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Consumer product environmental labelling: state of play in the food sector

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Title: Consumer product environmental labelling: state of play in the food sector

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Contents

Études & documents | n° 113 EV | September 2014

Executive Summary

This document reports on the state of the art regarding the proposed scheme for labelling environmental impacts on agricultural and food products. Prepared by Ministry for Ecology, Sustainable Development and Energy staff, it aims to provide stakeholders with an overview of the issues and methods that have been identified following work throughout the agri-food sector. The document is intended as a contribution to facilitating stakeholders' understanding of and their involvement in the project.

Labelling environmental impacts on products is set to expand, in accordance with Programme Law 2009-967 of 3 August 2009 relating to the implementation of the Grenelle de l'environnement. Many international initiatives are part of the same movement, initiated as a response to consumer expectation, which is regularly measured.

In recent years France has seen economic stakeholders and government departments work intensely towards developing methods and tools to determine what labelling environmental impacts of consumer products could be.

The general framework established by the "ADEME-AFNOR platform" led to the work being organised into "product families".

The agri-food sector has seen and continues to see extensive efforts from economic stakeholders, research centres and technical institutes, firstly in identifying the issues that are specific to this sector's products, then in preparing methodological references and the necessary data.

The life cycle approach thus developed and expanded in application to the agri-food sector, consistent with the understanding of the environmental impacts of products.

This Life Cycle Assessment (LCA) approach renews our understanding of sustainability. By including the consumption aspect and not simply production, it provides a broader perspective on sustainability issues. It involves establishing, quantifying and standardising new indicators, based on specific guidelines. The emergence of these methods and indicators challenges a sector that had already raised the issue of its environmental impacts.

Stakeholders often refer to the "specific characteristics" of their sector. It is therefore necessary to clearly identify what these specific characteristics are and to what extent they might influence life cycle assessments.

The general report on the national environmental labelling scheme pilot presented by the Government to Parliament in November 2013 marked a waypoint. It highlighted the issue of the specific features of the agri-food sector and called for further methodological discussion with a view to moving forward with the project.

This document addresses that call. The first section reports on issues specific to agriculture and food products. In Section II, it describes the life cycle assessment methods that have been developed and their characteristics. The third section identifies who is undertaking this work and highlights the involvement of agricultural stakeholders. The following section returns in more detail to methodological issues that are still under discussion. Section V explores the legal and regulatory issues and explains how France could implement the labelling project. The final section presents the more recent work, especially at the European level, and outlines priorities for the next stage.

Études & documents | n° 113 EV | September 2014

I. Introduction: Specific features of the agri-food sector for an environmental labelling scheme

The environmental labelling policy was initiated by Article 54 of Programme Law 2009-967 of 3 August 2009 relating to the implementation of the Grenelle de l'environnement, known as "Grenelle I", and Article 228 of Law No. 2010-788 of 12 July, 2010 relating to the national commitment to the environment known as "Grenelle II".

This introductory section presents the specific features of the agricultural sector regarding environmental labelling on agri-food products. Although any industry can claim to have specific characteristics, several points do warrant special attention for the agri-food sector: the biological aspects of farming, its dependence on the climate, but also the social and occupational structure of the sector and its high level of involvement in the environmental labelling scheme, which can already be seen.

I.1. The importance of agri-food products in overall consumption

The agri-food sector occupies a special place in household consumption, for several reasons.

Firstly, household expenditure on food continues to be significant in France. In 2010, food items and non-alcoholic beverages accounted for 13.4% of the total spent on goods or special services, after housing, heating and lighting (25.6%) and transport (14.0%) (INSEE, 2011).

Secondly, food expenses are universal and difficult to reduce below a certain threshold. Purchases are frequent and actual consumption is daily. If environmental labelling is to be applied to these products, the high frequency of purchase would mean high frequency of contact with consumers with environmental product information. Also in this respect, this sector and these product types differ from other categories of products for which the frequency of purchase is much lower (e.g. clothing or detergents).

Finally, while food is first and foremost associated with health issues in the minds of consumers, they say they are increasingly interested in the environmental impact of products they buy (BVA survey conducted in 2012 by ANIA, the French national association of food industries). They place agri-food products second after detergents in terms of need for environmental information on products. Food is indeed a major challenge to sustainability. According to the EIPRO study (Tukker *et al.*, 2006), agri-food accounts for 20-30% of the total environmental impacts of consumption.

I.2. Agriculture, the first link in the agri-food industry chain

Agricultural production is the first link in the agri-food industry chain. It has highly specific characteristics; the main ones are presented below.

- Agricultural production draws on the biological mechanisms of living things, in contrast to an industrial world that is largely standardised. Agriculture's dependence on living things and the climate is a source of potential inter-annual variability in production for farms, but also of their products' environmental impacts.
- Methods of agricultural production are particularly diverse. For example, a beef steak can come from an animal bred on a dairy farm or a beef production farm, i.e. a beef cattle breed. A kilo of wheat can come from a farm that uses conventional crop management practices (high input) or a farm with an organic system (with organic inputs instead of synthetic chemical inputs). The techniques used are also highly diverse: tillage or no tillage, intensity of input use, seed type, irrigation or no irrigation, type of animal feed (grass or forage maize), etc.
- As with all variety, it can be classified into types. A number of typologies of farming systems exist, such as RICA (a statistical tool provided by the Ministry of Agriculture). These are simplified representations that describe real situations

and divide them into "farming systems" and "technical processes". Obviously, by definition of a typology, there is variability within the types, but this is minimal.

- Another characteristic of agricultural production is that it is the source of both positive and negative environmental impacts. The negative impacts vary in nature: greenhouse gas emissions contribute to climate change, pollution contributes to degradation of water quality and biodiversity loss, irrigation leads to water consumption that can impair hydrological function, tillage or its absence can also impact soil quality, etc. Conversely, some agricultural practices have positive environmental effects, providing and preserving habitats that encourage biodiversity (hedges, ponds, grasslands, etc.), capturing and storing carbon in the soil (grasslands, etc.), water filtration, etc. For any given environmental issue, it is thus the net effect of agricultural production that needs to be assessed to give an overall measure of its environmental impact.
- Finally, agriculture has multiple functions (food, self-regulation of ecosystems, energy production, landscape maintenance, etc.), which can cause confusion in assessing its environmental impacts. Expressions of environmental impacts should be based on the system's function (per hectare if the function is to occupy space; per kilo or per litre of product if the function is to produce agricultural goods for food). The primary function of agriculture is food production, as mentioned in Article 31 of Law No. 2009-967 of 3 August, 2009 "Grenelle I". It is thus appropriate to assess environmental impacts at a product level, as is the case with the new and innovative environmental labelling scheme, rather than assessing them in relation to area.

I.3. An agricultural sector with quality schemes already in place

Beyond these characteristics specific to agricultural production, the agri-food sector is also highly segmented on both the French and European markets, which rely mainly on quality schemes (Signes d'Identification de la Qualité et de l'Origine, or SIQO).

There are four quality schemes defined at the European level: Protected Designation of Origin (PDO), Protected Geographical Indication (PGI), Traditional Speciality Guaranteed (TSG) and Organic Farming.

PDO and PGI are quality labels relating to origin. PDO is the European-level version of the French AOC. PDO and AOC cover products which are produced, processed and prepared in a given geographical area using recognised know-how. PGI indicates that a product is closely linked to a geographical area. At least one of the stages of production, processing or preparation takes place in that area.

Organic farming is the only environmental quality label for agricultural production processes (mainly due to the absence of synthetic chemical inputs).

TSG is a quality label indicating a traditional recipe. It highlights the traditional character of a product, either in the composition or means of production.

France has introduced a fifth quality scheme, Label Rouge (red label), which certifies that a product has a specific set of characteristics giving it a level superior to that of a similar common product.

These quality labels are known and recognised by consumers (even if they often ignore the real criteria), and distinguish and add value to certain agri-food products.

Requirements for the quality schemes relate primarily to upstream of agri-food chains, i.e. to farms and agricultural practices. Apart from organic farming, the criteria for awarding quality labels essentially aim to improve product taste quality or promote a particular regional origin. They do not address environmental impacts. The quality labels other than organic farming certification do not generally include environmental quality criteria, except incidentally.

Public policy on environmental labelling invites us to reconsider the potential for existing labels to provide a satisfactory outlook on environmental quality of agri-food products:

- On the one hand, environmental labelling examines a new aspect of product quality, environmental quality, which is absent from current quality schemes, with the exception of the organic farming certification,

Études & documents | n° 113 EV | September 2014

- On the other hand, environmental labelling endeavours to describe the environmental profile of products and not farms. To do this, it is the environmental impacts of a single product unit that are assessed and not those of the land on which it was cultivated. This life cycle approach to environmental assessment, as implemented in this proposed labelling scheme, is also a new approach on this scale. It means that environmental impacts are accumulated, from the production of agricultural raw materials to industrial processing (including packaging) right up to consumption of the prepared finished product.

It is thus a new conceptual and methodological framework, which needs to be taken up by agri-food chains and more particularly by the farming community.

I.4. Characteristics of agri-food governance in France

The French agri-food sector is highly structured. This structure is one of the agriculture and food sector's strengths for developing the environmental labelling scheme. Technical and scientific gatherings and forums where all the links in the food chain are represented can be a solid foundation for considering entire life cycles for environmental impact calculation. Any consultation on the environmental labelling scheme in the agri-food industry should be based on this structure.

Put simply, the structure is as follows:

- Vertical structure by industry (milk, grains, fruit, vegetables, etc.): most industries are actually grouped into joint trade organisations, which include representatives of producers, cooperatives and non-cooperative private companies, at both processing and distribution levels;
- Horizontal structure by trade, particularly through organisations of producers, cooperatives or manufacturers.

Agricultural producers are represented by unions, including industry bodies that identify and incorporate the specific features of each in the work, discussions and positions.

Cooperatives are characteristic of the agricultural sector. It is the farmers who are members of the cooperative and who receive a share of its profits each year as decided at the annual general meeting. In exchange, farmers undertake to deliver the bulk of their produce to the cooperative. Some cooperatives are limited to collection, storage and/or marketing of agricultural crops. Others also have an industrial side to the business and are characterised by bringing farmers and manufacturers together through common interests. Several cooperatives have reached the international level.

In France, there are several cooperative schemes. Coop de France is the largest union of cooperatives, and members include a confederation and several unions and industry federations. In Vivo is the number one national cooperative group. In 2011, Coop de France and In Vivo formed the organisation ACOOA (alliance of agricultural cooperatives) to better focus the interest of cooperatives and improve their competitive advantage.

ANIA (French national association of food industries), which is also divided into subsectors, represents agri-food manufacturers whether they belong to cooperatives or not.

In parallel to this economic type of organisation, ACTA is the network head company of the agricultural technical institutes network. "Agricultural technical institutes are organisations for applied research, technical support, experimentation, expertise, training and information. Their purpose is to meet the needs of agri-food chains by producing technical and scientific reference materials and decision-making tools, documents, etc." (Adapted from ACTA website content). ACTA works with all stakeholders, as well as public authorities and other research organisations.

I.5. Extensive efforts in the agri-food sector for labelling schemes in France, Europe and beyond

For several years, the agri-food sector has been one of the leading sectors in the development of the environmental labelling scheme. Work on the scheme began in 2010, before the national pilot, as prescribed in the Law relating to the national commitment to the environment ("Grenelle II"). ANIA, in partnership with the FCD (French federation of traders and distributors), launched a pilot project to fuel discussions on the ADEME-AFNOR platform. The project's overall objective was to identify the key methodological and operational issues of life cycle and multi-criteria environmental labelling in France, while testing the feasibility of environmental assessment.

Since this project, efforts in the agri-food sector have been reinforced and extended. The agri-food sector was the best represented sector in the national pilot conducted from July 2011 to July 2012: 70 of the 168 companies selected for the pilot were from the agri-food sector. Such participation was made possible thanks to collectives, including Coop de France and In Vivo, through their involvement and support during the pilot.

Nearly 400 people representing nearly 300 companies are listed as members of the ADEME-AFNOR platform working group dedicated to the agri-food sector. Agricultural technical institutes also participated through the AGRIBALYSE operational research programme, which provided environmental profiles, i.e. Life Cycle Inventories (LCI) for around 130 raw agricultural products (direct farm output). Agri-food sector stakeholders have reaffirmed their commitment to initiate a new 3-year AGRIBALYSE programme (AGRIBALYSE 2 run by ADEME).

At a European level, the agri-food sector once again appears very active in the field of environmental impact assessment of products.

Agri-food chains have joined with the European Commission to create the Food Sustainable Consumption and Production (SCP) Round Table. The overall objective of this round table is to make the agri-food sector a major contributor to the development of sustainable production and consumption in Europe. In particular, it is working towards harmonising environmental assessment in the agri-food sector in collaboration with the European Commission's Joint Research Centre (JRC).

Moreover, the European Commission, following its communication of 9 May 2013 entitled "Building the Single Market for Green Products", has launched a pilot aiming to work with all necessary and legitimate stakeholders towards developing: 1/ Calculation tools, 2/ Methodological guidelines to assess products' environmental impacts throughout their life cycle, including for agri-food sector products, and 3/ Testing these guidelines and the communication of environmental information to consumers. For the agri-food sector, the European pilot began in June 2014 and will end in 2016. 30 draft nominations were submitted for various product categories: beer, coffee, wine, bottled water, olive oil, dairy products, meat, fish, pet food, feed, lemons, canned fruit and vegetables, pasta, animal fats, food packaging.

While recognising the high quality of all the nominations, the European Commission selected 11, which covered the main agri-food sectors.

There are also many initiatives assessing environmental impacts throughout the life cycle of products in the agri-food sector outside Europe. Similar schemes exist in Japan, Thailand, China, the United States, Argentina, Uruguay, Chile, Costa Rica, Australia, New Zealand and Brazil.

For around ten years now, the international scientific community specialising in agronomics, agri-food and Life Cycle Assessment (LCA), has been organising a biennial event on the topic of life cycle assessments as applied to the agri-food sector. The event, LCA Food (Life Cycle Assessment of Foods Conference), has seen growing interest, with the number of participants exceeding 400 in 2012 (Saint-Malo, France), which is double that of the 2010 event (Bari, Italy). The last event, organised by INRA in

Études & documents | n° 113 EV | September 2014

Saint-Malo in October 2012, revealed significant advances. LCA methods are being refined, can be applied to more and more sectors and products, and databases are growing.

The next LCA Food (California, 2014) promises to be another major event.

To conclude this introductory section, deploying the environmental labelling scheme in the agri-food sector requires vigilance, and the sector's specific characteristics must be taken into account, in particular those of farming systems and the segmentation of the agri-food market. The structure of agri-food chains and the sector's extensive efforts towards environmental labelling are strengths enabling the sector to address the sustainability issue operationally, influence the European pilot and eventually deploy the scheme as a means of standing out from the competition and thus gaining competitive advantage.

LCA, a method internationally standardised by ISO 14040 and ISO 14044, is a powerful analytical tool that facilitates understanding of the environmental impacts of products, including agri-food products.

The nationwide participation of all those involved in agricultural development (first and foremost technical institutes but also cooperatives) has led to rapid methodological and operational advances (which will be detailed in the next section). Consequently, France is currently a step ahead in Europe on the methodological side in terms of practical experience, and has a good grasp of the economic and competitiveness issues associated with this new metric for the commercial sector, which is only in the early stages of development.

II. Methodological advances and experience acquired in France to date

This section presents the various methodological advances since 2009 and the pilot that was conducted in France (July 2011 to July 2012).

II.1. LCAs applied to agricultural and food products

France argues that the multiplicity of environmental issues makes a multi-criteria approach to assessments essential. This is even more relevant for the agri-food sector and its products, which can have a range of positive and negative impacts occurring at different stages of their life cycle. For these reasons, Life Cycle Assessment (LCA) appears to be an appropriate method for assessing these impacts.

ADEME (2008) highlighted the advantages of LCAs applied to agricultural products:

- The LCA method allows environmental impacts to be analysed at each stage of the production process of an agri-food chain (or, where the scope is limited to the "farm gate").
- LCA provides a means of quantitatively assessing indicators associated with various environmental issues: Greenhouse Gas Emissions (e.g. carbon dioxide, methane and nitrous oxide) for the Climate Change issue, water consumption for the Water Scarcity issue, contamination from certain pollutants contributing to the Water Pollution issue, etc.
- For each environmental issue, the method identifies critical points, also called "hotspots", i.e. it identifies the phases of the production process that contribute most to the total impact attributable to the final product.
- LCA has also helped to put into perspective the relative contribution of some production phases to the total impact of a product. For example, for the Climate Change issue (quantified by the Greenhouse Gas Emissions indicator at each stage of the production process), a comparison of the respective impacts of the transportation stages and agricultural production stages reveals that emissions from agricultural production have a higher contribution than those from the transportation phase. This overall result, which brings into question the importance of "food miles" (the distance covered by foodstuffs) as an environmental indicator for food products, is however only valid where air transport is not involved.
- LCA provides vital information to improve understanding of agri-food chains and products. It allows us to offer rational steps to improve all stages of agricultural production. For example, it enables a farmer or manufacturer to prioritise the work to be undertaken to reduce the environmental impact of a product. The concept of the product's life cycle provides an interesting perspective. To give an example, assessment of the environmental impacts of grass-fed beef on a beef production farm in the Massif Central is often made on a local basis, usually within the farm's boundaries; whereas taking the entire life cycle into account, from "farm to fork" so to speak, also means taking into account the environmental impacts from the fattening and finishing phases, which can take place in an industrial facility in the Po Valley in Italy or in the Vendee department in France.
- Finally, in the context of applied research, LCA can help to compare the environmental performance of different production methods. LCA can thus be used as a planning and decision-making tool.

ADEME (2008) also outlines the limitations of LCAs applied to agricultural products:

- During photosynthesis, atmospheric carbon dioxide is taken up by plants that then make living tissue from the carbon, which is now organic. While the harvested part of a plant crop is intended for consumption and will ultimately be breathed in (i.e. its carbon will eventually return to the atmosphere in the form of CO_2 gas), the non-harvested crop residues will remain in the fields and gradually enrich the soil with carbon. This phenomenon is called "carbon storage in agricultural soils". The carbon accumulates in the soil, forming a stock. From an environmental point of view, carbon storage (and conservation of the stock) is desirable because it removes a certain amount of greenhouse gases from the atmosphere. However, LCA approaches are still struggling to account for carbon storage due to lack of an appropriate method, and given the uncertainty about the quantities stored and the dynamics of storage (variation in the stock over time and space and variation in response to changes in climate and agricultural practices). It is for this reason that in the AGRIBALYSE project, for the moment participants have chosen not to include soil carbon storage in calculations of the carbon footprint of agricultural products. These same participants are not, however, opposed to the idea of including it.

Études & documents | n° 113 EV | September 2014

The literature review conducted by ADEME also showed that:

- The values for the environmental impact of agricultural products depend on methodological choices within the LCA approach. It is a trivial matter, by no means limited to LCAs but applicable to any project involving indicators. Rules must therefore be established for the calculation methods to ensure that the impact values of different products are comparable. These choices were sometimes not particularly explicit in the scientific articles reviewed. A comparison of two environmental assessments based on the LCA approach is only possible if the same methodological choices were made in each assessment. Sources of variability in the results must only come from variables characterising practices that have an impact on the environment[1].
- Transparency in the methodological options was deemed essential.
- Harmonisation of LCA methods in application to agricultural products was deemed necessary.
- The lack of available data at the farm level was often considered a limitation.
- Carrying out a large number of LCAs for the main French agricultural crops was deemed necessary.

These results from the ADEME (2008) study led to the establishment of the AGRIBALYSE operational research programme (2010-2013) which will be described later.

While it is true that the agricultural phase has specific characteristics, in terms of applying LCA to their products, agri-food chains taken as a whole (from upstream agricultural activities to downstream industrial processing) share certain characteristics with other sectors:

- Any one type of pollution can occur at different stages of the product manufacturing process. For example, greenhouse gases (GHG) are emitted during the agricultural phase, but also during the transport, processing and storage phases, and perhaps even the use phase (cooking), of the food product. Likewise, some pollutants that contribute to Water Pollution are emitted during the upstream agricultural phase, but other pollutants (or the same ones) can be emitted further downstream in the food manufacturing process. Also, to be able to take into account and calculate the respective contribution of each stage to overall pollution, a “life cycle approach” is necessary. Consequently, despite the agricultural sector having specific characteristics, the life cycle approach is the most appropriate approach for evaluating environmental impacts of food products, as it is for other sectors for which an overall environmental profile of products is sought.
- Environmental impacts are estimated from material flows and pollutant emissions, which is then multiplied by "characterisation factors". Values representing the environmental impact of food products - as with non-food products - represent "potential" impacts, in that they are not measured *in situ* in the natural environment, but rather modelled and therefore remain estimations. However, this characteristic is not unique to LCA indicators. In fact, almost all agri-environmental indicators used in public policies are "potential" impact indicators. In most cases, the available agri-environmental indicators are only resource indicators, while LCA indicators actually account for physical flows.

II.2. Tools developed to meet the needs of companies

When carrying out environmental assessments of its products, a company is generally doing so as part of one or both of the following processes:

- Eco-design: a company may want to accurately assess the change in its environmental impacts following a modification to a practice of one of the production stages in a product's life cycle, without necessarily wanting to disclose the results to consumers. For example, the company can seek to understand the environmental impact of modifying an agricultural practice, a change in transport logistics, or in the nature or amount of packaging of a product they supply. Whatever method the company uses, it will seek to constantly improve in relation to its frame of reference, i.e. with respect to the method used. In this case, the choice of method rests with the company, as it addresses its own initiative. As such, it does not call for government intervention.

[1] It should be noted that some confusion was experienced by many observers, between "uncertainty" and "variability". Uncertainty is a factor that limits the use of a piece of data because it is a source of inaccuracy. Variability, on the other hand, is a fact that should be noted and taken into consideration. If it can be properly documented using the LCA method, variability of data is not a problem, but a useful piece of information.

- Disclosure of environmental information to customers: if a company intends to disclose information on the environmental impacts of its products to consumers and make it a selling point, then harmonised universal rules are required. If competitors also want to provide information of a similar nature in the same market, it is essential that the results and information are comparable, and therefore the methodologies used by competitors in that market need to be the same. It is a sine qua non for achieving the objective of comparability of environmental information provided by competing companies. Government intervention is necessary here since at the very least, common methodological guidelines need to be provided.

Prior to environmental labelling, which requires common rules for labelling formats and media, a common basic methodology enabling environmental impacts to be quantified harmoniously is thus necessary. The required methodology consists of three elements:

1. Methodological guidelines indicating with sufficient precision the rules to follow when conducting an LCA for a given product;
2. A database containing generic data (sometimes called "secondary data") that all assessors will use because the data does not depend on the manufacturing process as such but on the general context of this process. An example of such data would be the average GHG emissions associated with the consumption of a kilowatt hour in France;
3. Calculation software.

These three elements may be accompanied by reading guides, explanations of the data, instructions, or anything that may make using these tools as easy and inexpensive as possible.

In the following sections the development of these three types of tools for the agri-food sector in France will be presented.

II.3. Methodological guidelines

The general guidelines on best practices published by the ADEME-AFNOR platform (BPX 30-323-0) states as a guiding principal that assessing the environmental impacts of products must be developed in accordance with the life cycle approach and the multi-criteria approach.

The No. 1 Working Group of the ADEME-AFNOR platform on "Food and pet food" (WG1) has developed a sector-specific guide, which was approved in April 2012. As the name suggests, it enables the environmental impacts of food and pet food to be assessed and is itself a variation of the general guide (BPX 30-323-0).

Many technical discussions were held in plenary sessions and small ad hoc groups, some of which are still ongoing, on:

- Environmental issues: How to include Biodiversity in the equation when there is no robust method in France, Europe, or internationally?
- The functional unit[2]: Mass? Per serving? Per calorie? Per hectare?
- Allocating environmental impacts between products and co-products of the same agri-food chain: Mass-based allocation? Energy-based? Economic-based? Or other allocation method? To illustrate the difficulty of allocating environmental impacts between products and co-products of the same agri-food chain, consider the following situation: the milk (a product) from a herd of dairy cows and the meat (a co-product) from dairy cull cows from the same herd. On what basis should the pollutant emissions from these cows be allocated between the milk and the meat? In other words, what is the appropriate rule of allocation? Should we consider the mass of the milk and meat? Their respective economic value? Their protein content? Their energy content? These questions continue to be debated.

[2] ISO 14040 defines *functional unit* as the "quantified performance of a product system for use as a reference unit in a life cycle assessment". A functional unit is thus the unit of measure used to assess the service provided by a product. In the same way a consumer compares the price of two vegetables using the price per kilo, to compare the environmental impacts of two products, the impacts must be reduced to a common unit of measure. For example, the emissions of a pollutant in the water associated with the production of a food item can be expressed "per 100 g" of that food item. Also see the glossary in the appendix of this report.

Études & documents | n° 113 EV | September 2014

Technical and methodological discussions are thus ongoing, but the participants in WG1 wanted to show their progress and consensus on a significant part of the document. In April 2012, after three and a half years of work, in accordance with the operational rules of the ADEME-AFNOR platform, WG1 presented the guide to the general platform and it was approved. The "Food and pet food" sector guidelines, as with all sector-specific guidelines, cites items mentioned in Article 6, paragraph 1 of the best practices guide BPX 30-323-0 for food and pet food. It thus contains methodological recommendations on the:

- Scope (life cycle stages taken into account or not);
- Methods for calculating indicators;
- Primary data[3], secondary data[4] and semi-specific data[5] to be used;
- Temporal validity of the data and the required update frequency taking into account technical constraints related to the various labelling media, then the method for validating data and results;
- Procedure to account for end of life;
- The product under consideration in these guidelines is the food product-packaging combination. Regarding the Functional Unit, WG1 proposes:
  - ✓ "100 g / 100 ml", which are the reference units for impact calculation, or
  - ✓ "Per serving" when this information is available and defined by industry professionals or a EU regulation.
- The environmental issues raised by participants in WG1 and listed in the guidelines are:
  - ✓ Impact on Climate Change (the product's carbon footprint)
  - ✓ Impact on Water (the product's water footprint) including: qualitative aspects i.e. relating to water pollution (eutrophication[6] and aquatic ecotoxicity[7]), and quantitative aspects (water abstraction contributing to Water scarcity),
  - ✓ Impact on Biodiversity Loss.

These environmental issues were identified and raised in WG1. The methods used to provide information on these issues through indicator calculations are determined in the methodological working group of the ADEME-AFNOR platform, covering all product categories.

A list of the methods and indicators under consideration for each environmental issue can be found in the methodological appendix of the best practice guide for environmental labelling (BPX-30-323-0) published by the ADEME-AFNOR platform. "The environmental impact assessment meets the methodological guides broken down by products categories [in ADEME-AFNOR platform working groups]. These guides are developed based on the standards NF EN ISO 14040:2006 and NF EN ISO 14044/2006. This annexe therefore provides additional information and clarifications in relation with these normative documents. This annexe therefore provides additional information and clarifications in relation to these normative documents."

The methodological appendix is accompanied by a reading guide that explains the terms and key calculation rules. The reading guide is designed to make some of the requirements of the methodological appendix more accessible, to help readers understand the nature of the choices that were made. The explanations include examples to make them as easy to understand as possible.

In the following paragraphs, the methods recommended in the methodological appendix of BPX-30-323-0 will be presented for each of the issues identified by participants in WG1 on "Food and pet food".

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[3] Primary activity data (primary data) or specific data is a quantified value from a direct measurement or a calculation based on direct measurements of an activity or process in the product's life cycle. This value, when multiplied by a weighting or characterisation factor, is used to calculate an impact category indicator. Also see the glossary in the appendix of this report.

[4] Secondary data or generic data is a quantified value of an activity or life cycle process of the product, obtained from sources other than direct measurements or calculations based on direct measurements. Also see the glossary in the appendix of this report.

[5] Semi-specific data is secondary data or generic data given by default, but which can be specified by the operator to improve the environmental assessment. Semi-specific data is then primary or specific when provided by the operator, but for which a default value is provided. Also see the glossary in the appendix of this report.

[6] The modification and degradation of an aquatic system, usually linked to an excessive intake of nutrients, which increase the production of algae and aquatic species, and sometimes also turbidity, by depriving the water column of light.

[7] Toxicity of a substance for living things.

Some gases are identified as contributing to the **greenhouse effect**. For the Climate Change issue, the carbon footprint of a consumer product must include all of these gases. It is possible to characterise their impact on the greenhouse effect using data provided by the Intergovernmental Panel on Climate Change (IPCC). The GHG emissions to be considered are those listed in the methodological appendix of BPX 30 323. Global warming potentials (GWP) over 100 years are given as an indication only and need be updated according to the latest data from the IPCC.

To date, the 2007 IPCC methodology is recommended for calculating the carbon footprints of products. It sets out detailed rules for converting the different GHG emissions into a common unit, the "tonne or kilogram of CO_2 equivalent".

It is important to note that the methodological appendix of BPX-30-323-0 states it *"will be revisited and amended if necessary, in light of feedback acquired or following the publication of international (ISO) or European (CEN) standards on the same topic. It should also be consistent with the methodological guide being developed by the European Commission."*

For the Impact on Water issue, the methods and indicators recommended in the methodological appendix as the best available obviously differ depending on the sub-issue under consideration. The following are recommended:

- For eutrophication, the EUTREND model (Struijs *et al.*, 2009);
- For aquatic ecotoxicity, the USEtox model (Rosenbaum *et al.*, 2008).

Finally, regarding water consumption-related issues, indicators reflecting environmental impacts should be favoured over those that reflect flows. However, a methodology capable of characterising impacts does not yet exist: it is being developed at the international level as part of ISO 14046. Until this ISO standard has been approved, as the environmental issues associated with water consumption have been identified as key, the BPX-30-323-0 methodological appendix points out that an indicator of net consumption needs to be used (where discharges into other environments are not included, and sea water or water from a stable water table (> 3 years) should not be included either).

The relevance of this indicator will be reassessed in light of the ISO standard 14046 currently being developed on "Water Footprints". It is already relevant since the method has meant being able to consider different water sources according to their impact. For example, consuming rainwater used for growing grass (known as "green water") does not have the same effect as abstracting water from limited stocks ("blue water").

For the Biodiversity issue, at present there is no single, consensual indicator available to help calculate the impact of a product on Biodiversity. A MEDDE CGDD study proposed a potential Biodiversity indicator for agricultural products. We will come back to this work in more detail in a later section.

It remains unclear how the rules might be applied to individual products. By definition, the "Food and pet food" sector guidelines cover a very wide range of products. Fine-tuning it for application to more specific product families and categories is necessary to make comparing the environmental information provided (to consumers and the economic system along agri-food chains) possible. Indeed, it will be possible to specify the calculation rules contained in these guidelines by product category. This is precisely what some subsectors have started to do:

- The subsectors of fats and oils, coffee, and dairy products have developed methodological guides, sometimes called PCRs ("Product Category Rules"), for each of their three listed product categories. The two latter documents were submitted to WG1 in September 2012 and adopted in 2013. The first could not be approved due to lack of consensus on the issue of allocations of environmental impacts between oil and meal. The two others were finalised and approved, and are to be translated into English.

II.4. Generic data

To obtain an environmental labelling system applicable to agri-food products, in addition to harmonised methodological guidelines, it is essential to have data on the environmental impacts (multi-criteria footprints) of the agricultural products.

In 2008, ADEME noted the lack of quality data in LCAs of French agricultural production and a lack of harmonisation and structure in LCA methods applied to agricultural products. The reference material consulted at the time produced incomparable results because the methodologies used were different.

Études & documents | n° 113 EV | September 2014

However, Article 7 of the best practices guide published by the ADEME-AFNOR platform (BPX-30-323) states that:

- *"The data used are of acceptable quality, and are validated in compliance with the rules established for the product category."*
- *"The primary data*[8] *are preferred. [...] when the primary data are not available or if their collection is not suitable in terms of costs and reliability, secondary data shall be used."*

The AGRIBALYSE programme (also known as AGRIBALYSE 1) was specifically developed in response to this lack of LCA data (but also to produce high quality, harmonised LCA methods for French agricultural products, methods that we have previously described in this report). In regards to upstream activities of agri-food chains[9], the "agricultural" module of the generic database known as IMPACTS® will consist of data produced through the AGRIBALYSE programme.

AGRIBALYSE® has completed Life Cycle Inventories (LCI) for the main French agricultural products, using a consistent methodology that organises products into representative product groups (see also:

http://www2.ademe.fr/servlet/KBaseShow?sort=-1&cid=96&m=3&catid=25508).

Allowing for variants (= specific farming systems), the database contains a total of 137 LCI, including:

- 57 LCI of crops
- 80 LCI of livestock;
- 3 tropical products.

The AGRIBALYSE programme had set the following objectives:

- To provide data for the "agricultural" module of the generic database (under construction by ADEME) for environmental labelling of food products, known as IMPACTS®;
- To propose a consensual, harmonised methodology for carrying out LCAs for the crop and livestock agricultural sectors;
- To provide the agricultural sector with a tool for understanding the identification of "hot spots", and the reduction of environmental impacts. The programme, which ran for 3.5 years (2009-2013), was a collaborative effort with 14 partners:
  - ✓ ADEME
  - ✓ INRA (French National Institute for Agricultural Research)
  - ✓ ART (Agroscope Reckenholz-Tänikon, a Swiss research station)
  - ✓ CIRAD (French Agricultural Research Centre for International Development)
  - ✓ ACTA (network of technical institutes for the animal and plant sectors)
  - ✓ ARVALIS - Plant Institute
  - ✓ IDELE (French Livestock Institute)
  - ✓ ITAVI (French technical institute for poultry production)
  - ✓ IFIP (French institute for the pig and pork industry)
  - ✓ Ctifl (Interprofessional technical centre for fruits and vegetables)
  - ✓ IFV (French vine and wine institute)
  - ✓ ITB (French Technical Industrial Sugar beet Institute)
  - ✓ CETIOM (Technical Centre for Oilseed Crops and Industrial Hemp)

[8] Remember that primary activity data (primary data) or specific data is a quantified value from a direct measurement or a calculation based on direct measurements of an activity or process in the product's life cycle. This value, when multiplied by a weighting or characterisation factor, is used to calculate an impact category indicator.

[9] As for downstream activities of agri-food chains, the ACYVIA project must provide the data on "procedures for agri-food industrial processes" by the end of 2015. Invitations to tender were issued by ADEME in October 2012.

- ✓ Terres d'Innovation (lands of innovation)
- ✓ PROLEA-UNIP (French interprofessional association for protein rich crops).

Momentum came from the partnership between research and agricultural technical institutes, ensuring the focus was on knowledge and experience in building the foundations necessary to developing this method for agriculture. The roles of the various partners were as follows:

- ADEME founded and now leads and coordinates the programme;
- INRA (French National Institute for Agricultural Research) is responsible for managing and implementing LCAs (method and calculation) of livestock production;
- ART (Agroscope Reckenholz-Tänikon research station) is responsible for managing and implementing LCAs (method and calculation) of crop production and will contribute to constructing the database structure;
- A group of 11 technical institutes (ACTA, ARVALIS - Plant Institute, CETIOM, UNIP, IFV, CTIFL, ITB, Terres d'Innovation, IDELE, ITAVI and IFIP) collects inventory data on technical processes, and will contribute to developing methods and participate in critical reviews of the inventory results;
- CIRAD (French Agricultural Research Centre for International Development) will be in charge of collecting data and implementing (method and calculation) LCAs of tropical productions.

LCIs were conducted using methodologies in line with international standards.

The main methodological principles of the AGRIBALYSE programme were the following, as consistent with the agri-food methodological guide published by the ADEME-AFNOR platform:

- The scope was limited to "cradle to farm gate" (except for tropical products whose life cycle stages were considered up to the supermarket doors in France). Specifically, crop management practices were assessed up to the moment products leave the field, and animal farming systems were assessed up to the moment products leave the production facility.
- The functional unit[10] selected for the AGRIBALYSE programme was "1 kg" or "1 litre" of product. The baseline period considered was from 2005 to 2009, which means that the technical institutes characterised farming systems using data representative of that period. Rules for calculating averages for each variable were established.
- The quality of individual data is systematically assessed using a quality score for each data source. An overall rating of quality for the inventory produced complements this quality assessment.
- The variability of farming systems was accounted for with geographical or technical variants (i.e. production methods, referred to in agriculture as "farming systems" or "technical processes"). For example, some products will be differentiated according to their production methods – conventional vs. organic, plains vs mountain farming system, region 1 vs. region 2, high vs. low levels of fertiliser (classified as a "technical process") – or their market outlet type (e.g. "Label Rouge" or a "spot market", etc.).

Regarding how the results are to be used, the AGRIBALYSE programme distinguished three types of data:

- LCIs relevant to environmental labelling, to be placed in the agricultural section of ADEME's IMPACTS database;
- Results made publicly available, but not to be used for environmental labelling (data not relevant to labelling or too vague);
- Confidential results.

A guide to data collection and an LCA methodology report created as part of this programme are also available.

An overview of the product groups and AGRIBALYSE variants is presented below:

[10] Reminder: a "functional unit" is the "quantified performance of a product system for use as a reference unit in a life cycle assessment". In other words, a functional unit is the unit of measure used to assess the service provided by a product. Also see glossary.

Études & documents | n° 113 EV | September 2014

Product groups and AGRIBALYSE variants

Institute	Product groups		Number of Agribalyse variants
Animal production: 18 product groups with 48 Agribalyse variants			
IDELE	1	Bovine milk	6
	2	Bovine meat	12
	3	Veal	1
	4	Sheep's milk	1
	5	Goat's milk	1
	6	Lamb	1
ITAVI	7	Egg	6
	8	Broiler chicken	4
	9	Turkey	3
	10	Foie gras duck	1
	11	Broiler duck	1
	12	Trout (serving)	1
	13	Large/very large trout	1
	14	Sea bass/bream	1
	15	Rabbit	1
IFIP	16	Standard pork	5
	17	"Label Rouge" pork	1
	18	Organic pork	1
Crop production: 25 product groups with 70 Agribalyse variants			
CTIFL	1	Tomato	4
	2	Carrot	3
	3	Peach	3
	4	Apple	4
CETIOM	5	Rapeseed	1
	6	Sunflower	1
ARVALIS	7	Soft wheat	5
	8	Durum wheat	1
	9	Barley (for beer)	1
	10	Potato	4
	11	Potato flour	1
	12	Maize kernels	2
	13	Forage maize	1
	14	Meadow hay	13
	15	Alfalfa	3

Institute	Product groups		Number of Agribalyse variants
	16	Triticale	2
	17	Forage barley	1
ITB	18	Beetroot	1
ASTREDHOR	19	Cider apple	1
	20	Cut rose flower	1
	21	Shrub	1
IFV	22	Wine grape	5
	23	Wine	5
UNIP	24	Broad bean	3
	25	Peas	3
Tropical agri-food chain: 3 product groups with 3 Agribalyse variants			
CIRAD	1	Clementine	1
	2	Thai rice	1
	3	Brazilian coffee	1

Since the AGRIBALYSE programme, a new programme, AGRIBALYSE 2 has been under discussion between economic stakeholders, experts and public authorities. The programme aims to:

- Continue research on unresolved methodological questions (accounting for carbon storage, for example);
- Provide companies with tools to help them continue producing LCI data compliant with established standards;
- Develop "strategic" LCI data in-house, which cannot be under the same conditions as those produced by the private sector.

II.5. Calculation software

This type of tool is designed to answer the practical question: "How should a company go about this?". You may recall the three tools essential to environmental labelling: methodological guidelines, a database containing generic data, and a calculation tool or software. We have already introduced the first two of these. The third tool is sector-specific software for calculating environmental impact values for its products.

As stated in the reading guide in Methodological Appendix A of BPX-30-323, "[...] *companies will need to use software to calculate environmental labelling data, software that incorporates the rules specified in the guide or methodological appendices. Companies will therefore not have to use these documents directly.*"

"This software will be [developed] based on 'generic' data because it is to be used by everyone and not to be recalculated by each company. *The database will be used to calculate the impacts of raw materials such as steel, cement, cardboard and glass, as well as frequently-used processes.* ADEME is responsible for developing this public database to ensure companies all use the same default data."

Step by step, the company using the software will then:

- Define their product
  - ✓ Identifying all the components that make up the product;

Études & documents | n° 113 EV | September 2014

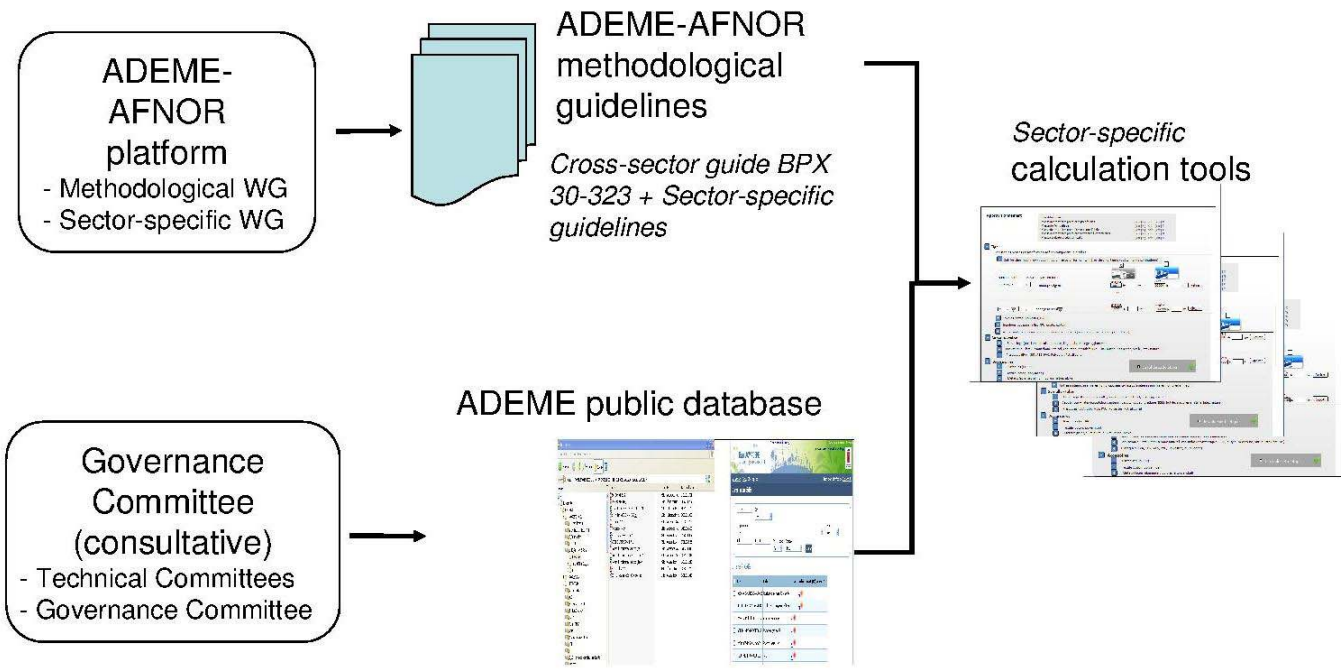
✓ Identifying the processing methods used;

✓ Identifying the elements that can be used to define its usage (eaten raw, cooked, frozen, refrigerated, average times, etc.).

- Map out the company's inflows
  - ✓ Purchases: raw material consumption, energy consumption;
  - ✓ Upstream logistics: distance from the factory to the warehouse, means of transport used.
- Map out the company's outflows:
  - ✓ Sales: weight of the finished product, number of finished products;
  - ✓ Downstream logistics: distance from the factory to the buyer's warehouse, means of transport used, identify and characterise the product's components and identify the technical processes used.
- Enter these flows into the relevant software to calculate labelling data.

Such tools already exist. Some have been purpose-built by public authorities (ADEME), such as the tool for shoes. Others have been developed in the private sector, by LCA consultants. Some of these include, but are not limited to, the environmental footprint calculation tool, Quantis Suite 2.0, Foodprint developed by Cycleco, and the Greenext tool.

The following diagram shows how the tools developed fit in with each other.



The various tools developed to meet the product labelling needs of agri-food companies have thus been presented. The following sections indicate how French efforts fit in with international initiatives.

II.6. Methodological guidelines developed at the European level

The Food SCP Round Table (SCP meaning Sustainable Consumption and Production), round-table co-chaired by the European Commission and food supply chain partners is an important European initiative in environmental impact assessment for agri-food products and in communication of assessment results to partners and consumers.

This round-table completed and tested the ENVIFOOD Protocol (in late 2012 and 2013 respectively), a harmonised methodological guide for assessing the environmental impacts of agri-food products. JRC (Joint Research Centre, the European Commission's in-house science service) and LCA specialists are involved in its development, which ensures the technical and scientific validity of the document.

The Food SCP Round Table has also produced a report on communication tools for environmental impact information on agri-food products, which was adopted at its plenary meeting in December 2011.

Participation in the round-table is open to stakeholders whose activities extend across the European Union. The types of stakeholders involved in the work of the round-table are many and varied, including representatives from: agricultural production (including COPA, an important European union for agricultural production), the animal feed sector, agri-food manufacturers (Food Drink Europe in particular, a European organisation similar to ANIA), consumer organisations and environmental organisations.

France has contributed greatly to this work, regularly informing the round-table of the progress of the ADEME-AFNOR platform and the national pilot in the agri-food sector, and has made several presentations to various committees.

The Commission has also developed a methodological guide for calculating Product Environmental Footprints (PEF). This document was finalised at the end of 2012 following a test phase. It is part of the initiative on building a single market for green products[11] put forward by the Commission on 9 April 2013. This initiative includes other points related to assessing the environmental impacts of products including:

- Recommending that Member States and economic stakeholders use the PEF method to calculate the environmental footprint of products;
- Announcing the launch of a three-year European pilot aiming to work with stakeholders towards developing sector- and category-specific methods for calculating environmental footprints according to this methodology (Product Environmental Footprint Category Rules, or PEFCRs), as well as to test communication methods (including communicating product environmental footprint information to consumers) and procedures for verifying environmental information. The PEFCRs developed through the European pilot will necessarily contain common rules for assessing the environmental footprint of products in the relevant sector or category, as well as recommendations for communication (including to consumers) and verification of the information. At the end of the three years, they could be incorporated into European policies (environmental labelling, green public procurement, etc.).

Due to the Commission's involvement in the Food SCP Round Table (co-chair), the ENVIFOOD Protocol is mostly compatible with the general environmental assessment document developed by the Commission, and the agri-food sector has a special part to play in the Commission's 3-year pilot that began in 2014.

The ENVIFOOD Protocol is thus a tool advocated by the European Commission to develop sector and category specific methods for calculating environmental footprints in the framework of the European pilot. The Commission is supported by the Food SCP Round Table in guiding pilot participants from the agri-food sector and in conducting the pilot itself.

This shows that the agri-food sector is one of the first to have harmonised standards for assessing the environmental impacts of products at a European level. These standards have been developed with the participation of various stakeholders, with

[11] http://ec.europa.eu/environment/eussd/smgp/index.htm

Études & documents | n° 113 EV | September 2014

scientific and technical support (JRC, LCA experts). The involvement of the European Commission has brought official recognition of these standards, confirmed by the role of the Food SCP Round Table and its ENVIFOOD Protocol in the 3-year European pilot. This is an important asset for the sector regarding the implementation of an environmental labelling scheme.

The future of the ENVIFOOD Protocol and its use in the development of PEFCRs for the agri-food sector within the European pilot will be a matter for discussion in WG1 of the ADEME-AFNOR platform, in particular how this document will fit in with the French platform's sector-specific guide. The general national guide, BPX-30-323-0, is already under review, with the aim of making it as consistent as possible with the Commission's common methodology, PEF. The specific characteristics, however, are retained in this review in light of the experience gained from the French pilot and the more operational nature of the French scheme (objective of communicating environmental information to consumers in France, while the use of environmental footprints calculated according to the EU methodology is not currently regulated). As will be the case in all sectors, WG1 of the ADEME-AFNOR platform will initially need to review the national sector-specific guide to bring it in line with the new version of BPX 30-323. Further discussions will be held in WG1 concerning the ENVIFOOD Protocol and its official European status. In particular, WG1 will need to discuss the potential coexistence of the two documents, whether or not the protocol should be adopted by the ADEME-AFNOR platform, and whether or not the national guide should be reviewed, with various options for this review (e.g. bringing the national guide in line with the protocol, or limiting them to simply guidance in addition to the protocol). The striking similarities between the national guide and the protocol should facilitate discussions on how the two documents fit in with each other. Of particular note are the following similarities: multi-criteria approach and LCA, same functional unit (100 g/100 ml or serving if defined), primary data preferred.

II.7. Environmental labelling scheme pilot in France (2011-2012)

The agri-food sector was actively involved in the national pilot[12] conducted in application of the Grenelle laws. As an indication of this commitment, it was the most represented sector in terms of the number of companies involved in the pilot: 70 of the 168 companies selected for the pilot were from the agri-food sector.

Participants from the agri-food sector showed diversity on several levels:

- Many agri-food products were involved (281 products): grains, fruit, vegetables, cooked meat, eggs, poultry, yoghurt, fizzy drinks, bread, mineral water, coffee, juice, oil, beer, but also feed;
- Conventional products, but also products with various official quality labels. It should be noted that some products came from organic farming, an official scheme signalling environmental quality. For example, organic products marketed by the specialist distributor Biocoop including products from the industrial dairy Triballat, organic products marketed by the frozen food distributor Picard, and organic soup from the company Langloys Traiteur, have been involved in labelling. The other official quality schemes were all represented in the pilot, for example: Protected Designation of Origin (PDO) "Haut Médoc" (Château Larose-Trintaudon); Protected Geographical Indication (PGI) "Kiwi de l'Adour" (Sikig); Label Rouge chicken and kiwi fruit.

The pilot also included fair trade products, such as the Brazilian orange juice marketed by the company Ethiquable.

Also of note:

- The different sizes of companies: 6% VSEs, 44% SMEs and 50% companies with 250 or more employees. To give an example, participation from the agri-food sector in the national pilot ranged from a bakery with two employees to the French subsidiary of a multinational company with over 5,500 employees;
- The various links in the food chain: producers (e.g. Château Larose-Trintaudon which engages in viticulture and oenology), artisans (e.g. bakers), meat packers (e.g. Euralis Gourmet), processors (e.g. Heineken, Nestle, Langloys Traiteur), resellers (e.g. Ethiquable), distributors (e.g. Biocoop, Picard, Casino, Gamm vert);
- The foreign companies such as the Chilean company Agricom who labelled avocado (fresh) and table grapes (fresh).

[12] http://www.developpement-durable.gouv.fr/-Experimentation-de-l-affichage,4303-.html

Some operations were facilitated by collectives. Of particular note, the involvement of the cooperative sector (Coop de France and In Vivo) led to the completion of certain projects.

The agri-food sector is also involved in assessing the pilot, beyond just feedback from the participating companies. This includes spontaneous contributions and positioning from ANIA, FICT (French federation of industrial deli meat producers and caterers), Coop de France and Foodprint (a collective uniting the technology park Alimentec, the LCA consultancy Cycleco and five agri-food SMEs in the Rhone-Alpes region).

The report on the national pilot, presented by the Government to Parliament in November 2013 (see http://www.developpement-durable.gouv.fr/IMG/pdf/Affichage_environnemental.pdf), mentions certain conditions to be met before deploying the environmental labelling scheme. Let us review them here:

"1. [...] despite considerable progress since the scheme's launch in 2008, the basic methodology needs to be improved in some consumer sectors, especially the agriculture and food sector. This technical methodology, which would be provided to companies, should ensure the reliability of the calculations, as well as their environmental relevance and comparability between products of the same category.

2. Providing this technical methodology free of charge would greatly reduce the cost to companies of implementing the scheme, [...]

3. The issues of monitoring and verification of the system will be central in ensuring a level playing field between companies, whatever the origin of the product [...]

4. The selected scheme must be fully compliant with EU and international market procurement rules [...]".

This government report also indicates, concerning the terms of deployment of the environmental labelling scheme in France:

"1. Extending the scheme will necessarily be progressive and carefully thought out. The adoption of a system on a voluntary basis seems to have found approval with stakeholders, provided it is compatible with EU rules, thus supporting continuation of the work. Mandatory labelling might be considered, again within the framework of EU rules, after an initial voluntary period. If it were introduced at this stage however, it may appear hasty and inconsistent with the new European developments.

2. The characteristics of each sector and types of companies (small companies, small-scale industries) will be studied to determine how labelling requirements might be adapted to their situation, particularly in terms of specific support needs. The technical slope will be steeper for some sectors than for others, which will need to be taken into account. This is probably the case for the agricultural and food sector in particular, which has its own specific requirements. The technical difficulties specific to this sector must be overcome before implementation of the labelling scheme.

3. The recent launch of a three-year large-scale European pilot is a major opportunity and an encouraging prospect. It is this pilot that will provide the framework for reflection. A harmonised labelling system focused on the European level would be more effective than if it were limited to France. The initiative requires national and EU developments to be compatible, both in terms of content and time frame. This should not, however, be an excuse for inaction. Maintaining a strong national momentum would allow the approach to become operational on the European level, and accessible to both companies and consumers, which was adopted at the national level.

4. There will also need to be important discussion with stakeholders on the format of the future labelling system, to ensure, in the words of the legislature, "sincere, objective and full environmental disclosure" to the consumer, within the harmonised multi-criteria framework that stakeholders have been calling for. The format should be readable, simple and distinctive, while allowing easy comparison within the same product category.

5. Finally, to ensure the success of the scheme among companies and consumers, support through education and awareness campaigns could be discussed with stakeholders. Support and explanations of the scheme must rely on assistance that can be provided by devolved administrations, associations and their regional branches, but also by elected officials and local authorities."

Études & documents | n° 113 EV | September 2014

III. Consultation with stakeholders in the agri-food sector

As stated in the introductory section, the agriculture and food sectors have shown active involvement in the work of the ADEME-AFNOR platform over the last four years, especially in the dedicated subgroup, WG1 (291 companies participate in WG1, totalling over 380 people). This is especially the case for the following collective stakeholders:

- Agri-food joint trade organisations, including for example those of the dairy industry, the meat industry, the grain industry, and the charcuterie industry;
- Federations and associations of companies, from the private or cooperative sectors.

It is also the case for experts in research and development:

- All the agricultural technical institutes, which provide technical advice for agricultural producers;
- The French national institute for agricultural research INRA, which is also an important resource in France, providing expertise and research for the agricultural sector.

In addition to these are the individual companies. As we have seen, companies played an important role in the pilot, regardless of their size. Finally, agricultural unions followed the work of the platform and participated in specific efforts encouraging biodiversity.

The Ministry for Sustainable Development held numerous consultation meetings with agriculture and food stakeholders. It addressed various types of bodies on their premises or at public events (FNSEA, Coop de France, ANIA, INTERBEV, CNIEL, Intercéréales, Synalaf, Agence Bio, DévAB technological combined network, International Agricultural Show, Living Tech-Ovin sheep breeding show, Journées de l'élevage farmers' days, Alimentec technology park open days, etc.).

Specific efforts concerning a biodiversity indicator have led to many discussions including a presentation seminar on 26 June 2013.

Work with sector stakeholders was also engaged at a European level, with the Food SCP Round Table bringing together French companies committed at this level.

Finally, the agri-food sector is now well informed about the scheme and has become involved. It has shown itself to be particularly active, although there is a call for upstream agricultural activities to step up their involvement in future. Already, corporate groups and technical centres are able to offer support in the deployment of the labelling scheme.

IV. Proposals for the agriculture and food sector

In the previous sections we looked at the specific characteristics of the agricultural sector from an environmental labelling perspective, the tools and methodologies that have already been developed, and the progress that has been made in consultation with the sector and its participation in the national pilot. Based on these considerations, we propose to discuss potential avenues for continuing this project, with a view to guaranteeing the consumer's right to "sincere, objective and full" disclosure of environmental information.

The option proposed by the report submitted to Parliament is that of progressive deployment of the labelling scheme, with an initial voluntary phase. The specific characteristics of the agri-food sector, which have been presented and which we will come back to shortly, call for a period of methodological reflection. In this section, the main points requiring further development and issues that have been under discussion will be presented.

IV.1. Measuring the impacts of agri-food products

Several aspects are discussed in this subsection. These are:

- The environmental issues chosen for the agri-food sector;
- The methods chosen for calculating impacts;
- The models chosen for estimating pollutant emissions (also called characterisation factors).

The environmental issue Biodiversity Loss and the Biodiversity indicator are discussed in a separate subsection below.

The environmental issues chosen for the agri-food sector (three in all: Greenhouse Gas Emissions, Water Pollution, Biodiversity Loss) were selected by WG1 of the ADEME-AFNOR platform and seem to have been widely accepted. It is important to emphasise that there is currently no mention of providing consumers with information on the Climate Change issue in the specifications of the official quality schemes. Issues other than the three selected were also considered in WG1, such as Waste, but the three mentioned are considered to cover all the main environmental issues. Participants who were not satisfied did not directly challenge the selection, but rather called for additional indicators (e.g. Animal Welfare, Genetic Diversity, etc.). However, the idea of limiting the number of environmental issues to be communicated to consumers to three was widely accepted.

The BPX-30-323 guide specifies the list of methods chosen for measuring impacts for each environmental issue. Known as "characterisation methods", these methods satisfy the requirements of the chosen rules: compliance with ISO standards and life cycle approaches. For the Water issue for example, the USEtox and ReCiPe methods were chosen (see section on methods). These help calculate values for the indicators that will be used to inform consumers. Like any indicator, those proposed by BPX-30-323 have received some criticism, sometimes being considered too complex, but also too simplified or even simplistic...

It should be kept in mind that an indicator is never a perfect representation of the big picture. "A map is not the territory it represents" as they say, and the perfect 1:1 scale map remains fiction. Nevertheless, the indicators chosen are the most widely accepted and employ the best available techniques to date. It may be necessary to make changes further down the track, as more detailed or more accurate methods are introduced. This was the case with the review of BPX30-323-0 in 2013. **At this time, it is proposed to retain the tools set out in BPX-30-323 and approved by the ADEME-AFNOR platform.**

There do not appear to be any major obstacles to applying these tools to the agri-food sector, and they were used by the agricultural technical institutes to create the AGRIBALYSE database. The question of adding a characterisation factor to those identified to date by WG1 (Greenhouse Gas Emissions, Water, Biodiversity) has been raised, one that is more specific to the

Études & documents | n° 113 EV | September 2014

issue of human health, or other factors already mentioned. Any such additions would mean revising the three-criteria limit. However, as no methods are currently available, such a proposal seems untenable at this time.

Another point that is under discussion, not about measuring impacts but a step before these calculations, is estimating pollutant flows. Calculating inventory flows in LCA, for agricultural products or any other product type, does not involve physical measurements, but rather as mentioned earlier, modelling (using "emission estimation models"). These models are sometimes considered insufficiently robust, and they do not account for all the factors that affect emissions. The same is true for calculating greenhouse gas emissions. These emissions depend on many factors, some of which are not included in the algorithm used in the AGRIBALYSE database, such as soil type or type of agricultural practice (influencing the concentration of organic matter). As with any indicator, the methods are expected to improve over time in accuracy, robustness and relevance. The proposed models have however been accepted as the "best available techniques". **It is therefore considered that they are currently robust enough to be used in an operational setting.** ADEME's database will not remain static and will be updated and developed as the models improve. In the meantime, they have been accepted by the technical institutes involved in the AGRIBALYSE project.

IV.2. Considering carbon storage in soil

The method used to calculate the carbon footprint of crop and livestock products deserves special attention in this report. While the characterisation method, compliant with IPCC standards (Intergovernmental Panel on Climate Change), does not pose a problem for sector stakeholders, the agricultural sector would seek to promote one of its specific characteristics, the ability to extract carbon dioxide from the atmosphere and store it as organic carbon in agricultural and grassland soils. IPCC experts share this view and are in favour of taking carbon storage into account. However, the method designed to account for this phenomenon in LCAs and calculate carbon footprints is not yet ready to be implemented.

Subsector issues are significant. Storage actually mainly occurs in permanent and temporary grassland. Grass-fed livestock production is particularly affected by this issue, considering that including the carbon sink effect will decrease the estimated amount of its impact on Climate Change, as it is net emissions (= gross emissions minus what is stored) and not gross emissions that are calculated.

AGRIBALYSE partners (INRA, the Swiss research organisation ART, the agricultural technical institutes, and guided by ADEME) have theoretically agreed to include carbon storage in agricultural and grassland soils. At the same time, the AGRIBALYSE steering committee argued the need in this case to also measure carbon release to achieve a consistent methodology.

Historically, carbon stock on agricultural land in France does indeed have a tendency to decline due to conversion of permanent pastures, whose area is decreasing every year. Overall, it is thus more of a release that is observed.

A review of methodologies was initiated by AGRIBALYSE. CITEPA methodology, used for calculating national inventories and their sectoral variants, was initially singled out to be the main tool. It uses a "policy change scenario" method in assessing differences between two scenarios. But this proved to pose a significant problem. By including inventories retrospectively from a period 20 years ago, the method found carbon release to be considerable, with an increase of GHG emissions from crops of around 30%. The crop sector is thus particularly affected by the inclusion of carbon release. However, the livestock sector is not unaffected, with its GHG emissions also increasing due to grain consumption (50% of French wheat is used for animal feed).

This has led stakeholders to reconsider their positions. The method is criticised for seeking to account for policy changes by comparing a past situation (20 years ago) with a present situation. In the case of the labelling scheme, where the aim is to measure the impacts in a given stable situation, the "policy change scenario" method would then be ultimately inadequate by definition.

At this stage of the review, participants in the AGRIBALYSE project considered that carbon storage/release could not be included. They proposed an alternative method to get around the approach, which accounts for pasture conversion over the past 20 years. This more detailed approach, by region and crop, is worth exploring because methodology for an analysis of this type does not yet exist.

The agricultural technical institutes (crops and livestock) do not share a common vision on the issue, and it was not possible to settle on a shared methodology. The "GESTIM method", developed as part of a CASDAR project and proposed by IDELE, was rejected as it does not conform to IPCC standards (ILCD). At this point, INRA has not arrived at a consensus either, as the scientific community itself is divided by fundamental issues. Some teams consider that only human action affecting carbon storage/release should be included; others believe that grasslands contain massive carbon stocks – more than preliminary scientific studies would suggest – and above all, that these stocks are increasing due to climate change. According to these researchers, the extent of the storage phenomenon more than justifies attempts to measure and include it, regardless of the contributing factors.

The extension of the AGRIBALYSE project (AGRIBALYSE 2), under discussion between stakeholders and government departments, will provide the framework necessary to continue this review of methodologies.

IV.3. Choosing functional units

Regarding the "functional unit" presented above (labelling impacts "per 100 g or 100 ml of product"), many discussions took place in WG1 of the ADEME-AFNOR platform. Using product weight (or serving) to assess impacts will lead economic stakeholders seeking to reduce their impacts either to focus on changing the indicator's numerator (thus trying to minimise the amount of impact directly), or to focus on changing the denominator by increasing production volumes for a given amount of impact. Increasing the volume produced per unit of agricultural land, however, involves intensive production techniques and can result in increased pressure on natural resources and the environment. Consequently, the chosen functional unit is likely to lead to an indicator that is unsatisfactory for the more extensive farming techniques. Several agricultural sectors are concerned about this, from quality scheme managers (labels, PDO, PGI, and organic products) to representatives of grass-fed production for example.

Five points need to be considered in response to this issue:

- The functional unit in question comes from a consensus proposition from the agri-food sector itself, via the ADEME-AFNOR platform's WG1. Other units have been proposed, such as labelling "per hectare" or "per calorie" or "per protein", the latter two reflecting functions of food products. These were considered and eventually rejected by WG1 because they were not applicable to all sector segments. In the end, the functional unit "per 100 g or 100 ml of product" appears to be the "least undesirable" solution, as it is ultimately shared by all stakeholders.
- Environmental labelling is for the benefit of consumers, and as the category "per 100 g or 100 ml of product" is the one consumers are most familiar with, it will be the most meaningful.
- Product environmental labelling refers to the "product-packaging combination" (under the programme law relating to the Grenelle de l'environnement) using life cycle approaches (see the French Law relating to the national commitment to the environment). Although the impacts of upstream agricultural activities appear to be quite significant and are often predominant, this is not a general phenomenon. For example, 70% of the carbon footprint of an ice cream comes from downstream in the food chain, i.e. freezing. In which case, assessing impacts per hectare just does not make sense. A "per hectare" labelling system would not account for life cycle impacts, in contrast to the proposed functional unit, which is suitable for "cradle to grave" analyses.
- Returning to the nutritive function of agriculture, that the whole of the farming community rightly regards as paramount, implies a certain focus on the volume of agricultural products. (We could narrow the scope by considering energy or protein content, but as we have seen these options are too specific to certain subsectors and have been abandoned.) The figure below illustrates the value of calculations "per 100 g or 100 ml of product". It is a fact that extensive farming techniques can sometimes obtain higher values when using indicators to calculate impacts, since

Études & documents | n° 113 EV | September 2014

their generally lower yield per hectare results in a lower production volume (the denominator of the indicator). This is not an anomaly or a "negative side effect". The indicator values for extensive techniques are accounting for a real environmental impact.

- The challenge remains to provide comprehensive information to consumers on these environmental impacts. However, no information is currently communicated to consumers that covers the issue of Greenhouse Gas Emissions. Market segmentation strategies for agricultural products do not focus on this aspect. Although the news can be unsettling, the issue of Climate Change is so serious that it cannot be ignored.

It was in consideration of extensive farming techniques that MEDDE very early on addressed the need for a multi-criteria labelling system that could compensate for having a single carbon indicator. The Water and Biodiversity indicators are theoretically less impacted by extensive techniques and thus add value to this type of technique.

It is therefore proposed to retain the functional unit "100 g or 100 ml" proposed by the agri-food group WG1, while deploying the labelling scheme within a time frame that will avoid any counter-productive effects on extensive techniques, i.e. when the characterisation factors for Water and Biodiversity have been better prepared.

Box: Feeding the global village

Take the case of a village requiring 1,000 litres of milk per day. To date, the GHG impacts of dairy farming have been estimated in a case study ("Etre et bio" Breton organic network and Hayo van der Werf, 2012) to be:

In kg CO_2e	Organic	Conventional
Impact for 1,000 kg of milk	1,100	1,000
Impact per hectare	5,000	6,000

References: INRA Hayo Van der Werf, 2012.

If the reasoning was based on a "ha" functional unit, from a cursory glance one might conclude organic farming has a lower environmental impact (5,000 compared to 6,000). In actual fact, as the objective is to produce 1,000 kg of milk, 0.22 hectares of organic arable land is needed (organic yield would be 4,600 kg/ha in this instance) or 0.17 ha of conventional arable land (6,000 kg/ha yield). In order to meet the needs of the village, **the carbon footprint is higher if the population's food supply comes from organic farming, with 1,100 kg CO_2e for organic farming compared to 1,000 for conventional farming.**

The same reasoning is applied for feeding the "global village". This is what prompted our preference for the functional unit "100 g or 100 ml."

It should be noted that these values from a single case study cannot necessarily be generalised. Moreover, only GHG emissions were considered.

IV.4. Allocating impacts between products and co-products

Independently of the labelling scheme in question, studies on the sustainability of biofuels have highlighted the issue of rules for allocating impacts between products and co-products when conducting life cycle assessments. At several stages in a product's life cycle there are industrial processes that can be considered allocation "nodes" where an agricultural good is divided into several co-products. Typical examples include the case of separating the oil and meal produced by a grain or plant, and the case of the milk produced over a dairy cow's lifetime while the same animal also yields kilograms of meat or carcass. At each of these nodes, the calculated impacts of upstream activities need to be allocated between products and co-products. The allocation rule for this division is to be determined according to objective criteria, which will be detailed later. Several allocation

criteria are possible, and there are no technical or scientific principles to help in selecting any one in particular. The choice comes down to an agreement to be reached between stakeholders.

ISO 14040 and ISO 14044 standards provide a hierarchy of allocation criteria to follow to help in this choice, using decision tree logic (priority to the first criterion, and if implementation is not possible, priority to the next criterion, etc.):

- Avoid allocation if different production processes can be identified (which is never the case in agriculture);
- Physical allocation (impacts are distributed according to mass, energy (calories) or any other physical feature of the product and co-product);
- Economic allocation, based on the value and price of the product and co-product;
- Or a combination of these criteria.

The cross-sector guide approved by the ADEME-AFNOR platform, BPX-30-323-0, only mention the ISO standard hierarchy, but do not resolve the issue of allocation. It is up to the individual sectors to make this decision.

Many avenues have been explored by both WG1 and the AGRIBALYSE database steering committee. The various sectors and subsectors voted in favour of their preferred allocation rule.

- Their positions do not necessarily coincide.
- The AGRIBALYSE project stakeholders (LCA efforts in upstream agricultural activities) made the following proposals. As part of AGRIBALYSE, the "main product" was defined as "output" from the farming system's main function. All other products of the process are then considered "co-products". The allocation rules are based on the recommendations of the reading guide in the methodological appendix of the BPX-30-323-0 guide (AFNOR 2013). In compliance with ISO 14040 and 14044, AGRIBALYSE thus opted for the following order of priority for applicable allocation rules:
  - 1st choice: Avoid allocation;
  - 2nd choice: "Physical allocation";
  - 3rd choice: "Economic allocation". The note states that this allocation method is common in LCA when none of the physical criteria are as relevant to the product as to the co-product, which is precisely the case outlined by animal feed manufacturers.

The following choices were therefore made by the AGRIBALYSE database strategic planning committee:

- For crops (grains and pulses, between grain and straw): Economic allocation.
- For livestock: Allocation according to a "biophysical model" to be understood as follows: "The life of the animal is divided into characteristic physiological stages. For some stages, this division is insufficient, for example the milk production phase for cows. Allocation between milk and calf is needed. This was done proportionally according to the energy consumed for the various needs of the animal." (ADEME note). Please note that this method is unique to France, and should be brought to the attention of scientific and international standardisation bodies.
- For animal feed: Economic allocation. *"Several crop co-products (meal, oil, etc.) are used in animal feed. Several methods could be considered for allocating the environmental impacts associated with their production.* In the AGRIBALYSE project, allocation according to an economic criterion was chosen for this kind of raw material, as the other allocation criteria, including physical ones, do not reflect the underlying physical relationships between the various co-products." (ADEME note).

Some first-stage processors of agricultural products (IPTA) prefer the physical criterion option, i.e. mass-based (in some cases, depending on the weight of dry matter) or energy-based allocation.

Animal nutrition unions voted in favour of economic allocation, or even a combination of mass-based and economic allocation.

At the time of writing, the debate on the issue of allocations was ongoing. The rules previously accepted by ADEME for the energy balance of biofuels have been highlighted by economic stakeholders of the biofuel sector, who want the same allocation principle to be used for both the energy balance of biofuels and the environmental labelling scheme.

At the European level, the Food SCP Round Table has also partially taken a position on the subject of allocations. For the moment, the ENVIFOOD Protocol has also only got as far as providing information on applying the ISO hierarchy to agri-food products. The issue is thus not yet resolved. European stakeholders have taken the following positions:

- FEDIOL (federation representing the oil industry in Europe) intends to be a driving force on this issue and advocates a physical allocation criterion.

Études & documents | n° 113 EV | September 2014

- Downstream stakeholders in the meat supply chain are in favour of economic allocation. These are FEDIAF (European Pet Food Industry Federation - food and drink industries constituency) and FEFAC (suppliers to the agricultural sector constituency).

The French and European outlook on the issue of allowances thus does not appear to have stabilised. As the outward issue is to be seen to be contributing more or less to impacts, it is readily apparent that the various sectors see it as an economic issue. They thus each tend to propose a criterion that would minimise the impact of the products they buy before processing them. Yet for the sake of consistency, it would seem reasonable to choose a single allocation principle. Having a single criterion would avoid counting contributions twice and ensure that a portion of the impact is not lost in the allocation process. Working by subsector has actually led to centrifugal tendencies, each subsector analysing the issue according to their own concerns. At this point, outlooks and analyses need to be compiled if we are to come to a decision taking all stakeholder interests into account.

Regarding allocation, in the event the agri-food sector is unable to reach a consensus on a single rule, the decision will ultimately fall to the Government. It would however be better to wait until discussions at the European level are concluded, particularly in the context of the EU PEF pilot.

It should also be stressed that subsectors are likely to overestimate the issue underlying allocations. Discussions thus need to be brought within scope. The end user of the indicator, whether this is the consumer or the producer (agricultural or industrial), will not generally be making a choice between a product and a co-product. Once an allocation rule has been settled on, participants will adapt their activities through what economists call their demand function. For the consumer, the choice will not be between buying oil and buying meat, or between a bottle of milk and a bag of animal feed, but between products of a similar nature. When distinguishing between similar goods produced from the same type of agricultural product, the choice of allocation criterion will not be especially important. What matters is that the same allocation criterion is used to calculate the impacts of the two products. This is what a sensitivity analysis revealed, conducted as part of an ADEME study in complement to AGRIBALYSE (2013).

It is thus proposed that a single allocation criterion be selected for the agri-food sector, either by obtaining a consensus within the sector, or by making an executive decision after a thorough review of all the options and issues, and on completion of the EU PEF pilot. In-depth discussions on this issue will continue.

IV.5. The Biodiversity issue

In this project for environmental labelling, changes in the French and European contexts have not negated the need to develop an indicator for food products to estimate their impact in terms of Biodiversity Loss. No satisfactory methodology has yet been proposed to provide information on this environmental issue. The Biodiversity Loss impact category does exist in the agri-food guide developed by the ADEME-AFNOR methodology platform, but no satisfactory method has been developed to date.

This issue, although generally recognised and considered to be essential in any environmental labelling system aimed at the agri-food chain, has not yet made an appearance in EU documents. For example, the Food SCP Round Table developed and tested the ENVIFOOD Protocol, which does not mention the Biodiversity Loss environmental issue as such. Similarly, the European Commission published the Product Environmental Footprint Guide (and its equivalent for organisations), but again the issue is not dealt with explicitly or systematically (it is presented as an issue to be dealt with on a case by case basis, in the event of a major local threat). The European pilot in progress will thus result in methodological guidelines in late 2016 that will not enable a product's impact on Biodiversity to be estimated.

Yet a Biodiversity indicator has a number of advantages:

- It would strengthen the multi-criteria nature of the environmental labelling scheme, which France is keen to encourage;
- It is demanded by agricultural professionals (especially by cattle and sheep farmers), in order to promote extensive practices;
- It is desired by consumers as it would help them to minimise the impacts of their purchases on Biodiversity.

France has reported and commented on the lack of a Biodiversity Loss impact category on two occasions, namely during the EC consultation on the PEF guide and during the consultation organised by the Food SCP Round Table on the ENVIFOOD Protocol.

Previously, the agri-food working group of the ADEME-AFNOR platform, WG1, had explored the Biodiversity issue. Over the course of several specific working sessions in 2010, the indicators proposed by LCA experts were analysed. Focusing primarily on the use of natural areas as a contributing factor to Biodiversity Loss, the available indicators revealed a paradoxical result for agriculture. The more areas producers leverage in production, the more their impact appears to be negative. Whereas other more commonly used agri-environmental approaches highlight the opposite. In general, the more agricultural practices are intensive per hectare, the higher the impact of production on the environment (especially in relation to chemical inputs).

ADEME, through the AGRIBALYSE 1 project, retained the Biodiversity issue, anticipating one day being able to enter the values in the database. When an impact characterisation method has been developed, these inventories can be used to quickly supplement the database. However, AGRIBALYSE did not specifically work on characterisation methods, and thus the problem remains.

This led MEDDE to explore one particular avenue for developing a Biodiversity indicator. The proposed avenue involves relying on one Biodiversity indicator (among others), namely the presence of "landscape features".

The grounds for such an approach are:

- The main impact of agri-food products on Biodiversity is decided a priori on the farm. It is thus assumed that we are now moving away from a life cycle approach;
- Biodiversity status is strongly correlated with the presence of landscape features or semi-natural elements on farms. This is a matter for discussion, as many factors are involved in biodiversity. Let us not forget, however, that for an indicator-based approach to produce useful information, it always involves a simplification of reality. At this point, we relied on INRA's collective scientific report (ESCo) on biodiversity, which stressed the important role of landscape features.
- Factors other than landscape features also influence biodiversity on farms. This is particularly the case of the use of inputs and associated pollutant flows. It can be considered that as the eutrophication and ecotoxicity values calculated as Water indicators are used to account for these factors, they do not need to be included in the Biodiversity indicator.
- Finally, the concept of landscape features is generally familiar to the farming community, and is already being incorporated into agricultural policies, for example in qualifying criteria for agricultural support, in environmental certification schemes for farms, and in voluntary agri-environmental schemes available to farmers.

The study, commissioned by MEDDE, was conducted by an association of the agri-environment organisation Solagro and ACTA's major agricultural institutes, joining forces for this project. It was presented at a seminar on 26 June 2013, in the presence of the various subsectors and experts of the agricultural sector. The project carried out by the study involved identifying ways to add an indicator to an initial set of agricultural products, expressed as "area of Biodiversity per unit of product leaving the farm". This ratio, or "landscape features/kg or litre of product", is calculated from a variety of sources, statistics or expert opinions, or from existing databases belonging to the institutes or Solagro. Beyond the strict calculation of the indicator, the commissioned study also involved discussing the relevance of the approach, verifying that impacts were not counted twice, and making certain the indicator did not have any negative side effects.

Finally, the study showed that it is possible to establish an indicator value reflecting "landscape features in relation to a product volume" and that such an indicator is appropriate.

Études & documents | n° 113 EV | September 2014

A publication in the collection "Études & Documents" (No. 99) by MEDDE CGDD summarises the study in French (see http://www.developpement-durable.gouv.fr/IMG/pdf/E_D99_indicateur_biodiversite_produits_agricoles.pdf).

It highlighted the main advantages of this indicator:

- It is calculable (databases exist even if they are not comprehensive). The indicator has thus been calculated for thirty or so French agricultural raw materials (using three different databases, two for farms and one for territories, i.e. Small Agricultural Regions).
- It is grasped and understood by stakeholders (most consider that the natural habitats created by landscape features are a good "proxy" for estimating biodiversity status on farms).

The indicator is constructed ad hoc for labelling impacts on agricultural products. This has the advantage of promoting the landscape features concept, which is already generally familiar to farmers, as it is present in several of the Common Agricultural Policy (CAP) instruments. The constructed indicator is not a life cycle indicator and has no equivalent in other countries, even if it has the potential to be implemented throughout Europe. Finally, due to the exploratory nature of the Solagro-ACTA work, use of the indicator for general labelling on agricultural and agri-food products calls for new data to be collected, either from farms or by stepping up processing of available statistical data.

At this point, the study cannot claim to have concluded work on defining a Biodiversity indicator for food products. Discussions should continue, including those relating to the development of an LCA-style indicator. Let us review the problem's major points.

The overall objective is to successfully combine in as detailed yet cost-effective way as possible:

- A biodiversity "status" or "change of status" (or both) originally impacted by agricultural production;
- A physical quantity (100 g or 100 ml) of food for all agricultural (and better yet agri-food) products sold in France (and better yet the European Union).

This means that the way of looking at Biodiversity and the means of developing a Biodiversity indicator for product environmental labelling needs to be the same in all these countries.

This is a challenge because, unlike the indicator for Greenhouse Gas Emissions (expressed in CO_2 equivalent) that can provide Climate Change impact information on any part of the world, for Biodiversity it seems difficult to establish equivalences between the very different types of biodiversity affected by agriculture in very different countries (e.g. tropical, temperate, rich, developing, or emerging) that are trading partners.

Meeting this challenge involves finding a "lowest common denominator" to characterise farmland biodiversity with agricultural trading partners [France-EU first, then France-EU-rest of the world]. In other words, a common, sufficiently precise methodology needs to be found for defining:

- How to characterise and approach Biodiversity, choosing which biodiversity to focus on (taxon, species, genus, family, etc.), or choosing a proxy as a variable characterising habitats of biodiversity value);
- What a Biodiversity indicator will entail for agricultural (or better yet agri-food) products;
- What a Biodiversity indicator is when it is intended to be communicated to consumers to influence their purchasing choices.

However, for the proposed product environmental labelling scheme, other options can be considered on the subject of Biodiversity indicators:

- One option would be to reserve indicating a biodiversity value until adequate methods have been developed. With this option, the labelling scheme would be implemented for the other indicators, i.e. Greenhouse Gas Emissions and Water. This option would pose significant problems for the farming community, which has rightly emphasised the need for environmental services that are applicable to agricultural production. Temporarily abandoning the idea of having a Biodiversity indicator would reduce the labelling scheme's acceptability for stakeholders in the agricultural sector. It is therefore proposed to reject this option.
- A general waiting option. This option would involve considering that without a Biodiversity indicator, deployment of the scheme would not take place in the agricultural sector. This option is not satisfactory either. It implies that deploying the scheme cannot take place until the last piece of information needed is in hand. On the contrary, we consider that the very nature of the scheme entails moving forward, even with partial information.
- Another option would be to use a Biodiversity indicator that complies with ISO standards and LCA protocol, such as the Land Use indicator, accepting its incomplete, perhaps questionable nature. International research programmes are underway, particularly in response to French criticism towards LCA Biodiversity indicators, and we can expect the limitations of these indicators to be overcome within a few years. **The Government will be paying close**

attention to developments in this area within the international research frameworks over the next two years (2014–2015), and will make a decision at the end of this period based on these advances.

IV.6. Considering the typology of agricultural and food products

The AGRIBALYSE database covers nearly 130 products (see section on methods and data, describing the AGRIBALYSE database). The term "product" here should be understood in the following way: a product in the database is an "agricultural good and a way to produce this good". The database cannot claim to cover all raw agricultural products as they will be specified here.

Initially, the farming community was concerned about contrasting the various ways of producing. It preferred to limit impact calculations to the average values for each product. This would result in a single average impact for French wheat or French apples, for example.

Further consideration then led agricultural stakeholders to focus on the opposite, on the comparability of production methods, the purpose of the labelling system being after all to improve the environmental practices of producers. This realisation paved the way for products to be identified as "agricultural goods produced using a certain technique and in a certain region".

AGRIBALYSE reflects this nomenclature by offering a preliminary product typology. Such a typology suggests that a "grade" be agreed upon, in other words, knowing how far to go on the scale when defining products. The various agricultural subsectors do not necessarily address the grade issue in the same way. Several variables influencing environmental impacts are taken into consideration, such as the agricultural techniques available or the region of production. Agricultural techniques themselves can be classified into major distinctive groups. Thus it is possible to consider either the "farming system" (the farm's production combination, i.e. the facilities on the farm, which provides the list of agricultural goods produced by the farm, as well as the relative weight of each of the goods), or the "technical processes" (i.e. a way of managing each production facility in a given farming system).

Both elements are thus important in defining the structure of the desired typology: specifying how fine a grade is required and specifying the criteria according to which the typology should be built. The point of reference to keep in mind is that, first and foremost, the typology must account for environmental impacts of agricultural products in a relevant way. Thus, if the region of production explains the majority of environmental impacts, this criterion should be selected. If it is the technical process (choice of crop schedule or type of practice), then the database should be organised according to this factor.

As we do not know the detail of the impact values a priori, the typology must be refined and reviewed in increments; it is based on information known a priori, and an in depth LCA approach will thus be needed to review the initial choices and target the relevant categories.

There is no absolute rule governing the construction of the typology; it is a matter for discussion. The various stakeholders, producers, experts, environmental groups and public authorities are called upon to decide on the construction and grade of the typology. This is the purpose of the AGRIBALYSE database governance, which involves all these stakeholders.

Compromises will need to be made based on the views of stakeholders, but also in light of the investment involved in calculating the impact of any new product. The data required for inventory calculations is significant: 1,600 "inputs" (input, in the AGRIBALYSE sense, is defined as a product used at some stage in the production cycle, such as a quantity of fertiliser, or a technical operation like ploughing or characterising a livestock building, etc.).

In conclusion of this section, we note that the AGRIBALYSE database already offers impact values for nearly 130 agricultural products, which enables this data to be made available to stakeholders. Labelling on the major raw agricultural products can thus already be envisaged by participants if desired. The issue of deployment of the labelling scheme is the subject of the final section.

Études & documents | n° 113 EV | September 2014

V. Legal aspects of the project

In this section we present the legal context and the latitude it offers.

The European Union for the European market and the WTO for the global market have established regulations and authorities that regulate trade in goods while leaving their members free to implement national schemes. EU and WTO rules thus allow France to set up a system to implement environmental labelling in the agri-food sector, provided that certain principles are observed, i.e. the free movement of goods in the European Union and minimising WTO trade barriers.

The text below outlines the rules and principles to be followed, taking into account the specific characteristics of the agri-food sector. The rules of the WTO and EU are presented below.

V.1. The WTO

i) The agri-food sector is involved in multilateral negotiations and is subject to the TBT agreement (Technical Barriers to Trade)

The agriculture and food sector is affected by the TBT agreement of 15 April 1994 for those regulations not covered by the agreement on the Application of Sanitary and Phytosanitary Measures (SPS), including the binding recommendations regarding product composition and labelling. The rules to be observed in the context of this text are the same for agri-food and other sectors alike.

ii) France can legitimately issue decrees relating to environmental labelling, given the WTO's recognition of environmental objectives and consumer protection.

The TBT Agreement recognises the legitimacy of the environmental objectives (and more generally, of sustainable development) pursued by its members. Environmental protection is recognised as a legitimate objective within the scope of the TBT Agreement: *"Recognising that no country should be prevented from taking measures necessary [...] for the protection [...] of the environment, [...] at the levels it considers appropriate, subject to the requirement that they are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail or a disguised restriction on international trade, and are otherwise in accordance with the provisions of this Agreement, [...]".*

This recognition is supported by case law:

- ✓ Decision of the Appellate Body in the United States – Gasoline case: "WTO Members have a large measure of autonomy to determine their own policies on the environment (including its relationship with trade), their environmental objectives and the environmental legislation they enact and implement. So far as concerns the WTO, that autonomy is circumscribed only by the need to respect the requirements of the General Agreement and the other covered agreements."
- ✓ Decision of the panel in the United States – Dolphin-safe case: "Moreover, nothing prevents Members from using the incentives created by consumer preferences to encourage or discourage particular behaviours *[...].* Hence, the Panel considers that regulating the information that appears on a label to ensure that consumers may safely exercise their preference is a legitimate mechanism to ensure this purpose."

The TBT Agreement also recognises the legitimacy of consumer protection objectives. This recognition could allow France to legitimately establish regulations on environmental labelling, under certain conditions which are discussed below.

iii) Other Member States must be notified of any technical regulations that could pose obstacles to trade, through the WTO.

The notification shall indicate the purpose and rationale of the technical regulation (Article 2.9 of the TBT Agreement). Members must also comply with the principles of transparency and information exchange concerning the technical regulations they intend to introduce.

iv) The environmental labelling scheme applied to the agri-food sector must observe certain principles (in particular non-discrimination and proportionality) to comply with the TBT Agreement:

Any regulations that could pose obstacles to trade must comply with certain principles, including:

- Non-discriminatory treatment of goods imported from the territory of any Member and thus whatever the origin of the products, Article 2.1 of the Agreement;
- Principle of proportionality and avoidance of unnecessary obstacles to trade, Article 2.2 of the Agreement, in particular: "A technical regulation must pursue a legitimate objective" and "technical regulations shall not be more trade-restrictive than necessary to fulfil a legitimate objective, taking account of the risks non-fulfilment would create";
- Promoting harmonisation of regulations and encouraging international standards, Article 2.4 and 2.6 of the Agreement;
- Acceptance of the principle of equivalence, Article 2.7: mutual recognition is not binding if it can be argued that such recognition would lead to a weakening of the overall level of protection of the scheme and the risks involved in not completing the scheme in question;
- Taking the situation of developing countries into account, Article 12.1 and 12.3. Article 12.1 in particular provides for differential treatment for developing countries.

v) Data collection is likely to be particularly problematic in the agri-food sector, which may be overcome by harmonising data compilation regulations.

Compliance with the TBT Agreement can present particular difficulties in the agri-food sector, primarily the collection of data on agricultural production. In fact, in all sectors, labelling systems involve collecting the information needed to calculate impacts at all levels of the supply chain. In the agri-food sector, this means that the agricultural production link must provide data on farms regardless of the country in which agricultural goods are produced. Diversity in production techniques and variability of the environmental impacts of agricultural production over time and space can make collecting reliable, robust data difficult. The solution is likely to be found in establishing databases based on harmonised regulations where there is mutual recognition of these databases.

vi) The General Agreement on Tariffs and Trade, known as "GATT 1994", and the Agreement on Agriculture, known as "AoA" (complementary to GATT)[13] also apply to the agri-food sector; this does not imply a separate question to the implementation of the TBT Agreement.

The GATT agreement, which regulates trade in goods, also applies to agri-food products. The articles to consider are I, III, XI and XX of the agreement.

A French environmental labelling system in the agri-food sector could lead to quantitative trade restrictions. The GATT agreement allows this type of system, provided it meets the objective of environmental protection under Article XX[14]. This article legitimises environmental and consumer protection as an objective that would justify measures that could lead to trade restrictions. An environmental labelling system, whose effectiveness in protecting the environment has been demonstrated (through experimental or *in situ* investigations on consumer purchasing choices and evaluation of the implementation of eco-design processes by companies), would be consistent with the GATT agreement.

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[13] The WTO replaced GATT as an organisation in 1995. The GATT agreement, however, is still in force. It is now called "GATT 1994" in reference to the date it was last modified. The Agreement on Agriculture is complementary to the GATT agreement and contains provisions relating to the reduction of domestic support and the elimination of export subsidies in particular.

[14] *"Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: [...]*

b) necessary to protect human, animal or plant life or health; [...]

g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption".

Following the "shrimp-turtle" dispute (DS58, India vs. United States, decision given on 6 November 1998), it can be concluded that the meaning under Article XX-g of the GATT should be broad and include in particular all resources, whether biological or mineral. It should be read keeping in mind the progress that has been made in accounting for environmental concerns. The "shrimp-turtle" judgement thus legitimises environmental protection and justifies measures that could result in restrictions to trade.

Études & documents | n° 113 EV | September 2014

In addition to the legitimacy of the system's objective, the GATT agreement includes clauses that coincide with the principle of non-discrimination from the TBT Agreement: Articles I (most-favoured-nation clause) and III (national treatment clause). These clauses prescribe that all WTO members should receive the same treatment as that granted the most favoured nation for similar products, and that similar products should be treated in the same manner, whether manufactured domestically or imported.

This shows that compatibility with the GATT agreement does not pose any additional questions in relation to compatibility with the TBT Agreement:

- The objectives of environmental labelling are potentially legitimate under the two agreements and allow nationwide systems that could lead to trade restrictions to be established;
- The principles to observe coincide, and the principle of non-discrimination in particular.

V.2. The European Union

i) The specific EU rules governing food labelling and information does not cover environmental information

In the European Union, food labelling and information are subject to specific regulations. Two texts in particular govern labelling and information: Council Directive 90/496/EEC of 24 September 1990 on nutrition labelling for foodstuffs and Directive 2000/13/EC of the European Parliament and of the Council of 20 March 2000 on the approximation of the laws of the Member States relating to the labelling, presentation and advertising of foodstuffs.

Directive 90/496/EEC provides for voluntary nutritional labelling; labelling becomes compulsory when a nutritional claim appears on labelling, in presentation or in advertising, with the exclusion of generic advertising. This directive, which has a specific scope (nutritional labelling), does not affect the proposed environmental impact labelling scheme for the agri-food sector.

An environmental impact labelling system in the agri-food sector would however affect the requirements for labelling foodstuffs regulated by Directive 2000/13/EC.

In its reference to Article 114 of the Treaty on the Functioning of the European Union (TFEU), this directive contains a clause that strictly limits the possibilities of introducing nationwide measures once harmonisation has occurred: "if, after the adoption by the Council or by the Commission of a harmonisation measure, a Member State deems it necessary to introduce national provisions based on new scientific evidence relating to the protection of the environment or the working environment on grounds of a problem specific to that Member State arising after the adoption of the harmonisation measure, it shall notify the Commission of the envisaged provisions as well as the grounds for introducing them".

It does not appear imperative to notify the proposed scheme under this directive, as it makes no specific reference to environmental allegations. Nevertheless, it may be considered that it is in the "spirit" of the Directive to notify any measure affecting labelling.

This shows that environmental labelling and information on foodstuffs has not been harmonised, as per current European regulations. The agri-food sector thus falls in with the general case and therefore does not pose any specific obstacle at the European Union level.

ii) Generally, France is able to implement an environmental labelling scheme subject to certain conditions

- France can implement measures having equivalent effect to quantitative restrictions on EU trade as long as the measure's objectives are recognised as legitimate by the EU, and the means used to achieve the legitimate objective are the least restrictive to trade.

An environmental labelling system could be considered a measure having equivalent effect to quantitative restrictions (MEEQR) within the meaning of Article 34 of the Treaty on the Functioning of the European Union (TFEU), i.e. measures having the same effect as those of quantitative restrictions to import or export and therefore likely to constitute an obstacle to the free movement of goods within the common market. This will depend on the system implemented.

If the system chosen by France is not a MEEQR, no action is required at the European Union level, and France can implement its scheme.

On the other hand, if the system chosen is considered a MEEQR, an environmental impact labelling scheme on products is possible subject to certain conditions.

The implementation of MEEQRs by Member States is prohibited by Articles 34 and 35 of the TFEU but exceptions are provided for in Article 36 of the TFEU and by case law.

In practice, this means that Member States must allow products on their territory that are lawfully manufactured and marketed in other Member States, in accordance with the principle of mutual recognition of regulations in force in Member States, unless

the scheme is justified by the reasons listed in Article 36 TFEU or by "overriding reasons of general interest" as defined by case law.

- France could implement an environmental labelling scheme in compliance with European regulations: according to case law, protection of the environment and consumer health[15] are overriding reasons of general interest, able to be invoked by Member States as just cause for introducing potentially trade-restrictive systems.
- The scheme must satisfy several conditions, including observing the principles of proportionality and non-discrimination:

  ✓ Achievement of objective and proportionality: the scheme must be necessary to achieving the objective pursued, and observe the principle of proportionality, coinciding with that of the WTO measure;

  ✓ Non-discrimination: the scheme must not constitute a means of arbitrary discrimination or a disguised restriction on trade between Member States; again, the principle is common with the WTO;

  ✓ Notification of the scheme: whether notification under Directive 2000/13/EC is selected (if one considers that notification is in the spirit of the directive on food labelling and information, see above) or rejected, notification must be given in any case under Directive 98/34/EC in relation to technical regulations. This second directive provides for an information provision procedure regarding technical standards and regulations to ensure the EU and other Member States have thorough knowledge of binding national recommendations on technical matters that may constitute barriers to EU trade.

iii) The regulatory framework for food labelling and information is changing in 2014

This change to the general EU framework has implications for the national environmental labelling system applied to the agri-food sector; the possibilities and principles to be observed by France in implementing such a system, however, remain unchanged.

- The regulatory framework for food labelling and information is changing in 2014.

The various texts relating to food labelling and information were brought together in a single regulation in 2011: (EU) Regulation 1169/2011 of the European Parliament and of the Council of 25 October 2011 on Food Information to Consumers, known as "FIC".

This text repeals Directive 90/496/EEC on nutrition labelling for foodstuffs and Directive 2000/13/EC on the approximation of the laws of the Member States relating to the labelling, presentation and advertising of foodstuffs.

It will apply from 13 December 2014, except for the provisions concerning mandatory nutrition declaration on agri-food products, which will apply from 13 December 2016.

- A national environmental labelling scheme in the agri-food sector would be unambiguous within the scope of the new regulations.

The FIC regulation aims to improve the level of information and protection of European consumers, and creates a new balance between the principles of free movement of goods and consumer information. It covers a wider scope than the directives mentioned above:

✓ The regulation applies to, as do the directives, "all foods intended for the final consumer, including foods delivered by mass caterers, and foods intended for supply to mass caterers";

✓ It covers all forms of information made available to consumers "by means of a label, other accompanying material, or any other means including modern technology tools or verbal communication";

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[15] *See "Cassis de Dijon" ruling, CJCE, 1979, Rewe Zentral aka "Cassis de Dijon", case 120/78: the CJEU considered that in "the absence of common rules, obstacles to movement within the community resulting from disparities between the national laws relating to the marketing of a product must be accepted in so far as those provisions may be recognised as being necessary in order to satisfy mandatory requirements relating in particular to the effectiveness of fiscal supervision, the protection of public health, the fairness of commercial transactions and the defence of the consumer."*

See CJEU, 1985, Association des brûleurs d'huiles usagées (ADBHU), case 240/83: the court considers protection of the environment to be an objective of general interest pursued by the Community, which is subject to the principle of free movement of goods within certain limits.

See CJEU, 1988, Commission vs Denmark, case 302/86: the court extends legal meaning of "mandatory requirements" to cover the environment.

Études & documents | n° 113 EV | September 2014

✓ It also includes a more direct reference to the environment as a component of information on foodstuffs, see Article 3: "The provision of food information shall pursue a high level of protection of consumers' health and interests by providing a basis for final consumers to make informed choices and to make safe use of food, with particular regard to health, economic, environmental, social and ethical considerations."

This leaves no doubt as to its applicability. If widespread implementation of environmental labelling were to occur after the FIC regulation came into force, notification under the FIC regulation would appear to be the most appropriate.

- The FIC (Food Information to Consumers) regulation allows the national environmental labelling scheme to be implemented in the agri-food sector, as it does not include provisions on consumer information or labelling concerning products' environmental characteristics.

The regulation does not address environmental indicators, and Member States may therefore provide consumer information on the environmental impacts of products on a national scale. Widespread implementation of the environmental labelling scheme would thus be in line with these regulations.

Simultaneous entry into application of the FIC regulation and widespread implementation of the environmental labelling scheme would mean costs could be shared.

Entry into force of the FIC regulation involves costs because the new provisions of the regulation call for changes to food packaging. If the environmental labelling scheme included labelling impacts on the product, in the interests of sharing costs, it might be a good idea to time its implementation with that of nutrition declaration.

iv) The Commission must be notified of the national environmental labelling scheme for the agri-food sector

Two scenarios are possible:

- Before the FIC regulation comes into force: notification required under Directive 98/34/EC;
- After the FIC regulation comes into force: notification under the FIC regulation and under Directive 98/34/EC through a one-stop system set up for the food sector.

Summary of the legal aspects:

- The WTO allows its members to introduce national measures on the grounds of environmental protection or consumer protection;
- The case of the agri-food sector is not unique: the WTO needs to be notified of the environmental labelling scheme, and the scheme must satisfy certain criteria (in particular non-discrimination, proportionality, differential treatment for developing countries);
- In the European Union, the agri-food sector is subject to partially harmonised regulations on food labelling and information (FIC). This regulation does not, however, focus on environmental criteria, which also allows Member States to introduce national measures regarding this issue;
- The EU recognises environmental protection and consumer protection as mandatory requirements that are able to justify Member States implementing potentially trade-restrictive measures. Implementing an environmental labelling scheme is therefore justifiable at a European level;
- Again, notification should be given of the scheme as a technical regulation (Directive 98/34/EC), and the scheme should be proportionate. The Member State should be able to justify its necessity;
- Partial harmonisation of the information and labelling to appear on foods:
  - Reinforces the legitimacy of a scheme with environmental objectives (see Article 3 of the FIC regulation and reference to the environment as a component of food information);
  - Involves notification of the scheme for the agri-food sector through the one-stop system after 2014, under General Directive 98/34/EC and the FIC regulation;
- The FIC regulation to be phased-in from December 2014 will involve costs to the agri-food sector because it requires changing packaging. Timing deployment of the environmental labelling scheme in the agri-food sector to coincide with the FIC regulation coming into force would reduce costs for companies.

Consequences of the legal aspects on the content of the environmental labelling scheme applied to the agri-food sector:

- As with other sectors, content will need to be based on international standards or, in the absence of such standards, on the more successful, internationally recognised methodological guidelines for environmental impact assessment envisaged by the French system. As seen above, the guidelines and work carried out in France meet this requirement.
- To satisfy the principle of proportionality, special attention should be paid to describing the objectives pursued. It is on the basis of these objectives that the principle of proportionality will be assessed, including the fact that no other system than the one chosen by France would achieve the same objectives while posing the least obstacle to trade.
- The objective of consumer protection is a legitimate objective, which can justify imposing labelling requirements and harmonised calculation methods. The variety and incomparability of consumer information systems relating to the environmental characteristics of products are a source of confusion for the consumer. The agri-food sector is particularly affected by this.
- The principle of non-discrimination deserves special attention in the agri-food sector regarding access to data, especially agricultural production data in third countries. The system should include provisions on the recognition of foreign databases and/or to methodologies to be taken into account in compiling the data.

Finally, in addition to these international aspects, it should be noted that the issue of checking the accuracy of the data, particularly for imported products, applies generally to the proposed labelling scheme for environmental impacts of products. An extract from the Government report to Parliament (November 2013) can be found in the Appendix that focuses on this cross-sector issue.

Études & documents | n° 113 EV | September 2014

VI. Deployment of the labelling scheme in the agriculture and food sector

This final section presents concrete solutions that could be used for the progressive, voluntary and regulated deployment (as stipulated in the Government report to Parliament on the national pilot) of the environmental labelling scheme in the agricultural and agri-food sectors, taking into account the new context of the EU PEF (Product Environmental Footprint) guide pilot[16].

VI.1. The European Union "PEF guide" pilot

On 9 April 2013, the European Commission published a Communication to the Council and the Parliament entitled: "Building the Single Market for Green Products - Facilitating better information on the environmental performance of products and organisations"[17].

A major focus of this initiative is the launch of a three-year European pilot involving:

- Developing sector-specific European guidelines for products (PEFCRs) and organisations (OEFCRs);
- Testing these guidelines and the general methodology (the "PEF guide", also published 9 April 2013);
- Testing the various compliance verification systems;
- Testing communication methods with consumers (and between companies).

17 projects were selected in the first call for proposals, from the various non-agri-food sectors (detergents, textiles, solar panels, shoes, insulation, distribution, etc.). French participation was high, both with companies that were project pilots or partners, and public authorities (ADEME, MEDDE and METL).

11 projects were selected in the second call for proposals, from the agri-food sector.

It should be noted that out of the 30 proposals received by the Commission, French project sponsors accounted for 12%, ahead of the Italian (8%) and Spanish (5%) proposals.

The French authorities are committed to supporting this European pilot by promoting it at a national level, and providing support and direct government involvement (ADEME, MEDDE) to certain projects.

The various European aspects will be monitored in 2014 and 2015 by the ADEME-AFNOR platform, in particular through its WG1 (on agri-food).

French efforts (including those of CGDD) have thus been extensive in providing for and monitoring this European work.

The European pilot has the more specific objective of testing the "PEF" guide to ensure it is operational in producing sector-specific guidelines, the PEFCRs. Beyond that, the Commission will need to work with stakeholders on product environmental assessment using life cycle assessments. Potentially, the pilot may bring European regulatory projects to fruition, in line with the Commission's Communication on sustainable production and consumption, and its Communication on the "Single Market for Green Products".

VI.2. Organising governance of the scheme in France

The issue of governance of the scheme is not limited to agriculture and food and leads to broader reflection and proposals. It does however need to be addressed here, especially as the agri-food sector is calling for methodological developments and specific operational research projects (e.g. AGRIBALYSE). In addition, the Ministry of Agriculture naturally plays a key role in this sector, which does not necessarily have an equivalent for other products.

16 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:124:FULL:EN:PDF

17 http://ec.europa.eu/environment/eussd/smgp/index.htm

The role of the various stakeholders must be clearly identified including those aspects:

- For which the Government will be responsible, concerning the regulatory framework and audits;
- For which government operators will be responsible, operators that can be entrusted with a portion of the R&D projects as well as the development, maintenance and provision of the scheme's main tools;
- That will require consensus between the various stakeholders;
- That will depend on private initiative.

The success of the project involves the sustainable management of the AGRIBALYSE initiative, whereas the initial three-year project came to an end in 2013. Operational deployment of the labelling scheme necessitates the continuation of the operational research programme and creation of LCI data (Life Cycle Inventories) that is AGRIBALYSE. This is the purpose of the AGRIBALYSE 2 programme.

VI.3. Furthering research

Considering the need for a multi-criteria labelling system, the issues and specific requirements of the farming community come down to the need to include carbon storage in soils in the calculation of a product's carbon footprint, to have a quantitative water footprint that reflects Water Scarcity and to develop a relevant indicator to provide information on the Biodiversity Loss issue. Methodological advances and further work will be needed before the environmental labelling scheme can be incorporated into regulations.

- This means ensuring that the AGRIBALYSE work continues, including maintaining the database. Operational deployment of the scheme calls for an action-oriented tool. A tool and a mechanism to steer it should thus be implemented to enable that action.
- More specifically research-oriented programmes should be developed in parallel, either by INRA, by ANR, with the support of programmes funded by MEDDE through ADEME, or using CASDAR funds, etc.
- Regarding the development of a Biodiversity indicator, other scientific communities could be approached, such as the French Foundation for Research on Biodiversity (FRB), or the French Museum of Natural History (MNHN). At this stage, where finding a Biodiversity indicator for products is encountering difficulties is the fact that LCA experts are not particularly aware of the Biodiversity issue, while the naturalist and ecologist community is far removed from the Products issue.
- It will be especially necessary to develop LCIs and LCAs for organic products, which the sector lacks. This would fall to the Technical Institute for Organic Farming (ITAB) or various other agricultural technical institutes. The production of data could take specific forms for the organic farming sector, which is committed to the idea of "participatory research" involving farmers.

Completion of the research programmes mentioned is not a prerequisite to deploying the scheme, as this is likely to change over time. The principle here is that "good enough is best", which reflects the idea that partial but robust solutions, where they are effectively implemented, are better than "wait and see" approaches that go on forever.

VI.4. Expanding database contents: an operational approach

- As mentioned earlier, the content of the AGRIBALYSE database needs to be expanded to include new agricultural products. The extent of data collection required by such an initiative was also mentioned. One would imagine however that the burden of this task may be alleviated in the future. As the most important factors for environmental impact calculations are gradually identified, it may indeed be possible to overlook some less influential data. If the database is to work in future, this is essential. Extending the database to new products requires progressing to a production stage similar to high-throughput genome sequencing, i.e. being able to automate – and simplify – procedures, allowing faster and cheaper access to new products. It would appear then that the factors that contribute the most to LCA indicators should be identified, and only these retained, rather than collecting all the information that can be entered into an LCA.
- The French agri-food sector is largely open to the world, and relies on a significant amount of import. This is especially the case for products rich in vegetable proteins, which are imported on a large scale for animal feed. To a lesser extent, this is also the case for products with no equivalent in France or Europe, such as tropical fruits. Labelling the impacts of the final products implies knowing the impact values or pollutant flow inventories of imported products, in

Études & documents | n° 113 EV | September 2014

accordance with life cycle assessments. AGRIBALYSE will thus be supplemented by a database of the most important international agricultural products for France. This is the purpose of the World Food Database currently under construction, which must comply with the general principles and the usual conventions for these databases.

- It is essential that AGRIBALYSE, now AGRIBALYSE 2, should be thought of from the outset as a database that will ultimately be used to provide data for a database built and managed at the European level. This requires the format, principle and methodology to be compatible. The European database to be established, under the direction of the European Commission and its research body, the JRC, will feature several levels of data quality. The AGRIBALYSE database, in its present state, and because of its very precise specifications, undoubtedly offers a very high level of quality. However, the question arises whether or not the construction of data like AGRIBALYSE should be simplified, as indicated in the paragraph above, to avoid the original French data being more expensive and complex to produce than more generic data that may be proposed by European operators.
- Finally, it should be noted that AGRIBALYSE is a database for raw agricultural products. It will be supplemented by a database of impacts measured downstream from farms in the agri-food processing sector, the ACYVIA database, to lower costs for companies in the sector. This project is ongoing (ADEME project).

VI.5. Producing new subsector guidelines

As mentioned earlier, the agri-food sector has its own guide, approved by Working Group 1 of the ADEME-AFNOR platform (WG1). Ensuring that values are comparable between different operators may call for the calculation rules to be broken down into finer details, even if this is not a compulsory step. It is the purpose of the subsector guidelines, or Product Category Rules (PCRs), such as those that are to be developed as part of the European pilot.

Some PCRs are under development and others are already validated (milk and coffee). Others need to be produced. In the best case scenario, these will be the result of the work of the subsectors.

VI.6. Providing training for sector stakeholders

The pilot revealed a need to master the techniques and tools involved. The labelling of environmental impacts on consumer products is a large-scale project that calls for improvements in stakeholders' knowledge.

- It seems necessary to incorporate the principles of life cycle assessment and the main associated agri-environmental indicators into agricultural training programmes (BTS technician certificate, to start with, then extending to training courses for younger people).
- Programmes and training sessions for professionals and companies should complement the training courses of agricultural education institutions.
- Through its regional offices, ADEME could contribute to this scheme, by setting up or strengthening its support services for companies.

As we have seen for research, such training efforts with a view to improving stakeholder knowledge could be reinforced in the organic farming sector in particular. The organic joint trade organisation, or rather what serves as one, namely the public interest group Agence Bio, to which both ministries and professionals contribute, would be a suitable framework for such work.

General conclusion for the agri-food sector

On the basis of the section above, it would appear that conditions have been satisfied for further work towards environmental impact labelling for agri-food products.

The issue of allocation should be settled to allow the various guidelines to be finalised.

In addition to this last point, the priority actions for 2014-2016 (end of the European pilot) involve:

- Developing an operational Biodiversity indicator;
- Further work on carbon storage, within an operational research programme "AGRIBALYSE 2";
- Producing an increasing number of subsector guidelines (European pilot);
- Monitoring, contribution and influence of the European pilot in the agri-food sector;
- Developing programmes and training tools for French stakeholders;
- Establishing a national governance framework, as an advanced project.

Études & documents | n° 113 EV | September 2014

Bibliography

Agri-BALYSE (2013). Operational research programme and database.

http://www.ademe.fr/expertises/produire-autrement/production-agricole/passer-a-laction/dossier/levaluation-environnementale-agriculture/loutil-agribalyse

French government (2013). Report to Parliament on the national environmental labelling scheme pilot. November 2013, Paris.

http://www.developpement-durable.gouv.fr/IMG/pdf/Affichage_environnemental.pdf

INRA (2008). Agriculture et biodiversité. Valoriser les synergies. Expertise collective.

http://prodinra.inra.fr/?locale=fr#!ConsultNotice:47266

INSEE (2011). Évolution de la consommation des ménages par fonction en 2011.

http://www.insee.fr/fr/themes/tableau.asp?reg_id=0&id=301

MEDDE CGDD (2013). Analyse d'un indicateur « biodiversité » pour les produits agricoles dans le cadre de l'affichage environnemental.

http://www.developpement-durable.gouv.fr/IMG/pdf/E_D99_indicateur_biodiversite_produits_agricoles.pdf

van der Werf H., C. Kanyarushoki and M. S. Corson (2009). An operational method for the evaluation of resource use and environmental impacts of dairy farms by life cycle assessment. Journal of Environmental Management 90 (2009) 3643–3652.

Tukker et al. (2006). Environmental Impact of Products (EIPRO) - Analysis of the life cycle environmental impacts related to the final consumption of the EU-25. JRC http://ec.europa.eu/environment/ipp/pdf/eipro_report.pdf

Appendices

Appendix 1: Glossary - selection of terms and their definitions following ISO 14040

Life cycle: the consecutive, interlinked stages of a product system, from raw materials acquisition or natural resource extraction through to final waste disposal

Life cycle assessment (LCA): the compilation and evaluation of the inputs, outputs and potential environmental impacts of a product system throughout its life cycle

Life cycle inventory (LCI): a phase of a life cycle assessment in which the relevant inputs and outputs of the product system(s) under study throughout the life cycle are compiled and quantified

Life cycle impact assessment (LCIA): a phase of a life cycle assessment concerned with understanding and evaluating the magnitude and significance of the potential environmental impacts of the product system(s) under study

Life cycle inventory results, LCI results: results from a life cycle inventory that lists flows across system boundaries and provides the starting point for life cycle impact assessment

Co-product: any of two or more products from the same unit process or product system

Functional unit: the quantified performance of a product system for use as a reference unit in a life cycle assessment

System boundary: a set of criteria specifying which unit processes are part of a product system

Category endpoint: an attribute or aspect of the natural environment, human health or resources identifying an environmental issue of concern

Characterisation factor: a factor derived from a characterisation model for expressing a particular environmental intervention in terms of the common unit of the category indicator

Impact category: a class representing environmental issues of concern to which life cycle inventory results can be assigned

Impact category indicator: a quantifiable representation of an impact category

Primary data: (also primary activity data or specific data) a quantified value from a direct measurement or a calculation based on direct measurements of an activity or process in the product's life cycle. This value, when multiplied by a weighting or characterisation factor, is used to calculate an impact category indicator.

Secondary data: (also generic data) a quantified value of an activity or life cycle process of the product, obtained from sources other than direct measurements or calculations based on direct measurements.

Semi-specific data: secondary data or generic data given by default, but which can be specified by the operator to improve the environmental assessment. Semi-specific data is then primary or specific when provided by the operator, but for which a default value is provided.

Études & documents | n° 113 EV | September 2014

Appendix 2: The issue of checking the data provided, especially for imported products

Extract of the report on the pilot, presented by the Government to Parliament (Report to Parliament, 2013):

Condition 3 - Ensuring the information is reliable for all products regardless of their origin

Many stakeholders agree on the importance of ensuring that the information provided to consumers is reliable and on the role that the public authorities should play in this. A government guarantee would in itself go a long way to ensuring the initiative's credibility and therefore its success in the market.

Some probably isolated anomalies

It appears from the report published by DGCCRF that auditing problems are mainly focused on imported raw materials and products, as it is difficult to verify their accuracy. French companies are therefore concerned that foreign competition will provide erroneous impact values, and that there is no way of rectifying them. We have seen that the results of the pilot do not particularly support these concerns, but it must nevertheless be ensured that such information is checked in the same way as the others.

Logically, cases of intentional cheating could remain relatively isolated. With this environmental information as with any other type of communication, companies' credibility is at stake, as is their brand image, something that is generally very valuable to them. Any denunciation of false or misleading information thus potentially has a very high cost for a company, as demonstrated in the "horse meat" case.

One solution: providing technical tools and monitoring traceability

In reality, the Government should first seek to avoid calculation errors or errors in applying the guidelines, which will probably be the most significant source of communicating erroneous information to the consumer, well beyond any cheating that may occur. The technical conditions of the labelling scheme will be crucial in this regard:

- Providing automated calculation tools would avoid miscalculations by companies and facilitate audits
- Providing databases would allow the values used by companies to be compared
- Limiting the amount of specific data that companies need to provide to calculate the impacts of their products would automatically reduce this risk.

DGCCRF could first verify that an effective traceability system has been put in place by the person responsible for labelling. The exact conditions that this system should satisfy could be left to the company's discretion, or the opposite, where they are more or less specified in future decrees of the scheme.

DGCCRF could then check the plausibility of the data used by the company. It explains that to do so, it would need to have complete databases, including all sources of French import. This database would indeed greatly facilitate the task of companies, but also that of auditors, who would then check for consistency between the data used by companies (including foreign data) and the data in the database. In any event, as the raw data is entered the databases will grow, we will gain experience, and the possibilities of deviating from the right path will be reduced proportionally. The issue of monitoring and maintaining databases is thus central. With the number of initiatives relating to product environmental assessment on the increase in emerging and developing countries (for example China and Mexico are setting up life cycle databases), data is becoming more available. In the long term, these developments will facilitate traceability and checking of the information. Some even see global environmental traceability chains emerging from these developments, as they were previously set up on the basis of criteria such as quality, safety and health aspects.

Finally, DGCCRF could check consistency between the data provided by companies and the impacts appearing on their labels. The existence of automated calculation tools, whether these were provided by or certified by public authorities, would greatly simplify this otherwise potentially complex task.

However, the fact remains that in the event of doubt over data from a foreign source that deviates too much from the database values, DGCCRF will not be able to make an on-site visit to verify them (it typically turns towards the competent authorities of the country concerned). If companies wish to enter data other than average database values, then they will at least need to have documents that justify this (consultant's report, supplier's document, etc.). The person responsible for labelling could be responsible for the accuracy of the results of environmental labelling, and they would also need to ensure that the data to be used in their calculations is accurate, by any means deemed appropriate (internal audit, consultancy or even third-party verification).

Auditing systems exist in other industries and for other schemes that pose the same difficulties (i.e. audits requiring an on-site visit and information on products that are not directly verifiable), but they have yet to be established for environmental

labelling. Alternatively, a typical solution in these cases is to make third-party verification a requirement for all companies. This would make it possible to have a systematic audit carried out by a certifying authority. While perfectly conceivable if labelling were on a voluntary basis (this is already the case for eco-labels), it would nevertheless involve an increase in the costs of implementing the measure. It is for this reason that it is challenged by many companies and federations.

A scheme that must be cleverly designed to encourage a certain amount of "self-management"

The system should be able to guarantee equivalent auditing conditions for all products. The issue obviously implies an audit of the information by the Government, but stakeholders, even if they cannot replace these audits, could also play a role. Public authorities and stakeholders should therefore consider ways to encourage detections of violations by stakeholders, and DGCCRF can intervene in response to complaints:

- Some stakeholders, such as consumer groups, are asking for the right to notify (whistle-blow). How the notification system might work was not specified in the framework of the pilot. Several details could be brought up in upcoming discussions. In particular, the CNTE's ad hoc labelling group could be recognised for this whistle-blowing role, with a point that could be brought up systematically at each future meeting.
- In addition, the Grenelle law requires the "procedure to record data and arrangements for access to scientific data on which this information is based" to be specified. Companies are keen for the data necessary for their impact calculations to be kept confidential; this is clear from the pilot. However, the results of these calculations, by definition public, may be included in a database. In the event this database were internet-based, the official website would automatically include them. Such a database would be likely to facilitate the detection of anomalies and hence stakeholders' possibilities of whistle-blowing. Identifying divergent values could lead to deeper understanding by stakeholders or even to checking operations guided by DGCCRF.
- A quick review of the systems in use around the world that encourage self-regulation will also be able to provide ideas. This checking by stakeholders could be organised and formalised by a system of mutual checking between manufacturers, like the system set up by the European Committee of Domestic Equipment Manufacturers (CECED)[18].

Finally, beyond facilitating the detection of potential labelling errors, it would be useful to develop a system that encourages labelling as opposed to not labelling to avoid too few companies embarking on the scheme, especially if it is to be on a voluntary basis. Several requirements in the event of a company choosing not to participate in labelling could be discussed with stakeholders, at the same time as the labelling format. The impact database mentioned above, if it existed, would by default have to identify companies that would not provide their values, as their products would not be included. France Nature Environment offers a solution that would more directly highlight the absence of labelling: a designated location for environmental information and identified as such (e.g. a rectangle) could be made mandatory, without making it mandatory to fill the space.

Discussions will need to be held with stakeholders concerning the methods to be used to ensure that the information provided is reliable, with the aim of protecting the interests of companies and consumers.

Lessons to be learned from the European pilot

In parallel to the European pilot launched recently, the European Commission has identified the issue of auditing and verification. The EC entrusted a study on the subject to the French consulting firm Bio Intelligence Service, underway since 2013.

In addition, the work to be done by project sponsors as part of the European pilot being conducted over three years will include a component on the verification of the results of environmental labelling.

All these elements will guide and complement the discussions that will be held at a national level.

[18] In 2009, CECED established its own system of mutual checks between manufacturers (Bilateral Verification Procedure). It is a protocol supported by accredited laboratories that allows one manufacturer to verify the claim of another. CECED intends to address public authorities' lack of control, which according to CECED, undermines fair competition and the effectiveness of the directive. Compliance with the energy label also relies on market transparency and self-monitoring of competitors, which in part discourages non-compliance.

Études & documents | n° 113 EV | September 2014

Appendix 3: Examples of the range of LCA results applied to food products

Consider a food product, product P, generated by four farming systems that differ from an environmental impact point of view.

Suppose that one of these farming systems is the most common, and it may be considered to be the "baseline" against which the other "alternative" farming systems can be compared. LCA provides a means of comparing the respective environmental impacts of the baseline system and farming systems 2, 3 and 4.

Suppose that we are interested in a single environmental issue A. For each farming system, we can apply the LCA methodology and be able to measure the environmental impact attributable to a (functional) unit of product P produced by each of these four farming systems.

With a functional unit in the format "100 g of product P", we can express the results of the four LCAs for environmental issue A, which can be for example Climate Change using a Greenhouse Gas Emissions indicator expressed in grams of CO_2 equivalent:

- Baseline system: 200 g CO_2e / 100 g of product P;
- Farming system 2: 300 g CO_2e / 100 g of product P;
- Farming system 3: 160 g CO_2e / 100 g of product P;
- Farming system 4: 440 g CO_2e / 100 g of product P.

In this example, interpretation is simple. Farming system 3 comes out on top because its environmental impact, expressed "per 100 g of product P", is the lowest.

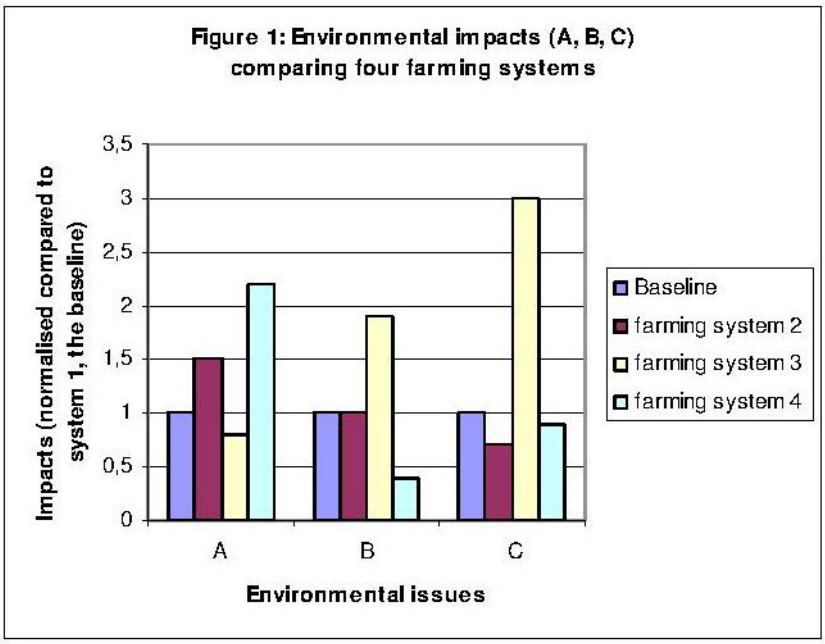
Interpreting LCA results applied to distinct farming systems can be more complex. Let us look at three examples below.

Example one: One of the lessons to be learned from LCAs applied to food products is the potential for variation of environmental impact results within the farming system. This intra-system variability can be significant. When faced with a variability of results for the same product from the same farming system, interpretation is impossible if different methodologies were used. However, if the methodologies used were identical, then this variability indicates that there is room for improvement and progress within the farming system itself. Then all that is needed is to determine which practices have a minimal impact within that same farming system. Discoveries of this kind can also prompt proposals for revision of the farming system typology.

Example two: The means of expressing the results, i.e. the choice of functional unit, can influence the classification of farming systems (according to the extent of their environmental impact). If we want to express the results of the LCA of these same four farming systems based on not one but two functional units, such as "100 g of product P" and "100 kilocalories (kcal) of product P", then although it is neither necessary nor systematic, the following situation is possible: none of the four farming systems is "better" (with a lower environmental impact) than the others if both functional units are considered. The following results can thus be obtained:

- Baseline system: 200 g CO_2e / 100 g and 210 g CO_2e / 100 kcal
- Farming system 2: 300 g CO_2e / 100 g and 85 g CO_2e / 100 kcal
- Farming system 3: 160 g CO_2e / 100 g and 300 g CO_2e / 100 kcal
- Farming system 4: 440 g CO_2e / 100 g and 110 g CO_2e / 100 kcal

Example three: Now let us consider three environmental issues A, B and C. The four LCAs applied to the same four farming systems can highlight the following type of results. For simplicity, the impact values have been normalised compared to the baseline system. The impact of the baseline system is equal to 1 for each environmental issue.



The figure above illustrates the potential complexity of LCA results. This hypothetical case shows that none of the farming systems come out on top (have a lower impact) for any of the three environmental issues A, B and C.

This type of result is common. It is rare for a farming system to show a lower impact than all the others for all environmental issues.

In the case of agricultural and food products, it is thus possible to find that a farming system contributes less to Climate Change but more to Water Pollution and Biodiversity Loss compared to another system.

Interpreting LCA results is thus rarely immediate and unequivocal. This relative complexity is not insurmountable. It simply calls for common rules for interpretation.

Let the take the first example above. If the objective is a labelling system whose grade (i.e. the size limitation chosen for communicating a product's environmental characteristics) is the farming system, then all that is needed is to choose a farming system typology that minimises intra-system variability, ensuring that the average intra-system variability is lower than the average inter-system variability.

In the second example, it needs to be decided whether to choose a single functional unit, or the opposite, to continue expressing results based on several functional units.

For four years now, the work of the ADEME-AFNOR platform and the decision-making process have been enabling such choices to be made. A functional unit has been chosen in each sector-specific working group of the ADEME-AFNOR platform. To illustrate, but we will come back to it shortly, Working Group 1 of the ADEME-AFNOR platform (WG1), which aims to develop a methodological guide for assessing the environmental impacts of food and pet food, chose the following functional unit: "100 g / 100 ml" or "per serving".

Relating to the third example, this type of result calls for the "multi-criteria" approach, i.e. a "dashboard" consisting of several (not one) environmental indicators. Environmental assessment with a single criterion is by definition partial, biased, unfair and could lead to potential negative side effects, such as "carbon leakage" or adding to pollution problems other than those on which the single-criterion assessment is focused.

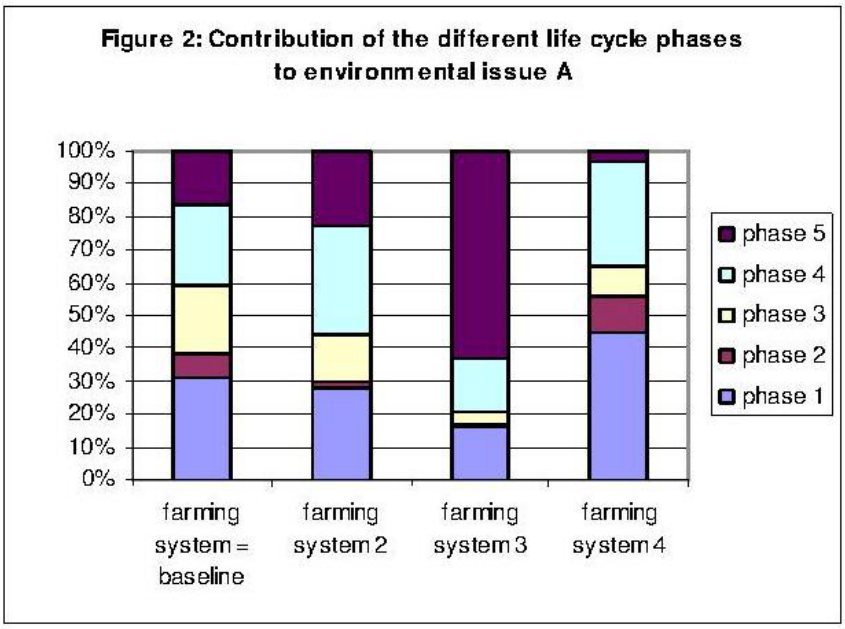
For over four years, France has been developing and supporting the idea of multi-criteria environmental assessment. The work of the ADEME-AFNOR platform is clearly focused in that direction.

In general, LCA is not the source of the complexity, it simply reveals it and helps to guide decisions. This decision-making can be an inclusive process (through consultation and participation), as has been the case in France for four years on the ADEME-AFNOR platform.

Now suppose that P products all have a life cycle that includes 5 phases or stages, regardless of which farming system they come from. These five phases or stages covering product P's entire life cycle are the scope of the LCA: from "cradle to grave", "from upstream agricultural activities up to recycling or waste treatment" or simply "up to the farm gate" (three examples of LCA scope). LCA can thus be used to characterise the contribution of each phase of the life cycle for each environmental issue A, B and C.

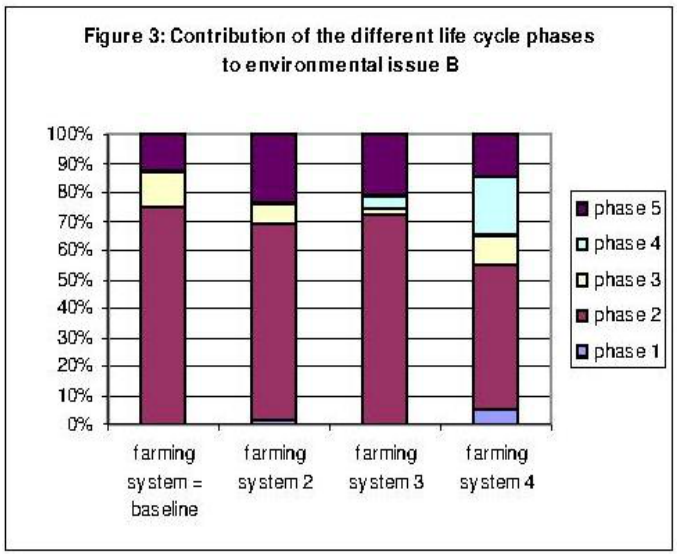
Études & documents | n° 113 EV | September 2014

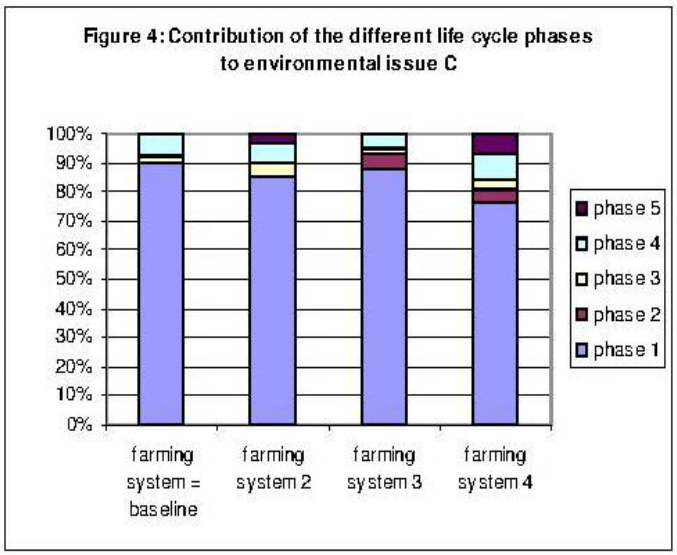
For environmental issue A, for example, you can obtain this type of result:



First of all, we can see that for each farming system not all life cycle phases of product P contribute the same amount (100 divided by 5, i.e. 20%) to the total impact of product P. Then we can see that from one farming system to another, any one phase does not contribute the same amount to the total impact of product P either. For environmental issue A, there is only one phase of the cycle life that contributes over 50% of the total impact of product P on issue A: phase 5 of farming system 3. The only hot spot thus highlighted by the LCA is phase 5 of farming system 3.

On consideration of the other two environmental issues B and C, the following type of result is common.





For these other two environmental issues, one phase of the production cycle comes out on top: phase 2 for environmental issue B and phase 1 for issue C.

These phases are the "hot spots" for a given environmental issue for product P. For environmental issue B and C, it is the same phases that contribute most to the total impact regardless of the farming system.

Identifying hot spots is not a goal of LCAs in itself, but the understanding that comes from the process allows economic stakeholders in a production–distribution chain to prioritise efforts in reducing their environmental impact in a more rational and effective way.

Études & documents | n° 113 EV | September 2014

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Consumer product environmental labelling: state of play in the food sector

Labelling environmental impacts on products is set to expand, in accordance with Programme Law 2009-967 of 3 August 2009 relating to the implementation of the Grenelle de l'environnement. In recent years France has seen economic stakeholders and government departments work intensely towards developing methods and tools to determine what labelling environmental impacts of consumer products could be. The general framework established by the "ADEME-AFNOR platform" led to the work being organised into "product families".

The agri-food sector has seen and continues to see extensive efforts from economic stakeholders, research centres and technical institutes, firstly in identifying the issues that are specific to this sector's products, then in preparing methodological references and the necessary data.

The general report on the national environmental labelling scheme pilot presented by the Government to Parliament in November 2013 marked a waypoint. It highlighted the issue of the specific features of the agri-food sector and called for further methodological discussion with a view to moving forward with the project.

This document addresses this call. It reports on issues specific to agriculture and food products, milestones and achievements made. It analyzes the life cycle approach that is consistent with the understanding of the environmental impacts of products, and of which application to the food sector has been developed and expanded. It identifies the issues that are under development in this sector.

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