



COOPERATION NODE:



URUGUAY'S EXPERIENCE IN BEEF CATTLE TRACEABILITY

**MINISTRY OF LIVESTOCK,
AGRICULTURE AND FISHERY**

NATIONAL MEAT INSTITUTE

**INTER-AMERICAN INSTITUTE
FOR COOPERATION
ON AGRICULTURE**

Office in Uruguay
Horizontal Technical Cooperation Division

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OVERVIEW

Cattle-breeding is one of the most important economic activities in Uruguay. Uruguayan beef is exported to numerous countries. Uruguay has been working for over 30 years to improve beef production traceability, in order to inform consumers about product origin and certify food quality and safety.

The institutional model developed by Uruguay to trace meat throughout the production and supply chain was made possible thanks to the actions of the public sector and its domestic regulations, as well as to the successful innovations made by the productive sector in international markets.

Due to its long experience in product traceability, Uruguay has been recognized as a reference in this process. This has led the IICA Office in Uruguay to identify the most important practices in the traceability process developed and applied in this country.

The creation of this Cooperation Node on Traceability was made possible thanks to the contribution of the pertinent Units of the Ministry of Livestock, Agriculture and Fishery (MGAP) and the National Meat Institute (INAC), with the support of IICA.

Its purpose is to compile the best experiences in this subject, as those experiences have proved to be sustainable, to have a positive impact on the national economy and to improve human capabilities, in order to turn human resources into a “commodity” to offer to those countries who need to address beef quality and safety issues.

This document focuses on group and individual animal traceability, technological services, support to producers and beef traceability, which are the most outstanding experiences in the traceability process in the country.

We expect this instrument to become an efficient mechanism to support other countries in the Americas. This also means a way to project the country image with the progress achieved in traceability management. It is also an acknowledgment to all those who developed and manage these instruments so efficiently.

Guillermo Toro Briones
Director, Horizontal Technical Cooperation



INTRODUCTION

The implementation of the Animal Identification and Registration System (SIRA) in Uruguay on September 1, 2006 was a great challenge for the current government, the livestock sector and the entire country.

It started in the first months of this administration, within the framework of an agreement between Uruguay and the European Union (EU) on the high-quality beef quota or Hilton quota, and on the basis of a voluntary Traceability Pilot Program.

The purpose was to respond to the observations made by the EU in consecutive audits regarding some aspects of the Uruguayan group identification system, and to take the steps they requested toward a system offering greater guarantees.

We believe that a long distance has been covered in only 3 years, initially fraught with difficulties. These difficulties derived from the process of implementing a new cattle production system, which implied new obligations for the producers, such as the identification of each calf with an eartag, the transfer of data to the database and the availability of operators to perform the readings.

Nevertheless, an intense initial outreach campaign by the MGAP (subsequently followed by help desks) and the very active role, in that initial stage, of the traceability

working group, with representatives of the agricultural trade unions and experts of the Ministry, have enabled substantial advances in the SIRA, which already has 7 million traced head of cattle.

The mandatory system covering all the country cattle and incorporating the individual electronic identification of cattle has placed Uruguay in a globally prestigious position as regards the guarantees it offers as a food exporting country.

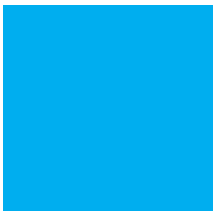
There is no doubt that traceability strengthens animal health as well as food quality and safety, but it will also be key to the future development of cattle-breeding in Uruguay.

At the same time, it is pertinent to highlight that traceability has been a very important tool to control the illegal movement of animals in our borders, which decreased strongly since the start of the current administration.

The system is developing rapidly and the second phase begins in 2010. During this phase, it is expected that the identification and registration of the national herd will be completed, and that new legislation will be passed in order to complement the current applicable laws on this issue, in order to rectify and specify diverse aspects about the system operation, based on the experience gained during these first years.

We understand that this tool, added to the animal health and food safety guarantees we offer, increases the possibilities of our country to position itself as one of the leading high-quality beef exporters, and to access the high-value markets that it has been unable to access up to now, while opening new opportunities for the productive management of our herd.

Dr. Francisco Muzio
Livestock Services Director, MGAP



ACRONYMS

ANC	Administración Nacional de Correos (National Postal Service)
BCU	Banco Central del Uruguay (Central Bank of Uruguay)
DICOSE	División Contralor de Semovientes (Livestock Control Office)
DIEA	Dirección de Estadísticas Agropecuarias (Agricultural Statistics Division)
DILAVE	Dirección de Laboratorios Veterinarios (Veterinary Laboratories Division)
DOT No.....	Dot number
EU	European Union
IICA	Instituto Interamericano de Cooperación para la Agricultura (Inter-American Institute for Cooperation on Agriculture)
INAC	Instituto Nacional de Carnes (National Meat Institute)
LATU	Laboratorio Tecnológico del Uruguay (Technological Laboratory of Uruguay)
MGAP	Ministerio de Ganadería, Agricultura y Pesca (Ministry of Livestock, Agriculture and Fishery)
PAEFA.....	Proyecto de Asistencia de Emergencia para la Erradicación de Fiebre Aftosa (Emergency Assistance Project for the Eradication of Foot and Mouth Disease)
PTI.....	Piloto de Trazabilidad Individual (Individual Traceability Pilot Program)
REC.....	Resumen Electrónico de Cabezas (Electronic Summary of Head)
RFID	Dispositivo Electrónico de Radiofrecuencia (Radiofrequency Electronic Device)
SECAN	Seguimiento Electrónico de Carne Natural (Electronic Monitoring of Natural Meat)
SEIIC.....	Sistema Electrónico de Información de la Industria Cárnica (Electronic Information System of the Meat Industry)
SIG	Sistema de Información Geográfica (Geographic Information System)
SINAESA..	Sistema Nacional de Emergencia Sanitaria (National System of Sanitary Emergency)
SIRA	Sistema de Identificación y Registro Animal (Animal Identification and Registration System)
SNIG	Sistema Nacional de Información Ganadera (National Livestock Information System)
USDA.....	United States Department of Agriculture

TABLE OF CONTENTS

OVERVIEW
INTRODUCTION
ACRONYMS
TABLE OF CONTENTS
LIST OF CHARTS, GRAPHS AND MAPS
1. Uruguay: a cattle-breeding country
2. Group traceability
3. Individual cattle traceability
4. Technological aspects of individual cattle traceability
5. Process traceability
6. Individual traceability in the industry

LIST OF CHARTS, GRAPHS AND MAPS

Chart 1. Agricultural sector linkage.....	
Chart 2. Value of gross production in the agribusiness.....	
Chart 3. Cattle brand location and sequencing.....	
Chart 4. DICOSE number digits.....	
Chart 5. Affidavit A1.....	
Chart 6. Ownership and Movement Form B1.....	
Graph 1. Gross value of bovine cattle production, in millions of current US dollars.....	
Graph 2. Stock of bovine cattle, national total in thousands of head.....	
Graph 3. Evolution of the stake of different categories in the national herd.....	
Graph 4. Stock of bovine cattle, national total by category, 2008.....	
Graph 5. Bovine cattle by farm size (number of head/hectares).....	
Graph 6. Bovine cattle by farm size in Cerro Largo and Tacuarembó.....	
Graph 7. Bovine cattle slaughter in head.....	
Graph 8. Destination of beef exports by major economic blocs.....	
Map 1. Location of Uruguay in South America.....	
Map 2. Administrative division of Uruguay.....	
Map 3. Bovine cattle stock by department.....	



1. Uruguay: a cattle-breeding country

Dr. Manuel Otero, Representative of the IICA Office in Uruguay and Ms. Alejandra Bentancur, National Expert in Agribusiness

Uruguay is located in the southeast of South America, bordering with Argentina to the west, the Atlantic Ocean to the east and Brazil to the north and northeast.

Its continental surface of 176,215 km² is administratively divided into 19 Departments, and its surface in islands, territorial waters and territorial sea is 142,177 km².

Its climate is mild with moderate rainfall throughout the year amounting to 1,250 mm, and its topography is undulating, with no major variations in climate and landforms. For its latitude, between 30 degrees S and 35 degrees S, it has four clearly distinct seasons based on temperature.

Its population is over three million three hundred thousand inhabitants; approximately half of the population lives in the capital city, Montevideo.

Member of the Southern Common Market (MERCOSUR) since its creation in 2001, it is in transition toward the establishment of a Customs Union.



Map 1. Location of Uruguay in South America

*Map 2.
Administrative division
of Uruguay*



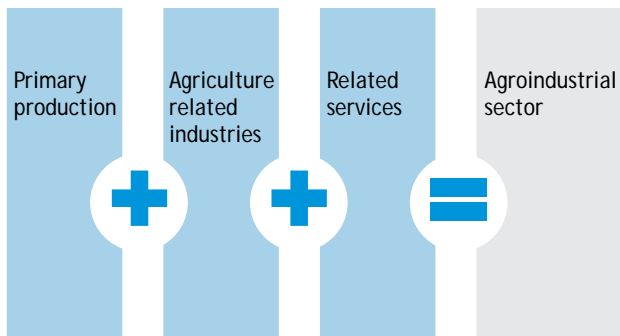
A pillar of the national economy

Agribusiness is a strategic sector of the national economy, both because of its individual contribution and because of the “forward” and “backward” linkages it creates.

At the Gross Domestic Product (GDP)¹ level, the primary production yielded 2,932 million of current US dollars in 2008 (9% of the total national GDP) and the agriculture-related industries 21,477 million US dollars².

It is necessary to add the results generated by services associated with both stages: financial services (credit, insurance, letters of credit), transportation and logistics, etc. This is the reason why various studies have estimated the contribution of the agroindustrial complex between 30 and 35% of the national GDP.

*Chart 1.
Agricultural sector
linkage*



*Source:
Own sources*

1 - GDP = the value of all final goods and services produced in a country within a year.

2 - It includes food industries, tops manufacture and washing, wood (except furniture), and tanneries.

With regard to exports, the contribution is even more evident because foreign sales of the agricultural sector accounted for 70% of national exports.

In 2008, agricultural exports reached 4,187 million US dollars, while exports totaled 5,949 million US dollars.

Within the livestock subsector, cattle production plays a central role, accounting for 25% of the Gross Value of the Agricultural Activities, 60% of the Gross Value of Livestock, and 21% of national income in foreign currency, according to 2008 figures. As shown in the chart below, the Value of Livestock Production is higher than Agriculture and Forestry together

Value of gross production in the agribusiness

In millions of current US dollars

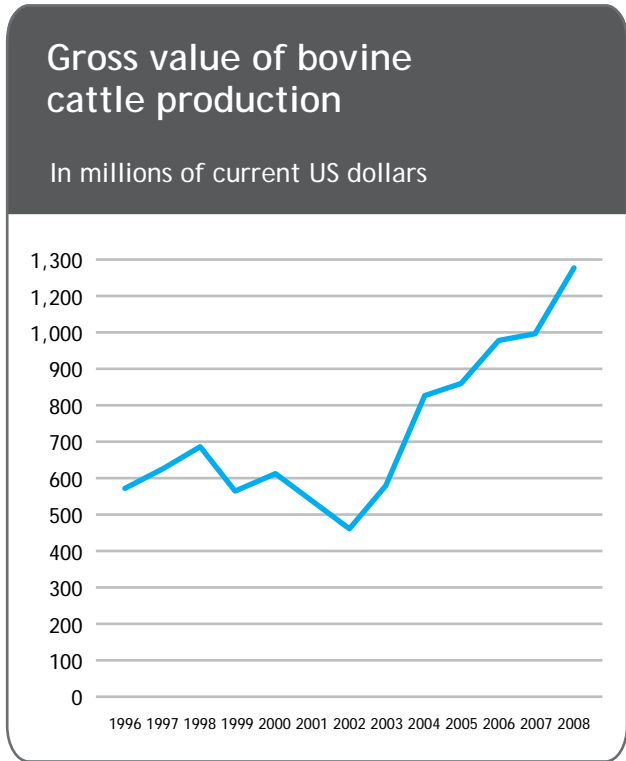
	2005	2006	2007	2008
Agriculture and forestry	1,332	1,487	1,637	2,117
Livestock	1,015	1,158	1,509	2,905
Total value of livestock production	2,347	2,645	3,146	5,022

Chart 2.

Source: MGAP-DIEA, based on information provided by BCU (revised series).

Analyzing the period 1996-2008, the Gross Value of Bovine Cattle Production has maintained an upward trend, interrupted only in 2002 due to the crisis caused by the foot and mouth disease. In 2008, the Gross Value of Livestock Production amounted to 1,268 million US dollars, equivalent to a growth of 124% as compared to 1996.

Graph 1.



Source:
MGAP-DIEA, based on information
provided by BCU
(revised series).).

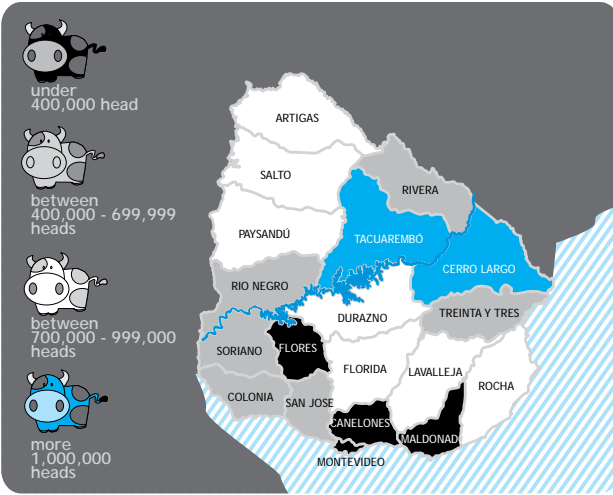
The growth achieved is based on the high sanitary status achieved by country. In its last meeting, the World Organization for Animal Health (OIE) declared Uruguay a country with negligible risk of mad cow and FMD free with vaccination.

Uruguay has passed the audits of the most demanding markets, and has gained the image, at international level, of a serious and reliable country from the point of view of animal health.

Production figures

According to the Affidavit for 2008/2009, the latest information that has been published, the country has 11.7 million head distributed in 15.7 million hectares and 51,072 establishments.

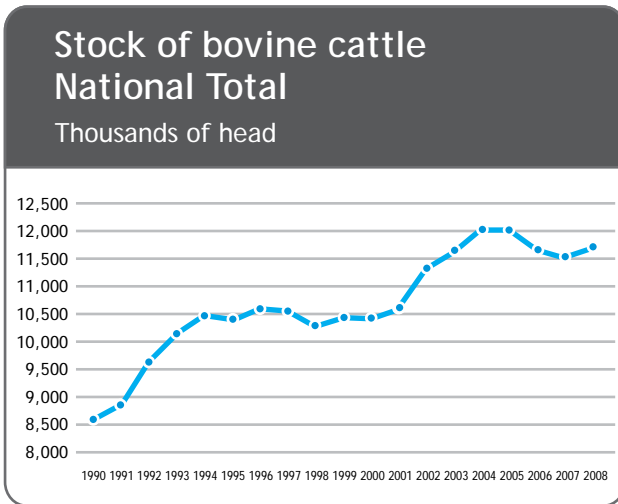
The cattle/population ratio is 4 head per inhabitant. At the departmental level, Cerro Largo and Tacuarembó stand out for having 18% of the national herd



Map 3. Bovine cattle stock by department.

Source: Mercosoft Consultores.

As shown in the following graph, there is a growing trend, with a traditional pregnancy rate of about 80%³ and a percentage of slaughtered head of around 20-21% of the stock. Calves and heifers exceeded the 2 million head every year in the 2001 - 2008 period.



Graph 2.

Source: Affidavit 2007/08, DICOSE/MGAP.

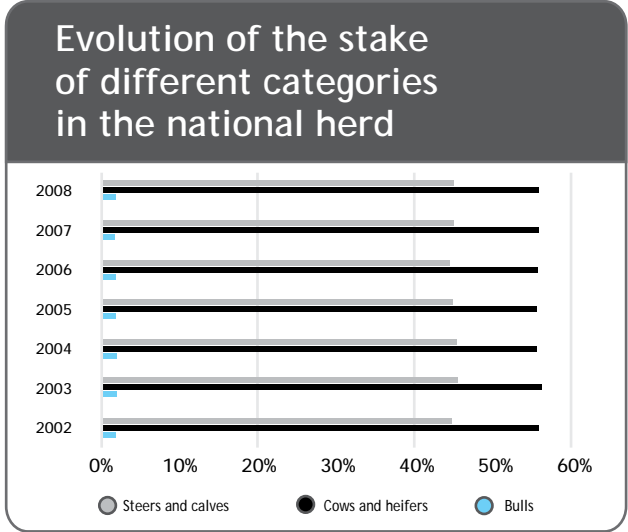
As regards the composition of the herd, pregnant cows prevailed during the 2002 - 2008 period. Likewise, the evolution of bulls remained constant at 1%; cows and heifers at 54%; and steers and calves at 45%.

3 - The pregnancy rate in 2009 was severely affected by the drought, decreasing to 64.3%. Pregnancy Survey, DIEA.



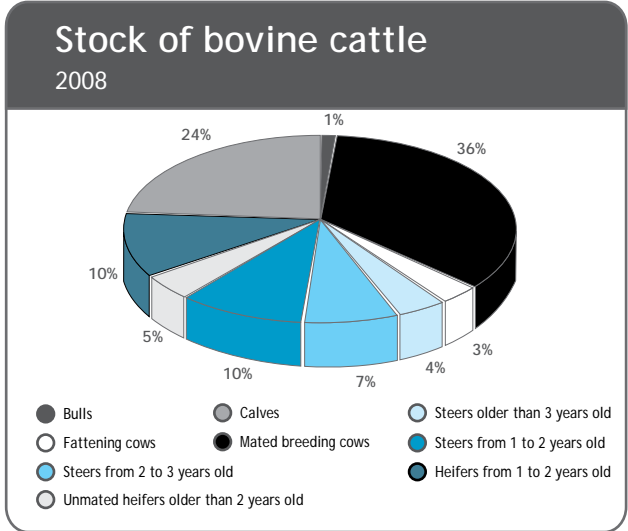
The predominant breed is Hereford, due to its beef traits and excellent adaptation to the environment. Following in order of importance is Aberdeen Angus, with an increasing stake in the national herd.

Graph 3.



Source:
Affidavit 2007/08, DICOSE/MGAP.

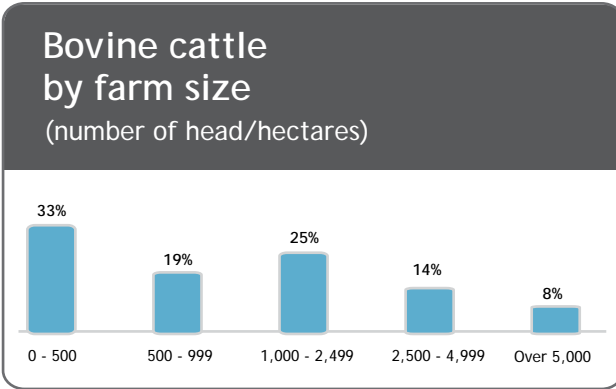
Graph 4.



Source:
Affidavit 2007/08, DICOSE/MGAP.

Typical cattle-breeding departments are Tacuarembó and Cerro Largo, with 18% of the calves/heifers in 2008, followed by Salto, Paysandú and Florida, which account for 21%. Ten percent of the fattening steers are raised in Tacuarembó, 16% in Paysandú and Cerro Largo and 14% in Soriano and Durazno.

With reference to size, as shown in the following chart, 33% of the cattle head are owned by producers with farms smaller than 500 hectares, while farms larger than 5,000 hectares only own 8% of the head.



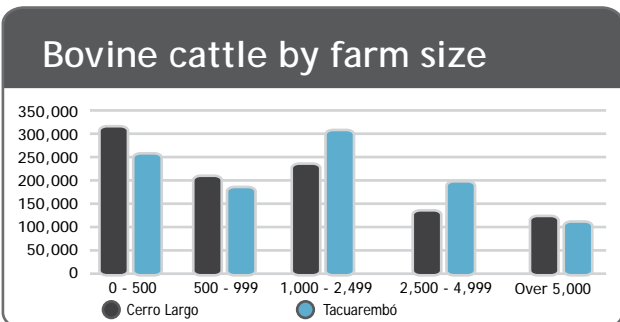
Graph 5.

Source:
Affidavit 2007/08, DICOSE/MGAP.

The departments that concentrate most of their cattle in farms smaller than 500 hectares are Lavalleja, Cerro Largo, Colonia, Florida, Rivera, Tacuarembó, Canelones, Rocha, San José, Treinta y Tres, Maldonado and Soriano.

The percentages of cattle head in these farms in the above-mentioned departments, if compared to the total of cattle head in each department, are the following: Canelones (88%), Colonia (67%), Maldonado (67%), San José (59%), Lavalleja (45%), Rivera (39%), Florida (33%), Rocha (33%), Soriano (33%), Treinta y Tres (32%), Cerro Largo (31%) and Tacuarembó (24%).

Cerro Largo and Tacuarembó are the departments with the highest amount of cattle in farms larger than 5,000 hectares. However, the stake of each size of farm differs in each department, as shown in the following graph.



Graph 6.

Source:
Affidavit 2007/08, DICOSE/MGAP.

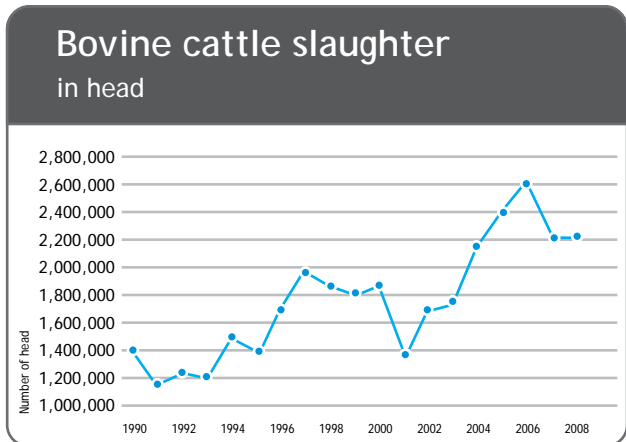
Both departments jointly account for 19% of the bulls, 18% of the cows and heifers and 18% of the steers and calves in the country.

Beef production is based on grazing under the open sky all year long, mostly in natural pastures. Beef cattle production systems can be classified into 3 large categories: breeding, full cycle and fattening. These activities are distributed throughout the national territory based on the land use capacity.

An industry in expansion

Bovine cattle slaughter has exceeded two million head as from 2004, amounting to 2,213,277 head in 2008.

Graph 7.



Source:
INAC.

The analysis of the categories for the 1999 - 2008 period shows that the slaughter of steers accounted for over 50% of the total national slaughter. The slaughter of cows showed a figure between 40% and 45%, the slaughter of bulls represented 2% and the slaughter of calves accounted for 1% to 3%.

The departments where the highest number of head was slaughtered in 2008 were Paysandú, Florida and Soriano, with 21% of the total national slaughter, followed by Tacuarembó, Cerro Largo and Rocha with an accumulated 21%.

In the first semester of 2009, 1,139,389 head were slaughtered, which represented 11% less than 2008, due to the effects of the important drought that affected the country since the spring of 2008.

However, it should be emphasized that the slaughter was not lower during the following quarter (July, August and September), which is traditionally called “the post-slaughter quarter”. During this quarter, the slaughter increased 27% if compared with the same quarter of 2008, reaching 571,000 head.

This was due to several factors: on the one hand, the rainfall favored the fattening process after the annual grazing crops had been affected by the drought, and there was an increase in the use of forage in stockyards to complete fattening; on the other hand, the producers reduced the retention of cattle for financial⁴ reasons.

The same trend continued in October, when the slaughter increased 30% if compared to the October 2008 figures. This is the last month on which information is available.

In 1998, 55.7% of the steers had 8 teeth, while this figure decreased to only 26.7% in 2008. On the other hand, the steers with 2 to 4 teeth for slaughter were 25.2% in 1998, and this figure increased to 47.3% in 2008.

The steers are sold for slaughter with a live-weight between 400 and 500 kilos, and their yield is between 51 and 54%. This shows that the country has achieved higher levels of efficiency in the last 10 years.

The meatpacking industry comprises 38 plants and another plant under construction (Breeders & Packers Uruguay) with English capital in the department of Durazno. The acquisition of plants by major foreign economic groups present in the region accelerated since 2005.

Some of the factors that explain the direct foreign investment in the Uruguayan meat chain are: a) the economic stability and the respect for legal rules; b) the positive changes experienced by the meat industry in recent

4 - Source: “Unusual. Increased slaughter expected for second quarter”, El País Digital.



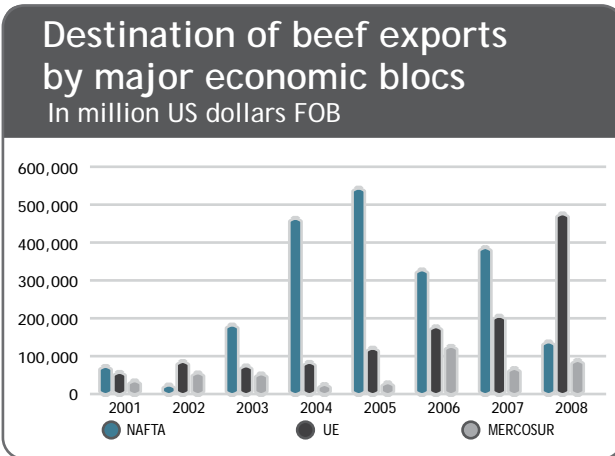
years; c) the high sanitary status already mentioned and d) the possibilities to enter relevant international markets as the NAFTA and the EU.

All the slaughterhouses comply with the following systems: Hazard Analysis and Critical Control Points (HACCP), Sanitation Standard Operating Procedures (SSOP) and Good Manufacturing Practices (GMP).

At the control level, the Livestock Services Department of the Ministry of Livestock, Agriculture and Fishery (MGAP) performs ante- and post-mortem animal inspections and issues a sanitary certificate attesting that beef complies with health and safety requirements. Likewise, the Miguel Rubino Veterinary Laboratories Division (DILAVE) under the MGAP is a reference for the analysis of biological residues in livestock products.

Global insertion

Uruguay has positioned itself as a leading producer of high-quality beef in the region and in the world, with over 80 markets. Its main clients are Russia, the European Union and the United States; the Korean market reopening is in process.



Gráfica 8.

Fuente:
INAC.

Beef exports reached a record of US\$ 1,223 million, with 377,000 tons carcass weight equivalent in 2008, although the international financial crises generated in the last quarter a credit restriction that slowed exports and led to a renegotiation of contracts and a lower average export price.

In October 2009 - the last month on which information is available - beef exports amounted to US\$ 790 million and to 321,000 tons carcass weight equivalent, with an average price lower than the 2008 price but higher than that of 2007.

The NAFTA is Uruguay's main bloc customer of beef. Within this bloc, the United States accounts for 80% of the Uruguayan beef exports, regarding both volume and value. This country is also the major individual customer in volume terms⁵.

Uruguayan exports to the United States are regulated by a tariff rate which is currently set at 20,000 tons each year for chilled beef, the type of meat mostly exported to that country. Exports above the quota are mostly destined to manufacturing.

The European Union has lost prominence in national exports (except in 2008), but is still the main client in value, as the average price per exported ton is higher than that offered by the other markets.

Uruguay exports to this market are regulated by a tariff rate of 6,300 tons of chilled beef under the Hilton Quota. The special beef cuts exported within this quota are those with the highest value, from the hindquarter of the animal (tenderloin, rump, Spencer roll, striploin and rump cap).

The Russian Federation became an important market with great interest in Uruguayan beef in 2006-2007, competing with the United States in some types of products.

Venezuela has played a leading role in the first four-month period of 2009, as it imported more meat from Uruguay than all the MERCOSUR countries together.

Among several other functions, the INAC distributes and manages quotas and issues the Certificates of Authenticity.⁶

5 - Source: Reports of the Trade Negotiation Commission for the beef sector within the framework of the INAC-IICA project, with participation of the private sector. Members: Dr. Cristina Zurbriggen (Project Coordinator), Accountant Raquel Pol (INAC) and Accountant Alejandra Bentancur (IICA).

6 - The INAC is a non-state public institution managed by the National Meat Board, with delegates representing the state, livestock farmers and slaughterhouses.

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.

Although 70% of the production is exported due to the high average prices obtained, domestic consumption plays a very important role as a complementary option for some cuts, and because it cushions the ups and downs of the international⁸ markets.

7 - Standards set by private retailers and producers from the whole world.

8 - Source: Third Strategic Planning Journeys - INAC.

2. Group traceability

Agronomist José Sosa Dias, Director of DICOSE
Agronomist Gabriel Osorio, former Director of Control Division (DICOSE)

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 website⁹.

⁹ -DICOSE/MGAP website:
<http://www.mgap.gub.uy/DGSG/DICOSE/dicose.htm>

What made the experience successful?

A Group Traceability System requires the following tools to achieve its objective.

Firstly, Uruguay has a Rural Code¹⁰ regulating cattle branding and tags, and a National Register of Brands and Tags.

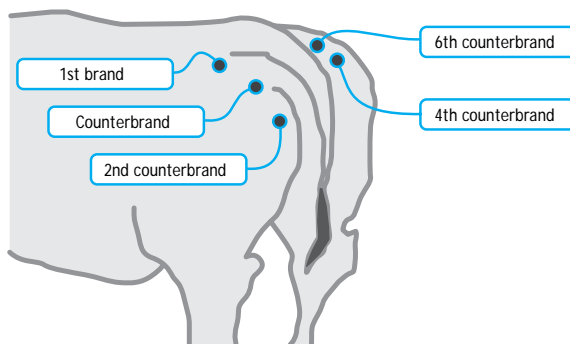
The Register of Brands and Tags has been managed since 1890 and is currently managed by DICOSE. The producer does not design its own brand. It is the State which, based on 15 sets of brands called “progressively numbered brands” drafts the designs. Among these designs, producers may choose their brand.

This system does not allow the existence of two identical brands, whatever their location may be. The only exception are the so-called “family brands” or “first series”, whose owners must duly accredit that the brands were created before 1887 and that they are successors or heirs of the original owner.

When the first series brands expire (upon 10 years), they cannot be granted to anyone with the exception of a former user of the brand, or to whomever may duly certify to be a successor of the previous user.

The brands and tags identify the owner of livestock and their use is mandatory. All calves must be branded at weaning. They must be counterbranded if they are sold after they have already been branded, they cannot be sold nor purchased without a brand and they cannot be resold before countebranding them.

Chart 3. Cattle brand location and sequencing



Source:
DICOSE/MGAP.

Secondly, Uruguay keeps a Register of Livestock Owners to whom a registration number is assigned: the DICOSE number. DICOSE is the institution that assigns the numbers and performs the corresponding control.

This number comprises 9 digits: the first two indicate the department where the producer is established; the third and fourth digits indicate the number of the police precinct to which jurisdiction the establishment is subject; the following four digits correspond to the corporate name and the ninth digit is the verifier.

If the first two digits are letters, it means that the registered company is the owner of the cattle but not the owner of the land. The same applies to the intermediary and industrializing sector, except that in this case, the third and fourth digits indicate the commercial activity of the company.

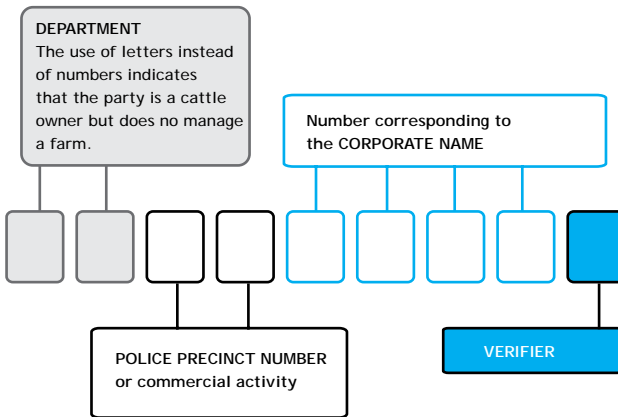




Chart 4.
DICOSE number digits

Source:
DICOSE/MGAP.

All cattle-breeding subsectors have an exclusive DICOSE number: in the Productive Sector, those who own cattle and may or may not own the land, those who own the land and may or may not own cattle; in the Intermediary Sector, auctioneers, fairs and consignees; and in the Industrial Sector, slaughterhouses, leather factories and wool manufacturers. The official institutions participating in this activity are also registered.

Thirdly, Uruguay also has a Register of Stock by means of Annual Affidavits that the companies registered at DICOSE must submit by June 30 every year.

Chart 5.
Affidavit A1

A1

Declaración Jurada 200

Debe ir y número de
recht

Seta de la oficina responsable

La información enunciada en este documento tiene carácter de declaración jurada

Advertencia: Este formulario debe ser llenado en forma clara y legible con letra de imprenta mayúscula, usando preferentemente lápiz negro.

No se admitirán tachaduras ni enmendaduras.

Con fecha (dd/mm/aa)

Importante: Este recuadro no debe ser llenado por el declarante, sino por el funcionario receptor de la declaración jurada

Correspondiente al establecimiento inscrito anteriormente con el N°:

N° de DI. CO. SE. actual:

Inscripción Hojas entregadas

Actualización De

A EMPRESA/ORGANISMO OFICIAL O SI ES PERSONA JURIDICA ESCRIBA LA RAZÓN SOCIAL AGREGANDO LA SIGLA (SA-S en C-LTDA-S. Civil-etc)

SI ES PERSONA FISICA ESCRIBA EL NOMBRE COMPLETO DE LA PERSONA (SOCIEDAD DE HECHO - SUCESIONES)

1° APELLIDO

2° APELLIDO

CÓDIGO DE DICI

1° NOMBRE

2° NOMBRE

Principal Secundaria Tercera

DOMICILIO CONSTITUIDO:

CALLE

LOCALIDAD

NÚM. DE PUERTA

NÚM. DE APTO.

CÓDIGO POSTAL

CÓDIGO DE DICI

TELEFONO

PARAJE DEL ESTABLECIMIENTO

B SUPERFICIE EXPLOTADA EN FORMA EXCLUSIVA

FABRICES DONDE SE DESARROLLA LA ACTIVIDAD DE ESTE N° DE DI.CO.SE



Código de DEPTO. N° de FABRICA Superficie usufructuada (en hectáreas) Código de Amonesta

TÍTULO DE TENENCIA DE LA TIERRA	HECTÁREAS	TÍTULO DE TENENCIA DE LA TIERRA	HECTÁREAS
1. Propiedad de la Empresa	<input style="width: 90%;" type="text"/>	1. Praderas artificiales permanentes	<input style="width: 90%;" type="text"/>
2. Arrendada	<input style="width: 90%;" type="text"/>	2. Siembra en cobertura	<input style="width: 90%;" type="text"/>
3. Pastoreo a 11 meses o régimen similar	<input style="width: 90%;" type="text"/>	3. Siembra a zapata	<input style="width: 90%;" type="text"/>
4. Ocupada por la Empresa y la propiedad de socios integrantes de la misma	<input style="width: 90%;" type="text"/>	4. Campo natural fertilizado	<input style="width: 90%;" type="text"/>
5. Medianería	<input style="width: 90%;" type="text"/>	1a. Hás de praderas realizadas en forma convencional	<input style="width: 90%;" type="text"/>
6. Ocupada a cualquier otro título	<input style="width: 90%;" type="text"/>	2a. Hás de praderas realizadas en siembra directa	<input style="width: 90%;" type="text"/>
TOTAL	<input style="width: 90%;" type="text"/>	Cantidad de fracciones de campo separadas entre sí en que se encuentra subdividido el establecimiento (sin potreros)	

C USO DE LA TIERRA

Situación al: 30/6/08

HECTÁREAS

1. Praderas artificiales permanentes	<input style="width: 90%;" type="text"/>	1. Praderas artificiales permanentes	<input style="width: 90%;" type="text"/>
2. Campo mejorado	<input style="width: 90%;" type="text"/>	2. Siembra en cobertura	<input style="width: 90%;" type="text"/>
3. Campo fertilizado	<input style="width: 90%;" type="text"/>	3. Siembra a zapata	<input style="width: 90%;" type="text"/>
4. Cultivos forrajeros anuales	<input style="width: 90%;" type="text"/>	4. Campo natural fertilizado	<input style="width: 90%;" type="text"/>
5. Huertos, frutales y viñedos	<input style="width: 90%;" type="text"/>	1a. Hás de praderas realizadas en forma convencional	<input style="width: 90%;" type="text"/>
6. Tierras de labranza	<input style="width: 90%;" type="text"/>	2a. Hás de praderas realizadas en siembra directa	<input style="width: 90%;" type="text"/>
7. Montes artificiales (forestación)	<input style="width: 90%;" type="text"/>	Cantidad de fracciones de campo separadas entre sí en que se encuentra subdividido el establecimiento (sin potreros)	
8. Campo natural y rastrojos	<input style="width: 90%;" type="text"/>		
TOTAL	<input style="width: 90%;" type="text"/>		


Escriba con cuidado. Coloque un número en cada casillero. No tache. Utilice números como en el modelo.

Marque así: NO marque así:

0 1 2 3 4 5 6 7 8 9

ORIGINAL para DI.CO.SE

Source:
DICOSE/MGAP.



This Affidavit includes the producer's DICOSE number, name or corporate name, domicile, farm location, farm surface, lot numbers, use of land, own cattle or third parties' cattle in the farm, and own cattle outside of the farm, number of births, deceases and animals consumed in the farm and during the fiscal year.

This document is used to incorporate the producer to the National Livestock Information System (SNIG) and to annually update the information about each producer registered.


In the fourth place, there is an Ownership and Movement Form for internal control and control of cattle movements. These Forms were designed to accredit cattle ownership, so they are in fact an affidavit.

They indicate which type of operation is in progress, among whom the operation is performed, the livestock breed, the cattle brand, the means of transport used, the places where the cattle will be moved, who is responsible for moving the cattle, and when cattle will be moved. It may also provide the data regarding the original Ownership and Movement Form in the case of intermediation transactions.

The movements are controlled at any time and anywhere in the national territory by the police or officials of DICOSE Control Division.

The Annual Affidavit, which constitutes a picture at the end of the livestock year, and the Ownership and Movement Form, which shows cattle additions and deductions, form a current account for each producer that has to be later adjusted with births, animals consumed in the farm and deceases. This was the innovation introduced by the 1974 legislation, on identifying with a number each of the operators in the today called "meat chain".

Chart 6.
Ownership and
Movement Form B1




Guía de propiedad y tránsito

T

71161

La información enunciada en este documento tiene carácter de declaración jurada
Advertencia: Este formulario deberá llenarse en forma clara y legible con letra de imprenta mayúscula, usando preferentemente lapicera negra. No se admitirán tachaduras ni enmendas.

1- TIPO DE OPERACIÓN (INDICARLO EXPRESAMENTE)

CON CAMBIO DE PROPIEDAD 1 Marque así NO marque así

SIN CAMBIO DE PROPIEDAD 2 Marque solamente uno. En cada guía sólo puede documentarse un solo tipo de movimiento.
Envío a remate y a consignación no representan cambio de propiedad.

2- ESTABLECIMIENTOS INTERVINIENTES en todos los casos deberán llenarse los casilleros A, B, C, D según corresponda (ver instrucciones)

CON CAMBIO DE PROPIEDAD Nº del propietario actual (vendedor) CON CAMBIO DE PROPIEDAD Nº del nuevo propietario (comprador)	SIN CAMBIO DE PROPIEDAD Nº del propietario de los ganados SIN CAMBIO DE PROPIEDAD Nº del remitador
Ventas de remate - Nº del remitador Ventas de consignación - Nº del consignatario	Envío a remate - Nº del remitador Envío a consignación - Nº del consignatario

SIN CAMBIO DE PROPIEDAD Nº del propietario de los ganados.

A) Razón social

Domicilio constituido

LUGAR FÍSICO DE SALIDA DE LOS GANADOS
En ventas de consignación: ver numeral 11

C) Razón social

Paraje ubicación

B) Razón social

Domicilio constituido

LUGAR FÍSICO DE LLEGADA DE LOS GANADOS
Envío a remate: Nº de Local FERIA

D) Razón social

Paraje ubicación

3- DETALLE DEL GANADO A TRANSPORTAR:

Vacunos		Ovínos	
Toro	01	Cariaca	01
Vaca	02	D-ejeño	02
Novillo >3 años y buena	04	Capone	04
Novillo 2 a 3 años	05	Borrugo 2-40	05
Novillo 1 a 2 años	06	Cordero DL	06
Vaquillonas más de 2 años	07	Cordero DL	07
Vaquillonas 1 a 2 años	08	Cardinal/as / Alambos	08
Terneros/as	09	TOTAL OVÍNOS	10
TOTAL VACUNOS	10		

4- ORIGEN DE LA PROP. DEL GANADO NO CONTRAMARCADO

CONSIGNACIÓN - REMATE - EXPORTACIÓN - FAENA

INDICAR: Nº de guías por las cuales recibió ese ganado y cantidades de cabezas en esta remesa correspondientes a cada guía de origen y de tropa cuando va a faena.

SERIE	Nº DE GUÍA	CABEZAS	TROPA


5- DISCRIMINACIÓN DEL GANADO VACUNO POR MARCAS

Número Reg. Grs. _____

Deajo _____

Cabeza _____

6- DISCRIMINACIÓN DEL GANADO OVINO POR SEÑALES



7- CONTROL SANITARIO El firmante declara que este ganado _____

Código de autorización _____

Oficina _____ Nombre _____ Firma _____

SELLO DE LA OFICINA


8 - FIRMAS Fecha de emisión de la guía Día Mes Año Cédula de identidad de la firma autorizada _____

RUT VENDEDOR _____

Firma autorizada _____

Escriba con cuidado. Coloque un número en cada casillero. No tache. Haga los números de esta manera: 0 1 2 3 4 5 6 7 8 9

ORIGINAL Entregar para envío a DI.CO.SE.



Indicar las tres últimas cifras del nº de identificación del establecimiento de origen

887

Source:
DICOSE/MGAP.

Conditions for enforcement

An indispensable factor for the applicability of a traceability process is the legal base. Each instrument related to group traceability is applied based on a regulation that has been revised and ratified on several occasions.

In the case of animal brands and tags, Article 157 of the Rural Code provides that brands on small and large livestock and tags on small livestock establish a presumption of title to and justify ownership of the livestock with a brand or tag, unless proved otherwise. Articles 171 to 173 regulate the use of brands. The transfer of ownership is proved through the ownership form.

Decree No. 762/973 of September 13, 1973 reiterated the obligation of all owners of cattle to use a brand or tag for every animal they own.

When the registration number of DICOSE number was created under Decree No. 700/73 and Law No. 14,165 of 1974, it was prohibited throughout the country: “To be a party to any transaction that may imply holding, transfer of ownership or movement of any livestock or fruits without being previously registered in DICOSE. This prohibition shall include any natural or legal person, either public or private”.

The Annual Affidavit and the Ownership and Movement Forms were created in March 1973 in the Law establishing DICOSE, and their use is mandatory since then. In the case of the Ownership and Movement Form, it is prohibited “to move any kind of bovine, ovine, equine, porcine and caprine cattle, without the corresponding Ownership and Movement Form duly completed, which shall be in the possession of the drover or carrier”.



3. Individual cattle traceability

Agronomist Gilard Gabriel Osorio, Director of SIRA/MGAP

The EU was a pioneer requiring its food suppliers to have systems to ensure the traceability of products as of January 2005.

Since 1974, Uruguay has had a group traceability system, and the agreement signed with the EU established that as of April 1, 2010, the EU would only accept under the Hilton Quota beef of animals individually identified from the birthplace to the slaughterhouse, which is to be understood as traceability.

These two facts were the basis for the creation of the Individual Traceability Pilot Program (PTI) in 2004, in parallel to the group traceability system. This voluntary program introduced, in an orderly manner, the first identifiers (eartags and chips) in the market and was supplemented with training and information to users.

For the first time, a visual eartag was placed in the ear of each bovine cattle head, with a printed number to enable the identification of the animal at first sight. A second eartag contains a radiofrequency identification device (RFID) to store the same number of the visual eartag.

This component of the National Livestock Information System (SNIG) involved initially those producers who voluntarily adhered to the program. The main objective of the SNIG to this day has been to guarantee the individual and group traceability of bovine cattle, from the slaughterhouse to the farm of origin.

The PTI was completed on September 1 2006 with the approval of Law No. 17,997 of August 2, 2006 and of Decree 266/2008, whereby individual cattle traceability became mandatory.

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.

Uruguay's individual traceability program is the only program in Latin America wholly based on electronic identification technology, besides visual identification. It is also the only program implemented by delivering the identification devices to producers free of charge. These are distributed through the National Postal Service (ANC).

What made the experience successful?

The experience has been successful due to the following factors.

In the first place, beef exports account for an important part of agricultural exports and overall national exports.

In the second place, Uruguay is a small country, which makes it easier to control. There are no major variations in landforms and its producers have a good cultural level.

In the third place, the country has implemented a set of instruments for animal identification, such as Group Traceability, Registers, Ownership and Movement Forms, Affidavits, etc.



In the fourth place, there is a network at the MGAP offices in all the departments with representatives of Livestock Services, all of which is coordinated with the Ministry of the Interior and the Municipalities.

In the fifth place, the whole process was duly planned well before the date agreed with the EU. The implementation of the Individual Traceability Pilot Program began in March 2004, and only on September 1, 2006, a Law made the identification and registration of calves born throughout the national territory mandatory¹¹.

Finally, there was an extensive training and dissemination plan, complemented with Help Desks that answer queries and solve problems through a call center.

Conditions for enforcement

One aspect to be highlighted about the Uruguayan experience is that the traceability system that the country is implementing is based on a set of instruments that have been created along the history of the country.

In the second place, the control is carried out in the field and by checking documents.

In third place, the country has implemented the SNIG, based on which, and combining the DICOSE numbers with the Ownership and Movement Form, it is possible to locate each head of cattle in its farm, and to follow it up to its destination farm and/or slaughterhouse in a georeferenced manner.

A fourth condition to mention is the set of instruments mentioned above and the pertinent laws and decrees. Individual traceability is based on Law No. 17,997 of August 2, 2006, and Decree 266/2008.

In the fifth place, the success of the traceability programs implementation and their continuance over time depend on the acceptance and participation of the producers and on the demands of the international market.

Thus, it is important to examine the degree of interest and the position of the stakeholders of each country about this issue, in order to design efficient and successful traceability programs.

11 - Law No. 17,997 of August 2, 2006 and Decree 266/2008.

Methodology for the application of an individual traceability system

In the first place, for the experience to be successful, there must be a campaign to raise the awareness of the producers about the importance of a traceability system from the point of view of the health and safety of the products they consume, and of the commercial opportunities that it generates in the international markets, particularly in the European Union.

Secondly, a law is required to formally grant traceability the importance it has and to enable the execution of the changes required to carry out the process.

Thirdly, it is necessary to have the information contained in certain cattle registers, such as the National Register of Brands and Tags, the Register of Stocks, the Register of Movements and Changes in Holding. Likewise, it is necessary to be able to identify unmistakably and to link the cattle holders to the farms where they operate.

In the fourth place, a Pilot Program is necessary to generate habits of control and registration among the producers, and at the same time to correct any negative aspects of the design of the traceability system to implement, and of the related logistics.

In the fifth place, the animals must be entered into the system gradually. As explained above, in Uruguay the animals that enter into the System are calves under 6 months. The goal of entering all animals at a time, depending on the size of the national herd, might be a too ambitious challenge for a system that is still being tested.

In the sixth place, it is necessary to generate direct communication means between the producers and the institution leading and managing the Traceability System. Technical workshops were carried out to explain the procedures to follow and the system operation. A toll free 0800 line was implemented to answer inquiries and consultation spaces were opened in the web sites of several state institutions.

In the seventh place, it is necessary to train staff in the specific location of the producer. Those operators are responsible for duly transferring data about inputs, deceases, removals and re-identification of cattle in the system in due time.

In the case of Uruguay, it was estimated that over 2000 duly trained operators were needed to cover the whole territory. A group of 15 trainers, with the cooperation of Livestock Services

officers, has been training over 1,800 users, between technicians and professionals.

Finally, it is essential to issue all the procedures for system development and make them available to the users. Likewise, the access to the information by all the stakeholders is basic to facilitate data management and use, mainly by the producers and control mechanisms.

The next challenge for Uruguay in 2010 is to incorporate the digital backup of data entries, so as to gradually eliminate paper and thus lower the error risks that it implies.

Statistics of identified animals

August 31, 2009, was the final date of the third mandatory livestock registration year. On April 1 2010, we will be at the half of the fourth year, when the calves that entered the Traceability System during the Pilot Program or during the first mandatory livestock registration year will be over 4 years, unless they have already been slaughtered.

The cattle that have not been identified on that date must be immediately entered into the System. It is estimated that a relative percentage of breeders born before September 1 2006 might be in this situation.

In November 2009, two months before the expiration of the third mandatory livestock registration year of the individual traceability system, the MGAP had delivered more than 8,000,000 eartags. It was estimated that on that day there were 7,000,000 head traced in the system (alive and dead), and the remainder head were untraced for different reasons, or their trace had been observed. The head that were left to identify were approximately 2,500,000.



4. Technological aspects of individual cattle traceability

Agronomist Gilard Gabriel Osorio, Director of SIRA/MGAP

The National Livestock Information System (SNIG) under the MGAP was created with the purpose of improving the Group Traceability System in charge of DICOSE/MGAP, with the contribution of new technologies.


The objective was to create a single reliable and updated database to centralize the data on stocks from the Annual Affidavit as well as the data on movements or changes of ownership from the Ownership and Movement Form.

It operates through a system created to meet the needs of the country. Likewise, its design, implementation and operation was awarded through a public bid.

In September 2002, the MGAP opened an international public bid to contract a private operator for the design, implementation and operation of the SNIG database for a five-year period.

In October 2003, the MGAP signed a contract with a consortium of companies to which the bid was awarded. This consortium was composed of Sonda Uruguay S.A., Artech and ICA-Ingenieros Consultores Asociados.

The implementation of the SNIG was financed by a 6 million US dollar loan of the World Bank granted to the Emergency Assistance Project for the Eradication of Foot and Mouth Disease (PAEFA) under the MGAP.



The funds covered the three first years of execution of the system, the contracting of the private user of the SNIG (the consortium) for the 5-year period and the purchase of electronic identifiers and readers for the start of the Individual Traceability Pilot Program (PTI).

It is important to mention that private users coordinate their activities with a Technical Commission with representatives of the Livestock Services, MGAP.

The System allows producers and the whole country to view the origin and destination of each movement of bovine cattle according to date, species and category in a georeferenced manner, through the Geographic Information System. Likewise, it provides essential information to the sanitary authorities for the adoption of general sanitary measures more efficiently.


With the enforcement of the Individual Traceability System in September 2006, the SNIG became the information database used for the operation of the SIRA.

From that moment, when the identification devices (eartag and chip) are placed in each animal, the following information is registered in the SING:

- identifier number;
- DICOSE number of the owner;
- DICOSE number of the farm of birth;
birth season and year;
- sex, breed and cross.

Besides, the producers assumed the commitment to communicate to the SNIG the deceases and movements of entrance or exit of already identified animals. Data are sent through the database by post, in the case of paper forms, and through the Internet, in the case of electronic forms.

One of the objectives for 2010 is to gradually include electronic forms to replace printed documents, so that all the information is managed through the Internet.



What made the experience successful?

In the first place, the database is the only one at national level where full livestock information is registered and updated. The registered data are determined exclusively by the applicable regulations and the competent authorities, as needed for the identification and individual traceability of cattle movements and ownership.

The information provided by this system is also used by the other institutions related to national cattle traceability duly authorized to such use. This ensures the consistency of the information provided and facilitates its update.

In the second place, the database belongs to the MGAP; however, it may be managed by private companies.

In the third place, the data captured and the information generated by the system are confidential, and their use is restricted to individual traceability.

In the fourth place, the State invested and continues investing strongly in telecommunications in order to have a wireless solution to transfer the resulting data in real time to the SNIG. This has also benefited other productive sectors.

Methodology for the application of a livestock information system

Information updating is essential for the system to keep current and reliable. For the collection of data in the farms, carriers and other authorized operators use reading devices to transfer data with a PC and an Internet connection. It would be ideal to have equipment to transfer data in real time and at a single touch, thus minimizing capture and writing errors.

The reading devices read the electronic identifiers placed to each head of cattle. The DICOSE Affidavits and the Ownership and Movement Forms are processed optically to update the SNIG. They are read as digital images, translated into characters and entered into a database within the SNIG.



In order to improve the quality of data, the Ownership and Movement Forms were redesigned to make form-filling easier for the producers. A new format was adopted, similar to the DICOSE Affidavit, in the last Agricultural Censuses and in the last Population and Household Census.

As regards the identifiers used for each cattle head, the visual eartag and the RFID device located in the animal ears bear the same identification number.

This identification number has 12 digits: the first 3 refer to the country (Uruguay's number is 858 under the ISO 3166 standard), and the other 9 digits constitute the exclusive animal identity according to the ISO 11784 standard.



Likewise, as a way to facilitate the transfer of data to the SNIG, the management and sale of reading devices were entrusted to the private sector, under the quality control of the Technological Laboratory of Uruguay (LATU).

The equipment must include reading, storage, printing and electronic data submittal capabilities. Decree 480/007 of December 3, 2007 establishes the technical and regulatory conditions for the readers to be used in the SIRA.

The SIRA publishes the solutions authorized to offer reading services to the system. The companies must apply to the SIRA for the authorization to offer their solutions.



3375

5. Process traceability

Dr. Fernando Etchegaray, Livestock Services Technician, MGAP

While the Product Traceability Systems focus on the traceability of bovine cattle, both at group and at individual level, from birth to slaughterhouse, the Process Traceability System incorporates to the former the information on how it was produced and on all pertinent health issues¹².

The purpose of the Animal Health Information System is to integrate all the animal health information available in the country as a single computerized system, to provide timely and high quality information to the different hierarchical levels of Livestock Services and to communicate the presence of diseases according to international recommendations.

What made the experience successful?

In the first place, the Animal Health Information System covers the following areas: the Veterinary Laboratories Division (DILAVE); the accredited laboratories; the Local and Area Livestock Services under the Animal Health Division of the MGAP; the freelance veterinaries; the dairy plants; the DICOSE; the SNIG; the Geographic Information System (SIG) and the slaughterhouses under the Animal Industry Division of the MGAP.

In the second place, the information provided by all the system components offers the Official Animal Health Services a work tool to plan health campaigns, perform visits and implement epidemiological prevention and surveillance campaigns with a high operational value.

For example, when a sanitary event occurs, the SIG provides information about the farm of origin, including the livestock entry and exit movements in a specific period. It also enables measuring and viewing the propagation to the nearby establishments before the event becomes an epidemic.

In the third place, the system is useful from an operational viewpoint, as it generates the Shipment Authorization to include in the Ownership and Movement Forms.

Conditions for implementation of a process traceability system

One of the factors supporting the proper implementation of the system is the existence of a network of MGAP offices



in all the departments of the country, with a specific section for Sanitary Services.

Thus, if a sanitary event is suspected, they may notify the Area Livestock Services or Local Livestock Services of the department. Once the alarm is triggered, the MGAP technicians visit the event location and proceed under the protocols established for each specific case.

Another contribution of this successful experience is the creation of the National System of Sanitary Emergency (SINAESA). The SINAESA is the technical administrative and operational organization that the Executive Branch has created to support the practice of veterinary medicine, integrating all ministries and institutions related to the animal health sector. This system acts with special delegated powers.





Live weight



Bleeding



Pre-Dressing



Classification



Deboning Room Entry



Deboning Room Packing



Dispatch of boxes

6. Individual traceability in the industry

Eng. María del Carmen Vilanova and Daniel Abraham, Managerial Committee of the SEIIC - Electronic Information System of the Meat Industry of INAC

Since 1974, Uruguay has had a group traceability system and agreed with the EU the implementation of an individual cattle traceability system that should be completed on April 1, 2010.

The National Meat Institute (INAC) has taken a step forward in the path towards traceability, implementing the Electronic Information System of the Meat Industry (SEIIC)¹³, also known as “Black Boxes”.


The purpose of the SEIIC is to receive data on bovine cattle slaughter and deboning for transparent management and equitable operational conditions for all players in the meat system. It should be emphasized that with the SEIIC, a uniform commercial traceability infrastructure is installed and available at national level, with the possibility of periodic audits.

This is a unique system at global level, as it is installed in all the bovine cattle slaughterhouses authorized by the highest national animal health authorities (MGAP). INAC has installed the System in its Phase I (basically for bone-in meat) in 38 slaughterhouses, and Phase II (for meat packaged in boxes) in 21 industrial plants.

Besides, the System allows a great number of slaughterhouses to access to a powerful management system, which represents a highly positive change in plant management.

13 - SEIIC section in INAC's webpage:

http://www.inac.gub.uy/innovanet/macros/Home_2_4.P.jsp?contentid=1092&version=1&channelid=1



The SEIIC systematically traces all the animals entering each slaughterhouse. In its most complete configuration it uses 7 points of information located throughout the industrial process, since the animal enters the slaughterhouse to carcass sides or carcass quarters in chambers, entrance to the deboning room and dispatch of bone-in meat.

In short terms, the SEIIC consists in a system of scales, industrial computers, printers, scanners and communication devices installed along the slaughter, deboning and dispatch lines in each slaughterhouse duly authorized for bovine cattle slaughtering.

Information about production is obtained in real time from this infrastructure. Such information is stored in a local server in each plant and in a main server in INAC.

One hundred percent of the information received is processed, which represents more than 25,000 pieces of data, or a new piece of data every 3 seconds, applied to over 4,500,000 head of cattle registered by the SEIIC until now.

What made the experience successful?

The experience is being successful, in the first place, thanks to the use of the available technology. As from September 2007, all the slaughterhouses in operation may transfer information online to INAC¹⁴.

Traditionally, meatpacking plants had to send INAC a weekly report corresponding to the slaughter of bovine cattle, and they did so both in a printed version and electronically. As of November 2008, all plants were relieved from the obligation to send such report as previously established, because the information is taken directly through the data control points called “Black Boxes”.

Secondly, there is an organization in Uruguay devoted to monitoring the meat chain, i.e. INAC, a non-state public legal entity. This organization has been promoting the SEIIC from the managerial, economic and logistic point of view.

14 - Thirty-eight meatpacking plants installed represent 100%. Plant number 39, Breeders & Packers Uruguay, is under construction in the Department of Durazno.

Managerial - because it is the organization responsible for the correct operation of the system. Economic - because it manages the Control Fee of US\$ 1/head of slaughtered cattle¹⁵ set for the implementation and operation of the system¹⁶.

Logistic - because it is responsible for the supervision of the installation of equipment in each new meatpacking plant, as well as for the training of its personnel.

In addition, there are controls so that the information received by INAC conforms to the regular parameters among plants¹⁷. It also evaluates every investment project that a meatpacking plant wishes to carry out and that requires the relocation of the black boxes previously installed¹⁸.

In the third place, the information from the Black Boxes is valuable for the meatpacking plants because it enables more precise industrial planning and management, as information on the whole industrial process is available in real time.

Besides, “ClienteWsi” software applications were installed in small- and medium-sized farms to enable queries about the information contained in the SEIIC and print such information for proper farm management.

The producers also benefit from the information available through IPRO Web, a web page for consultation on data about the cattle herds sent to be slaughtered.


IPROFono is the 0800INAC toll free line to get information about web page management, slaughtering, etc. IPROCel is used to send information about slaughtering to the cellular phones of the producers registered in the System.

15 - Decree No. 364/003 of August 29, 2003.

16 - This levels technological differences that may exist among plants.

17 - It has the System Data Control Area and maintenance programs: a corrective and a preventive program, and it is currently in the process of accreditation for the ISO 27001 standard.

18 - This task has implied an enormous effort by INAC, considering that many of the meatpacking plants have been almost in a continuous reform process due to the high investments made to increase capacity at the various stages of the industrial process.



The Certified Natural Meat Program of Uruguay under INAC uses the Electronic Monitoring of Natural Meat (SECAN) developed to support the certification of Uruguayan meat and successfully used in the last USDA audits.

The System also provides an Electronic Summary of Head (REC), which enables mapping the quantity and category of the animals slaughtered at any moment, in all the country or per slaughterhouse.

In a dynamic market as the meat market, the availability of high-level information in real time offers INAC much better tools for analysis, diagnosis and formulation of sectoral policies than those available at numerous international institutions.

By way of example, the current database covers 4,500,000 animals, yield per category and sub-category, type, finishing, comparisons by period and by department, etc.


The SEIIC has been granted several international awards. It received the PMI Project of the Year Award 2008 of the Project Management Institute, Montevideo, Uruguay Chapter. It was later selected by the Project Management Institute Gov SIG among the four best 2009 government projects at international level.

Conditions for implementation of a black box system

Several factors are required for the successful implementation of a black box system.

In the first place, the equipment and supplies must be quality-controlled. The equipment and supplies used (readers, servers, scales, industrial computers, printers) must comply with basic quality standards that ensure their durability, efficiency and precision.

The set of scales comprises rail and platform scales of excellent quality and design, and terminals for weigh capture and registration integrated into an electronic weighing system communicating through an industrial computer that forwards the information to the plant server.



The LATU, through its Legal Metrology Services, approves the model and performs periodic checks of the scales installed in slaughterhouses. The scales are calibrated according to a schedule agreed upon with the supplier, and are checked by the LATU once a year. The equipment supplier performs preventive and corrective maintenance.

In the second place, the information must be quality-controlled. INAC has created the Data Control Area to monitor that the variables of each slaughterhouse are in agreement with the general parameters of the other slaughterhouses.

The objective is to determine any malfunctioning at any traceability point in the 38 slaughterhouses. Besides, INAC has issued resolutions to achieve similar operational conditions in the dressing phases.

Likewise, data processing tools are used for control. Uruguay uses RISK MANAGER to assess risk at the process, information quality and information security levels. At the same time, actions are being implemented to obtain ISO 27.001 Certification in information security in a short time.

In the third place, operation audits are performed by a team of auditors of Certicarnes, independent from the black boxes, according to a Protocol of Compliance. In the same line, operational audits will be carried out annually by the British Standard Institute and surveys to slaughterhouses and cattle breeders have been conducted in order to get feedback for the continuous improvement of the System.

In the fourth place, a consistent and secure connection must be available to enable data transfer with no interference in real time on a 24-hour basis. Likewise, servers with capacity to store all the information generated must be available and contingency plans for data recovery must be implemented.

There is a monitoring service for all network components, as a way to anticipate any problem. If the communication with the server was interrupted, the information continues to be stored in the terminal of the corresponding traceability point until the communication is restored.

Methodology for the application of a black box system

As mentioned above, in the fullest configuration the 7 data control points are strategically located throughout the industrial process, as follows: 1 - live weight, 2 - bleeding, 3 - dressing, 4 - classification, 5 - deboning room entry, 6 - deboning room packing, and 7 - dispatch of boxes.

The animals are identified when they enter the establishment. The following information is entered into the system: herd number, DICOSE number of the producer, the farm and the consignee, eartag number (individual traceability), etc. The SEIC identifies each animal with an exclusive number called DOT Number.


The last data registration point is where boxes containing beef cuts are dispatched. Based on this System, and on the Individual Traceability System, traceability is enabled from birth to carcass cutting.

A process is in course to harmonize the Individual Traceability System with the Industrial Traceability System, as a way to achieve the Comprehensive Traceability of Beef. At present, producers already access to both systems with a single user number a password.

Carcasses are identified with a unique number for each control point weighing, and each number is linked through all the production stages. Each identification number is generated by the system and is referred to as DOT number. The identification information is contained in a bar code printed in each label, and this is added to the carcass, half carcass or cut (depending on the data control point).

At each bar code reading, the scanner captures the information in the labels about each preceding data control point. Based on the number of a dispatched box of beef, queries may be made in order to obtain all the information registered “forward” in the process.

The SEIC offers traceability mechanisms to support sanitary emergency procedures by restraining risks, thus limiting any sanitary problem to clearly defined areas or products.



The system may also be the basis for certification, supporting current and future certification schemes. Just as the Certified Natural Meat Program is based on the SEIIC today, the system may be the basis for other certifications in the future.

Traceability of Sanitary Emergency of Animals and Carcasses: it is possible to easily and quickly obtain the data about animals within a limited area of the country. It consists in entering the code of the department and police precinct or the DICOSE number to perform a search.

Such search will provide data about the animals within that specific area of the country that were slaughtered in a given period: animal origin, category, dentition, classification, slaughterhouse, slaughter number, last farmer and farm, quantities, etc. This enables to determine the slaughterhouses where animals from the interdicted area have entered, and also the products manufactured with such animals.

Electronic Traceability of Beef Cuts: it is possible to obtain the data about origin and other characteristics of beef cuts and quarters that entered the deboning room in a given period. The search must be carried out under the specific slaughterhouse and a range of dates.

The information obtained will refer to the individual data of all the animals that entered the deboning room. Likewise, once the interdicted farm has been determined, it is possible to know to what other farms in the same area the animals were sent.

It is clear that individual traceability is a commercial option that will only be implemented if the market responds with a higher economic compensation. It depends on the layout of the deboning room, on how the process is organized and on the staff performance.

Likewise, the market offers automated systems for deboning rooms with intelligent beef transportation lines to maintain the identification of each beef cut and thus provide information about the origin and the yield of cuts, which facilitates individual traceability.

