Livestock Identification and Traceability

Traceability is the ability to follow an item or a group of items - be it animal, plant, food product or ingredient - from one point in the supply chain to another, either backwards or forwards. Livestock traceability systems are based upon three basic elements: animal identification; premises identification; and animal movement.

Traceability systems are important, effective tools that can be used for many things, including the protection of animal health, public health and food safety. They can help reduce response time, thereby limiting economic, environmental and social impacts of emergency situations such as disease outbreaks.

URUGUAY IS THE ONLY COUNTRY IN THE WORLD WITH 100 % TRACEABILITY OF IT´S CATTLE.

On the plains of Uruguay, pine and eucalyptus trees provide the raw material for the timber industry and lamb’s wool generates income for sheep farmers, but the landscape is dominated by more than 11 million head of cattle that are a source of pride for the country and make it one of the world’s largest beef exporters.

The ears of the animals shine in the sun on account of a new form of branding: each head of cattle has an ear tag with a unique identification number. Uruguay is the only country on the planet that uses a traceability system to keep track of its entire cattle herd, from the ranch to the processing plant to the plate of the consumer.

Livestock farming and the exporting of beef have long been important activities in Uruguay, but the comprehensive traceability system is a recent achievement, instituted following the outbreak of foot-and-mouth disease that occurred in the Southern Cone in 2000 and 2001. “A project that arose out of a health emergency became an innovative project,” explained María Nela González, Director of the National Livestock Information System (SNIG), a unit of Uruguay’s Ministry of Livestock, Agriculture and Fisheries (MGAP).
The system of comprehensive traceability of the nation’s cattle herd facilitates the detection of possible outbreaks of diseases and a rapid response to prevent them from spreading. “Thanks to the system, we know where an animal is, to whom it belongs, and what other animals are with it. From an epidemiological standpoint, it is a tremendous tool,” González pointed out.

“The Uruguayan innovation system is exemplary because the State and producers are equally involved. It has had a key impact on the livestock industry, because information and communication technologies are used to add value, traceability increases the sector’s credibility, and it is a tool for opening up markets,” noted Antonio Donizeti, the Representative of the Inter-American Institute for Cooperation on Agriculture (IICA) in Uruguay.

While the traceability of animals in rural areas was instituted to meet the requirements for exporting high-quality meat to the European Union, the nation opted to develop traceability in the processing and packing industry on its own initiative. “It is estimated that in Uruguay every dollar invested in innovation generates USD20 of profit for the operations that benefit. The lessons learned can be transferred to other countries, and IICA can promote that transfer,” Donizeti added.

From a paper-based system to electronic document management

When foot-and-mouth disease entered Uruguay, it spread throughout the country and markets shunned the country’s meat products, María Nela González recalls. Exports were only renewed following the large-scale vaccination of livestock and an institution-building campaign.

“The ministry reacted quickly and proceeded to review its paper-based system comprised of files on producers going back 30 years. The following year, it embarked on a voluntary process of individual traceability in cattle, for which producers purchased the necessary equipment,” the Director of the SNIG pointed out.

Thus, in 2003 Uruguay began to use an electronic system to keep track of at least 10% of the herd, a successful pilot plan that in 16 months became a compulsory, nationwide project for all livestock.

“The State decided to finance all the costs of the project, which makes the SNIG unique, since it was adopted as a public asset owned by all Uruguayans,” González added.

Traceability for individual animals became mandatory by law in September 2006, and the roll-out of the scheme nationwide was completed in June 2011. “Producers received
a lot of training and the work continues, as the sector is heterogeneous – the farmers involved in the project may have 3, 30, 300, or 30,000 head of cattle,” the official explained.

Including the dairy sector, Uruguay has some 45,000 stock farmers, 25% of whom run family operations. Some 80% of the cattle belong to 20% of the producers.

**Keeping track of livestock**

The State is responsible for distributing the tags for the cattle by mail (in Uruguay the tags are known as “caravanas” - one is electronic and the other is for visual identification). Each of the country’s livestock producers has a unique registration number, linked to the rural records office, which makes it possible to locate each producer in real time.

When a farmer needs to identify new calves, he/she requests the “caravanas” by Internet or phone and they are delivered within 24 hours, along with a printed form including the farmer’s name, the name of the business, and the numbers of the “caravanas” being sent. The farmer only has to add the gender, breed, and age of the animals, plus the date on which the ear tags were attached, and return the paperwork by mail to the SNIG, where the form is scanned and the information included in the electronic system.

In meat processing and packing plants, the products obtained from the animals are labeled with bar codes linking them to the herd from which they originated. This identification is retained practically up to the point of sale.

“Having all the information processed in real time and details of the entire process, on and off the farm, is a comparative advantage. Buyers can come and see the quality of products, their certification, and the management of biological waste,” González remarked.

The prices paid for Uruguayan meat today are higher than those paid for the production of direct competitors like Australia, Brazil, and Argentina, and the country’s exports are shipped to over 100 markets. According to the Uruguay XXI foreign trade agency, based on data from the National Customs Directorate, in 2012 the country exported 249,925 net tons of frozen and fresh beef, 12.37% more than in the previous year. Sales in 2012 were worth the equivalent of USD1402 million, USD103 million more than in 2011.

**Distinction of Uruguayan meats**

Through the INAC, Uruguay offers the “Certified Natural Meat Program of Uruguay” (CNMPU), the first program in the world recognized by the United States Department of Agriculture as “USDA Process Verified” upon meeting the requirements of that Department regarding meat quality, animal handling and source verification. Under this mechanism, beef exported to the United States can bear a label containing the basic characteristics of USDA-certified beef: no added hormones, no antibiotics, no animal proteins given to the animal as feed (BSD free), the animal was raised on a grass-fed diet and proper animal handling practices were followed. Moreover, last July Uruguay became the first country in the world to be certified under the GLOBALGAP standards7, when the CNMPU was approved by this body.
In July 2009, the USDA approved the corresponding annual audit and the Management System of the Meat Certification Programs (PCC) also under the INAC. This system will enable the unification of all the existing meat certification programs (such as the CNMPU), and those that may be developed in the future. Since 2007, the cuts exported to the EU bear the so-called “optional label”, where the country may add information about certain characteristics to be highlighted about meat, by-products or meat products. The EU appointed the INAC for the inspection and certification of the quality of exported meat.

In Uruguay, the control of cattle movement in farms began under a Government Decree of December 27, 1827. In 1973 a system to control the stock and movements throughout the national territory of bovine, ovine, equine, porcine and caprine cattle, as well as fruit, was established and later ratified by Law No. 16,736 of January 5, 1996. The system, managed by the Livestock Control Office (DICOSE) under the Ministry of Livestock, Agriculture and Fishery (MGAP), enables complete monitoring, at group level, of the calf from birth to the slaughterhouse, and of leather to the tannery. The information collected in the process is highly valuable, as it allows knowing:
• the total livestock farms, grouped by surface;
• the real estate holding, grouped by surface and by type of ownership;
• the land use in hectares, indicating the improvements made to pastures each livestock year;
• the total head of bovine cattle and sheep, classified by category and by farm surface; and
• the total mortality rate and consumption rate in the farms.
In the case of dairy producers, a specific form with additional information is required. The same applies to exporters of pigs, horses and goats. The statistical information is processed at the police precinct level, departmental level and national level, and is publicly available at the DICOSE/MGAP website.

What does individual cattle traceability enable?
This system provides the consumers information about all the places where the animal has been since birth (farms, fairs and slaughterhouses); the date when the animal entered and left each place; the identification of the animals that shared the same locations, and finally, the current location of the animals who were in contact with a specific animal. This monitoring is possible because any movement of cattle or change in holding of identified and registered animals is notified to the SIRA by an authorized operator. Likewise, any re-identification or removal of the animal from the system performed at the establishment, due to decease or loss, is also notified to the SIRA through a data update form. If the animal is slaughtered, its history is completed when it enters the slaughterhouse. At the first data control point of the industrial phase of the Traceability System, the animal traceability number is associated with the DICOSE number of the last owner, with the number of the last farm where the animal was, with the number of herd and with a code that will be used throughout the process in the industry phase, until cutting and packaging.