FEFAC

Environment report

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Foreword

Meeting the growing global demand for livestock products with limited availability of resources and with the need to reduce pressure on the environment: our challenge is known. This second edition of FEFAC's Environment report highlights some of the initiatives developed by the European feed industry to address this challenge.

The first report published in 2009 established an initial overview of the environmental benefits and burdens that result from activities under the direct control of the EU compound feed industry. Since the first report, significant steps have been reached:

- Building on experience gained at national level, FEFAC is now actively involved in two major projects aiming at developing an internationally harmonized methodology for the assessment of the impacts of livestock products on the environment. These projects are run at European level, through the European Food Sustainable and Consumption Round Table, and at international level in cooperation with the Food and Agriculture Organization of the United Nations (FAO).
- An international standard for responsible soy has been defined by the Round Table on Responsible Soy, in which FEFAC is involved. Benchmarking of the other existing standards should now be carried out to increase the supply of responsible soy.

This report was prepared by the FEFAC Task Force on Sustainability, set up in 2008 and composed of representatives of feed companies and national associations of compound feed manufacturers. The first chapter of this report describes the overall feed industry's vision on sustainability and focuses on responsible supply. The second chapter presents FEFAC activities in the area of harmonization of methodology and the last chapter of the report is dedicated to the major political challenges identified by FEFAC at EU level which are the Common Agricultural Policy Reform, the Common Fisheries Policy Reform, the EU 2020 Resource Efficiency Strategy and the upcoming EU sustainable consumption and production policy.

Interim results of the FAO research show that feed accounts for approximately 70% of the carbon footprint production of meat production from monogastric animals. There can be no doubt that the reduction of the green house gas emissions for meat and dairy production linked to feed will be a major business driver for our industry at European and global level for the years to come. In its "Livestock in the balance" report published in 2009, the FAO acknowledged that animal nutrition provides a key tool to improve the environmental performance of livestock production. New feed processing technology, use of feed additives as well as genetic improvements of our livestock genomes will allow us to reach new frontiers in further increasing feed efficiency. However, to be successful, concerted actions from all the partners of the feed and food chain including NGOs are imperative, as shown in the contributions of some of our partners to this report.

I wish you a pleasant reading.

Patrick Vanden Avenne,
FEFAC President

The FEFAC "Credo"

FEFAC believes that products of animal origin form an integral part of the European diet providing key nutritional benefits to the European population. Nutritionally optimised feed meeting the physiological requirements of animals and fish raised for food production purposes is essential to mitigate the environmental impact of production and consumption of animal products.

The EU compound feed industry is willing to responsibly contribute to the sustainable development of livestock and aquaculture production systems. FEFAC believes that the key drivers for such improvements are:

- Promotion of ecologically intensive production systems for farm animals and fish, oriented towards maximisation of resources efficiency and minimisation of GHG emissions;
- Changes in diet patterns and composition for farm animals and fish to significantly reduce the GHG emissions attributed to livestock production systems (e.g. methane);
- Improvement of feed efficiency, i.e. the conversion of feed into animal products, in order to control the use of resources and to reduce the loss of nutrients;
- Further optimisation of use of co-products from the food industry, biomass and non-organic raw materials to alleviate the pressure on natural resources.

FEFAC and its Member Associations have taken up the role providing feed companies with tools to measure and improve the environmental performance of their products. FEFAC is committed to its role as spokesman of the EU compound feed industry to facilitate feed chain cross-sector initiatives to develop standardised methodologies to evaluate carbon foot print and also to contribute to international agreements on sustainable criteria for feed production.

Highlights

- As a client of arable farmers and a supplier to livestock farmers, the feed industry acts as link between vegetable and animal production. The feed industry applies its nutritional knowledge in order to improve the safety, competitiveness and sustainability of feed to allow livestock farmers to reduce their environmental impacts while getting an adequate income. The ability to add value to the co-products from the food and biofuels industries through valorisation in feed makes this link even more sustainable within the food chain.

- Responsible supply is a key concern for the feed industry, with feed materials being responsible for a large proportion of the environmental impacts associated with feed production:

  » EU feed companies increasingly purchase soya produced along the RTRS standard for responsible soy developed by the Round Table on Responsible Soy (RTRS) with the support of EU feed organisations like FEFAC.

  » The feed industry and EU authorities invest in R&D to continue improving the fish feed conversion rate and to develop and optimise the use of alternatives to fishmeal and fish oil as feed materials to reduce pressure on marine resources.

- The livestock chain needs to rely on a harmonized methodological framework for environmental footprinting for consistency and credibility reasons. A constant stakeholder dialogue is vital to achieve this goal. FEFAC will keep on contributing to the common efforts towards harmonization of methodologies:

  » At European level, through the EU Food SCP Round Table

  » At international level through the Partnership on benchmarking and monitoring the environmental performance of livestock supply chains engaged with the FAO.

- The regulatory framework should enable feed to be given the priority for the use of co-products and former foodstuffs from the food chain. This is a key condition to meet the EU 2020 Resource Efficiency ambitions.

- FEFAC is convinced that the setting up of an EU Food Chain Advisory Body gathering all the feed and food chain sectors committed to permanently improve their environment performance is essential to assist in the shaping and the implementation of the upcoming EU sustainable food policy

A sustainable link within the food chain

The overall objective of the EU feed industry is the sustainable competitiveness of the EU livestock sector through the supply of safe, competitive and sustainable feed. The nutritional requirements of animals vary according to species and the stage of development of the animals. The feed industry applies its nutritional knowledge in order to determine the appropriate combination of ingredients to achieve a sustainable diet for animals. This is made possible by a comprehensive understanding of the nutritional characteristics of feed ingredients as well as by an accurate assessment of animal nutritional needs. Feed processing technology like compounding and pelleting enables the industry to more accurately meet the nutrient requirements of the animals: no more, no less. Other processes like heat treatment can in addition improve feed safety.
As a client of arable farmers and a supplier to livestock farmers, the feed industry acts as a link between vegetable and animal production. Feed is a major outlet for cereals which represent just less than half of the feed materials used by the compound feed industry in 2011.

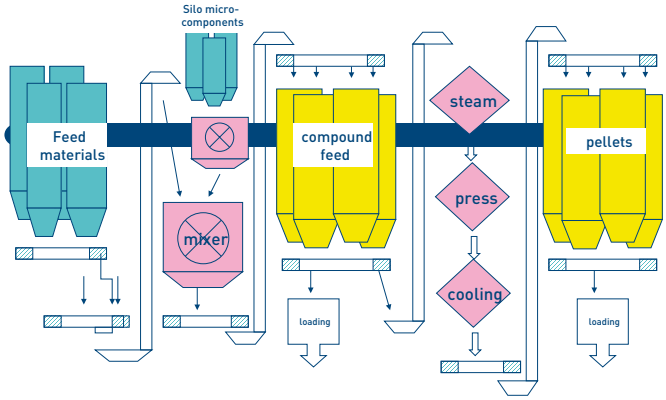


Fig. 1: Feed mill diagram (Source: APFACA)

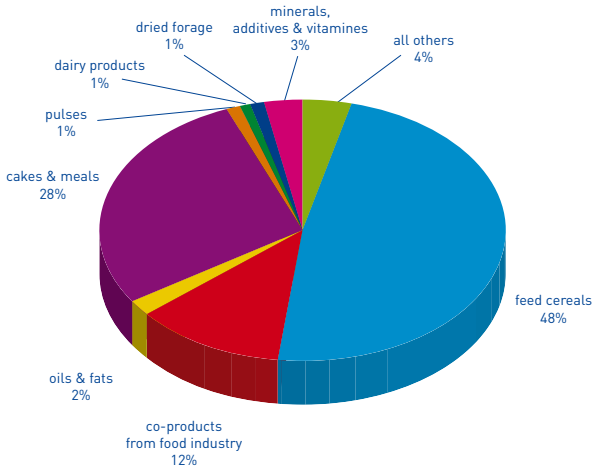


Fig. 2: Feed material consumption by the compound feed industry in the EU-27 in 2011 (Source: FEFAC)

Regarding protein, the most important feed materials are soybean meal, mainly imported from third countries, rape seed meal from the European crushing industry. The industry also uses protein rich material from the starch and ethanol industries.

The feed industry is very reactive to agricultural policy incentives in relation to consumption of feed materials. When the Common Agricultural Policy is successful in making feed materials competitive for feed use, the answer in terms of consumption by the feed industry is clear. This has been the case with cereals. The average use of cereals was 32% before the CAP reform in 1991. It increased very rapidly to reach the current level, mainly at the expense of tapioca which used to be imported from Thailand and Indonesia. This could be the case for EU protein crops if an ambitious protein plan was developed within the EU. Such a plan would help reduce the dependency on imports for protein rich materials.

The ability of the feed industry to add value to the co-products from the food and biofuels industries (like cereal bran, oil meals, distillers grains, sugar beet pulp, etc.) makes it an important contributor to the economic viability of these industries. This is also a way to reduce pressure on human edible resources and to improve the synergies between the food and feed outlets.
The compound feed industry is a proximity service delivered to farmers. In addition it is not economically viable to transport compound feed over long distances. Therefore compound feed mills are located in rural areas, which is also a source of employment. According to FEFAC estimates, there are approximately 4,000 feed plants in the EU-27.

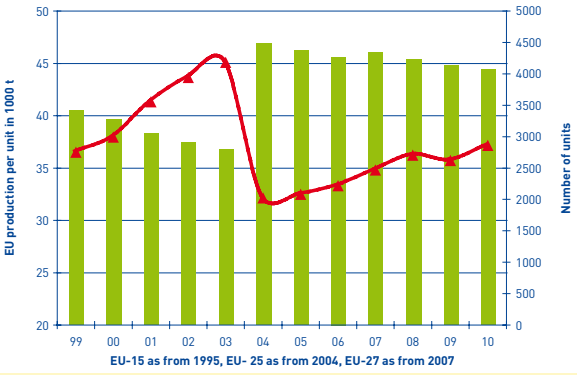


Fig. 3: Number and average size of feed production units in the EU (Source: FEFAC)

Several studies identified feed to have an important share of the environmental impact of livestock products. This is particularly true for monogastric animals like pig and poultry. This places a great responsibility on the feed industry but also makes feed an essential part of the solution for mitigating the impact of livestock products on the environment.

Technical Platform for Sustainable Agriculture in Spain

PLATAFORMA TECNOLÓGICA DE AGRICULTURA SOSTENIBLE

CESFAC – FEFAC's Spanish Member Association – is a founding member of the Spanish Technological Platform for Sustainable Agriculture. This platform brings together more than 20 associations from the feed and food chain as well as experts from academia. The Platform's mission is to contribute, through technology, towards the constant improvement of sustainability and production efficiency throughout the entire value chain, thus satisfying the growing need for agricultural products. The Platform aims to be a source of new technologies and of new solutions for improving agricultural production. One of the first tasks undertaken in 2011 by the Platform was to define and calculate the main sustainability indicators for Spanish agriculture. In this preliminary study, three animal products – pork, chicken and eggs – have been considered. For these products, results show that the direct water use represents 0.071% of water availability in Spain and the GHG emissions contribute to 2.5% of total national emissions. The study also shows the positive impact of increasing the feed efficiency in terms of resource consumption and GHG emissions per unit of product.

For more information www.agriculturasostenible.org

A holistic approach of sustainability

The links between livestock and the environment are complex. In the recent years, a strong priority has been given to climate change and the assessment of green house gas emissions, in terms of research and mitigation programs as a consequence of the importance given by society to global warming. As shown in the scheme below, it is obviously not the only impact category that should be taken into account although it is one of the most relevant when considering feed production and consumption. [an impact category is a class representing environmental issues of concern to which life cycle inventory analysis results may be assigned whereas an impact category indicator is a quantifiable representation of an impact category (ISO 14040:2006)]

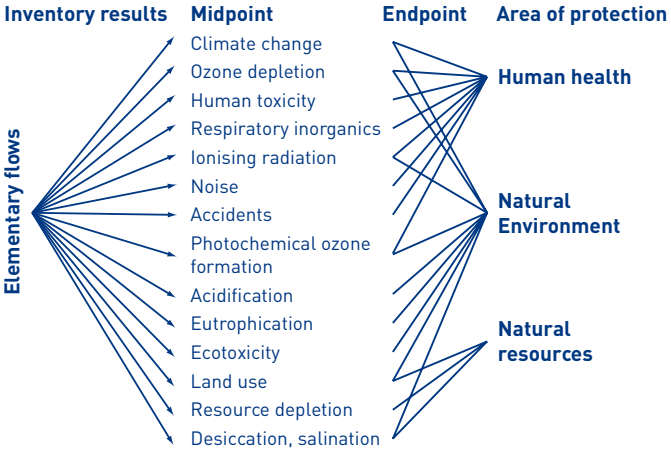


Fig. 4: Life Cycle Analysis: Framework of impact categories for characterization modelling at midpoint and endpoint (area of protection) (Source: ILCD Handbook)

As an example, the need to limit the amount of nitrogen and phosphorus excreted by animals is taken into account by the feed industry through formulation of diets and use of feed additives like enzymes to improve the digestibility of nutrients. In the case of phytase, the consequences are a reduction in the use of mineral resources and a positive impact on eutrophication with less phosphorous excreted.

To mitigate impacts on the environment the risk of potential negative trade-offs should also be properly assessed. The example below shows that focusing on the environmental pillar may not be the most sustainable option.
Environmental requirements should not jeopardize livestock sector's competitiveness and a sustainable feed approach should also integrate societal concerns.

This holistic approach, to be successful, cannot be followed by the feed industry alone. FEFAC believes that a chain approach is of crucial importance in that regard and is committed to collaborate with upstream and downstream chain partners, as well as with representatives of civil society. Some of them are given the floor in this report.

GHG reduction constraints in formulation in France

The three French compound feed associations, SNIA, Coop de France - Nutrition Animale and AFCA-CIAL have established with TECALIMAN, the French technical institute of the compound feed sector, a joint commission on sustainable development. Within this committee, they conducted a study on the impact of taking into account the GHG emissions associated with feed in feed formulation. The results show that the introduction of this GHG reduction constraint leads to an increased intake of protein crops (peas, faba beans) that substitute for soybean meal and cereals. Moreover, co-products from the food and fuel industry appear to be disadvantaged by the introduction of a GHG constraint, because their GHG balances are higher than the unprocessed raw materials. (Also note that the study used economic value as basis for allocation and assumed as default value that soybean meal was sourced from deforested areas). Using fewer co-products in feed diets is not the most sustainable solution regarding the optimization of natural resources and the economic viability of feed, food and fuel industries.

Prospective Aliment is a model developed by Céréopa which allows the formulation of compound feed based on a list of constraints that are to determine (price, availability, GHG emissions ...).

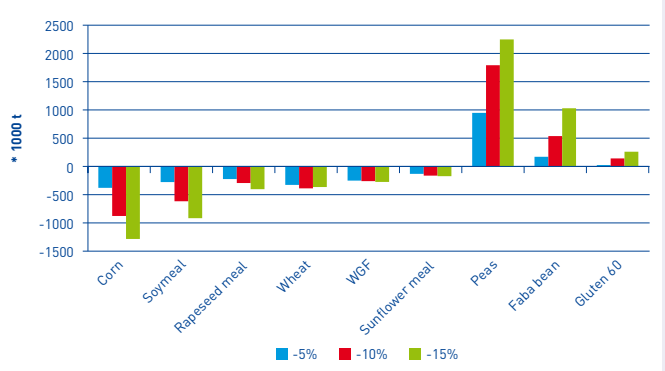


Fig. 5: Evolution of raw materials consumption without disponibility constraint (price context: 2008/2009)
(Source: Prospective Aliment, Céréopa)

Management of dust explosion and reduction of energy consumption in Belgian feed mills

Members of BEMEFA (Belgian Feed Manufacturers association) have calculated the environmental impact of dust explosion since the nineties. BEMEFA made available a calculation method for the risk people are exposed to, due to a major explosion event when present at certain distances from the feed mill. Yearly production was the risk determining factor.

Scientific insight in risk calculation evolved and the methodology was updated accordingly in 2011:

- Plant design and environment are taken into account: numbers of inhabitants in the surrounding area and data on entities as silo's and production are input data.
- Risk is calculated based on present risk reduction factors as fire prevention measures, proper cleaning programs, filtering of raw materials, frequent control of equipment, ...
- Results are saved on an online account; the Flemish environmental government gets access to the final calculation results.
- Different risk reduction scenarios can be created that allow managers to evaluate investment options: which option reduces risk in the most effective way and is the most sustainable?

BEMEFA-members have also undertaken several steps to reduce their energy consumption the past few years.
In 2005, BEMEFA-members using above 0.1 PJ took part into a governmental program with 2013 as a horizon for attaining 10% energy efficiency gain: "Auditconvenant".
The 2010 energy efficiency of the feed mills was 11.4% higher than during the reference year 2005. Considering energy efficiencies in 2005 and 2010, calculation of CO2 emission with the "production level 2010" for both these years revealed a CO2 emission saving in 2010 of 13% compared to 2005.
In 2010 the energy providing company BEMEFA collaborated with, offered a friendly-priced "EnergyScan"; some BEMEFA companies responded to it. These scans provided practical tips like: reschedule the lightning program of certain workspaces, repair isolation materials around steam pipes. But also feed mills managers learnt more about costly measures with high return on investments and how to get them subsidized.
In 2012, BEMEFA started collaboration with an energy delivering firm that is providing BEMEFA-members with 100% certified renewable energy from local sources.

Responsible supply: soya

The feed industry sources raw materials globally. Available studies show that feed manufacturing, at compound feed mill level, is not the most significant step of overall feed production in terms of environmental impacts. Although continuous improvement remains necessary to decrease the impact of the compound feed manufacturing process, it is also crucial to increase the responsible supply of feed ingredients to improve the sustainability of feed and livestock products. Two examples of "hot spots" regarding responsible supply are described below, one on soya and one on fish meal and fish oil.

Protein sources are essential to achieve a balance diet for animals. Due to past agricultural policy decisions (end of tariffs protection in 1962, Blair House agreements in 1992, reduction of specific support for protein crops in the framework of Agenda 2000) the EU is not in the position to fulfil its own requirements for protein feeds. The EU feed industry needs to source its proteins on the global market, on which soya has been the most important source for many years.

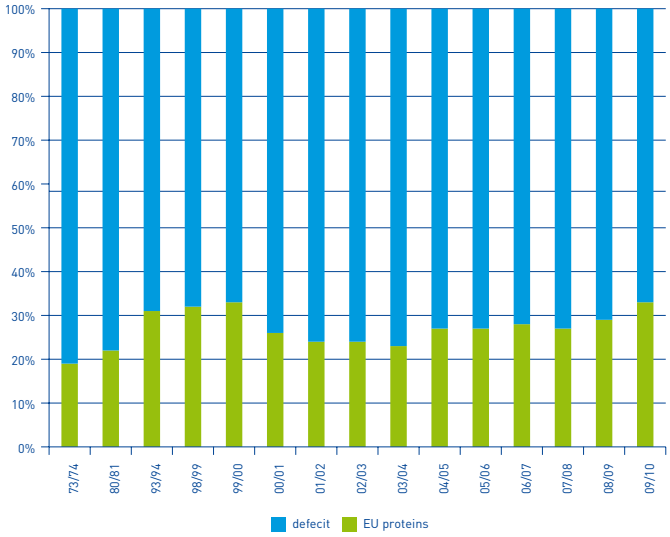


Fig. 6: Evolution of EU protein deficit
(Source: UNIP)

In certain export countries the production of soya can sometimes be associated with negative effects on the local population (illegal land appropriation, non-compliance with labour laws, use of highly toxic chemicals) and on the environment (global warming and biodiversity loss caused by deforestation and destruction of ecosystems). To address these issues, FEFAC joined the Round Table on Responsible Soy as founding member in 2006. RTRS is a market-oriented international organization which brings together producers, industry, trade, and finance representatives, and civil society organizations. Through consensus, RTRS developed the responsible soy "Principles and Criteria" document for the creation of a global standard. The version 1.0 of the RTRS Standard for Production was approved in June 2010. It is based on five main principles:

- Legal compliance and good business practices
- Responsible labour conditions
- Responsible community relations
- Environmental responsibility
- Good agricultural practices

According to INPE, in 1995 nearly 30,000 square kilometres of Brazilian rainforest were cleared – that is an area about the size of Belgium – but in 2011 the rate of loss had been reduced to just over 6,000 square kilometres. Brazil's environment ministry credits its success on a combination of support for sustainable activities and near real-time satellite monitoring of forest regions that allows it to target illegal operations.

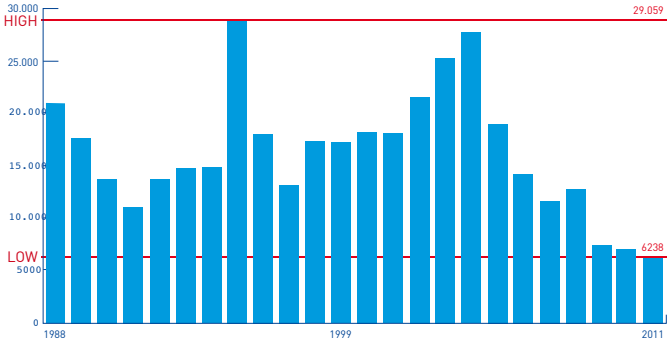


Fig. 7: Deforestation of the Brazilian rainforest km^2 (per year) (Source: INPE)

In addition to the Standard for Production, RTRS developed a Chain of Custody Standard, which describes requirements related to the control of RTRS certified soya, soy derivatives and soya products along the supply chain. The RTRS Chain of Custody Standard has been developed during 2010 and consists of auditable requirements designed to be used by organizations in the soya value chain to demonstrate implemented systems for control of RTRS certified soya. The first South American producer was certified RTRS in June 2011.

Different standards defining responsible soya are available on the market and their scopes vary, with some being less comprehensive than others. The need to agree on a comprehensive standard is also a reason for FEFAC's involvement in RTRS. Responsible soya cannot for example be limited to environmental concerns. For FEFAC, RTRS is the relevant benchmark to define responsible soya for the available standards on the market. Mutual recognition of equivalent standards is seen as a necessary step to speed up the availability of responsible soya.

Several national initiatives have been run in parallel to increase the sourcing of responsible soya

100% responsible soy in the Netherlands by 2015

Dutch retailers, animal products processors, feed processors and NGOs in the soya value chain and the Sustainable Trade Initiative (IDH) have jointly announced in December 2011 their intention to work towards sourcing 100% responsibly produced soya by 2015, responsibly produced soya being defined as RTRS or equivalent. The participating organizations aim to purchase increasingly large volumes of responsible soya: 500,000 tons in 2012, 1,000,000 tons in 2013 and 1,500,000 tons in 2014.

The industry and IDH created a fund on a 50/50 basis to contribute to the investments required to achieve this transition The project fund will be used for collective purchase with the objective to transfer progressively to market purchase. The fund will also enable growers in South America, as well as other supply chain parties, to implement the necessary improvements for achieving responsible soy certification.
Responsible soya is aimed to be purchased during the transition period via the mass balance approach. At the end of the transition period, the criteria for responsible soya need to be included in generic quality standards.

Responsible protein supply in Belgium

In 2006, the Belgian Feed Manufacturers Association (BEMEFA) set up a multi-stakeholder platform (including stakeholders from the feed & food chain, retailers, NGOs, ...) to develop a strategy for enhancing responsible protein supply for Belgian feed production. The focus is based on the following principles:

- Imported protein fluxes should respond to a sustainability standard;
- More European proteins and protein rich EU co-products should be used and cultivation of protein rich crops in Europe should be encouraged.

BEMEFA implements an action plan for both objectives.

- Imported soya by BEMEFA-members has to respond progressively to more sustainability criteria: the final objective is the RTRS standard. The action plan was scheduled as follows and is implemented as foreseen. The 600,000 tons full RTRS soya in 2015 should at that time represent the total amount of imported soya used by the Belgian feed sector.

2009-2010	100,000 T	Responsible soy certified for a limited number of sustainability indicators (RS)
2010-2011	150,000 T	RS
2011-2012	250,000 T	RS
2012-2013	350,000 T	RS + partly 100% RTRS soy
2013-2014	450,000 T	Idem
2014-2015	600 000 T	100% RTRS soy

- BEMEFA has also agreed on an action plan with the Flemish Government on alternative protein sources; topics are sensitization, research on protein rich crops other than soya and on soya production in the European region, re-introduction of animal protein in certain animal diets, optimal use of by-products of food and biofuels industries.

BEMEFA-members are stimulated to sign a convention charter on CSR containing the following 3 indicators amongst others: The use of certified responsible soy, the percentage of locally (EU) sourced protein used, and the maximum possible use of by-products of food- and biofuel industries.
These actions can only be highly effective if implemented by as many feed mills in Europe as possible. Therefore, BEMEFA supports the RTRS "outreach program" and seeks to establish partnerships with international research institutes, associations, etc. For example, with the Dutch government, BEMEFA agreed on a financial support plan for facilitating the certification of RTRS on soy producing farms.

The FEMAS & RTRS Module in UK

The UK Feed Material Assurance Scheme (FEMAS) introduced in 2012 a RTRS module, in addition to mandatory feed safety certification. This module has been developed in close co-operation with RTRS and approved by the RTRS Board. The purpose of the module is to facilitate the delivery of RTRS-certified soybeans along FEMAS certified 'feed-safe' supply chains without the need for separate certification to the RTRS Chain of Custody Standard. It does not certify soybeans as sustainable at farm level because this remains the role of RTRS. It does confer upon compliant FEMAS participants the right to use RTRS logo for RTRS products delivered on a mass balance basis.

Demand for sustainable feed supplies is anticipated to grow, with retailers and suppliers working towards achieving sustainable supplies. Numerous challenges remain, however, the UK is fully supportive of the procurement of sustainable feed supplies within an economic framework to meet customer needs. The industry will continue to monitor and would like to see the supply of sustainable soya to increase so that it can be offered to customers with confidence, rather than have a demand which cannot be supplied, creating a niche market. We want to continue to work with a number of global sustainable initiatives.

Sustainable protein sources in Sweden

Working with greenhouse gas calculation has helped the Swedish group Lantmännen to identify so called hot spots in feed supply. One of these is feed based on soya, which has shown to leave a rather large carbon footprint. The cultivation of soya is also dependent on chemicals which can be very toxic for the farmer. Bearing these facts in mind, the conclusion was that there was a need to work for more sustainable soya cultivation and Lantmännen has therefore participated in the work of RTRS. Lantmännen is also one of the first companies to buy soya certified by RTRS. Today it covers over 20 % of Lantmännen's soya import, and the ambition is to increase that share as the availability increases. The target is 50% RTRS certificates for 2013.

Another part of Lantmännen's work with more sustainable feed is finding other possible protein sources such as co-products from Lantmännen's grain processes, an example is DDGS. DDGS is a protein rich co-product from ethanol production and Lantmännen is involved in several research projects where the aim is to develop DDGS as a sustainable protein component in feed.

Interview of Sandra Mulder, World Wide Fund for Nature (WWF)

Why is it important to define criteria for responsible soy?

Working towards responsible soy production is a complex issue. This is why WWF defends a holistic approach and considers multiple solutions that are complementary such as:

- Land use planning in soy producing countries
- Legislation and law enforcement to protect nature
- Setting a standard for responsible production and building a market for responsibly produced soy

Sandra Mulder works as Senior Markets Advisor for WWF in The Netherlands. At global level, she is a member of the WWF Core Team on soy.

Photo by Ten Bouwhuis

The Round Table on Responsible Soy (RTRS) belongs to the third category. Working in a global, multi-stakeholder process is an advantage. It enables setting up a global standard that is acceptable by all parties, which considerably increases the chances to make a real mainstream change and not only create an additional niche market. The RTRS approach is also very important because it engages the market. On one side, it gives the opportunity to producers to demonstrate their capacity to produce in a responsible manner and, on the other side, the supply chain can also be involved and show its commitment to its customers. As WWF feels this approach is one of the viable tools to responsible soy production we have become a founding member of RTRS in 2004.

What are WWF's major concerns?

Being a nature conservation NGO, WWF is really focused on stopping the deforestation and destruction of ecosystems. It is worth mentioning that deforestation is not only about the Amazon, but that other important habitats such as the Atlantic Rainforest in Latin America, the Brazilian savannah called Cerrado, and the Chaco region in Argentina are threatened too. Deforestation has a direct impact on biodiversity because it destroys the habitat of countless species. It also has an indirect effect on biodiversity, and the survival of the planet at large, through its impact on climate change. These problems happen primarily in Latin America. But other issues relevant also to soy producers outside of Latin America should also be considered, like soil degradation and water pollution caused by irresponsible use of agrochemicals such as pesticides. Finally, social issues like conflict over land rights and labour conditions should also be tackled. All these issues are addressed by the RTRS standard and continuous improvement is a key success factor.
The challenge is to find the right balance between environmental, social and economic concerns.

What do we need to develop EU consumption of responsible soy?

Although some progress has already been made, there is still not enough awareness among companies about the problems caused by unmanaged and irresponsible soy expansion. We feel that all actors in the supply chain, including feed industry, should put effort into creating that awareness. As a next step, companies need to take responsibility to make sure they source from a responsible supply. Companies can and should commit to responsible sourcing and become RTRS member, and they need to act quickly.
As a complementary action, WWF is also targeting consumers in its communication in order to activate the pull factor. We are educating consumers about the existence of soy in everyday consumer goods and the meat they eat, and about the problems associated with soy production. We are asking them to ask retailers and brands to source responsible soy. However, labelling of products in retail shops is not necessarily seen as the most appropriate option to stimulate the demand. It could indeed be even confusing since most of the soy in the world is produced to feed livestock. As it is only indirectly present in livestock products bought by consumers, labelling of responsible soy in this case is a challenge.

What do you expect from the feed industry?

For feed companies, the message is quite simple: buy RTRS soy today! It is crucial that the feed industry sends a signal to producers in South America that there is a market for responsible soy and this market is going to grow. Although it is positive to see increasing commitments to 100% RTRS supply in 2015, and we welcome more of these commitments, this should not prevent companies from buying without further delay.
FEFAC and national feed associations should stay active and work with their members for outreach activities where relevant, but also on the development of national plans and commitments, such as has happened e.g. in the Netherlands, Belgium and Switzerland.

Responsible supply: fishmeal and fish oil

Fish is an important source of proteins for human consumption. The recommendation of the World Health Organization is to eat 450 grams of marine food per week. Taking into account the increase in the global population, the production of marine products will have to step up dramatically to meet the demand. According to the FAO, the maximum wild capture fishery potential from the world's oceans has probably been reached which means that the growing demand for fish cannot be covered by wild fish alone and that aquaculture is the only way to supply future needs.

Fishmeal and fish oil are the most important ingredients for fish feed. They are a source of protein and fat which is high in long chain polyunsaturated fatty acids EPA and DHA, better known as 'omega-3s'. Fishmeal and fish oil are produced from fish species which are not suitable for direct human consumption. A growing share comes also from trimmings from fish caught for human consumption which is another example of the sustainable use of food co-products by the feed industry.

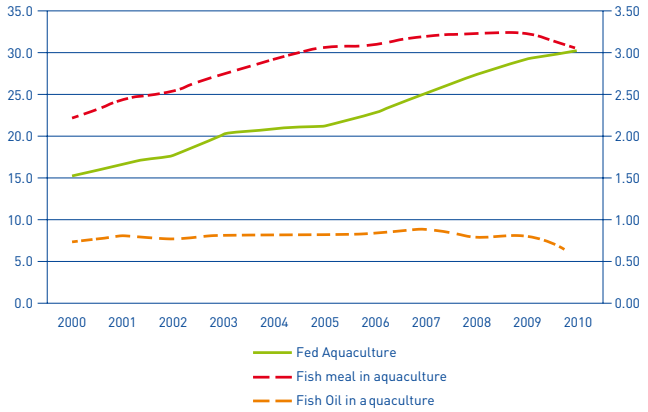


Fig. 8: Global aquaculture production with fishmeal and oil usage. 2000-2010 - tonnes millions
(Source: FAO & IFFO)

The figure above shows that aquaculture production is growing faster than marine ingredients usage. Aquaculture, however, remains as the main user of fishmeal and wants to address the issue of depletion of marine resources due to the use of fishmeal and fish oil. This can be achieved by improving the quality of feed in order to reduce the quantity of wild fish that is needed to produce fish from aquaculture. According to the International Fishmeal and Fish Oil organization (IFFO), for every ton of whole wild fish caught, aquaculture produces 1.92 tons of harvestable products, meaning that the "Fish in – Fish out" ratio equals 0.52. It is obviously more difficult to improve this ratio for carnivorous species like salmon and further research and development is needed to achieve a "Fish in – Fish out" ratio of 1 for salmon.

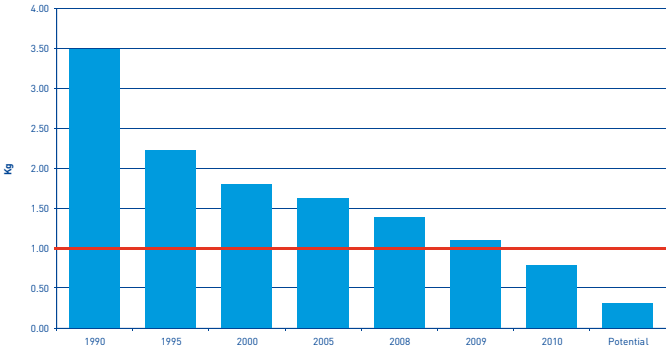


Fig. 9: Kg salmon produced versus fish protein used in feed under experimental conditions
(Source: FEFAC members)

The other option to reduce pressure on marine resources is to replace fishmeal and fish oil by other feed ingredients which could be:

- Krill and similar organisms lower in the trophic chain. Krill meal is very interesting from a nutritional perspective. It contains approximately 60% of protein with a digestibility of 80-90% and is also an important source of EPA and DHA. It is however a challenging resource in terms of logistics and consumers acceptability of krill should be assessed carefully as regards to its position in the trophic chain.

- Plant protein concentrates. The development of biofuels using the energy content of plants offers the opportunity to use plant protein concentrates to replace fishmeal. Competitiveness remain the key criteria to increase the consumption of these ingredients in aquaculture

- Next generations of genetically modified plant raw materials with a high omega-3 fatty acids composition and reduced amount of anti-nutritional factors

- Processed animal proteins (PAPs) from non-ruminant land species. Based on the positive opinions of EFSA on the safety and their positive contribution to improve sustainability of EU aquaculture production, the reauthorisation of non-ruminant PAPs as a valuable protein source for aquaculture, under practical conditions, is under consideration by EU institutions.

Interview of Dawn Purchase, Aquaculture Officer UK Marine Conservation Society

What are the aims of the Marine Conservation Society (MCS)?

The Marine Conservation Society (MCS) is the UK's leading charity for the protection of our seas, shores and wildlife. The voice for our seas for almost 30 years, MCS champions protection for marine wildlife, sustainable fisheries and clean seas and beaches.

Sustainable fisheries are addressed through a focused aquaculture and fisheries programme. The ultimate aim of this programme is to make sustainable seafood the only choice for consumers, by ensuring that all seafood is sustainably managed and produced.

We are working to achieve this in three main ways – by influencing policy development at European, UK and national levels; by raising consumer awareness and demand for sustainable seafood; and by working with the wider supply chain to inform, influence and promote the purchasing of the most sustainable seafood choices.

What is your view on aquaculture development and the use of fishmeal and fish oil?

The production of, and subsequent consumption of feed, is a crosscutting issue of global concern as aquaculture continues to expand. To reflect the urgent nature of this issue feed composition, its use and management of raw materials are the main focus of work within the MCS aquaculture programme. We aim to promote the inclusion of marine proteins and oils in feed at a level that delivers health benefits for both fish and consumers alike. This must be at a level that recognizes that these precious marine ingredients are a finite resource.

With wild capture fisheries at their limit of exploitation there is an increasing need to augment their use with alternative, non-marine ingredients. We feel the ideal feed composition would comprise of a combination of fully utilized co-products (from fish processing); sustainably managed marine proteins and oils supplemented by a range of non-marine feed materials such as blood meal, vegetable proteins and oils.

What do you expect from the feed industry in that regard?

MCS would like to see the feed industries fully adopt fishmeal and fish oils that are certified to the International Fishmeal and Fish Oil Organisation Responsible Standard (IFFO RS) as an essential first step to improve management of all feed fisheries. In addition, MCS would also like to see those feed fisheries become certified as sustainable by the Marine Stewardship Council (MSC).
We feel that it is essential that the comprehensive research undertaken by feed manufacturers in relation to feed innovation is applied in commercial production. To achieve this, production standards and supply chain requirements would need to allow and encourage their use.

Do you think that NGOs and the feed industries should work together?

MCS think that is essential for NGOs to work with the feed industries and the rest of the supply chain. MCS has been an active participant of the IFFO RS standard development and implementation from the start, and are delighted with both the global interest and the environmental benefits of its application.

Feed is a global issue that is not going away, we all - NGOs included - have a responsibility to find solutions that will allow aquaculture production to grow without compromising the environment on which it relies.

Interview of Ruud Tijssens

Ruud Tijssens is Director Corporate Affairs of Agrifirm and Chairman of the FEFAC Task Force on Sustainability

What are the scope and ambition of the FEFAC Task Force on Sustainability?

The European feed industry has to focus on the further increase of resource efficiency and its contribution to healthy feed and food. This is the added value that the feed compounder can bring to its customers. Continuous improvement in the field of nutrition but also research on the effects of technology and the influence of feed on performance and health of animals are crucial in that regard. The EU feed industry will take its responsibility towards society: given the global growing demand for animal products and the shrinking availability of natural resources, it is absolutely vital for the feed industry to take care of its social and environmental impact. These are the guiding principles of FEFAC actions in the area of sustainability.

Why is the harmonization of environmental impact assessment methodology important for FEFAC?

As a European feed industry we have to act and develop mitigation strategies that really matter. But, experience shows that the assessment of environmental impact of products and goods is a complex task and the results can sometimes be highly correlated to the assumptions and methodology used. It is therefore important for the credibility of the EU feed industry to rely on a harmonized methodological framework in order to ensure consistency. Setting common methodological rules belongs to the pre-competitive area and is also part of our customers' expectations. This should be done together with our partners from the food chain. FEFAC is committed to contribute to this common effort. In addition to the methodological work on environmental footprinting, FEFAC also wants to take responsibilities in the setting up of guidelines for sustainable raw material sourcing. This is a logical step for an industry which buys an important quantity of raw materials from various origins.

What are FEFAC's major projects regarding harmonization of environmental impact assessment?

FEFAC is active both at European and international level. At EU level, FEFAC is a founding member of the European Food Roundtable on Sustainable Consumption and Production. One of the objectives of this platform, which is co-chaired by the European Commission and food supply chain partners, is to identify scientifically reliable and uniform environmental assessment methodologies for food and drink products. At international level, FEFAC will participate in the multi-stakeholder partnership led by the FAO on benchmarking and monitoring the environmental performance of livestock supply chains. This project brings together private sector organizations, NGOs, international organizations, FAO members, academia, public and private standard setting bodies and will deliver especially sector specific guidelines for the assessment of GHG emissions of livestock products and a global database on GHG emissions associated with the production of feed crops materials. It is also the intention of FEFAC to complement this database with a database of GHG emissions of major processed feed ingredients, through a parallel bilateral project with the FAO.
Next to that we see the further development of other impact assessments, like water footprint, as an important development to come.

Interview of Joerg Seifert and Stanislav Jaš, International Dairy Federation

Founded in 1903, the International Dairy Federation (IDF) is a non-profit private sector organization representing the interests of various stakeholders in dairying at the international level. IDF is committed to furthering current knowledge and science on a wide range of issues by triggering state-of-the-art projects across the dairy chain. The mission of IDF is to represent the dairy sector as a whole at international level, by providing the best global source of expertise and scientific knowledge in support of the development and promotion of quality milk and milk products, to offer consumers nutrition, health and well-being. IDF guides the dairy sector and harmonizes members' work on a variety of issues along the dairy production chain including animal health and welfare, protection of the environment, nutrition, food safety and hygiene and food standards. Find out more about IDF: www.fil-idf.org

What are the current priorities of the global dairy sector regarding environmental issues?

S. Jaš: For many years, IDF has been very active in addressing issues pertaining to environmental management on dairy farms and in dairy processing. Following the major achievement which was the publication of an IDF guide

to standard lifecycle assessment methodology for carbon footprint in the dairy sector, the experts of IDF Standing Committee on Environment are currently focusing on three major topics: monitoring of developments in the field of life cycle assessment pertaining to environmental issues and greenhouse gas emissions in particular, building an international dairy methodology on water footprint and building a sector-specific assessment framework for biodiversity on dairy farms. As the number of challenges is constantly growing, we are initiating a new work item on strategy development to prioritize work, making sure we are responsive to changing industry needs as well as societal demand while speaking the same language.

Stanislav Jaš is working at IDF as Dairy Farming, Environment and Sustainability Officer. He is also managing the development of the Global Dairy Agenda For Action on Climate Change and coordinates IDF involvement in other international initiatives related to his focus areas, including research.

Joerg Seifert is Technical Director at IDF. He leads the IDF Head Office technical staff team in charge of the coordination and development of a diverse and growing portfolio of IDF activities throughout the dairy value chain. Throughout his career in IDF, he has driven the successful development of IDF partnership and collaboration with several international organizations

From your dairy sector perspective, how can the feed industry contribute to address these priorities?

S. Jaš: The good and promising collaboration that we have had between the dairy and feed sector so far shows that there is a big potential to increase our synergies for the benefit of both communities, especially in the area of environmental sustainability where feeding practices and innovations can significantly contribute to improvements of natural resource use efficiency at the farm level. Furthermore, the impact of feed can be observed at every level of the dairy supply chain beyond the farm. We are looking forward to your active involvement in the FAO Partnership on environmental benchmarking where we are cooperating to develop international methodologies and databases for a set of environmental indicators. Feed industry stakeholders can also showcase their sustainability initiatives by submitting relevant case studies to the dairy sustainability website. Ultimately, the IDF World Dairy Summit offers an opportunity for you to communicate the latest developments in the feed sector.

What are the expected outcomes of the world mapping of dairy feeding systems?

J. Seifert: Prior to any study of the impact of feeding modifications to reduce negative environmental impacts, optimize milk nutrient composition, increase productivity etc., there is a need to understand the present situation with its diverse systems of animal feeding. IDF has engaged in partnership with FAO and the International Farm Comparison Network (IFCN) to develop a worldwide inventory of feeding systems, as precisely as possible and according to geographic zones and farm size. Invaluable resource support has been provided by FEFAC, IFIF, Cargill and Evonik Industries. The comprehensive report will be published within the next few months. It will help to better understand and explain the complexity of animal feeding systems in the dairy sector and to make impact assessments for certain practices. The results will serve as a basis for further work in IDF and its partner organizations. A dedicated website with more information is available at www.dairyfeedingsystems.org.

Beyond tackling the environmental challenges, what other areas of joint collaboration between FEFAC and IDF?

J. Seifert: IDF and FEFAC have collaborated very closely and successfully in the area of managing food safety in an integrated approach throughout the dairy food chain for more than a decade. IDF has supported FEFAC, as one of the key drivers, in the elaboration process of the Codex Code of Practice on Good Animal Feeding (2004). We are currently working together to ensure that the new Codex risk assessment framework for feed and the upcoming Codex guidance on the prioritization of national feed hazards will meet the expectation of both of our industry stakeholders to achieve highest standards of food safety to protect the health of the consumers and to ensure fair practices in international trade.

A starting point for international harmonization: the CFPAN / FeedPrint project

The Dutch Product Board Animal Feed (PDV) developed a tool to calculate the GHG emissions in the animal feed chain and to explore mitigation options. The Dutch Compound Feed Manufacturers Association, NEVEDI, is involved in this project. The tool is not meant for labelling and the strategic goals are twofold:

- Raise awareness and insight in GHG emissions in the whole feed chain (from the production of feed materials up to the utilization of animal feed)
- Explore mitigation options.

The tool is designed for producers of compound feed and feed materials and can be coupled with feed optimization softwares. The main applications of the tool are strategic management (purchase of feed materials, composition of rations...) as well as CSR reporting. The tool is built on international standards for Life Cycle Analysis and international calculation rules and databases. Internationally recognized models have also been used to describe and analyse the consumption of feed by animals.
It is also the purpose of the project to contribute to international harmonization of methodology. This is why the calculations run in the framework of the project are fully transparent and widely accepted after coordination with companies, organizations and researchers involved.
The FeedPrint tool uses default values, averaged over a number of years for a country or region. Regarding mitigation options and communication on improved performance the main principle is to use primary activity data. A dedicated protocol has been developed in order to give guidance on when to use the default data and when to use own, primary data and how this data should be documented.

Regarding the main methodological choices, economic allocation is the preferred option in the tool but other options are available. The tool shows the emissions of each part of the chain and emissions associated with land use change are reported separately. A pedigree matrix has also been used to assess data quality (reliability, completeness, temporal correlation, geographic correlation, further technical correlation). Results can be expressed as CO2 equivalents per unit of feed and CO2 equivalents per unit of animal products (milk, meat, egg).

For more information: www.pdv.nl

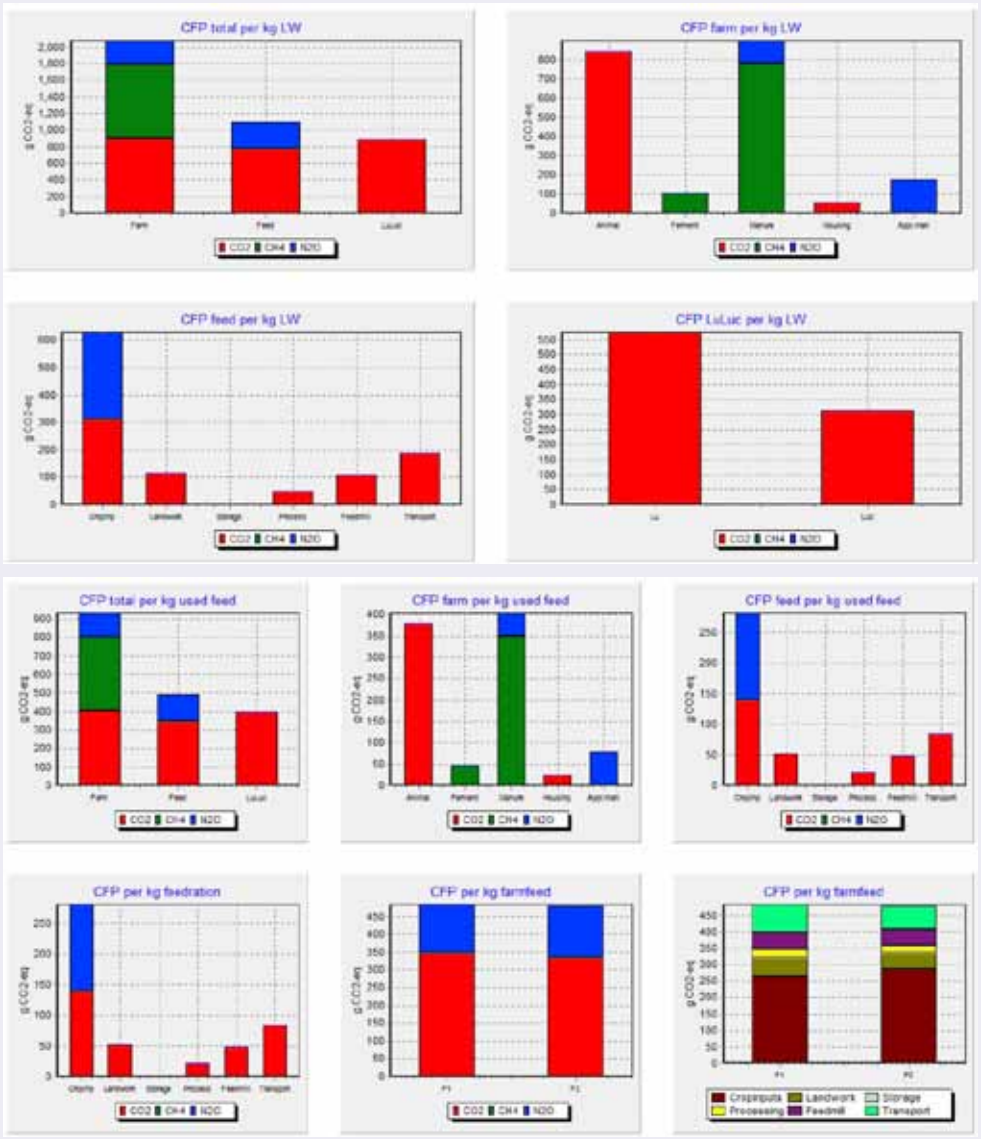


Fig. 10: Examples of results of the FeedPrint project (Source: PDV)

The Life Cycle Analysis (LCA) is an increasingly popular technique developed to better understand and address the impacts of products and services on the environment. The LCA provides a comprehensive account of environmental impacts of a product through its entire life cycle. According to ISO standard 14044:2006, it can assist in

- Identifying opportunities to improve the environmental performance of products at various points in their life cycle
- Informing decision makers
- The selection of relevant indicators of environmental performance
- Marketing

The ISO standard 14044:2006 describes the requirements and the guidelines to perform a LCA. Some methodological choices remain however difficult and can have a significant impact on the final result of the analysis. This is the case for the allocation of the impact of a process which produces more than one product. A lot of feed materials used in the feed industry are co-products in the sense that they are the output of a process which produces more than one product. This is the case of oil meals (co-product of oilseed crushing next to oil), bran (co-product of cereals millings next to flour), whey powder (co-product of cheese production), sugar pulp (co-product from sugar production), gluten (co-product from starch production), animal fats (co-products from slaughterhouses), etc.

How to share the impacts between products?

As a first step, the ISO standard recommends avoiding allocation by dividing the unit process to be allocated into two or more sub-processes. This is very often not feasible in the case of food co-products used as feed ingredients as they are the output of joint production. Allocation can also be avoided by expanding the product system to include the additional functions related to the co-products. Several questions will then need to be solved:

- Determine what the co-products are used for
- Determine what product would otherwise have been used to perform this function (substituted product)
- Find out the impact of the substituted product
- Subtract this impact from the total impact

The great number of co-products involved in processes delivering co-products used in the feed industry and the fact that many of the functions performed by these co-products can be performed by more than one substituted product make this approach very complex to perform and not adapted to Small and Medium Enterprises which represent 85% of the feed mills in the EU.

The second step of the ISO standard states that when allocation cannot be avoided, impacts should be shared between products in a way that reflects the underlying physical relationship between them. According to the ILCD Handbook, this means that the existence of a "determining physical causality" should be assessed by answering the question "is there a specific function that the non-functional flow performs for one or more of the co-products and can we quantify the extent of this function via a physical criterion?". For example, for the transportation of two products in the same truck, time of transportation and volume of products would fulfil this definition and can be used as criteria to perform allocation. The food products (and co-products) used as feed ingredients can well be described using a physical property. However, these co-products very often have different purposes (feed and food for example). When the co-products do not share the same function it is difficult to find a physical relationship fulfilling the ISO criterion. Therefore, in many cases, it is difficult to identify a physical property which could be a basis for allocation for co-products used in feed.

The next step of the ISO standard is to allocate impacts in a way that reflects other relationships between co-products (e.g. allocation based on economic value or based on a non-causal physical relationship). An advantage of the economic value is that it accurately represents the causality of a production and can be handled in a simple manner. Two difficulties need however to be overcome:

- price fluctuations
- determination of the value of co-products at the point and in the condition as they are provided in the process (if relevant).

The example below shows that price fluctuations can be addressed by using average prices. This example is based on a 5 year average.

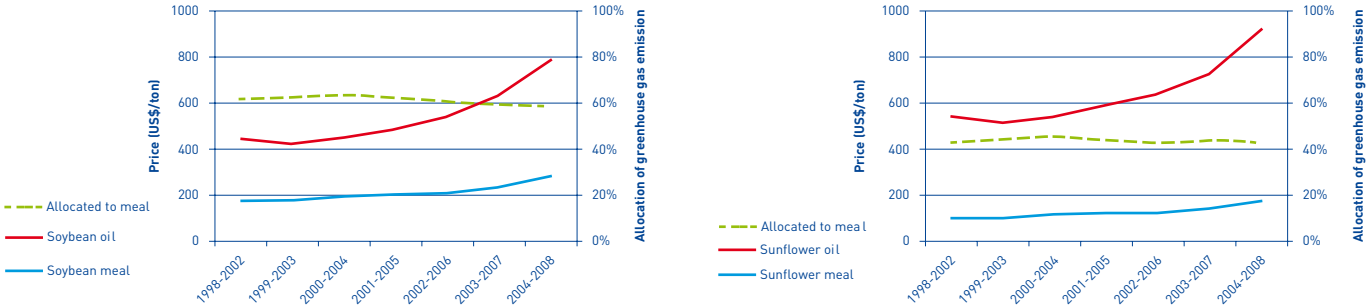


Fig. 11: Example of price average to reduce fluctuations for economic allocation
(Source: Blonk Milieuadvies, 2009)

FEFAC calls for a constant stakeholder dialogue to solve allocation issues

In any case, performing allocation requires an open dialogue with the stakeholders involved to find a consistent solution. Such a dialogue took place between sectors involved in the allocation of impacts between co-products of the meat chain. FEFAC is ready to start similar discussions with other sectors to agree as soon as possible on a consistent way to perform allocation for co-products used in the feed industry.

An example of footprinting: Carbon footprint and energy use of Norwegian seafood products
A report published by SINTEF Fisheries and Aquaculture

Carbon footprint and energy use was quantified for 22 Norwegian seafood products most of which currently constitute important components with regard to volume and value.
The large number of chains assessed using the same methodology, ISO standardised Life Cycle Assessment methodology, following the supply chains from cradle-to-gate, allows for comparison between supply chains illustrating the effect of single aspects such as species, transport mode and distance and product.
The study was limited to the two categories as follows:

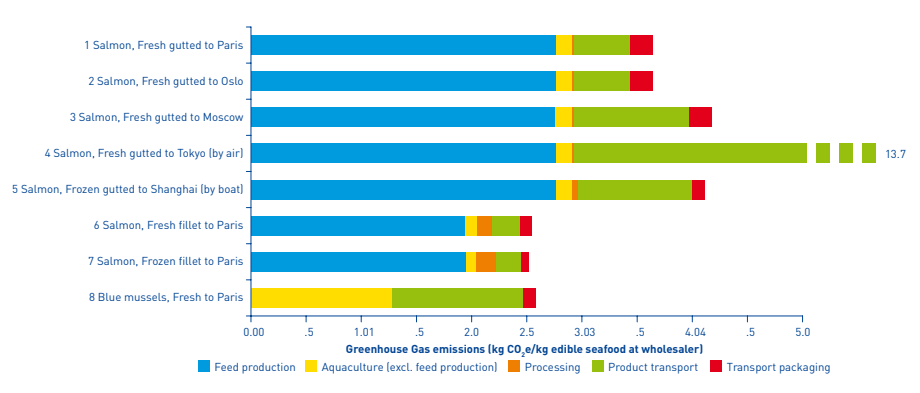


Fig. 12: Overall carbon footprint results for products from aquaculture
(Source: SINTEF)

- Greenhouse Gas (GHG) emissions, using a modified version of the IPCC 2007 indicators with a 100 year perspective, measured in kilos of CO2 equivalents (IPCC 2007)
- Cumulative Energy Demand (CED), i.e. primary energy use meaning not only the direct energy used in the production chain is included but also the energy that was used to produce various supply materials, measured in MJ equivalents.

The composition of a salmon feed representative of the grow-out phase of Norwegian salmon was constructed by using the average composition of marine feed inputs in Norwegian feed production (of which 97 %) used in salmon farming in Norway. Due to the expected importance of the feed composition we modelled 2007 and 2008, since it is evident that the variation in composition between years is considerable.
For salmon farming, optimising feed use and feed composition is paramount with regard to reducing climate impact from salmon aquaculture products.
The general conclusion for all seafood products in this analysis is that increasing the proportion of frozen and super-cooled seafood to fresh, which in turn decreases the need for air freight and other resource-intensive means of transport, would lead to a major improvement. Increasing the edible yield and use of by-products would likewise lead to lower emissions.

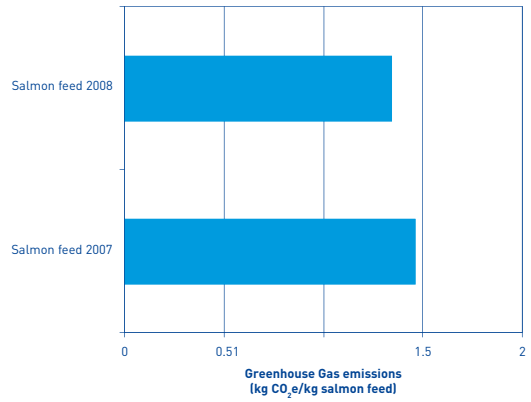


Fig. 13: GHG emissions (kg CO2eq/kg salmon feed)
(Source: SINTEF)

The complete report is available for download at www.sintef.no

Allocation is not the only methodological difficulty of environmental footprinting. Dealing with Land Use Change (LUC) is also a complex issue. Land Use Change (sometimes also called land transformation) is the transformation from one land use type to another (forest, grassland, cropland, wetlands, settlements, other land). Land Use Change may cover several impact categories. It is therefore necessary to distinguish the inventory phase of the assessment, which consists in determining how much LUC is assumed to take place, from the characterization of impacts. Given the current state of the art, the only LUC impact that can be calculated is the impact associated with Green House Gas (GHG) emissions. It is very difficult at that stage to quantify the consequences of LUC on water scarcity or biodiversity for example.

Assessing how much LUC is taking place is difficult because the border between scientific methodology and policy incentives is quite close. However, FEFAC would like to contribute to the common reflection with the following proposals.

Dealing with Land Use Change should include incentive for responsible supply...

The simplest case to assess LUC is when the specific piece of land from which a product comes is known. In that case it is necessary to set a cut-off date, meaning that cropland that was also cropland before that cut-off date can be assigned a LUC of zero. Various cut-off dates are currently used across methodologies which creates inconsistency but a global cut-off date is not necessarily meaningful either because it would not take into account historical specificities. Maintaining traceability along the supply chain to be able to associate a product or a raw material to a specific piece of land however requires a lot of effort. This micro level approach should be included in a LUC methodology. It is indeed probably the most accurate approach and it also gives an incentive for involvement in certification schemes regarding deforestation. Such efforts should be encouraged.

... but should also foresee a balanced default option

It is nonetheless not realistic and economically disproportionate to set up a full traceability scheme in order to make a direct link between all food products and the specific piece of land from which their ingredients are sourced. For example, when the country of origin of the product is known, but the former land use is not known, it is impossible to implement the micro-level approach described above. An alternative solution at macro-level should therefore be available when information is lacking. This solution should neither underestimate nor overestimate the LUC inventory.
Assuming that the country of origin is known, this alternative solution could be based on the crop expansion trends over time, as recommended by the PAS 2050-1 on horticultural products. This means that the LUC is distributed to all the crops in the country, according to its share of expansion and no LUC is assigned to crops that are contracting. Global statistics are available to apply this method and enable one to calculate the share of crop expansion at the expense of other land use type (forest, grassland, etc.). The method is also comprehensive in scope. However, it remains necessary to complement this method with an allocation procedure between all drivers of LUC in order to take into account that crop is not the only one. When the country of origin is not known, the same approach can be applied using a weighted average between the countries in which the crop is grown.

The methodological issues previously developed are examples of hot spots in environmental footprinting. They are of course not the only ones. FEFAC is really committed to the harmonization of the environmental footprinting methodology which should be undertaken in close cooperation with all the stakeholders of the food chain. This is the reason why FEFAC is involved in several multi-stakeholders initiatives, both at European and international level, whose objective is to develop methodological guidance on environmental impact assessment.

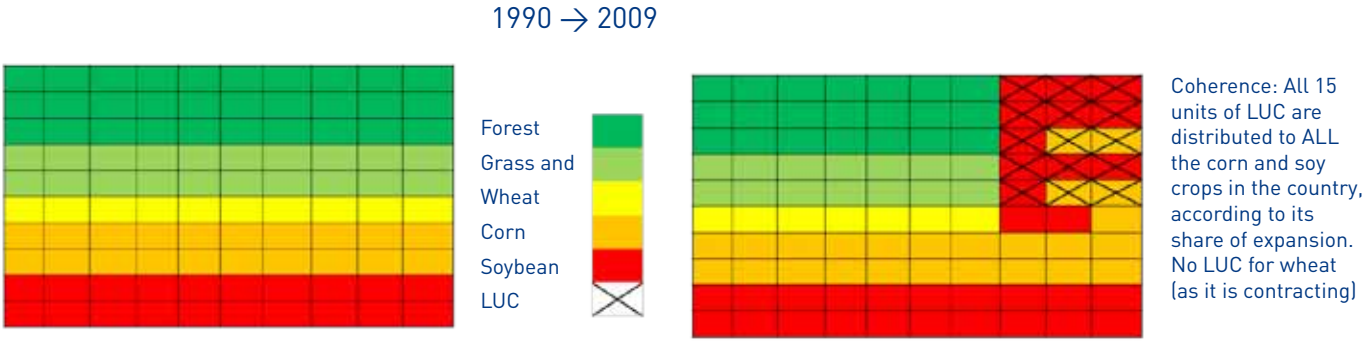


Fig. 14: Example of macro-level approach (Source: FEFAC)

Interview of Cees Vermeren, A.V.E.C Secretary General

What are the major environmental concerns for the poultry sector?

In general "environment" is one of the issues AVEC is dealing with. But it is a real challenge to get the right balance between the different sustainability issues of environment, animal welfare, occupational health, food safety and quality, competitiveness and economic viability. Further environmental improvement should be possible and poultry businesses are committed to working on that. At the end gains have to be achieved in the businesses by better equipment and management both on the farms and in slaughter and processing facilities. Efficient use of resources is also crucial for a successful reduction of emissions and will contribute to cost savings. Therefore producers in the poultry chain are investing to improve the efficiency of energy and water use.
It is important that businesses have tools available by which they can easily determine which interventions will reduce the environmental impact of the processes in the most effective and efficient way. Therefore poultry organizations are involved and committed to the sustainable consumption and production round table at European level and by the global organizations IPC and IEC partner participating in the FAO's public private partnership agreement. We are recommending that after the review of the intensive rearing poultry and pig BREF (Best available techniques reference document), the BREF for slaughterhouses is reviewed.

How could the poultry and feed industry work together to address these concerns?

Feed represents the largest share in the costs of poultry production and feed conversion often determines the profitability. Feed quality, feed conversion and profitability on the farm are interconnected and the quality of poultry products is related to the quality of the feed materials. At the same time, the life cycle assessment of poultry products shows a substantial contribution from the feed we use. Therefore, the poultry industry has an interest in the feed industry continuously looking for environmental improvements of the feed materials they may use in the compound feed. At the same time given the low and volatile profitability in the poultry chain the feed industry has a responsibility that the environmental improvements made in feed are not at the expense of the quality of poultry products and the profitability.
It is hard to identify exactly in which areas feed and poultry industries at organization level could collaborate. Just by being alert on identifying the activities of mutual interest and communicating them to each other may benefit both by joining forces and capacity to disseminate information and messages. In this respect, for example, the potential for research to identify, breed and promote particular crop varieties that are most beneficial to poultry nutrition may have the potential for joint endeavour. But we have also to be realistic that, finally, the members of each organization will decide on the direction and activities as we have learned in our collaborative work in the past. Nevertheless, the poultry industries will continue to seek fruitful collaboration whenever appropriate.

At European level: the European Food Sustainable Consumption and Production Round Table

The European Food Sustainable Consumption and Production (SCP) Round Table is an initiative that is co-chaired by the European Commission and food supply chain partners and supported by the UN Environment Programme (UNEP) and European Environment Agency. There are 24 member organisations representing all stages of the European food supply chain from the agro-supply sector (feed, fertilizers, crop protection, etc.) to retailers. Participation in the European Food SCP Round Table is also open to consumer representative organisations and environmental/nature conservation NGOs and also national governments through ad-hoc partnership. FEFAC is a founding member of the European Food SCP Round Table.

The European Food SCP Round Table's unique structure, with the participation of all food supply chain members at European level on an equal footing, enables it to take a harmonised, life cycle approach and facilitates an open and results-driven dialogue among all players throughout the food chain.
The European Food SCP Round Table's vision is to promote a science-based, coherent approach to sustainable consumption and production in the food sector across Europe, while taking into account environmental interactions at all stages of the food chain. A key principle is that environmental information communicated along the food chain, including to consumers, shall be scientifically reliable and consistent, understandable and not misleading, so as to support informed choice.

The methodological guidance for the voluntary environmental assessment of food and drink products (ENVIFOOD Protocol) is based on the following principles:

- Identify and analyse the environmental aspects of all life cycle stages
- Assess the significant potential environmental impacts along the life cycle
- Apply recognized scientific methodologies
- Periodically review and update the environmental assessment

To develop the ENVIFOOD protocol, the Round Table studied key methodological inputs for environmental assessment by arranging a scientific workshop in 2010. Following the workshop, relevant data, methodologies and guidelines for assessing the environmental performance of food and drink have been analysed. This analysis enabled the Round Table to identify those issues consistently addressed across methodologies and those issues where different approaches have been chosen. A second workshop was then organized in 2011 to deal with these controversial issues. The draft ENVIFOOD protocol is built on the outcomes of this workshop. It will be finalized during the first half of 2012 and will undergo public consultation before the testing phase. FEFAC investment in the European Food SCP Round Table focused on these methodological issues, as member of the ENVIFOOD protocol drafting group.

In 2012, the European Food SCP Round Table also published its report on "Communicating the environmental performance along the food chain". The purpose of this report is the identification of suitable tools for communicating the environmental performance of food and drink products. In its first part, the report provides an assessment of existing tools for conveying environmental information for B to B and B to C communication. The second part of the report is dedicated to recommendations which stress that:

- Methodology, scope, limitations and uncertainties should be clearly explained.
- Communication is relevant and valid for multi-supply and multi-destination products, including any post-consumption phase information
- Vague or non-specific terms such as „green", „environmentally friendly", "sustainable", „ecological", „eco", „nature's friend", „non-polluting", „environmentally safe", etc. should be avoided.
- Negative trade-offs between environmental impacts should not be hidden.
- Reliable, easy-to-understand and comparable environmental information is necessary to enable consumers to make informed purchasing decisions.

Cooperation between FEFAC and UECBV

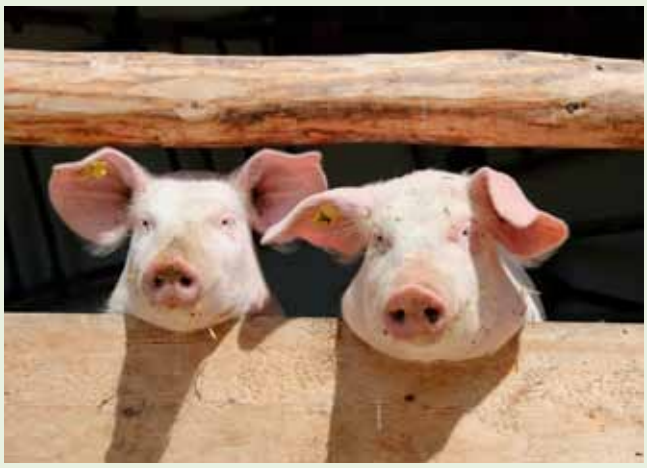
UECBV (European Livestock And Meat Trades Union) has a long-lasting tradition of good dialogue with the European feed industry and there are many shared common challenges, especially when it comes to the sustainability issues approach to science and agri-food technologies.

Shortly after FEFAC started to intensify its activity on the sustainability of feed resources, UECBV was very keen on initiating a joint UECBV-CLITRAVI meat sector Taskforce on climate change issues, which was officially launched in November 2009 with the aim of allowing a debate among experts and to facilitate a fruitful dialogue within the European meat sector. The Taskforce aims at constituting a major meat sector-wide contribution to the EU's ambitions in the field of Sustainable Consumption and Production (and related policies) and since its launch closely cooperated with FEFAC and systematically tried to bring together farmers, livestock and meat traders, the meat industry and their suppliers.

The joint Taskforce is composed of experts from the livestock/meat chain (inter branch organizations, national federations, companies) and meets as a minimum twice a year with the objective of addressing every concern related to sustainability in the meat chain, with a case-by-case approach and sticking to a scientific, knowledge-based approach.

To that end, an inventory of existing studies is ongoing and it is based on the review already performed by the consultancy in late 2009, integrated by reference to studies dealing with agricultural production and environmental performance as well as with action for mitigation. This database also tries to collect relevant press articles released by other stakeholders; the idea is to track the information and communication campaigns in order to detect eventual approaches followed by other organizations and, if needed, intervene where the arguments are not addressed in a fair and science-based way.

In 2010, the Taskforce issued an EU livestock-meat sector position paper vis-à-vis the environmental challenges, the paper was introduced for the first time at the World Meat Congress in Argentine. It was also shared with the relevant European public authorities and positive feedback was received.
Further, the Taskforce has been coordinating a fruitful cooperation with the technical team of the FAO dealing with Animal Production and Health Division (AGA). The EU meat sector together with FEFAC and other relevant stakeholders related to the livestock chain (dairy, animal health industry, poultry industry...) represent the private sector as a key partner of the FAO in ensuring an equitable, safe and responsible livestock sector. Areas of common interest include the access to safe and affordable inputs (feed, equipment, drugs); feed and food safety; animal health and welfare; research and development; and science-based policy making.



As regards the development of a FAO multi-stakeholder partnership on benchmarking and monitoring the environmental performance of livestock food chains, UECBV has regularly attended the private sector coordination exchanges of the so called "livestock alliance" conference calls coordinated by FEFAC on the eve of meetings and exchange of views with the FAO services.

Jean Luc Mériaux, UECBV Secretary General

In various publications, FAO stressed on one side the negative impacts that livestock products can have on the environment and on the other side the need to develop global livestock production in order to meet the demand of an increasing population with increasing incomes. To better take into account the interactions between livestock and the environment, FAO is implementing two projects in which the feed industry is involved. The Partnership on benchmarking and monitoring of the environmental performance of livestock supply chains will address the need to develop common rules to assess the environmental performance of livestock products whereas the global agenda of action in support of sustainable livestock development will be developed to incorporate a broader scope including regulatory framework, policies, technologies and investments.

A multi-stakeholder partnership to guide the environmental performance assessment

FAO organized two stakeholder consultations in October 2010 and in March 2011. In October 2010, the meeting identified environmental benchmarking as a priority area for collaboration. In March 2011, the meeting provided the opportunity to have an in depth discussion on the scope and the structure of the project and for potential partners to express their interest in joining. For the feed sector, FEFAC and AFIA (the American Feed Industry Association) confirmed their participation (financial and "in kind") to the project called Partnership on benchmarking and monitoring the environmental performance of livestock supply chains (MUL). The option of joining the project after its actual start is explicitly foreseen in the partnership governance and other regional feed associations may join the partnership later on. In the long term, the expected impact of the project is to improve the environmental performance of the livestock sector and its use, while considering economic and social viability. This long term objective is supported through guidance on environmental performance assessment and the major expected outputs are:

- Sector specific guidelines for the assessment of GHG emissions along main livestock supply chains. Guidelines will be informed by, and feed into, existing standards, including ISO in particular. The collective development of common guidelines should avoid duplication of the work done elsewhere and improve the cost-effectiveness and consistency of the work. An agreed and transparent method should also make the studies easier to understand and increase confidence in the objectivity of the results.
- A global database (including geographical breakdown) on GHG emissions associated with the production of feed crop materials.
- A set of indicators for the wider environmental performance assessment of the livestock supply chains (e.g. water and land resources, nutrient use, biodiversity...).
- Communication strategy and material

For FEFAC, this project is a very important opportunity to develop global methodological guidelines through a multi-stakeholder process. In addition to this project, FEFAC and AFIA also intend to develop a bilateral project with FAO (BIL). It will complement the multilateral partnership by expanding the analysis to include post-harvest transport, processing and compounding in order to obtain a comprehensive database on GHG emissions associated with processed feed ingredients. A thorough review of the existing state of knowledge regarding feed related emissions will be undertaken at the outset of the project and potential synergies with related projects will be identified and exploited. The synergies between these different projects are described below. In addition, output of the multilateral activities will provide input for the bilateral activities and vice-versa.
The duration of the projects will be 2 and 3 years for the bilateral project and the multilateral project respectively.

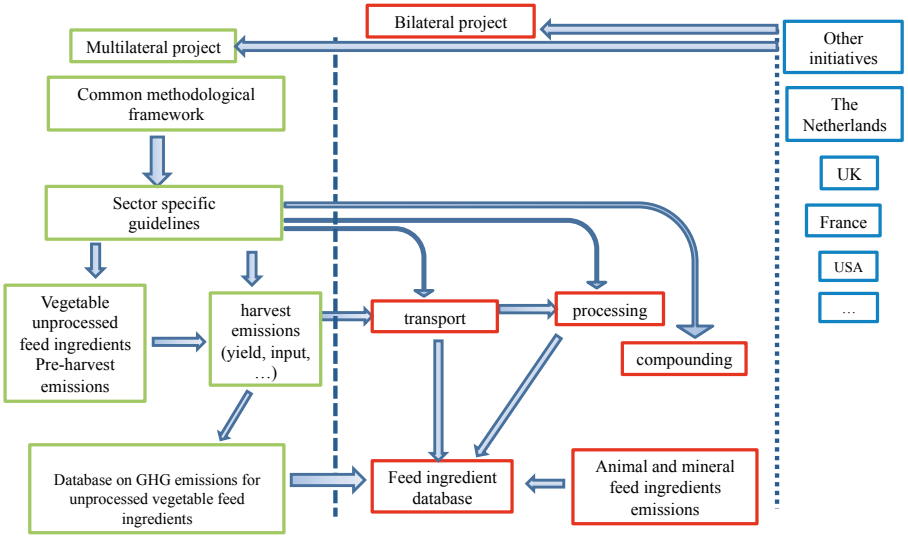


Fig. 15: Coordination between MUL, BIL and other initiatives (Source: FEFAC)

IFIF project on the role of Specialty Feed Ingredients on the livestock production environmental sustainability

In relation with FAO activities in the area of environmental effect of livestock production IFIF will gather and assess information on the best practices of the use of specialty feed ingredients in animal production with the particular support of FEFANA. Using a life cycle approach, the project aims at increasing the level of knowledge on the environmental benefit of using specialty feed ingredients and developing a methodology to take that benefit into account in LCA of animal products. Outcomes of the project are expected around Spring 2013.

The global agenda of action

A Global agenda of action is being built around the notion that demand growth for livestock products is likely to continue for decades to come, as income and populations continue to grow. The Global Agenda of Action in Support of Sustainable Livestock Sector Development is a multi-stakeholder, informal and voluntary process. FAO Member countries, private sector, civil society, academia, research and international organization stakeholders are involved. Two multi-stakeholder platform meetings have already been held in Brasilia and Phuket in 2011. At these meetings, participants endorsed natural resource use efficiency in the livestock sector as the thematic centre of the agenda, initially focusing on three areas:

- Closing the efficiency gap in natural resource use so that the livestock industry can meet society's need in terms of food production and environmental expectations
- Restoring value to grassland as improvement of grassland management can help store soil carbon.
- Towards full recovery of nutrient and energy from animal manure given that discharge of animal manure into the environment causes pollution of soil and water resources, as well as the emission of noxious gases.

FEFAC will be involved in the global agenda through the International Feed Industry Federation (IFIF). "Efficient use of natural resources is indeed what feed industry is about. The nutritional know-how brought to farmers by feed companies can improve feeding management and feed conversion which are part of the solution for a better utilization of natural resources. Getting involved in the global agenda of action is a logical step for our industry" says Alexandra de Athayde, IFIF Executive Director.

EU 2020: Resource efficient Europe

In 2010 the European Commission published its strategy for Smart, Sustainable and Inclusive growth at the Horizon of 2020. This Europe 2020 Strategy is composed of several flagship initiatives. A resource efficient Europe is one of those. This flagship aims to create a framework for policies in order to

- Boost economic performance while reducing resource use
- Identify and create new opportunities for economic growth and greater innovation and boost EU competitiveness
- Ensure security of supply of essential resources
- Fight against climate change and limit the environmental impacts of resource use.

The demand for livestock products is expected to increase in the decades to come, while the necessary resources (land, water, nutrients…) will remain limited. Resource efficiency is also seen as a key issue by the European feed industry. It is what the feed compounder delivers to its client. For the EU feed industry, 2 parallel pathways should therefore be followed:

- Reduce resource consumption by improving the feed conversion rate
- Reduce competition for resources by improving synergies within the feed and food chain

The food chain main objective is to supply food and drinks for human consumption. However, different flows of other materials than food and drink are generated at different stages of the food chain. These materials are:

- Co-products not normally consumed by humans (e.g. by-products such as oilseed meals, corn gluten feed, etc.)
- Former foodstuffs whose identity can be preserved
  - » Off-specification food&drink: products initially destined to food use but which for technical reason, cannot be placed on the market (ex: biscuits which are the wrong size, packaging default);
  - » Surplus: product that meet the food specification but misses a market or may not have been sold before the expiry of the sell-by date (ex bruised fruits and vegetables, stale bread);
- Material with unpreserved identity/traceability: material not classified elsewhere and destined to reuse, recycling or disposal.

The valorisation of co-products and former foodstuffs is an interesting option to improve synergies within the food chain. Provided that safety is guaranteed, the nutritional know-how of the feed industry enables to make the best use of these resources and by doing so to reduce the pressure on resources that can be directly used for human consumption. This is a way to optimize resources within the food chain. The regulatory framework should enable feed to be given the priority for the use of these resources. This should be considered as a target to meet the EU 2020 Resource Efficiency ambitions.

Delivering more sustainable consumption of production

As part of the Resource Efficient Europe initiative and the Sustainable Consumption and Production action plan, the European Commission is preparing its future sustainability policies. One of the objectives is that, by 2020, citizens have the right incentives to choose the most resource efficient products and services, through appropriate price signals and clear environmental information. The European Commission also aims at defining policy options in order to

- Ensure more environmental friendly products are on the EU market.
- Promote sustainable consumption.
- Implement a sustainable industry policy.

Food and livestock products can play an important role to meet these objectives. FEFAC members believe that the performance of products should be assessed using a scientifically sound and widely recognized methodology. The development of a Product Environmental Footprint (PEF) Guide by the Joint Research Center and the European Commission services is an interesting initiative in that sense, provided that it remains compliant with international standards. The harmonization of environmental impact assessment methodology is indeed a first step to promote sustainable consumption as a matter of credibility and consistency of the information that is made available by a company to its customers. Such a methodology should be proportionate and financially accessible to all companies including small and medium enterprises.

For the development of the future EU sustainable food policy, the involvement of the food chain stakeholders is a key factor for success. This is why FEFAC would like to call for the setting up of an EU Food Chain Advisory Body in order to assist in the shaping and the implementation of the upcoming policies. FEFAC is ready to proactively contribute to these common efforts.

Interview of Nathalie Smith, Agriculture Manager, Sainsbury's: an example of retailer initiative

What is the overall approach of Sustainability for Sainsbury's?

Sainsbury's, through their holistic global vision, has identified the key pressure points which present increasing challenge when securing food supply.
The combination of increasing world population growth coupled with decreasing availability of natural resources, means building resilient supply chains to ensure sustainable long term supply is essential. As such Sainsbury's takes a supply chain long approach, addressing the environmental, social and economic challenges from farm to fork to deliver products which are greener, fairer and healthier to consumers.
Evidence of Sainsbury's recognition of these challenges and the actions required are conveyed in their stretching 20 by 20 Sustainability plan.

Does Sainsbury's have specific sustainability requirements for its supply of livestock products?

Sainsbury's have recognised producers and ensuring their sustainability is absolutely fundamental to the continued success and longevity of their business. Growers and producers need to be both environmentally and economically sustainable. As such, Sainsbury's are working hard to develop mutually beneficial relationships with producers. Cornerstones of activity to underpin this include the development of a Sainsbury's Agricultural team whose attention is devoted to communicating with producers, identifying challenges and working together to seek solutions, and through considerable investment for the implementation of species specific development groups across 6 livestock sectors; dairy, beef, lamb, pork, egg, chicken.
A core activity for each of the Sainsbury's development groups is the Sainsbury's Carbon Footprint initiative. Species specific models, accredited to the highest level by the Carbon Trust have been developed to monitor, review and improve carbon footprints of producers. The models encompass all systems and practices of producing meat, dairy, pork and poultry products, assessing energy efficiency and use, inputs, outputs, and animal health. Data collection runs over a minimum of three years with on-farm assessments conducted by trained assessors. The Sainsbury's Agricultural team meets regularly with farmers to provide support and ensure standards of welfare and sustainability are upheld and practicable. However, there are no absolute carbon reduction targets imposed, but data collection on a scale and level of quality not seen before which educates and provides levers for cost and carbon efficiency to ensure supply chains are as robust as possible.
Further to this, the Sainsbury's 20 by 20 plan underpins future key milestones in place to secure food supply in the livestock sectors. This includes the sustainable sourcing of key raw materials and commodities to an independent standard, to double the amount of British food sold in Sainsbury's, and for all meat, eggs, poultry, game and dairy products to be sourced from suppliers who adhere to independent higher welfare standards.

Does it seem possible to bring environmental information on products to consumer in order to support informed choice?

At Sainsbury's, we always try to ensure customers can make an informed choice when buying Sainsbury's products therefore provide as much relevant information on pack as possible. However, carbon footprinting is not an easy message to convey to customers and simply placing a number on pack would lack context and clarity. A potential solution would be to add further detail, but this presents many challenges when considering the space available. Further, customers tell us they rely on Sainsbury's to ensure their products are sourced to the best ethical, environmental and welfare standards and would therefore naturally assume this already happens and is part of the product they buy and they don't necessarily want all the detail.

The Common Agricultural Policy Reform: interview of Jaime Piçarra

Jaime Piçarra is the Secretary General of IACA, the Portuguese feed association member of FEFAC. He is the Vice-Chairman of the FEFAC Industrial Compound Feed Production Committee and Leader of the FEFAC Task Force on CAP Reform.

What should be the objectives of the new CAP?

The challenges for EU agriculture are to produce more, more efficiently, everywhere and at an affordable price. This is why FEFAC shares the analysis of the EU Commission regarding the objectives assigned to the new CAP. Viable food production, food security, sustainable management of natural resources, climate change action and balanced territorial development are the key components of a sustainable livestock sector. In this sense, the new CAP should stimulate productivity of EU agriculture. To meet these objectives it is important to rely on a sufficient budget which should at least remain the same as the one currently available.

How can the CAP address resource efficiency?

To better reflect the importance of resource efficiency it is FEFAC's opinion that support to farmers should be granted according to efficiency criteria based on sound scientific methodology. Land based support is the wrong policy. It means that the more land one uses, the more money one gets without taking efficiency into account. Direct payments should aim at offsetting distortion of competition for farmers vis-à-vis third countries. They should therefore be rebalanced in favour of livestock producers.

Do the proposed greening measures properly address the CAP contribution to environmental concerns?

In FEFAC's view, the problem is a bit more complex since reduction of the impact on the environment should be achieved without harming the production potential and even whilst increasing it. To focus on the environmental pillar of sustainability is not enough. Scientifically verifiable sustainability criteria would therefore be more relevant than greening measures. With regard to the detailed measures it is important for FEFAC that crop diversification does not lead to less efficient cropping system that would need to be compensated by an increase in production outside EU borders. The ecological focus areas seem incompatible with the need to produce more. An option would be to have protein crops eligible to these areas, acknowledging their positive impact on the environment. This would help reduce the EU protein deficit.

FEFAC is a member of the European Initiative for Sustainable Development in Agriculture (EISA) founded in 2001 with the aim of developing and promoting sustainable farming systems, which are an essential element of sustainable development. Through Integrated Farming, EISA supports a framework that makes it possible to balance food production for a growing world population, consumer health, safety and profitability with animal welfare, social responsibility and environmental care.

EISA
European Initiative for Sustainable Development in Agriculture

Alberto Allodi is President of Skretting Italia, SpA and Chairman of the FEFAC Fish Feed Committee.

What is at stake for aquaculture in the reform of the Common Fisheries Policy (CFP)?

The legislative proposal on the Common Fisheries Policy published by the Commission in July 2011 is a significant step for aquaculture. The important role played by aquaculture and the need to promote its development are clearly recognized. FEFAC also shares the objective assigned to aquaculture to contribute to the preservation of the food production potential on a sustainable basis throughout the EU so as to guarantee long-term food security for European citizens and to contribute to the growing world fish food demand. Aquaculture is also important in terms of employment in coastal and rural areas.

Aquaculture will remain under shared competence between the EU and Member States. It is crucial that the new proposals catch the interest of potential investors and provide an incentive for interested Member States to submit national plans for the development of sustainable aquaculture in order to benefit from the new co-funding mechanism foreseen by the Common Maritime and Fishery Fund. Regarding the need to associate stakeholders in the decision making process, the proposal to create and Advisory Council for Aquaculture is also welcomed by FEFAC.

Aquaculture production is increasing globally and the CFP proposals stress the need to step up EU aquaculture production. What should be the ambition for the development of EU aquaculture?

Today, estimates indicate the European Union production to be around 650,000 t of fish, with the production of Norway and Turkey adding around 760,000 t and 100,000 t respectively. The growth of EU aquaculture is however not sufficient to balance the trends observed during the last decades that is to say a fast development of seafood consumption in Europe and a decline of European fisheries stocks. This led to a situation in which imports account for more than 60% of fish and seafood supply in Europe. Therefore, FEFAC welcomes that the CFP proposals acknowledge the need to step up EU aquaculture production.

We also observed that the value of EU imports decreased while the overall volume increased. This means that EU production is losing market share in favour of low price competitors. To face this situation, the EU aquaculture and fisheries should both defend their significant niche market and challenge the low price imports. Aquaculture is an important resource to produce high quality seafood and a stable supply of competitive high quality feed is a key factor of success. To challenge the imports, the breeding of fast growing species suitable for processing is needed as an alternative to low price imported species. R&D efforts also need to be intensified in order to fulfil the new feeding needs. From a regulatory perspective, a level playing field with third countries is highly needed to face this challenge.

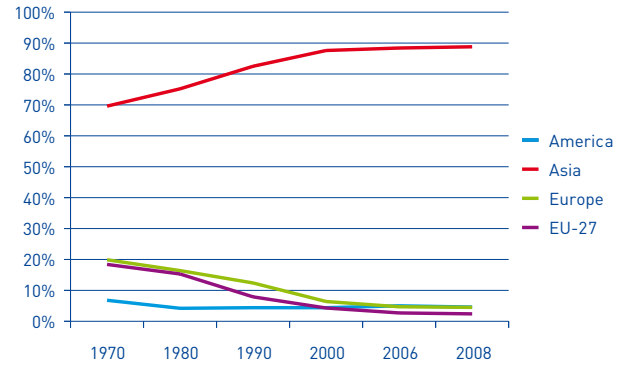


Fig. 16: Percentage of aquaculture world production
(Source: FAO)

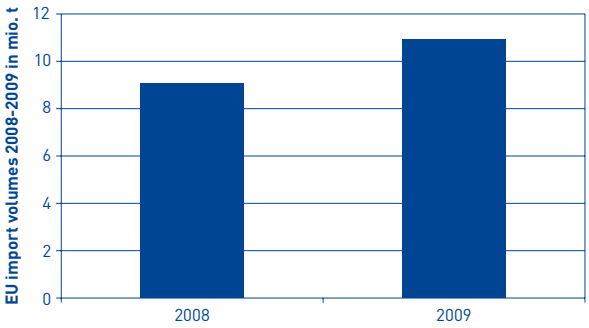


Fig. 17: EU fish import volumes
(Source: FAO)

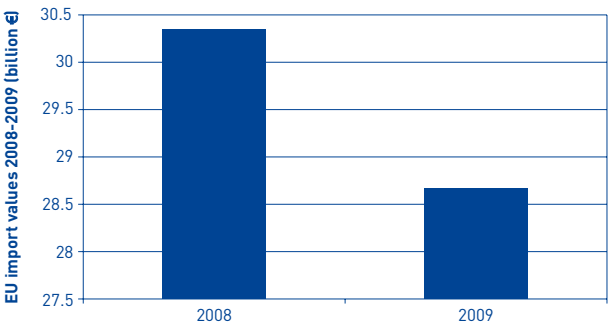


Fig. 18: EU Fish import values
(Source: FAO)

FEFAC is a member of the European Aquaculture Technology and Innovation Platform (EATIP) which comprises all aquaculture stakeholders and aims at developing a common vision for the development of EU aquaculture and for coordinating research activity. FEFAC members are particularly active in the sustainable fish feed program of EATIP. This working group pointed out the need to improve knowledge on nutritional requirements of fish farmed in Europe and on nutritional value and sustainability of alternative raw materials. Resolving strategic research problems in fish nutrition through specially formulated targeted feed compound and, increasing biological efficiency and management practices that condition farmed species to novel feeds are other key goals of this program. A complete Strategic Research and Innovation Agenda is to be published by EATIP in 2012.

www.eatip.eu

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- Created in 1959
- Represents industrial compound feed and premixtures manufacturers
  - » 22 Member Associations from 21 Member States
  - » 4 Observer Members (Turkey, Croatia, Serbia, Russia)
  - » 3 Associate Members (Switzerland, Norway, EMFEMA)
- 151 mio. t of industrial compound feed in EU-27 in 2011

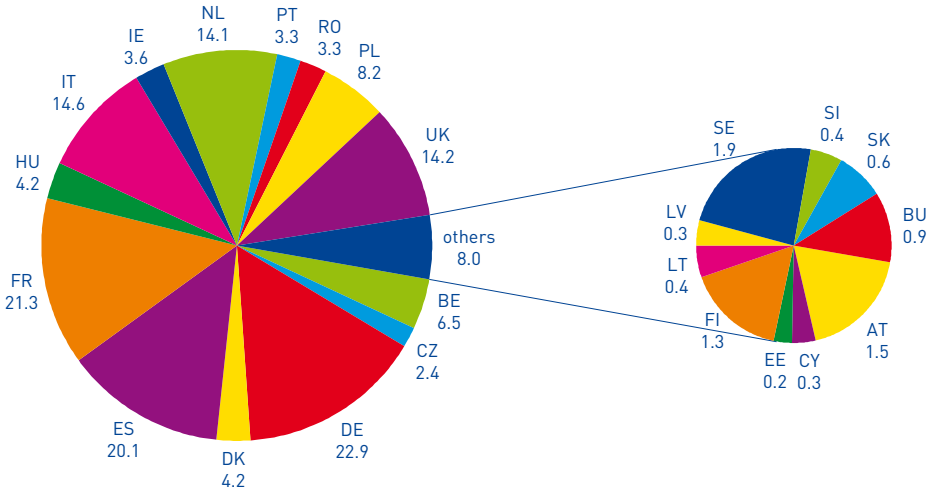


Fig. 18: EU-27 compound feed production in 2011
151 mio. t. / -0.3% (Source: FEFAC)

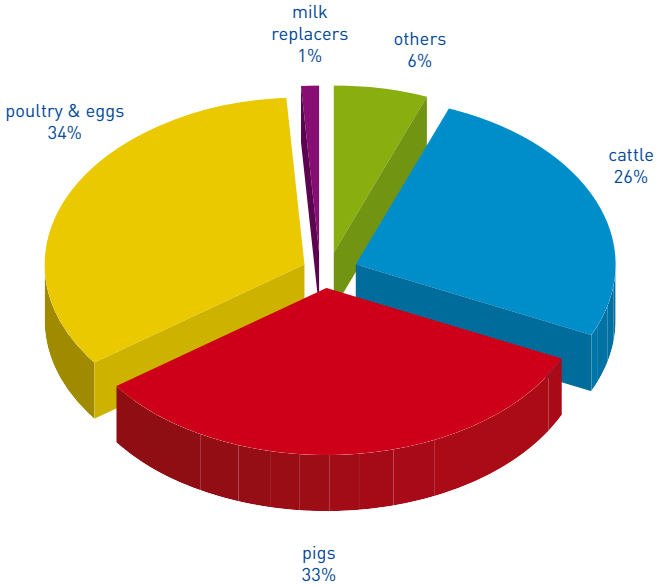


Fig. 19: Industrial compound feed production per category in 2011
(Source: FEFAC)

National Associations joining FEFAC

Active Members

VFÖ	Austria	1995 (1964)
APFACA/BEMEFA	Belgium	1959
CFA	Cyprus	2004 (2003)
CMSOZZN	Czech Republic	2004 (2000)
DAKOFO	Denmark	1973
FFDIF	Finland	1995 (1993)
SNIA	France	1959
DVT	Germany	1959
SEVIZ	Greece	1989
HGFA	Hungary	2012
ASSALZOO	Italy	1959
IGFA	Ireland	1973
LGPA	Lithuania	2005
NEVEDI	The Netherlands	1959
IZP	Poland	2004 (2001)
IACA	Portugal	1986 (1976)
AFPWTC	Slovakia	2004 (2003)
GZS	Slovenia	2004
CESFAC	Spain	1986
FS	Sweden	1995
LANTMÄNNEN	Sweden	1995
AIC	United Kingdom	1973
		(observer as from ...)

Observer Members

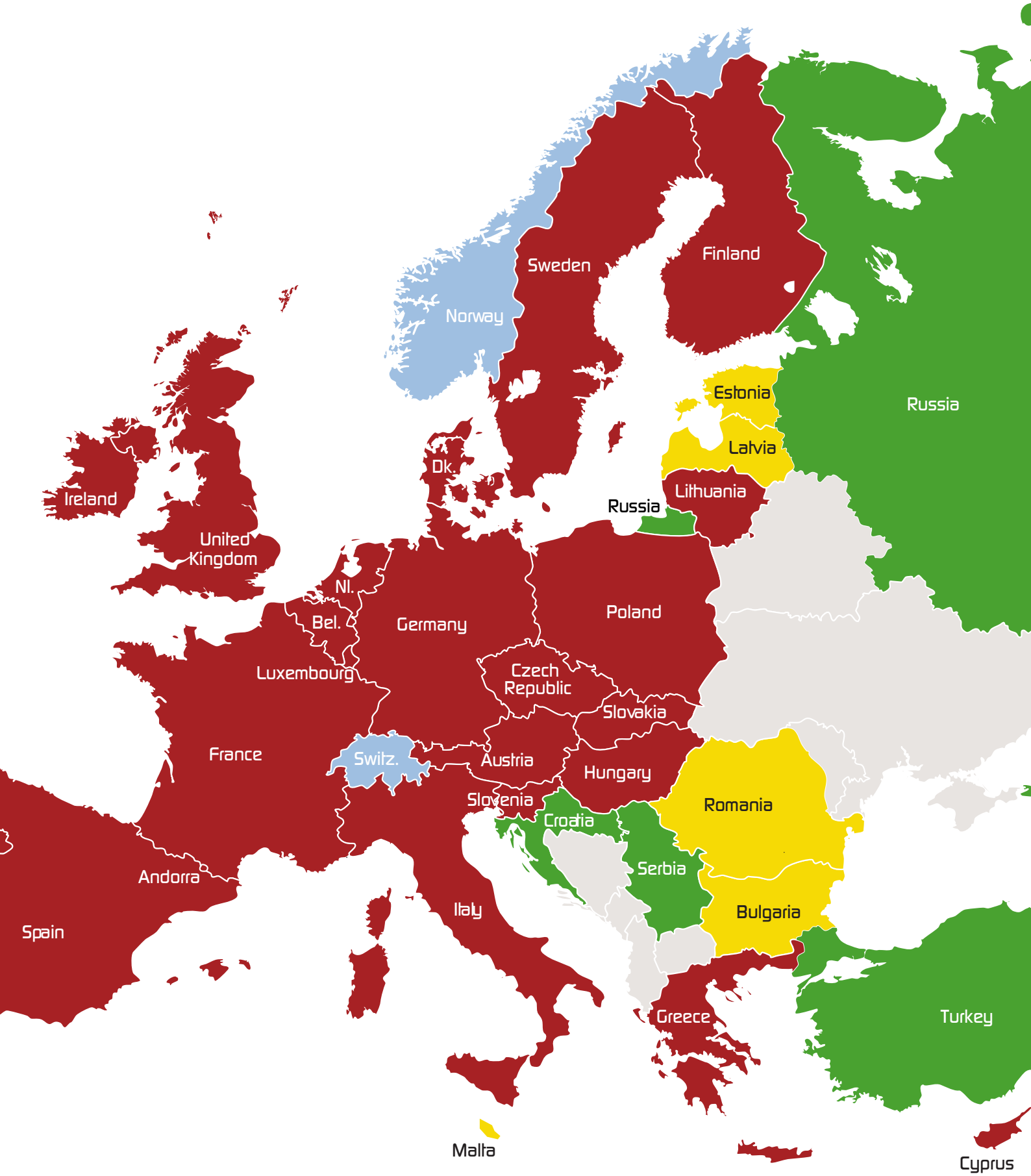
CFIA	Croatia	2008
RUFM	Russia	2010
SFMA	Serbia	2009
TURKIYEM	Turkey	2005

Associate Members

EMFEMA		2003
FHL	Norway	2003
VSF	Switzerland	1966

Potential Active Members

- Bulgaria
- Estonia
- Latvia
- Malta
- Romania


Sweden
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Czech Republic
Slovakia
France
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Austria
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Romania
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FEFAC aisbl
Rue de la Loi, 223 Bte 3 - 1040 Bruxelles
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