



Assessing farmers' costs of compliance with EU legislation in the fields of the environment, animal welfare and food safety

EXECUTIVE SUMMARY

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CRPA - Centro Ricerche Produzioni Animali (IT)

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TI - Thünen Institute of Farm Economics (DE)

IFCN - International Farm Comparison Network on Dairy (DE)

Authors

Alberto Menghi, Kees de Roest, Andrea Porcelluzzi (CRPA)

Claus Deblitz, Zazie von Davier, Barbara Wildegger, Thomas de Witte, Kathrin Strohm, Hildegard Garming, Walter Dirksmeyer, Yelto Zimmer (Thünen Institute of Farm Economics)

Dorothee Bölling (IFCN)

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Introduction and objectives of the study

Agricultural activity of EU farmers is particularly concerned by specific compulsory requirements arising from the legislation in the fields of the protection of the environment, food safety and animal welfare. EU farmers may be facing extra costs when complying with this legislation.

Farmers in third countries are not bound by EU legislation on agricultural activities except if it is a prerequisite for exporting their products to the EU (e.g. EU residue provisions). However, they must comply with their own countries' legislations, which may also have a cost for farmers.

From a general perspective, we can say that the cost of complying with the legislation in the above-mentioned areas may be a factor influencing the competitiveness of agricultural products on the world market.

The overall purpose of this study is to provide the background knowledge and a comprehensive and comparative assessment of the actual costs to farmers of complying with legislation in the fields of environment, animal welfare and food safety.

In this context, the specific objectives of the study are:

1. To provide a comprehensive description and assessment of the costs of compliance with EU legislation in the fields of environment, animal welfare and food safety at farm level in selected EU Member States and in selected third countries;
2. To provide a comprehensive description and assessment of the costs of compliance for farmers in a number of third countries with equivalent legislation in their respective countries, as well as with EU legislation as exporters to the EU;
3. To compare the costs of compliance with environmental, animal welfare and food safety legislation for EU and third country farmers and to draw conclusions with respect to the impact on competitiveness.

Methodology

The research gives an overview on eight major agricultural sectors (cow milk, beef, sheep, pork, broiler meat, wheat, apples, and wine grapes) in 12 selected EU Member States in comparison to 10 selected third countries:

- Bulgaria,
- Denmark,
- Finland,
- France,
- Ireland,
- Italy,
- Poland,
- Netherlands,

- Germany,
- Hungary,
- Argentina,
- Australia,
- Brazil,
- Canada,
- Chile,
- Spain,
- United Kingdom.
- New Zealand,
- South Africa,
- Thailand,
- Ukraine,
- USA.

For every sector, several countries have been compared:

- **dairy** (in Finland, Germany, Ireland, Poland, Netherlands, Argentina, New Zealand),
- **broiler meat** (in France, Germany, Italy, Brazil, Thailand),
- **beef** (in France, Italy, United Kingdom, Argentina, Brazil),
- **wheat** (in Denmark, Germany, Hungary, United Kingdom, Canada, Ukraine),
- **sheep** (in France, United Kingdom, Argentina, Brazil),
- **apples** (Germany, Italy Chile, South Africa),
- **pork** (in Denmark, Germany, Poland, Netherlands, Brazil, USA),
- **wine grapes** (in Bulgaria, France Italy, Spain, Australia, South Africa).

The analyses were carried out through surveys and case studies, which dealt with the description of the relevant legislation and allowed for a quantitative cost assessment. The outcome is a series of 43 case studies, involving 12 EU Member States and 10 third countries. Therefore, the study can only provide hints but it is not possible to draw general conclusions on EU farmers' situation.

The methodology used in this study uses a typical farm approach. A typical farm is a model farm representing the most common farm type for a specific product in a specific country or region. The necessary technical and economic data to define the typical farm were established by farmers and local experts. The number of typical farms selected per country varies from 1 to 3. In countries with different production systems, several typical farms have been defined. To analyse and compare the costs of compliance in 22 countries, a total of 74 typical farms have been defined (45 in EU Member States and 29 in third countries). The typical farms are fully comparable worldwide due to standard rules. Still, even with a high number of typical farms it is not possible to draw statistically significant conclusions.

Since a worldwide farm accountancy system does not exist, the typical farm approach has been chosen to enable a comparison of production and compliance costs across the selected sectors. The approach has been used to estimate the total costs of production per unit (i.e. euro/kg milk, euro/ton wheat etc.). The total costs of production are the sum of four standard cost categories identified in each typical farm (as described in the table). Each cost element includes the cost of compliance of the legislation.

The assessment procedure of the costs of compliance builds upon a focus group discussion with farmers and national experts.

Cost categories

Land costs	include costs for rented land and owned land;
Labour costs	include the costs for salaried labour and family labour;
Capital costs	include the interests on liabilities and on own capital;
Non-factor costs	include costs such as feed costs, fertilisers, seeds, contract labour, maintenance and depreciation of machinery and buildings; Non-factor costs are the difference between total cost and costs for land, labour and capital.

Compliance costs have been estimated for each law and for each typical farm. In case of directives, the transposition made by Member States has been considered. Furthermore, compliance costs have been calculated only for the primary (raw material) production, thus, only at farm level. For legislation issued but not yet implemented in 2010, it was analysed if costs for implementation were expected. In this case compliance costs have been calculated for the single cost components and added to the total production costs.

Benefits to farmers resulting from compliance with legislation were also accounted for (e.g. lower inputs, higher yields, etc.).

Costs of compliance were compared with the total costs in the base scenario and expressed in % of the total costs.

2010 was established as **reference year** for this study. All cost calculations are related to this year and refer to legislation in force. The selected legislation concerns environment, animal welfare, and food safety and animal health. Regulations and directives that could generate compliance costs for farmers have been selected by the Steering Committee and country experts. The selection process resulted in a group of 40 EU directives and regulations, as well as the Good Agricultural and Environmental Conditions as laid down in Council Regulation (EC) No 73/2009 of 19 January 2009 which directly affect farmers in the EU. Regulations relevant to the feed industry were included in order to consider indirect effects on farmers.

For the third countries, legislation which was selected was equivalent or similar to the selected EU legislation. In addition, private standards have been considered if they are compulsory and constitute a precondition for export into the EU.

For the purpose of the study, as regards legislation classification, three categories have been proposed: environment, animal welfare as well as food safety and animal health.. So it has been decided to group all legislation on plant protection products in the category environment rather than the category food safety.

Results and Conclusions

Dairy

The costs of compliance for the dairy farms of the selected EU Member States range between 1 and 1.5% of the total costs of production with two exceptions. In the Netherlands, the impact reaches nearly 3% and in Poland, the impact is less than 1%. In Argentina and New Zealand, dairy farms

have a lower level of costs of compliance, ranging between 0.5 and 1% of their total costs of production.

Production costs reach 26 €/100 kg in Ireland but exceed 70 €/100 kg of milk in Finland, while in Argentina and in New Zealand production costs amount to only 20 and 23 €/100 kg respectively.

The differences in compliance costs and production costs between EU Member States are at least partly caused by the Nitrate Directive. They are due to different stocking rates of dairy farms and differences in the extension of Nitrate Vulnerable Zones. Argentina and New Zealand have less legislation in the three policy fields under scrutiny.

Compliance costs seem to affect the competitiveness of EU dairy farms to a limited extent.

Beef meat

The costs of compliance for beef farms range between 0.5 and 3% of the total costs in most of the selected EU Member States. The Italian farm registers the highest impact, while in France and the United Kingdom the impact is below 1.2%. Between third countries, a wider variation of costs of compliance (0.2 to 5.8%) has been observed.

Production costs in the reference year differ significantly between EU Member States (France, Italy and United Kingdom) and third countries (Argentina and Brazil): they reach 600 €/100 kg carcass weight in the United Kingdom compared to an average of 200 €/100 kg carcass weight in the third countries.

These significant differences can be attributed to differences in labour and feed costs and to more extensive production systems in South America compared to the EU.

The low percentage of compliance costs to EU legislation seems to be a minor fact affecting EU beef farm competitiveness on the world market.

Sheep meat

Costs of compliance of sheep farms range from about 0.5% in France to 3.5 % of total costs in the United Kingdom. The level in France is similar to the one in New Zealand. In Australia, total costs of compliance are about 1.7%.

Production costs vary significantly between EU Member States and third countries. France shows more than four times the costs (350 €/100 kg sheep live weight) compared to New Zealand (about 80 €/100 kg live weight).

Lower feed costs, larger herd size and higher labour productivity on sheep farms in Australia and in New Zealand explain differences in production costs between third countries and the EU.

The competitiveness of EU sheep meat production seems to be not primarily dependent on compliance costs due to EU legislation.

Pork meat

Pig farms in Denmark and the Netherlands show similar costs of compliance (3-4% of total costs). Compliance costs reach 8% in Poland and 9% in Germany. Brazilian farms show 3% costs of compliance. For the typical US farm, costs of compliance were negligible.

Production costs among the EU countries range from 130 € (Poland) to 140 €/100 kg of meat (Denmark, Germany and The Netherlands). In third countries (Brazil and USA), pork meat is produced for lower costs (100-120 €/100 kg).

The higher compliance costs in Germany and Poland compared to Denmark and The Netherlands are due to environmental legislation. For Poland, both the relatively small size of the pig farms and the 2010 on-going transition period towards EU standards should be mentioned.

The lower production costs in Poland compared to other EU Member States are mainly due to lower labour costs. In third countries (Brazil and USA), feed costs are lower and labour productivity higher, both reducing production costs.

Compliance with EU legislation affects production costs significantly. However, EU legislation strengthens the reliability of pork meat and promotes high standards of animal welfare, both appreciated also by third countries' consumers.

Broiler meat

Compliance costs differ between the three selected EU Member States from 1.4% (Germany) to 5.5% (Italy) of total production costs. The total costs of compliance in Brazil and Thailand are around 3%.

Broiler production costs in the EU Member States range from 84 € in France to up to 98 €/100 kg meat in Italy. Production costs in Thailand are at a similar level, while Brazilian farms produce at only 60 €/100 kg of meat. Brazilian broiler meat is more competitive than European one, due to low capital costs and non-factor costs.

Wheat

Costs of compliance in the selected EU member States range from 2 to 3.4% of the total costs; Hungary shows the lowest costs. Third countries face even lower levels of costs of compliance. For example, less than 1% is observed in Ukraine and no costs at all are identified in Canada.

In most of the EU countries analysed, production costs range between 150 and 200 €/ton. Denmark is an exception with more than 250 €/ton. For most of the EU Member States studied, there is no significant costs difference between the EU and third countries.

Low costs of compliance in Hungary compared to other EU Member States can be explained with the gradual implementation of Food Safety regulations at EU standards.

In Denmark, the highest total production costs and highest costs of compliance are related to yields below average in 2010, national limits for nitrogen application and the unique Danish pesticide tax which goes beyond EU requirements.

Apples

On the selected European (Germany and Italy) apple farms, the cost impact of legislation lays between 2 and 3%. Apple producers in Chile and South Africa face similar compliance costs with equivalent legislation but compliance costs vary, depending on the characteristics of the typical farm.

The costs of apple production in the selected EU Member States range from 380 to 520 €/ton apples and are two to three times higher than in Chile or South Africa (130 to 220 €/ton apples). These differences in production costs are significant.

The differences in production costs have to be attributed to the lower labour and machinery costs in the third countries concerned.

Chilean and South African apple farms participate in certification schemes such as GlobalGap, TESCO Nature or SEDEX, a basic requirement to access export markets, national food retailers and supermarkets. For third country farmers that export to the EU, requirements and therefore also compliance costs are similar.

Wine grapes

France, Spain and Italy show similar (2% to 4%) while Bulgaria shows lower costs of compliance (0.1%). The effect of the legislation in third countries is, on average, also low with less than 1% of the total costs.

Total costs of production vary significantly between the different typical farms from 300 € (Spain and Italy) to 600 €/ton in France. South Africa shows as well 300 € while on Australian typical farms costs of production are about 900 €/ton.

Lower costs of compliance in Bulgaria compared to other EU Member States are due to the gradual implementation of EU legislation after Bulgaria's accession to the EU in 2007. Higher costs of compliance in some of the selected Member States compared to selected third countries are primarily related to environmental legislation. The costs may negatively affect the competitiveness.

In general, differences in production costs can be explained with differences in cultivated varieties and production systems. Production costs in Australia and South Africa are – in the reference year 2010 - partially even higher than in Europe. The Australian farms experienced a long drought which coincided with low product prices. Highest non-factor costs are found in Australia and are, to a large extent, driven by irrigation costs.

Competitiveness is mainly determined by the quality and the yield per hectare. Furthermore, grapes are not the final product of this supply chain. Wine processing and marketing, which are beyond the scope of this study, have a significant impact on the final product's competitiveness. Thus, a judgment on the competitiveness of this sector could only be given when taking into account wine production.

Overall conclusions

The results of this study show that farmers' costs of compliance with legislation in the field of environment, animal welfare and food safety and animal health differ between countries and sectors. In the hypothetical absence of the legislation under consideration, a limited reduction in costs could be expected.

On **animal farms, food safety and animal health legislation** creates highest compliance costs for all types of legislation investigated and higher compliance costs than on crop farms.

Food safety and animal health regulations affect the non-factor and labour costs of farms structurally. Legislation in the field of environment and animal welfare primarily affects capital costs, as these types of legislation may require a change of production systems.

Farmers may have recombined production factors and may have found a **new production optimum** following the entry into force of EU legislation concerning environment, animal welfare and food safety and animal health. Therefore, farmers may have reduced the initial cost impact of the legislation. Improvement of farm management may reduce the effect of compliance with legislation. For example, an increase of environmental awareness among farmers may lead to an improvement of the use of resources and to a rise in production efficiency. It is unknown how farmers would have reacted without legislation but it is clear that they aim for the economic optimum.

Pig and broiler farms are most affected by legislation in all three policy fields. For them, compliance costs range between 5 and 10% of production costs compared to a range of 2 to 3% for dairy, beef and sheep meat. However, the EU self-sufficiency rate of pig and broiler production did not decline with the introduction of the investigated legislation.

'Land based' production systems as farms producing milk, beef and sheep meat show lower compliance costs than other animal farms for the investigated legislation due to the need for roughage production. The environmental impact of these farms is smaller and compliance with animal welfare requirements (housing systems) does not cause high compliance costs. The same applies for this kind of farms in third countries.

Crop farms producing wheat, wine grapes and apples are less affected by legislation than animal farms. Their compliance costs range from 1 to 3.5%. Compliance costs on crop farms have only a very limited impact on production costs. In third countries, legislation in the field of environment and food safety for wheat and wine grape producers is less strict than in the EU. However, for apples, the producers in Chile and South Africa face similar costs of compliance when they export to the EU.

Compared to the total production costs, compliance costs for analysed EU legislation in the eight sectors and the 12 EU Member States are low. Differences in production costs between EU farms and farms in third countries seem to be mainly driven by productivity, land and labour costs and feed price.

Yet, care needs to be taken in interpreting these results. A wide range of calculated costs of compliance has been observed. Their impact on competitiveness sector by sector can be very diverse according to the different products and countries. The methodology applied in this study does not allow drawing generalised conclusions on the impact of costs of compliance on competitiveness of EU Member States towards third countries.