# The EU environmental footprint and its likely impact on trade for Argentina's food exports

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**Abstract**

Product environmental footprint does not only refer to greenhouse gas emissions –carbon footprint– but it also entails the impact on biodiversity, on natural resources and on water use and management, among others. The European Union has unilaterally been developing a harmonised methodology for the calculation of the Product Environmental Footprint or PEF, which includes the carbon footprint. To that aim, the European Commission has been carrying out pilot projects and tests related to the Product Environmental Footprint Category Rules or PEFCR, with the participation mostly of companies, businesses and producer organisations from Europe. Its relevance lies on the fact that the PEFCRs resulting from the pilot phase will become the product rules valid for the environmental footprint of the European Union's products to be used in the EU and globally by all the interested parties in the food sector that decide to measure their products' performance based on the environmental footprint. Consequently, this can bring about likely impacts on Argentine food production exports with the European market as a destination.

From the present study, it can be derived that exports of Argentine products that could be affected by the application of environmental footprint methodologies and that have as a destination the 28-member European Union reached on average around US$ 922 million in the 2011-2014 period. From the analysis at product level, it can be seen that the main Argentine exports to the EU that could suffer some consequences are those of meat (at an average value of US$ 531 million in 2011-2014), followed by those of wines (US$ 188 million) and fish (US$ 147 million).

In general terms, in this scenario, the governments of food product exporting countries –such as Argentina– face policy challenges that will demand a close public-private partnership aimed at: i) raising awareness among different actors regarding the risks and challenges lying beneath this type of measures for exports, ii) developing strategies to question these measures at the pertinent trade fora, and iii) promoting active participation in discussion fora on the methodologies for the calculation of the product environmental footprint so as to avoid unfavourable biases towards their food product exports.

## 1. Introduction

The debate on matters of "trade and climate change" occurs in an international context in which developed countries are in a process of designing and implementing measures to mitigate climate change –greenhouse gas emission reduction measures– related to trade. Product labelling with relation to greenhouse gas emissions or product carbon footprint can be highlighted among them. In that respect, the main unilateral proposal is that contained in

France's Grenelle II Act. This initiative was strongly challenged by Argentina[1] in the World Trade Organization (WTO) spheres since it could presuppose a technical barrier to trade, given that labelling implies a higher cost –due to its certification– and an administrative burden for developing countries' products (Lottici, Galperín and Hoppstock, 2013).

But the concept of carbon footprint would already be overcome by the development of methodologies related to product "environmental footprint". This footprint is broader than the carbon footprint since it does not only refer to greenhouse gas emissions but also to the impact on biodiversity, natural resources and water use and management, among other criteria (Galli *et al*., 2012). This difference is particularly relevant in those cases of productive sectors where greenhouse gas emissions are not the main factor of environmental impact.

This footprint is under analysis at the European Union, where a harmonised methodology regarding Product Environmental Footprint or PEF that includes the carbon footprint is being unilaterally developed. The project is coordinated by the European Commission, in particular by the General Directorate for the Environment together with the Joint Research Centre (JRC). The EU has pointed out that a sector-specific and product-specific approach is necessary so as to take into consideration the specific features of each sector's production functions. It is of concern that the EU makes progress in this matter without yet having an internationally agreed definition of environmental footprint. In addition, it is likely that the criteria for its certification do not take into account the particular characteristics of developing countries or those of their production systems, for which reason compliance would be difficult by producers in said countries (Lottici, Galperín and Hoppstock, 2013).

## 2. The European Union environmental footprint

According to the European Commission, the proliferation of methods to assess and communicate the products' environmental performance confuses consumers and generates additional costs to the companies that must comply with the different methods (European Commission, 2013). It is for this reason that a Recommendation was drawn "regarding the use of common methods to measure and communicate the environmental behaviour of products and organisations throughout their life cycle" (European Commission, 2013). With this aim, the environmental footprint is defined as "a multi-criteria measure of the environmental performance of some goods or services throughout their life cycle".

This footprint will take into account the different types of environmental impact, such as climate change, ozone layer depletion, freshwater toxicity, the effects on human health, renewable and non-renewable natural resource depletion, soil transformation and other categories of impact that are deemed relevant (European Commission, 2013).

[1] For more details on the French initiative included in the Grenelle II Act and its possible consequences for Argentine product exports, see Lottici (2012). For further details on the challenges submitted by Argentina in the sphere of the Committee on Technical Barriers to Trade (TBT) and the Committee on Trade and Environment at Ordinary Session of the World Trade Organization, see Lottici, Galperín and Hoppstock (2013).

The development of a harmonised methodology for the calculation of the product environmental footprint by the European Commission was based on several systems, regulations and standards. These include: The International Reference Life Cycle Data System or ILCD Handbook as well as methodological standards that include PAS 2050 (Publicly Available Specification 2050) of the United Kingdom, the Greenhouse Gas Protocol, developed by the World Resource Institute and the World Business for Council Sustainable Development, the best practices related to environmental labelling of consumption products (BP X030) of France, and ISO 14025 standards on environmental declarations and ISO 14040 on the analysis of products' lifecycle, among others (European Commission, 2015 a).

Regarding the state of progress in the development of the product environmental footprint, the European Commission has been carrying out pilot projects and tests related to the rules of product environmental footprint category that can bring about likely impacts on Argentine food product exports with the European market as a destination. These tests' goal has been to examine and validate the development of the rule process, its verification, footprint measurement and the means to communicate the product environmental performance.

### 2.1. *Pilot projects of product environmental footprint*

The pilot phase period of the product environmental footprint carried out by the European Commission started in 2013 and will last until late 2016. Pilot projects for 24 types of products are underway, 11 of them for the food sector. The pilot projects of product environmental footprint are divided into two stages. The first stage started in November 2013 and it included, among other products, batteries, household detergents and computer systems. In the case of leather products and products for thermal isolation included in this phase, a later stating date was agreed (June 2014) so as to profit from synergies with the pilot projects related to food products, which were included in the second pilot stage. The second pilot phase began in June 2014. Some of the products selected to participate in this stage include: dairy; beer; coffee; pasta; food for animals intended for food production; fish; beef, pork and sheep; olive oil; and wines (European Commission, 2015 b) (Box 1).

**Box 1**

**Food products selected for the second pilot stage of the European Union product environmental footprint**

Beer, proposal of Brewers of Europe

Coffee, proposal of the European Coffee Federation

Dairy products, proposal of the European Dairy Association

Food for animals destined for food production, proposal of the European Feed Manufacturers'

Federation

Fish, proposal of the Norwegian Seafood Federation

Beef, pork and sheep, proposal of the European Livestock and Meat Trades Union

Olive oil, coordinated by $CO_2$ Consulting S.L.

Pasta, proposal of the Union of Organisations of Manufacturers of Pasta Products in the EU

Wines, proposal of the Committee Européen des Entreprises Vins

Bottled water, proposal of the European Federation of Bottled Waters

Animal feed (cats and dogs), proposal of the European Pet Food Industry Federation

As it can be observed, most of the food products selected at this pilot stage correspond to proposals made by EU companies and producer organizations –out of a total of 30 proposals received in response to the second call of the European Commission, 37% corresponded to industry interested parties, 28% to trade associations and 17% to SMEs; the remaining is composed by academic institutions, public administration bodies and non-governmental organisations. Regarding the geographical origin of the companies and organisations that are part of the pilot test –which are mostly from Europe– it is worth mentioning the participation, in few exceptions, of extra-EU organisations, such as the Federación Nacional de Cafeteros de Colombia (FNC), a member of the Product Environmental Footprint Category Rules (PEFCR) for coffee; the associations of beef and lamb producers from New Zealand (Beef + Lamb New Zealand Ltd) and of beef, sheep and goat (Meat & Livestock Australia), which are members of the Technical Secretariat for the development of PEFCR for meat; and a multinational New Zealander company (Fonterra), main world export of dairy products, acting as a member of the Technical Secretariat for the development of PEFCR for dairy products. The case of coffee shows that participation of non-European producers –those from Colombia, Ecuador, Peru and countries in Central America and the Caribbean– can influence the definition of indicators, though this is an example of the difficulty in incorporating sustainability criteria of the harvesting stage (Frohmann, 2015).

Likewise, the participation of these countries in the European initiative is not novel if taking into account that companies in Colombia, along with the Bogotá Chamber of Commerce, were part of the trial period of Grenelle II of France (July 2011- July 2012). Moreover, New Zealand has been advancing since the end of 2007 in the carbon footprint measurement of its main export products –namely, dairy products and lamb meat, particularly with the United Kingdom as their destination– and in the development of Product Category Rules (PCR) by means of the New Zealand Greenhouse Gas Footprint Strategy of the then New Zealand Ministry of Agriculture and Forestry, currently the Ministry of Primary Industries. In September 2014, New Zealand and Australia launched the Australasian Environmental Product Declaration Programme, a strategic joint venture between the Life Cycle Association of New Zealand and The Australian Life Cycle Society, with the partnership of the International EPD® System of environmental product declarations, based on type III ISO 14025 environmental product declarations. It is worth noting that 32% of exports of Colombian coffee (at an average value of US$ 699 million over 2011-2014) and 31% of meat exports from New Zealand (at an average value of US$ 1.376 million in the same period) had the European Union as their destination.

Source: Australasia Environmental Product Declaration EPD (2015), CEI based on COMTRADE, European Commission (2014 and 2015b and c) and Lottici (2012)

### 2.2. *Tests of Product Environmental Footprint Category Rules*

The Product Environmental Footprint Category Rules or PEFCR are aimed at providing detailed technical guidance regarding how to carry out an environmental impact assessment of the product[2]. These rules complement the general methodological guideline for the environmental footprint since they are more specific at product level (European Commission, 2015 a).

It is worth pointing out that the candidates of all the products selected for the second pilot stage were also proposed to lead the process of development of PEFCRs. The relevance of this lies on the fact that the PEFCRs resulting from the pilot phase will become rules for the product valid for the environmental footprint of the European Union's products to be used at the EU and globally by all the interested parties in the food sector that decide to measure their products' performance based on the environmental footprint (European Commission, 2015 c).

In this scenario, the governments of food exporting countries –such as Argentina– face policy challenges that will demand a close public-private partnership aimed at promoting active participation in discussion fora on the methodologies for the calculation of the products' environmental footprint so as to avoid unfavourable biases towards Argentine food products exports.

## 3. Likely trade impacts of the environmental footprint for Argentine products

The likely trade impact of the product environmental footprint for third countries, such as Argentina, can be analysed both from a qualitative perspective and also monetarily quantifying the value of Argentine export products that could be affected by this EU initiative.

### 3.1. *Trade impact of labelling: a qualitative analysis*

If the labels attached to products provide information to consumers regarding the characteristics of the product so as to differentiate them and have more elements available when deciding the purchase, why is it that many developing countries have been expressing their concern regarding the likely negative impact of environmental-impact related labelling?

The answer to this combines aspects related to the information provided, the consumer's perception and the policies implemented by the countries adopting those labellings, notwithstanding whether the labelling is public or private, voluntary or compulsory.

[2] The Product Category Rules (PCRs) are documents that define the standards and requisites for the environmental declarations of the products of a certain product category, which implies that specific rules are required for each product category. This includes using information based on the products' life cycles throughout the supply chain and it would enable comparing different product environmental declarations.

In the first place, product attributes are usually divided into search, experience and credence (Nelson, 1970; Darby and Karni, 1973). In the case of search, consumers can determine the presence of the attribute by themselves; in the case of experience attributes, the consumer detects the presence by means of its use; in the case of credence, the consumer can only rely on the information offered by the producer. The features referred to the environmental impact belong to this last category.

Secondly, the consumer's decision depends on their perception of the environmental problem referred to on the labelling. In general terms, consumers in European countries tend to give great importance to environmental aspects when deciding to purchase. Results of a recent survey show that 54% of those surveyed tend to purchase environmentally-friendly products; among which a wide majority (89%) believes that purchasing these products helps care for the environment; 77% would pay more for a product that cares for the environment; and that the environmental impact is the third factor considered when purchasing a product, following quality and price (TNS Political & Social, 2013). In Europe, there are many labellings regarding the products' environmental impact, both in the processing stage as in that of consumption and final disposal (Gruère, 2013). Many of these labellings tend to start their stage of debate and testing in European countries; that is the reason why the European Union is questioned at international fora where trade policy matters are discussed.

Thirdly, the form taken by these labellings and the fine print of the legal instruments that guarantee and support them can affect competitiveness in the market, favouring some products and harming others. This is clear regarding foreign trade, where a local product can be subtly benefitted to the detriment of imported products. This hidden environmental protectionism is found in cases where the information given openly favours local producers, regardless of whether the environmental impact is greater or smaller than that of imported products. For example, in the carbon footprint labelling, if the information is concentrated on carbon emissions during the stage of product transportation, it is clear that the products coming from distant places stand to lose; however, if the information refers to the emissions in all the stages of the product lifecycle, the local product might have more emissions during the production stage which more than compensate for the emissions associated to the imported product that had to travel long distances to arrive at its final destination.

In addition, these labellings do not inform whether there is a certain attribute or not, but rather they give information regarding the size of said attribute, for which reason it is rather arbitrary to define the threshold that determines that a product not surpassing said threshold is considered "good" by consumers and "bad" if it is surpassed[3].

All this explains that it is developing countries in particular those that most challenge these labellings, not because they fail to inform about the environmental impact, but rather because said information can be offered in such a manner that its products are discriminated, thus

[3] In this respect, studies regarding consumers' behaviour show that those concerned about environmental issues tend to change their purchasing decisions with relation to the information provided on the label, particularly if the latter is perceived as not environmentally friendly (Borin, Cerf and Krishnan, 2011).

infringing the principle of national treatment, one of the pillars of the multilateral trade system.

The WTO is the main sphere where these concerns are expressed. For example, at the regular Committee on Trade and Environment of the WTO, Argentina raised its concern regarding the proliferation of different methodologies for the calculation of the carbon footprint, like PAS 2050 and the Protocol of Greenhouse Effect Gases, previously mentioned. Before this Committee, it expressed that said methodologies show difficulties with respect to their reach, the transparency of elaboration processes and certification costs, due to the fact that (Lottici, Galperín and Hoppstock, 2013):

i) in the calculation methodologies there is no uniform criteria regarding what stages of the product lifecycle would be encompassed to quantify greenhouse gas emissions. In that sense, while some methodologies include the emissions occurring during production, distribution and/or consumption of the product, others incorporate those emissions generated during manufacturing of the supply, which would imply severe methodological and practical difficulties;

ii) the increase in private standards in environmental aspects is concerning, including the carbon footprint standards, since they would limit access of products of developing countries, undermining the role of the states as international trade regulators;

iii) the process of carbon footprint certification would be costly and difficult to meet, especially for developing countries and the small and medium-sized companies located in those countries. This concern is based, in the first place, on the fact that many developing countries do not have their own national certification bodies, for which reason, in most of the cases they should hire foreign certification entities, and in the second place, on the fact that in general, the certification is to be taken in the importing country.

These concerns are also applicable to the environmental footprint. In that respect, the EU submitted its initiative of environmental footprint labelling (WTO, 2015) at the WTO Committee meeting in October 2014. There, the EU argued that the initiative is aimed at reducing the costs of the offerors that wish to give information about this environmental attribute of their products, boost confidence in consumers and improve access of environmentally-friendly products.

Several developing countries, such as Argentina, Cuba, India, Mexico, Pakistan and South Africa, expressed their uneasiness regarding the fact that this initiative could trigger obstacles to trade beyond what is necessary in order to care for the environment, concerns that mainly revolve around concepts referred to the carbon footprint. Among the concerns are the following: i) that the initiative can be compulsory in the future; ii) that developing countries' needs are not taken into account; iii) that developing countries could experience limitations in trying to meet the prescriptions of these labelling systems; and iv) that the demand for information is disproportionate for exporting SMEs.

In this regard, it should be highlighted the progress made in sustainability labelling in the wine industry led by the World Wine Trade Group (WWTG). The WWTG is an association of wine producing countries which include Argentina, Australia, Canada, Chile, the United States, New Zealand and South Africa. With respect to environmental sustainability labelling in the wine industry, it is worth mentioning the Auckland Declaration made by the World Wine Trade Group (2012) which demands the measures related to labelling to be transparent, non-discriminatory and implemented according to the WTO agreements (pursuant to Art. 4 of the WWTG 2007 Agreement on the requisites for wine labelling). Likewise, the Declaration demands labelling to be clear, specific, exact, truthful and non-deceiving for consumers (Art. 5 (1) of the 2007 Agreement).

### 3.2. *Trade impact of labelling: a quantitative analysis*

This section approaches the analysis of the Argentine exports that could be affected by the implementation of methodologies relative to the product environmental footprint. Firstly, some precedents regarding estimates for the product carbon footprint are introduced, followed by data, methodology and results of the analysis of the product environmental footprint.

#### 3.2.1. *Precedents*

Previous carbon footprint studies carried out at the Centre for International Economy (Lottici, 2012) already showed the relevance of the European Union within the destination markets for Argentine exports of products that are potentially affected by environmental standards or labelling. Particularly, within the main initiatives regarding carbon footprint calculation, the actions led by the United Kingdom and France are to be highlighted, where special attention was paid to food products commercialised in large retailers. According to Lottici (2012), the export basket potentially affected by product carbon footprint calculation schemes corresponds in a high proportion –at around 90%– to agri-food and fishery products.

From a more detailed analysis –at the level of headings, that is, at 4 digits of the Harmonized System (HS)– it can be seen that the main Argentine exports that could suffer consequences are bovine meat and its preparations; wines; crustaceans and fish; citrus fruit; apples and pears and other fruits; fruit juices; and natural honey. These headings were the first ten products regarding their average export value for the 2007-2010 period. In particular, the export basket potentially affected by the schemes for carbon footprint calculation of products destined to the European Union reached US$ 2.8 billion on average in the 2007-2010 period, accounting for 29% of the Argentine exports to the world of the products affected.

### 3.2.2. *Data and methodology*

The analysis of the basket of Argentine export products likely to face negative effects due to the implementation of methodologies related to the environmental footprint includes the products involved in the pilot project and tests related to the category rules of the environmental footprint of the products that are being carried out by the European Commission mentioned in section 2.1. In particular, the products that were taken into consideration are those that participate in the second pilot phase that started in June 2014 and that can likely affect Argentine food product exports which have the European market as a destination. These goods can be called sensitive products and include dairy; beer; coffee; pasta; animal food destined for food production; fish; beef, pork and sheep; olive oil; and wines.

For this analysis, the subheadings –6 digits of the HS– were included, classified according to the 2007 Edition of the Harmonized System (HS 2007) corresponding to said product list, that were exported by Argentina to the 28-member European Union (28-EU) and to the world. The products presented by the European Commission in the pilot files (European Commission, 2015b) are classified according to the Statistical Classification of Products by Activity (CPA) or the Statistical Classification of Economic Activities in the European Community (NACE). The set of subheadings presented in this analysis results from looking for these products' correspondence at the HS 2007 (Table A1 of the Annex). The period considered for the analysis was that ranging from 2011 to 2014 and the average value of exports was taken.

As in Lottici (2012), the analysis made considers the value of the exports likely to be involved, and it does not represent a simulation analysis of how much exports could vary in case this labelling is put into practice. Consequently, an approximation of the worst scenario can be made, where the labelling is supposed to end up acting as an insurmountable trade barrier.

### 3.2.3. *Results*

The exports of Argentine products that could be affected by the implementation of environmental footprint methodologies and that have the 28-Member European Union as their destination reached an average value nearing US$ 922 million in the 2011-2014 period. These exports accounted for 19.6% of the Argentine exports of sensitive products to the world and only 1.2% of all the Argentine exports to the world (Table 1). This analysis considers the Argentine exports destined to the European Union since this is the region that has been assessing the application of this labelling, though the study could be expanded to other countries, especially developed ones, which may also start implementing this requisite of information, being at the public or private level, as it is the case of the carbon footprint labelling. In that case, over 19.6% of Argentine exports of these products could be affected.

**Table 1**
**Argentine exports of products potentially affected by the environmental footprint**
In thousands of FOB dollars

| | 2011-2014 average |
|---|---|
| Exports of affected products to the EU (1) | 921,919 |
| Exports of affected products to the world (2) | 4,705,496 |
| Total exports to the world (3) | 77,316,557 |
| Share (1)/(2) | 19.6% |
| Share (1)/(2) | 1.2% |

Source: CEI based on INDEC

The analysis of the exports to the European Union indicates that the export basket possibly affected represented 8.1% of the Argentine exports to this destination (Table 2).

**Table 2**
**Argentine exports to the European Union of products potentially affected by the environmental footprint**
In thousands of FOB dollars

| | 2011-2014 average |
|---|---|
| Exports of affected products to the EU (1) | 921,919 |
| Total exports to the EU (2) | 11,352,684 |
| Share (1)/(2) | 8.1% |

Source: CEI based on INDEC

From the analysis at the product level, it can be seen that the main Argentine exports to the European Union that could be affected are those corresponding to meat (at an average value of US$ 531 million in 2011-2014), followed by those of wines (US$ 188 million) and of fish (US$ 147 million) (Table 3). Overall, they account for 7.7% of the Argentine exports to the EU. Regarding the relevance in Argentine trade, this set of products accounted for 1.1% of the total Argentine exports to the world in the period under analysis. This value is slightly below the 1.2% value mentioned in Table 1 for the total number of goods potentially affected, due to the fact that meat, wines and fish concentrate 94% of the Argentine exports with the European Union as their destination that could be affected by the environmental footprint. Exports of animal foods at a value nearing US$ 50 million (0.4% of the exports to the European Union) are in the fourth place. The rest of the products potentially affected reached as a whole an export average value lower than US$ 7 million (0.06% of the exports to the European Union) in 2011-2014.

In addition, it can be observed how relevant the European Union is as an export destination mainly in the case of meat. Regarding the exports of beef, pork and sheep potentially affected

by the environmental footprint, the European Union received 42.8% of the Argentine exports of this product in the period under study. Regarding fish exports, the European Union participation was 29.6%; in wines 21.4% and in preparations used in animal feeding 12.4%.

Of the analysis at the level of subheadings of exports to the European Union, it can be seen that of the potentially affected exports of meat, 95.4% is boneless bovine meat, fresh or chilled (90.4%), or frozen (5%) (Table 4). Of the wine exports, 98.8% corresponds to non-sparkling fresh grape wines and grape musts with fermentation prevented by the addition of alcohol (Table 5). In the case of fish, exports are slightly diversified between flour, meals and pellets of aquatic invertebrates (non-crustaceans) apt for human consumption (50.5%), scallop shells, queen scallops and molluscs (25.4%), all of them frozen, dry, salty or in brine; and hakes and other frozen fish (23%) (Table 6).

**Table 3**
**Argentine exports to the European Union of products potentially affected by the environmental footprint**
Ordered by average export value to the European Union 2011-2014

| Product | Exports to the EU | | Exports to the World | | (1)/(2) |
|---|---|---|---|---|---|
| | Thousands of US$ (1) | Share (%) | Thousands of US$ (2) | Share (%) | Share % |
| Beef, pork and sheep | 530,883 | 4.7 | 1,241,437 | 1.6 | 42.8 |
| Wines | 188,094 | 1.7 | 876,953 | 1.1 | 21.4 |
| Fish | 146,832 | 1.3 | 496,253 | 0.6 | 29.6 |
| Food for animals destined to food production | 49,684 | 0.4 | 400,694 | 0.5 | 12.4 |
| Olive oil | 4,830 | 0.04 | 55,885 | 0.1 | 8.6 |
| Beer | 809 | 0.01 | 28,557 | 0.04 | 2.8 |
| Dairy products | 714 | 0.01 | 1,464,085 | 1.9 | 0.0 |
| Bottled water | 37 | 0.00 | 322 | 0.00 | 11.6 |
| Pasta | 23 | 0.00 | 18,214 | 0.02 | 0.1 |
| Animal feed (cats and dogs) | 13 | 0.00 | 123,096 | 0.2 | 0.0 |
| Coffee | 0 | - | 0 | - | - |
| Products affected | 921,919 | 8.1 | 4,705,496 | 6.1 | 19.6 |
| Rest of products | 10,430,765 | 91.9 | 72,611,061 | 93.9 | 14.4 |
| **Total products** | **11,352,684** | **100.0** | **77,316,557** | **100.0** | **14.7** |

Source: CEI based on INDEC

**Table 4 - Beef, pork and sheep**

**Argentine exports potentially affected by the environmental footprint**

Main 10 sub-headings ordered by average export value to the European Union 2011-2014

| Sub-heading (HS 2007) | Description | Exports to the EU | | Exports to the World | | (1)/(2) |
|---|---|---|---|---|---|---|
| | | Thousands of US$ (1) | Share (%) | Thousands of US$ (2) | Share (%) | Share % |
| 020130 | Fresh or chilled boneless bovine meat | 479,925 | 90.4 | 683,816 | 55.1 | 70.2 |
| 020230 | Frozen boneless bovine meat | 26,358 | 5.0 | 349,848 | 28.2 | 7.5 |
| 020810 | Rabbit or hare meat and offal | 12,100 | 2.3 | 12,178 | 1.0 | 99.4 |
| 020430 | Frozen carcasses or half-carcasses of lamb meat | 3,976 | 0.7 | 4,580 | 0.4 | 86.8 |
| 020442 | Frozen sheep meat bone in cuts | 3,622 | 0.7 | 8,144 | 0.7 | 44.5 |
| 020443 | Frozen boneless sheep meat | 2,761 | 0.5 | 2,947 | 0.2 | 93.7 |
| 020680 | Fresh or chilled offal | 819 | 0.2 | 820 | 0.1 | 99.9 |
| 020890 | Edible meat and meat offal | 411 | 0.08 | 437 | 0.04 | 94.0 |
| 020441 | Frozen carcasses or half-carcasses of sheep meat | 291 | 0.05 | 848 | 0.1 | 34.3 |
| 020690 | Frozen offal | 276 | 0.05 | 1,097 | 0.1 | 25.2 |
| Main sub-headings affected | | 530,538 | 99.9 | 1,064,714 | 85.8 | 49.8 |
| Rest of sub-headings affected | | 344 | 0.1 | 176,723 | 14.2 | 0.2 |
| **Total sub-headings affected** | | **530,883** | **100.0** | **1,241,437** | **100.0** | **42.8** |

Source: CEI based on INDEC

**Table 5 - Wines**

**Argentine exports potentially affected by the environmental footprint**

Sub-headings ordered by average export value to the European Union 2011-2014

| Sub-heading (HS 2007) | Description | Exports to the EU | | Exports to the World | | (1)/(2) |
|---|---|---|---|---|---|---|
| | | Thousands of US$ (1) | Share (%) | Thousands of US$ (2) | Share (%) | Share % |
| 220421 | Wine (not sparkling) and grape must with fermentation interrupted by the addition of alcohol, in containers <= 2 l | 163,656 | 87.0 | 742,762 | 84.7 | 22.0 |
| 220429 | Wine (not sparkling) and grape must with fermentation interrupted by the addition of alcohol, in containers > 2 l | 22,200 | 11.8 | 108,517 | 12.4 | 20.5 |
| 220410 | Sparkling wine | 1,939 | 1.0 | 24,205 | 2.8 | 8.0 |
| 230700 | Wine lees, argol | 300 | 0.2 | 316 | 0.04 | 94.7 |
| 220430 | Other grape must | 0 | - | 1,152 | 0.1 | - |
| **Total sub-headings affected** | | **188,094** | **100.0** | **876,953** | **100.0** | **21.4** |

Source: CEI based on INDEC

**Table 6**

**Argentine exports potentially affected by the environmental footprint**

Main 10 sub-headings ordered by average export value to the European Union 2011-2014

| Sub-heading (HS 2007) | Description | Exports to the EU | | Exports to the World | | (1)/(2) |
|---|---|---|---|---|---|---|
| | | Thousands of US$ (1) | Share (%) | Thousands of US$ (2) | Share (%) | Share % |
| 030799 | Flours, meals and pellets of aquatic invertebrates (not crustaceans) fit for human consumption frozen, dried, salted or in brine | 74,106 | 50.5 | 169,253 | 34.1 | 43.8 |
| 030729 | Scallops, queen scallops and molluscs, frozen, dried, salted or in brine | 37,332 | 25.4 | 57,966 | 11.7 | 64.4 |
| 030378 | Frozen hake | 18,187 | 12.4 | 78,403 | 15.8 | 23.2 |
| 030379 | Other frozen fish | 15,571 | 10.6 | 142,925 | 28.8 | 10.9 |
| 030419 | Fresh or chilled fish fillets and other fish meat | 733 | 0.5 | 1,471 | 0.3 | 49.8 |
| 030362 | Frozen Antarctic toothfish and Patagonian toothfish | 560 | 0.4 | 40,836 | 8.2 | 1.4 |
| 030375 | Frozen dogfish and other sharks | 219 | 0.1 | 497 | 0.10 | 44.1 |
| 030749 | Cuttlefish and balloons and squid and squid, frozen, dried, salted or in brine | 57 | 0.04 | 66 | 0.01 | 86.2 |
| 030380 | Frozen fish livers, roe and millets | 56 | 0.04 | 67 | 0.01 | 83.8 |
| 030374 | Frozen mackerel | 9 | 0.01 | 4,535 | 0.9 | 0.2 |
| Main sub-headings affected | | 146,829 | 100.0 | 496,017 | 100.0 | 29.6 |
| Rest of sub-headings affected | | 3 | 0.002 | 235 | 0.0 | 1.2 |
| **Total sub-headings affected** | | **146,832** | **100.0** | **496,253** | **100.0** | **29.6** |

Source: CEI based on INDEC

## 4. *Final considerations*

Product environmental footprint does not only refer to greenhouse gas emissions –the carbon footprint– but it also contemplates the impact on biodiversity, on natural resources and on water use and management, among others. This footprint is under analysis in the European Union, a region that is very active in aspects referred to environmental labelling –which has shown to be a world leader of this type of processes– and with consumers that are sensitive to these issues. Consequently, this may likely affect Argentine food product exports with the European market as their destination.

Currently, the European Commission is carrying out pilot projects and tests related to product environmental footprint category rules (PEFCR). The relevance of this lies on the fact that the PEFCR resulting from the pilot phase will become rules for the product valid for the environmental footprint of the European Union's products to be used at the EU and globally by all the interested parties in the food sector that decide to measure their products' performance based on the environmental footprint.

Another point of concern is that the European Union advance in this matter without yet having an internationally agreed definition of environmental footprint. In addition, it is likely that the criteria for their certification does not take into account the particular characteristics of developing countries or those of their production systems, for which reason compliance by producers in said countries would be difficult (Lottici, Galperín and Hoppstock, 2013). Concerns regarding the fact that this could give rise to obstacles to trade beyond what is necessary to care for the environment are being expressed by Argentina and other developing countries at the WTO, the primary sphere to settle this type of concerns.

The quantitative analysis of the trade impact of the EU environmental footprint shows that the exports of Argentine products that could be affected by the implementation of environmental footprint methodologies and that have the European Union as their destination reached an average value of nearly US$ 922 million in the 2011-2014 period, which accounted for 19.6% of the Argentine exports of sensitive products to the world. The analysis at the product level shows that the main Argentine exports to the EU that could be affected are those of meat, followed by wines, fish and preparations used in animal feeding.

Although only 8.1% of the Argentine exports to the European Union could be affected, the impact at the product level is very important, mainly in the case of meat. Regarding the exports of beef, pork and sheep potentially affected by the environmental footprint, the European Union received 42.8% of the Argentine exports of this item in 2011-2014. Regarding fish exports, the European Union share was 29.6%; that of wines 21.4% and of preparations used in animal feeding, 12.4%.

In general terms, in this scenario, the governments of food product exporting countries –such as Argentina– face policy challenges that will demand a close public-private partnership aimed at: i) raising different actors' awareness regarding the risks and challenges lying beneath this

type of measures for exports, ii) developing strategies to challenge these measures at the pertinent trade fora, and iii) promoting active participation in discussion fora on the methodologies for the calculation of the product environmental footprint so as to avoid unfavourable biases towards food product exports.

Finally, an aspect to consider is that some countries in the region, such as Colombia, are participating in community pilot tests, while others, such as Chile and Uruguay, are assessing the environmental footprint –this is the case of Chile– or the carbon footprint –the case of Uruguay– of their main export products. At this point, it should be analysed which would be the best strategies available for Argentine production sectors to be able to face the challenges posed by the EU initiative so that they can profit from the opportunities existing with relation to their product differentiation, while watching that these actions are not contrary to those started at international negotiation fora where these measures are under discussion.

**Annex**

**Table A**

List of sub-headings included in the analysis, according to product groups

Harmonized System 2007

| | |
|---|---|
| **Olive oil** | |
| 150910 | Virgin olive oil |
| **Bottled water** | |
| 220110 | Mineral water and aerated water |
| 220190 | Ice and snow |
| **Food for animals destined to food production** | |
| 121410 | Alfalfa meal and pellets |
| 230990 | Other preparations for animal feeding |
| **Animal feed (cats and dogs)** | |
| 230910 | Dog and cat food |
| **Coffee**[1] | |
| 090111 | Coffee not roasted or decaffeinated |
| **Beef, pork and sheep** | |
| 020120 | Fresh or chilled bovine meat bone in cuts |
| 020130 | Fresh or chilled boneless bovine meat |
| 020220 | Frozen boneless bovine meat cuts |
| 020230 | Frozen boneless bovine meat |
| 020322 | Frozen hams, shoulders and cuts thereof, with bone in |
| 020329 | Frozen meat of swine |
| 020421 | Fresh or chilled carcasses or half carcasses of sheep meat |
| 020422 | Fresh or chilled sheep meat bone in cuts |
| 020423 | Fresh or chilled boneless sheep meat |
| 020430 | Frozen carcasses or half-carcasses of lamb meat |
| 020441 | Frozen carcasses or half-carcasses of sheep meat |
| 020442 | Frozen sheep meat bone in cuts |
| 020443 | Frozen boneless sheep meat |
| 020610 | Offal of bovine animals, fresh or chilled |
| 020621 | Frozen bovine tongues |
| 020622 | Frozen bovine livers |
| 020629 | Other frozen bovine edible offal (not tongues or livers) |
| 020641 | Frozen swine livers |
| 020649 | Other frozen swine offal (not livers) |
| 020680 | Fresh or chilled offal |
| 020690 | Frozen offal |
| 020810 | Rabbit or hare meat and offal |
| 020890 | Edible meat and meat offal |

| | |
|---|---|
| **Beer** | |
| 220300 | Malt beer |
| 230330 | Brewing or distilling dregs and waste |
| **Pasta** | |
| 190211 | Pasta, uncooked or not stuffed, containing eggs |
| 190219 | Pasta, uncooked, not stuffed, or otherwise prepared, without eggs |
| 190220 | Stuffed pasta |
| 190230 | Other pasta |
| 190240 | Couscous |
| **Fish** | |
| 030110 | Live ornamental fish |
| 030199 | Live not ornamental fish |
| 030333 | Frozen sole |
| 030339 | Frozen flatfish (not halibut, plaice or sole) |
| 030345 | Frozen common or bluefin tunas |
| 030362 | Frozen Antarctic toothfish and Patagonian toothfish |
| 030374 | Frozen mackerel |
| 030375 | Frozen dogfish and other sharks |
| 030378 | Frozen hake |
| 030379 | Other frozen fish |
| 030380 | Frozen fish livers, roe and millets |
| 030419 | Fresh or chilled fish fillets and other fish meat |
| 030729 | Scallops, queen scallops and molluscs, frozen, dried, salted or in brine |
| 030739 | Mussels, frozen, dried, salted or in brine |
| 030749 | Cuttlefish and balloons and squid and squid, frozen, dried, salted or in brine |
| 030759 | Octopus, frozen, dried, salted or in brine |
| 030791 | Flours, meals and pellets of aquatic invertebrates (not crustaceans) fit for human consumption live, fresh or chilled |
| 030799 | Flours, meals and pellets of aquatic invertebrates (not crustaceans) fit for human consumption frozen, dried, salted or in brine |
| **Dairy products** | |
| 040110 | Milk and cream, not concentrated, without added sugar or other sweeteners, with a fat content by weight <= 1% |
| 040120 | Milk and cream, not concentrated, without added sugar or other sweeteners, with a fat content by weight > 1% and <=6% |
| 040130 | Milk and cream, not concentrated, without added sugar or other sweeteners, with a fat content by weight > 6% |
| 040210 | Milk and cream in powder, granules or other solid forms with a fat content <= 1.5 |
| 040221 | Milk and cream in powder, granules or other solid forms with a fat content <= 1.5, without added sugar or other sweeteners |
| 040310 | Yoghurt |
| 040390 | Fermented milk and cream excluding yogurt |

| | |
|---|---|
| 040410 | Whey, whether or not concentrated or containing added sugar or other sweetening matter |
| 040490 | Products constituted by natural components of milk, even with added sugar or other sweetening matter |
| 040510 | Butter |
| 040590 | Fat derived from milk (no butter or spreads) |
| 040610 | Fresh cheese (unripened) including that of whey, and cottage cheese |
| 040620 | Grated or powdered cheese, of all kinds |
| 040630 | Processed cheese (not grated or powdered) |
| 040640 | Blue-veined cheese |
| 040690 | Other cheese |
| 170211 | Lactose and lactose syrup with lactose content >= 99% by weight (dry), expressed as anhydrous lactose |
| 170219 | Lactose and lactose syrup with lactose content < 99% by weight (dry), expressed as anhydrous lactose |
| 210500 | Ice cream and other edible ice, whether or not containing cocoa |
| 350110 | Casein |
| **Wines** | |
| 220410 | Sparkling wine |
| 220421 | Wine (not sparkling) and grape must with fermentation interrupted by the addition of alcohol, in containers <= 2 L |
| 220429 | Wine (not sparkling) and grape must with fermentation interrupted by the addition of alcohol, in containers > 2 L |
| 220430 | Other grape must |
| 230700 | Wine lees, argol |

[1] There are no Argentine exports of this sub-heading in the 2011-2014 period

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