
Animal identification and traceability in the European Union and international trade

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Summary

International trade of food products is rapidly changing and Tariff Barriers no longer represent a major limitation for market access. Non-Tariff Barriers (NTB) have emerged during recent years as a key tool for the international trade of agricultural food products. Among NTB, Sanitary and Phytosanitary (SPS) standards - and related animal identification and traceability protocols - are playing a leading role in the international trade of food products.

Animal identification and traceability systems became an essential part of the European Union's basic infrastructure to manage not only public and animal health but also consumer information, the functioning of a single market (composed of 27 Member States), crisis management and prevention of fraud.

Animal diseases have the potential to significantly impact international trade. For this reason, animal identification and traceability programs, able to provide animal origin and age verification, are becoming a requirement for future access to specific beef export markets¹. As a result, many countries worldwide have put in place animal identification and traceability programs.

However, animal identification and traceability import requirements should not be viewed by exporting countries as a trade concern, but rather a way to strengthen their national food production systems, which makes them more competitive in the international arena. Animal identification and traceability requirements are important for current and future bilateral trade negotiations. Countries that have well-developed mandatory animal identification and traceability programs should not only be better prepared to prevent and control animal diseases, but also enjoy comparative advantages in terms of exports in relation to countries without such systems. The lack of a proper system of animal identification and traceability may result in a loss of competitiveness and access to certain markets. Although differences in identification and traceability systems occur across countries, and even across species within a single country, the underlying theme is that farm-to-retail traceability is rapidly becoming an international requirement for protecting human and animal health and ensuring the confidence of consumers.

¹ Economic Assessment of evolving red meat export market access requirements for traceability of livestock meat -project (www.agmanager.info/livestock/marketing/AnimalID/USMEF-Final-Project-Report-Tonsor_03-30-11.pdf)

**Bovine
identification and
traceability in the
EU**

The development of animal identification and traceability systems in the EU was closely linked with the occurrence of Bovine Spongiform Encephalopathy (BSE). BSE is a disease that affects the brain and central nervous system of adult cattle. It was first diagnosed in Europe in 1986 in the United Kingdom, subsequently in other EU member states, and eventually in several countries outside the EU. As there is no in-vivo test for the early detection of BSE, eradication of the disease relies on an efficient system of Animal Identification (AI). In light of the BSE crisis (1997), the European Commission developed rules aiming to re-enforce individual identification and traceability of bovine animals. For example, monitoring through rapid testing of all bovine animals slaughtered above a certain age, and the need to ensure full traceability for beef meat ("from the farm to the table"). These two measures obliged the system to provide information on animal origin and age verification. Identification alone does not guarantee traceability. In the EU, traceability is ensured through a real time bovine-tracking-system, allowing all bovine movements from "birth to slaughter" to be individually traced². In addition, this traceability was extended to individual beef cuts, in accordance with the label at the level of retailer point.

The EU system is capable of identifying any other bovine at risk, which may have been in contact, or living (for any period) in the same holding as a positive animal. Furthermore, the EU system is able to trace back the genealogy of bovine animals as information of the dam is also available. This is crucial in order to perform the identification, isolation and culling (destruction) of risk animals potentially linked to positive cases.

Regulation (EC) No 1760/2000 establishes a regime based on individual traceability of cattle by means of four main elements: individual identification of animals with two eartags; registration of animals in each holding in a registry (e.g. farm, market, slaughterhouse); individual passport for each animal containing data on all movements; and the reporting of all movements on electronic format to a computerised database (managed by the competent authority of every EU Member State) that is able to quickly trace animals and identify cohorts in the case of disease. The role of the database is crucial since it must be able to supply, at any time, a list of identification numbers for all bovine animals present on a holding and a list of all changes of holding for each bovine animal, starting from the holding of birth or holding of importation. The final test of an effective traceability system is reflected at the level of a computerised national database for bovine animals. The responsibility of providing the database with the necessary information is that of animal keepers.

In addition, for any meat labeling system to be credible, a comprehensive AI and traceability system is required. In order to extend traceability to individual beef cuts, the EU legislation contains special provisions for beef under Regulation (EC) No 1760/2000, which include a reference number that allows the trace-back till the place of birth, as an obligation to provide precise information about the origin of the beef. Any piece of beef found at an EU supermarket must contain information on where the animal was born, raised and slaughtered.

Traceability cannot be achieved without cost and it is therefore necessary that identification and traceability systems is proportionate to the objectives to be achieved. Setting an AI and traceability system will depend mainly on the purpose (e.g. animal health, food safety, market access) and the animal species. In general, running a traceability system would be less costly and easier when implemented by

² Including animal movements via markets, dealers, slaughterhouses, holdings or imports.

batch (group of animals), rather than on the basis of individual identification. As a general rule, traceability of cattle is more complex than that of other animal species (e.g. pigs) due to the specificities of their production and marketing systems. For example, pigs are produced and marketed in large groups, as they tend to remain together throughout the production phase, whereas cattle production systems often involve considerable mixing of cattle from different sources. Furthermore, age verification, an important component of beef trade but not of pork trade, requires individual animal identification because animals are sorted and regrouped frequently under normal production practices.

Another issue to be considered is whether those systems should be implemented on a mandatory or a voluntary level. Major beef exporters often use animal traceability systems which are mandatory. In addition, animal movement recording is common among countries which have implemented mandatory tracing systems. The use of Electronic Identification (EID) has been demonstrated (e.g. Australia, Canada) to be effective in achieving movement tracing across property, and therefore guaranteeing full traceability.

In the EU, the major objective for initiating the sophisticated system of individual animal identification and traceability was to re-establish consumer confidence in beef and beef products through transparency and full traceability of bovine animals and their food products. Human health is an important focus as EU consumers are reassured that food products can rapidly be traced through the food chain and withdrawn from the market in the case that a public health problem has been identified (e.g. residues, dioxin crisis). Other major goals are localization and tracing of animals for veterinary purposes (of crucial importance for the control of infectious diseases) and crisis management and fraud prevention. An additional goal specific to the EU is the functioning of a single market. The AI and traceability system in the EU aims to ensure free (and safe) movement of live animals and the placing on the market, between 27 member states, of animal products. Four to five million cattle are subject to intra-EU trade every year³, which appears to be increasing. The success of the program has been successful and not only has BSE been controlled and nearly eradicated in the EU, thereby regaining consumer confidence⁴, its usefulness has also been demonstrated for the control of several other transmissible diseases (e.g. Bluetongue, Foot and Mouth Disease) and to ensure traceability of bovine food products⁵.

BSE risk status based on OIE standards (and therefore the need of AI and traceability systems) is a substantial market access issue for international trade, not only for meat but also for other bovine derivate products (e.g. dairy products, hides, meat and bone meal, skins, cosmetics, etc.).

Animal identification systems "*are becoming prerequisites to international trade*" since they facilitate source and age verification programs. Delaying the adoption of traceability systems could reduce access to specific international markets but at the same time it increases costs for livestock producers in terms of individual identification, holding registration, notification, etc. For these reasons, many countries have developed animal identification and traceability systems. The

Animal identification, traceability and international trade

³ Source: European Commission (TRACES)

⁴ COM (2005) 322 Final-TSE Road Map: http://ec.europa.eu/food/food/biosafety/tse_bse/docs/roadmap_en.pdf

⁵ Murphy *et al.*, 2008 (page 284)

systems differ in characteristics, protocols, technologies, implementation, depth, breadth, and precision. Studies illustrate that animal traceability systems are expanding not only in the EU, but around the world, in more than 18 different countries (including the 8 currently largest beef exporters worldwide⁷).

It is difficult to analyse the full impact of animal and meat traceability on international trade and to quantify its benefits. However, the presence of a traceability system might facilitate exports to certain markets while its lack thereof might limit or ban the access. Its presence might contribute to lift temporary restrictions faster.

The EU is not only an importer of beef, EU exports of beef to third countries amount between 170 and 220 million tons per year⁸. The EU share of world beef exports (and other bovine derivate products) declined dramatically following the first cases of BSE. Following this, most of EU trade partners imposed bans or import restrictions for beef and other bovine derivate products during the nineties. Since then, recovery of EU exports has been slow but many of these restrictions have finally been removed by major trade partners. A determining factor was the implementation of a proper AI and traceability system for bovine in the EU (from the farm to the fork). The EU was in a position to present to its trade partners one of the most developed systems for cattle identification and traceability worldwide, due in part to the experience gained in the eradication of BSE and other animal diseases. The EU cattle identification and traceability system was crucial to restore confidence to business partners in terms of food safety and animal health. However, until today, certain third countries continue to impose restrictions to EU exports regardless of the recommendations contained in the OIE Terrestrial Animal Health Code.

As a general rule, identification and traceability systems are further developed in importing than exporting countries⁹. From the trade perspective, the requirements of major importers are the most important as they establish the minimum standards that exporters will need to satisfy to access their markets. For example, major importers with IA and traceability systems could establish similar or equivalent World Trade Organization (WTO) compliant standards for access to their domestic markets¹⁰. Each importing country enforces its own system based on its specific goals, while those systems may not be necessarily the same among countries¹¹. Traceability systems applied by major beef importing countries typically respond to needs such as animal disease control and food safety assurances (e.g. in the EU, Japan, Korea). Traceability systems applied by major beef exporters may respond to different needs like increasing market access or, in a less extent, food safety or animal health (mainly

⁶ Golan *et al.*, 2004

⁷ Brazil, Australia, United States, India - buffalo meat -, New Zealand, Canada, Argentina, Uruguay - 2010 data).

⁸ Source: European Commission (Eurostat)

⁹ Economic Assessment of evolving red meat export market access requirements for traceability of livestock meat -project report submitted to US meat export federation -March 2011

¹⁰ Economic Assessment of evolving red meat export market access requirements for traceability of livestock meat -project report submitted to US meat export federation -March 2011

¹¹ Major importers of beef worldwide are United States, Russia, Japan, European Union, Mexico, Korea, Vietnam, Canada, Egypt, and Hong-Kong- data of 2010)

¹² e.g.: Canada, Australia, New Zealand, Uruguay

fight against Foot and Mouth Disease in Brazil and Argentina or Tuberculosis in New Zealand). Consumers in European and Asian markets increasingly require traceability protocols. Access to these markets will depend upon demonstrated individual animal traceability.

The EU system has influenced certain third countries in the development of red meat trace back systems¹². However, the EU is not the only major importer demanding AI and traceability's import requirements. Many importing countries ask for similar or even higher standards than the EU. Asian countries (Japan, Korea, and Hong-Kong) ask for animal source and age verification. For many importing countries, the "place of dispatch" does not necessarily imply the source or origin of the animal, therefore not fulfilling the terms of traceability and may not be accepted as adequate origin documentation. In terms of traceability and labeling requirements, the consumers of major importing countries (e.g. Japan, Korea) can quickly access information about where an animal was raised, its sex, breed, birth date, and locations where the animal lived throughout its lifetime and was slaughtered by entering a unique 10-digit number of the individual animal identification code that is documented on the package label.

The agreement on AI and traceability standards between the EU and third countries is not limited to a BSE perspective, as some of the main EU trade partners enjoy nowadays an optimal health status of BSE. The perspective of regionalization, in relation to animal diseases such as Foot and Mouth Disease, needs also to be taken into account. Regionalization is not only a disease control tool but also a Trade Facilitation tool. It allows trade of animal and animal products, with a country or region affected by a major disease, from those regions which are considered to be disease free. This policy allows trade flows to continue into the European market, particularly from developing countries or emerging economies, regardless of the presence of major animal diseases in their territory. Regionalizing a country implies that the system of animal identification and traceability is able to ensure that the animals and their products are coming only from safe areas. The EU has been one of the most proactive actors in promoting regionalization at the international level and it has provided regionalization to a large number of trade partners for important animal diseases. A clear example is the policy followed by the EU in certain South American countries with regards to Foot and Mouth Disease. With other trade partners, the EU has promoted a policy of regionalization for other animal diseases such as Classical Swine Fever, Newcastle Disease or Avian Influenza. Unfortunately, only a few of these trade partners have accepted to apply regionalization to EU exports despite the identification and traceability systems in place.

The World Organization for Animal Health (OIE¹³) has published general principles for animal identification and traceability for disease prevention and control in its Terrestrial Animal Health Code. The 2010 Terrestrial Animal Health Code recognizes animal identification and animal traceability as "*tools for addressing animal health (including zoonoses), food safety issues and the strong relationship between animal identification and the traceability of animals and products of animal origin*". The OIE indicates that animal identification, animal movement and changes in identification numbers of livestock or livestock establishments should be reported to a central national authority. A significant component of livestock and meat trade

International standards

The World Organization for Animal Health (OIE)

¹³ The OIE's international standards are referred by the WTO-SPS Agreement as the ones to be used when trying to reach harmonised SPS measures between WTO Members.

is conditional on certification of animal health status to reduce the likelihood of disease transmission through meat or animal trade. Animal identification and movement traceability enables the certification of animal health.

Codex Alimentarius Commission

Codex Alimentarius Commission¹⁴ - Code of Hygienic Practice for Meat (Code) indicates that a principle of meat hygiene involves animal identification practices that "*allow trace-back to the place of origin to the extent practicable, to allow regulatory investigation where necessary*" (p. 9). The Code stresses the importance of animal or group identification, which is capable of tracing back from abattoirs and processing plants to the place of origin. The focus of the Code is to develop hygiene provisions for meat from animal production systems till retail. The FAO (2004) published Good Practices for the Meat Industry as a guide for the meat industry to implement increasing quality and safety standards required for trade. The document describes animal identification and traceability system mechanisms as a new standard that is becoming common in animal health management and consumer assurances.

ISO-ICAR

ISO-ICAR - Further technical standards and guidelines for identifiers (including electronic ones) have been laid down by the International Organisation for Standardisation (ISO) and the International Committee for Animal Recording (ICAR). ISO standards 11784 and 11785 ensure compatibility between electronic identifiers and readers and ISO standards 24631 lays down the test procedures for conformance and performance of electronic identifiers and readers. Since 1995 ICAR has established and continuously updated its guidelines on animal identification, methods, performance recording and genetic evaluation, in particular in the bovine sector. Quality standards for conventional plastic eartags were also published by ISO.

The World trade Organization (WTO)

The World trade Organization (WTO) - SPS measures are, by definition, measures applied to protect the life and health of humans, animals and plants from certain specific SPS risks within the territory of the importing country¹⁵. Traceability is not mentioned in the SPS Agreement. The decisive element here is the objective of the measure in question - accordingly, if a traceability requirement is adopted for or against any of the aforementioned objectives or risks, respectively, it could certainly be considered as a SPS measure¹⁶. Another important aspect is Equivalence¹⁷. Equivalence is a trade-facilitation tool whereby the exporting country demonstrates that the measures applied to its exports allow to achieve an equivalent level of health protection as in the importing country. If accepted, the importing country consents the exporting country's standards and methods. An importing country should not require higher standards from the exporting country than those in place for domestic or national production, and should avoid discrimination among

¹⁴ The Codex's international standards are referred by the WTO-SPS Agreement as the ones to be used when trying to reach harmonised SPS measures between WTO Members.

¹⁵ The Codex's international standards are referred by the WTO-SPS Agreement as the ones to be used when trying to reach harmonised SPS measures between WTO Members.

¹⁶ Annex A of the WTO-SPS Agreement.

¹⁷ Art 4 of the SPS Agreement

exporters as long as identical or similar SPS conditions prevail. The EU does not expect trade partners to replicate the EU system of AI and traceability, but expects at least some minimum equivalent standards able to deliver the guarantees needed. Reaching those minimum standards has resulted in trade irritants with some trade partners. In order to address these trade irritants, the EU has provided technical assistance and cooperation (mainly under the obligations contained in Article 9 of the SPS Agreement) to these trade partners by means of providing infrastructure and international seminars aiming to better explain the EU system of AI and traceability and improve their market access conditions.

Animal identification and traceability undergo continuous adaptations to the technical developments. The EU is looking at systems based on radio frequency identification (RFID). Electronic identification (EID) provides a faster and more accurate reading of individual animal codes, which reduces labour costs, compared to manual reading. However, this method of identification increases equipment costs. A legislative proposal to introduce EID as an official means of identification of cattle in the EU is currently under discussion in the European Parliament and in the Council. Bovine EID will bring a simplification vis-à-vis the manual work as well as a faster and higher reading accuracy than classical eartags, easing the procedure to report animal movements to the central database, and therefore allowing better and faster traceability of infected animals and/or infected food. Preliminary reflections suggest that information about the origin of animals could be also extended to food products derived from pigs, sheep, goats, and other farm domestic animals. This could result in revising and up-grading existing systems of animal identification and traceability, where necessary.

AI and traceability systems are becoming an increasingly important tool for international trade. The lack of a proper system of animal identification and traceability may result in a loss of access to certain markets and thus of competitiveness. Animal identification and traceability import requirements should not be seen by exporting countries as a trade barrier but as a way to strengthen their national meat production systems and to make them more competitive in the international arena. ICAR and ISO should play a major role in AI providing technical standards and guidelines for identifiers (including electronic ones), including their manufacturing, supply and distribution.

The development and strengthening of guidelines, procedures and recommendations for AI and traceability will help to prevent these standards from being used as international trade barriers. WTO, OIE, FAO and ICAR (for animal identification) should play, as appropriate, key roles as facilitating actors for international trade, including the establishment and promotion of the use of mechanisms and tools to settle disputes between trade partners, with the goal of promoting the understanding between the parties.

Future perspectives

Conclusion

List of references

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