily comply with waste collection systems at national level and shares tools to safely dispose of used packaging. The programme has set voluntary standards in the design of containers to facilitate their rinsing, emptying and recycling while increasing operators' safety.





Tools to guide on farm decision



challenge

European farmers play a vital role in providing high-quality, nutritious and diverse food. However, the agricultural sector's activities also impact the environment. To allow farmers produce high-quality food more sustainably they need to be equipped with specific solutions that will enable optimal plant nutrition. The challenge is to enable access to millions of growers to tools and data that will allow them to make more informed on-farm decisions.

The European fertilizer industry aims to achieve it via active product stewardship and collaboration with the farming community, in interaction with the entire food chain, to maximize nutrient-use efficiency, reduce the climate and environmental footprints of food production.

initiative

The European fertilizer industry work with other stakeholders on developing and promoting measurement tools that improve farmers' knowledge thus helping them make informed decisions.

Our industry was one of the first sectors to calculate carbon footprint reference values for European mineral fertilizer production and use. These values are part of the Cool Farm Tool (CFT), an online, farm-level GHG emissions calculator based on empirical research from a broad range of worldwide recognized data sets. The tool identifies hotspots, allows farmers to test alternative management scenarios and identify those that will have a positive impact on the total net GHG emissions, but also on water and biodiversity.

This tool will soon be combined with the Nitrogen Use efficiency (NUE) indicator. The NUE indicator reflects at the same time the productivity level and the nitrogen surplus. In effect, it provides information about resource use efficiency, the economy of food production, and the pressure on the environment.

results

Both the CFT and The NUE indicator are free of charge, valuable tools for monitoring sustainable development in relation to food production and environmental challenges, thus supporting farmers in their farm management decisions. By considering both the environmental impacts and the productivity, these tools contribute towards improving nutrient use efficiency and sustainability in the food chain, as well as climate change mitigation.

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eunep.com

coolfarmtool.org/cool-farm-alliance/

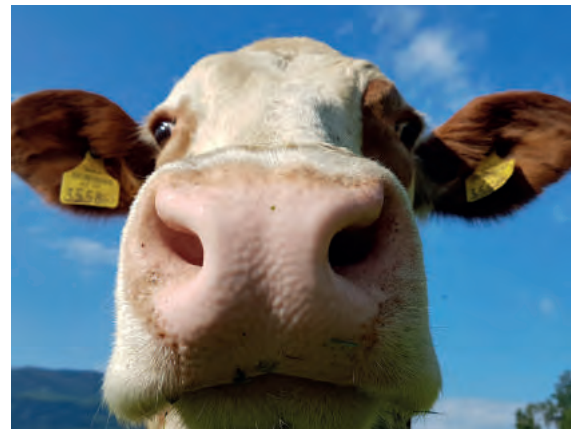


Animal breeding can contribute to a reduction of enteric methane



challenge

Methane is a greenhouse gas (GHG) that contributes to climate change. The livestock sector is estimated to contribute up to 18% of total global anthropogenic GHG emissions. Genetic selection can contribute to reducing methane emissions. However, successful breeding programs require large datasets of individual animal measurements. Smaller datasets of methane measurements exist across the EU, and could be combined. However, in order to combine the datasets, with the ultimate goal to reduce GHG by genetic selection, data should be harmonised.



initiative

METHAGENE is a COST action that investigated how methane emissions of individual ruminants could be recorded on large scale with the final aim to use for genetic evaluations, select animals with lowest methane emissions and reduce the footprint of livestock.

results

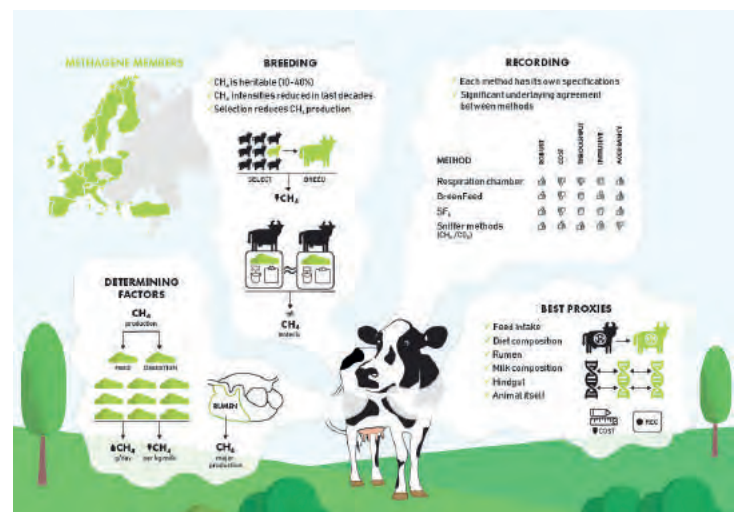
METHAGENE showed the effect of several current breeding programs on the enteric methane emission, and also what is needed to counteract that effect. Moreover, METHAGENE has ensured that the building blocks for breeding environment-friendly cows are ready for use. Bringing the disciplines, experiences and expertise together was essential for this, and METHAGENE has been very successful in that.

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www.methagene.eu
www.effab.info/

innovation

Within METHAGENE, a unique meta-analysis was conducted that will help researchers and breeding companies to collate a large enough dataset for estimation of accurate genetic parameters. This is essential to achieve a reduction of the enteric methane



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