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Study on mandatory origin labelling for pig, poultry and sheep & goat meat

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Executive Summary

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1 Context

Regulation (EU) No 1169/2011 on the provision of food information to consumers provides for mandatory indication of country of origin or place of provenance for unprocessed meat of pigs, poultry, sheep and goats, as from 13 December 2014.

The Regulation requires the adoption of implementing acts, to be drawn up following impact assessments and consideration of options for expressing the country of origin or place of provenance, in particular with regard to each of the following determining points in the life of an animal: place of birth; place of rearing, and; place of slaughter [Article 26 (9) of the Regulation].

The Regulation includes the possibility to differentiate products from different origins at EU level, country level and also indicate origin from a particular region within a country.

This study has been undertaken to compare different options of implementing origin labelling for fresh and frozen meat (including minced meat and cuts) of pigs, poultry and sheep and goats, with the aim of giving appropriate origin information to consumers, whilst not causing disproportionate burdens on the meat supply chain, trade, consumers and the administration.

The impact of implementing such origin labelling is assessed considering the following areas:

- Food supply chain: the economic impact on the food supply chain taking into account costs and feasibility;
- Trade: the impact on intra-EU trade and on trade with third countries for each of the meat types from the perspective of possible distortion of the global trade flows;
- Consumer behaviour: as regards different types of origin indication as well as the level of willingness to pay for additional information related to origin of meat;
- Administrative burden: the impact on the administrative burden on producers, traders and the Member States, as well as on the strengthening of the controls to ensure a proper system of origin labelling.

2 Regulatory background

Mandatory country of origin labelling for beef and beef products¹ was introduced in the European Union in 2000 following the bovine spongiform encephalopathy (BSE) crisis. The regulations require compulsory origin labelling for fresh, chilled and frozen beef and veal, including minced meat. The product label must state the Member State or third country of birth, rearing, slaughter and cutting (with some simplifications).

Subsequent evaluation noted that origin labelling had a significant impact on the recovery of beef consumption following the BSE crisis. The beef labelling rules also had a major impact on the organisation of the beef sector and the beef market in the European Union. They considerably improved transparency in the sector by limiting the number of intermediaries between the farmer and final consumer, as well as the number of suppliers to each operator.

However, according to the European meat trade sector, compulsory beef origin labelling also led to a certain re-nationalisation of trade in beef, particularly in the retail sector selling beef products to the final consumer. In addition the evaluation noted an increased tendency for the distribution sector to restrict the range of origins of beef placed on the market. Retailers in self-sufficient Member States tended to offer consumers beef of wholly or predominately domestic origin. This was is in response to consumer preferences, but also externalised the risk of origin labelling errors and possible trade

¹ Regulations (EC) No 1760/2000 and (EC) No 1825/2000

consequences. However the evaluation also noted signs of recovery in the intra-community beef trade from 2002. The mandatory indication of origin for beef and beef products has created consumer expectations.

The mandatory origin indication could vary from one type of meat to another taking into account the principle of proportionality and the administrative burden for food business operators and enforcement authorities. It applies to pre-packed unprocessed meat of the specified types.

Regulation (EC) No 178/2002 (the General Food Law), Regulation (EU) No 931/2011 and more specific EU legislation ensure the traceability of food-producing animals and food of animal origin through all stages of production, processing and distribution. As traceability is ensured, it means that origin information is available through the provisions of the traceability system.

Specific traceability requirements vary between the different species of meat producing animals. This means that ease of access to origin information varies between the species. In situations where complete food chain management systems are not in place, it may be necessary to make changes during processing (such as batch separation and label changes) in order to ensure origin information is universally and readily available on product labels and at the point of sale.

3 Labelling options to be considered

Multi-criteria mapping (MCM) methodology was employed to identify, describe and select the most promising mandatory origin labelling options.

Four labelling options were put forward for consideration in a stakeholder workshop, interviews and case studies. These options were:

Option 1:	Mandatory EU or non-EU origin labelling
Option 1.	
	Meat from an animal born, reared and slaughtered inside the EU is labelled "Origin: EU";
	Meat from an animal born, reared or slaughtered outside the EU is labelled "Origin: non-
	EU".
Option 2:	Mandatory country of origin labelling
	Meat from an animal born, reared or slaughtered in more than one country includes on
	the label:
	Member State or third country where the animal was born;
	Member State or third country where the animal was reared, and;
	Member State or third country where the animal was slaughtered.
	Meat from an animal born, reared and slaughtered wholly within one country may be
	labelled "Origin: Member State or third country".
Option 3:	Mandatory labelling of country of rearing
	Member State or third country where the animal was reared.
Option 4:	Mandatory labelling of country of rearing and of slaughter
	Member State or third country where the animal was reared;
	Member State or third country where the animal was slaughtered.

Case studies and other investigations revealed a diverse picture of the impact of origin labelling across the meat sectors, different countries, stages of the supply chain and between stakeholders.

However a number of key issues emerged and were used to inform the further work of the study:

i) Views on origin labelling tend to be polarised one way or the other.

- ii) Consumers are generally in favour of country of origin labelling with an emphasis on the country where an animal was reared (alternative terms include raised, farmed, bred, fattened). It may not be the main priority when shopping, but the absence of origin information can lead to distrust in relation to unprocessed meat, which could be an accumulative effect over a series of food scares. Consumers have not expressed a preference for EU/non-EU origin labelling on the basis that it does not provide useful information. Neither have they expressed a preference for the customs definition of country of origin as the place of last substantial change, as this concept is not well understood. Country of origin labelling (in the sense of the country/ies where the animal was born, reared and slaughtered) is seen as providing clear and accurate information on a meat product, which is useful for a variety of reasons. Consumers are not willing to pay for this information and do not always refer to it when shopping, but they think it should be provided as a matter of course and to omit it may raise suspicions of something to hide. However increased confidence in meat from origin labelling may benefit the livestock and meat sector in general. In particular mandatory origin labelling may help to limit damage caused by food safety crises, food scandals and other market shocks.
- iii) The greatest impact of mandatory origin labelling on food chain businesses is in terms of trade. Individual food businesses are generally for or against according to how their trade is likely to be affected. Positive and negative trade impacts have been perceived at all stages of the supply chain. Businesses targeting high value differentiated unprocessed meat products are more likely to favour origin labelling than those providing commodity unprocessed meat products, particularly when they are of mixed origin. The experience of traceability and compulsory labelling of beef suggests there can be significant trade impacts.
- iv) The length of the supply chain is an important factor. Origin information becomes more important as chain length increases, but it also becomes more difficult to obtain. One reaction to mandatory origin labelling by cutting and packing plants and retailers may be to simplify their supply chains. However the impacts of labelling are far too small to affect trends and tendencies for businesses to grow and to specialise.
- v) The impact of mandatory origin labelling should be separated from the implementation of traceability legislation. The provision of origin information along the food chain does not put additional demands on operating practices beyond those already required for traceability purposes. For example, separation or identification of cuts or batches of meat of different origin is already a requirement for traceability purposes and no further separation or information is required for origin labelling. The main difference between traceability and origin labelling information requirements concerns the accessibility of the information: while traceability information is not usually required instantly, more sophisticated information systems may be required to access origin information along the food chain.
- vi) The degree of vertical integration in a supply chain is important, as is the size of food businesses. Large scale integrated supply chains can most easily put traceability and origin information systems in place along the whole chain. Costs are relatively higher for smaller businesses, but very small businesses sourcing locally and selling locally will face negligible cost increases.

The study has identified a number of indicators to assess the impact of mandatory origin labelling on the supply chain and trade across the EU:

Supply chain indicators

- 1. Chain length of live animals (number of movements between production stages)
- 2. Chain length of meat chain (number of movements between meat businesses)
- 3. Number of cross-border movements
- 4. Scale of businesses (small, medium, large)

- 5. Traceability systems in place
- 6. Separation of supply chains for different origins
- 7. Amount of meat sold unprocessed
- 8. Amount of unprocessed meat sold pre-packed.
- 9. Market differentiation (high value products versus commodity)
- 10. Voluntary labelling in place
- 11. Inspection costs

Trade indicators

- 12. Self-sufficiency in meat
- 13. Import/export of live animals
- 14. Import/export of unprocessed meat products

4 Assessment of impact of options

4.1 Methodology

The analysis of the economic impacts of different origin labelling options on trade, consumers and producers is made using the CAPRI partial equilibrium model following a market-analysis approach. The advantage of this model is that it has a detailed Member State level representation of the meat and livestock sectors in the EU.

The partial equilibrium model is essentially a net trade model with a focus on the net trade impact between Member States and third countries.

Costs for mandatory origin labelling range from operating costs, costs for inputs and logistics to costs for tracking and tracing and identity preservation. The costs depend on the particular labelling requirement or option. It seems that major costs are incurred when a reset of the production process is necessary to ensure that products' identities are preserved.

Modelling mandatory origin labelling on the demand side captures the behaviour of consumers in terms of their willingness to pay for information that is considered to represent a benefit with regard to better consumer awareness.

Numerous studies have revealed a 'consumer paradox' between consumers' attitudes and behaviour towards origin labelling. When asked, a majority of food (and particularly meat) consumers generally respond that indication of origin is important and should be included on labels. However, research shows that purchase decisions may be different from answers given in surveys and country of origin is not a major factor in most meat purchasing decisions.

This complex response of consumers to the issue of origin labelling varies according to the circumstances, their beliefs and their perceptions. These factors are well documented in literature and are undoubtedly of economic importance.

The implication of the consumer paradox is that consumer surveys alone are unlikely to provide a complete picture of consumers' attitudes and behaviour. It is difficult to estimate the benefits to the consumer of origin labelling in monetary terms for the purposes of cost benefit analysis. Origin labelling of meat products may have a positive impact on purchasing if it inspires confidence in the authenticity of the product; it may have a negative impact related to perceived attributes of the product or concerning the country or area in question; or it may have no impact if origin is of not a priority for to the purchaser.

4.2 Outcome of the analysis

For option 1 (EU or non-EU origin labelling) the cost impacts were estimated to be approximately zero, which made a quantitative analysis superfluous. No specific impacts are expected for

consumers, since they are already effectively able to distinguish EU from non-EU meat products. As both cost-shifts and changes in willingness to pay are zero, this option is expected to have a zero impact on EU producers, consumers and trade. This holds for products of all the meat species.

4.2.1 Average cost impacts

The following table provides an overview of the cost shocks that have been applied in the simulation analysis. The shocks are presented as a percentage of the wholesale price. They are weighted for production per country and assume that the structure of meat companies (large, medium, small) is almost equal for all Member States.

Table 1.	Average cost impacts for different labelling options and meat type

Meat type	Cost impacts as a percentage of wholesale price				
	Option 1	ption 1 Option 2 Option 3		Option 4	
Pork	0.00%	2.3%	1.5%	1.5%	
Poultry	0.00%	1.3%	0.92%	1.02%	
Sheep and goats	0.00%	0.64%	0.28%	0.30%	

As the table shows there is only a slight difference between the cost impacts associated with options 3 (country of rearing) and 4 (countries of rearing and slaughter). The reason is that there are few cost implications for the slaughter stage, which represents the difference between options 3 and 4. Consequently, only option 3 has been further analysed and a separate analysis of option 4 has been omitted.

Although option 4 is likely to be preferred by consumers over option 3 as it provides more information, there was insufficient evidence to translate this into differences in willingness to pay between the options. As there is no measurable monetary impact, there is no reason for a separate analysis of option 4.

4.2.2 Impacts by meat type

This section presents the net trade impacts for option 2 (country of birth, rearing and slaughter) and option 3 (country of rearing) by meat type. As mentioned in the previous paragraph, option 4 is not considered separately. Changes in net trade per country are the sum of changes in own consumption and own production. The analysis focuses on the major producing countries, comprising at least 80% of EU production.

4.2.2.1 *Pig sector*

The impacts on net trade in the most important pork producing Member States are presented in the table 2. The impacts on the net trade position of Member States are in most cases relatively limited. Overall EU net exports increase from the reference level: under option 2 by 2% and under option 3 by 1%.

For the EU as a whole net exports increase. Consumers turn out to face a price increase which is higher than the price decline faced by producers. The demand and supply response to these price changes are different, where the demand by consumers declines more than supply by the EU primary producers.

Table 2. Impacts of different EU mandatory origin labelling options on pork trade

Member State (in order of production volume)	Reference (net trade)	Option 2 (impact on net trade)		•	ion 3 n net trade)
	1 000 t	1 000 t	% change	1 000 t	% change
1. Germany	327	332	1.60%	332	1.50%
2. Spain	571	569	-0.40%	573	0.30%
3. France	92	91	-1.70%	92	-0.90%
4. Poland	-113	-103	-8.90%	-110	-2.10%
5. Denmark	1 648	1 644	-0.30%	1 646	-0.10%
6. Italy	-701	-695	-0.90%	-697	-0.60%
7. Netherlands	491	490	-0.10%	491	0.00%
EU27	1 800	1 836	2.00%	1 820	1.10%

Source: Study calculations with CAPRI model

Poland's pork trade improves as net imports decline by almost 9%. Despite being a big producer Poland is still a net importer. The decline in its net imports implies that the local pig sector strengthens its position in the domestic market. This pattern also holds for other eastern European Member States with similar characteristics.

As stated above, producer and consumer prices are affected differently. The average changes in pig meat producer and consumer prices in the EU27 are about -0.4% and +0.9% respectively for option 2. This implies that the average burden on primary producers is approximately 0.6 eurocents per kg (0.4% of €1.50) and on consumers is 5.4 eurocents per kg (0.9% of €6.00). Under option 3, the average changes in producer and consumer prices in the EU27 are somewhat lower: -0.2% and +0.5% respectively.

It can be calculated that on average in the EU27 about 12% of the extra costs for labelling are transmitted to the producers, while about 88% of the extra costs are transmitted to the consumer. This can be different per Member State. In France, Spain, Portugal, Ireland and the UK more than 20% of the extra costs are transmitted to the producer.

4.2.2.2 Poultry sector

The impacts on poultry trade are generally smaller than on pork. Cost increases are much lower.

Some countries show significant percentage changes in net poultry trade (notably Germany's net trade improves and Italy's worsens) but this is because their net trade positions are small in absolute or volume terms: so a small volume change looks big in percentage terms.

For option 2 at EU27 level the net exports increase by 0.8%. This is again the result of a decline in domestic demand (as a response of consumers to the higher poultry meat prices), and a less pronounced decline in domestic production. As a result of this the exportable surplus increases, increasing EU net exports to the rest of the world.

The impacts found for option 3 are in general terms modest and smaller than for option 2. Net exports increase by 0.6%.

Table 3. Impacts of different EU mandatory origin labelling options on poultry trade

Member State (in order of production volume)	Reference (net trade)	Option 2 (impact on net trade)		· · · · · · · · · · · · · · · · · · ·		
	1 000 t	1 000 t	% change	1 000 t	% change	
1. France	223	222	-0.70%	222	-0.50%	
2. Germany	-16	-14	-10.30%	-16	0.50%	
3. United Kingdom	-107	-107	0.10%	-108	0.70%	
4. Italy	-13	-14	8.00%	-14	6.00%	
5. Poland	372	374	0.40%	375	0.70%	
6. Spain	-39	-39	0.50%	-40	1.90%	
7. Netherlands	296	298	0.60%	297	0.40%	
EU-27	767	773	0.80%	772	0.60%	

Source: Study calculations with CAPRI model

The average changes in poultry meat producer and consumer prices in the EU27 for option 2 equal about -0.1% and +0.4% respectively. Assuming producer and consumer prices of €1.75/kg and €5.40/kg respectively this implies that producers receive 0.2 eurocent per kg less (0.1% of €1.75), whereas consumers pay an additional 2.2 eurocents per kg (0.4% of €5.40). For option 3, the average changes in producer and consumer prices in the EU27 are again somewhat lower, namely -0.10% and +0.30% respectively. Price changes in the Netherlands are relatively large and are explained by the relative large cost shock.

It can be calculated that on average in the EU27 about 8% of the extra costs for labelling are transmitted to the producer, while about 92% of the extra costs are transmitted to the consumer.

4.2.2.3 Sheep and goats sector

As regards sheep and goats the impact on trade are very small relative to the impacts observed for pigs and poultry. In the sheep and goat sector there are already well-developed traceability systems, while also the trade in live animals (including lambs) between Member States is limited (France being an exception). The changes in net trade are in general marginal. Greece shows the greatest change with a 2.5% reduction in net imports under option 2. For option 3 the changes are all well below 1%.

The EU27 is a net importer of sheep and goat meat. At EU level the net imports decline marginally by 0.4% for option 2 and 0.2% for option 3. It might be expected that increases in labelling costs would worsen the competitive position of EU meat as compared to non-EU meat and imports would increase. However, consumers reduce consumption due to the price increase and this has a negative impact on overall demand. There will be some substitution of EU produced meat by meat from non-EU origins.

Table 4. Impacts of different EU mandatory origin labelling options on sheep and goat meat trade

Member State (in order of production volume)	Reference (net trade)	Option 2 (impact on net trade)		Opti (impact on	
	1 000 t	1 000 t	% change	1 000 t	% change
1. United Kingdom	-20	-20	1.20%	-20	0.60%
2. Spain	17	17	-0.00%	17	-0.10%
3. Greece	-12	-11	-2.40%	-12	-0.40%
4. France	-121	-120	-0.50%	-120	-0.40%
5. Ireland	38	38	-0.10%	38	0.00%
6. Italy	-57	-57	-0.30%	-57	-0.10%
EU-27	-195	-194	-0.40%	-195	-0.20%

Source: Study calculations with CAPRI model

For option 2 the average changes in sheep and goat meat producer and consumer prices in the EU27 amount to about -0.1% and +0.5% respectively.

Under option 3, the average changes in producer and consumer prices in the EU27 equals about 0.0% and +0.3% respectively. From the selected Member States the change in sheep and goat meat consumer prices is relatively large in France. This is explained by the relative large cost shock attached to this country (related to the slaughtering of animals from abroad).

On average in the EU27 about 9% of the extra costs are transmitted to the producer, while about 91% are transmitted to the consumer. However, depending on the structure of the market the incidence on producers and consumers can differ. Remarkably enough, in the UK about 80% of the extra costs were found to be transmitted to the producer.

4.2.3 Administrative burden for competent authorities

Whilst it might be expected that competent authorities incur extra costs with specific regard to carrying out controls for origin labelling, in practice the incremental cost is considered to be almost zero as traceability systems and databases are adapted to the new requirements. Control of origin labelling is part of a wider control system and time spent on this specific aspect cannot be separated from the general system of official controls.

In fact one of the intentions of Regulation (EC) No 1169/2011 is a reduction in the administrative burden for both food businesses and enforcement authorities. Whilst the precise impacts of origin labelling have not been isolated, it seems that they will be minimal.

5 Draft conclusions and recommendations

The first labelling option (EU or non-EU origin) will have almost no additional costs for companies in the meat chain. Also, the additional administrative costs for food companies and national governments will be negligible. The added value of EU or non-EU labelling of fresh and frozen meat for consumers is also very low. This labelling option will have no impact on the intra-EU and international trade of fresh and frozen meat of pigs, poultry, sheep and goats.

The second labelling option (country of birth, rearing and slaughter) will increase the production costs in meat chains. The biggest cost increase is expected for pigs (2.3% of the wholesale price), followed by poultry (1.3%) and sheep (0.64%).

For individual businesses the expected cost increases can be far higher (above 10%) depending on factors such as business size, method of sourcing, traceability and food chain management systems in place, existing voluntary labelling systems, and the level of integration of the food chain.

Option 2 also increases the administrative costs for firms. Theoretically administrative costs also increase for national governments, but in practice the increase is unlikely to be significant, as explained in 4.2.3 above. The cost increase greatly depends on the level of official controls. Little financial data was provided by businesses during the case studies so it is not possible to give details on the level of the cost increase. Economies of scale will inevitably result in lower costs for larger plants (e.g. for software and inspection costs).

Most cost increases are likely to be incurred at the post-harvest stage of the supply chain, principally the cutting and packing stages. However most of the increases will either be transmitted back to the producer or passed on to the consumer. As the labelling will be mandatory, approximately 90% of the costs will be passed on to the consumer with about 10% passed back to producers. This applies in all cases although these are average figures at EU level and there will be significant variations between meat types, countries and different supply chains.

However no significant and lasting change in administrative costs for competent authorities is anticipated as a result of mandatory origin labelling. This applies to all options.

Option2 is most preferred by consumers because it offers maximum transparency. However, the willingness to pay for the additional origin information by consumers is low. The analysis indicates that the mandatory nature of the origin labelling will mean that most of the extra costs will be passed on to consumers with a smaller proportion being passed back to producers

Option 2 will result in only minor changes in intra-EU and international trade. This holds especially for trade with third countries, but also for intra-EU trade.

For labelling option 3 (country of rearing), the pig sector is the most affected (1.5% cost increase) followed by poultry (0.92%) and sheep (0.28%). Once again, cost increases can be far higher for individual businesses depending on specific circumstances. However in general the additional costs are less than for option 2 because information on the country of birth is not required.

Option 3 will also increase administrative costs for firms and theoretically for national authorities although this is unlikely to be significant for reasons explained above. The cost increases will however be less than for option 2.

Option 3 provides less information than option 2, but consumer research indicates that information on country of rearing is the most important of the three life stages.

The impacts of option 3 on intra-EU and third country trade will be small and less than for option 2.

The results and conclusions for option 4 (mandatory origin labelling of country of rearing and country of slaughter), strongly resemble those of option 3. This is because there are few cost implications for slaughterhouses of mandatory origin labelling. This also holds for the administrative costs. Trade impacts do not differ between option 3 and option 4.

The preference of chain participants for the different options is correlated with the expected cost increase. Businesses able to label the country of origin at all stages because they source locally or already have voluntary labelling in place are in favour of option 2. On the other hand, businesses importing animals and /or meat from different countries are in favour of option 1. Particularly in small countries such as Denmark, Belgium and the Netherlands, cross border trade of animals and meat is relatively important and the impact of mandatory country of origin labelling will be felt most.

Recommendation 1: Areas of provenance

Mandatory country of origin labelling will have higher impact on food businesses in small countries and those located near to borders between Member States in circumstances where the supply chain involves repeated border crossings between the neighbouring Member States. This also applies to food businesses participating in EU meat chains involving cross-border transactions. These cross-border arrangements are drawn up for logistical and commercial reasons with little significance for consumers as regards the quality of the retail meat product.

Businesses participating in such meat supply chains will experience relatively higher cost increases under options 2, 3 or 4 (mandatory origin labelling at Member State level for one or more stages of the life of animals) due to the need to record on the label all the different countries of origin.

The additional costs of origin labelling would be significantly reduced if these businesses had the option to declare that the animals were born, raised and slaughtered in a designated area of provenance covering two or more neighbouring countries or parts of countries.

It is recommended to consider the possibility of designating a limited number of supra-national areas of provenance in specific areas within the EU where the meat supply chain involves repeated cross-border transactions and heterogeneous sourcing. The aim would be to simplify the labelling or origin and minimise additional costs by designating an area of provenance rather than two or three countries of origin. There would be no discernible detriment to the consumer and may even be a benefit in clarity by indicating a single area of origin.

It seems possible that designation of areas of provenance could be included as a derogation under the country of origin options (2, 3 and 4), although the precise details would need to be elaborated.

Recommendation 2: Consistent labelling for all unprocessed meat of pigs, poultry, sheep and goats, and beef

One of the aims of Regulation (EC) No 1169/2011 is to improve clarity in food labelling. Consultations with stakeholders under this study have confirmed that consumers are often confused by the range of different indications on food labels in general. It is therefore recommended for the purpose of improved clarity that the same labelling options is applied consistently to all unprocessed meat of pigs, poultry, sheep and goats, and beef.

Recommendation 3: Options 2 and 4 are the most preferable

The study has found that option 2 (mandatory labelling of country of origin for the places of birth, rearing and slaughter) and option 4 (mandatory labelling of country of origin for the places of rearing and slaughter) both offer the origin information most valued by consumers at a limited additional cost to the meat supply chain and with modest impact on intra-EU and third country trade. Option 2 provides the most origin information and has the further advantage of corresponding closely with existing beef origin labelling legislation.