



Agricultural Issues Center
University of California

May 2005

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www.aic.ucdavis.edu

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Supported in part by the Agricultural Marketing Resource Center

Executive Summary

Beef production in Uruguay is based primarily on pasture grazing in contrast to the grain based feeding system in North America. Uruguayan beef production and exports have expanded since the country was declared free of foot-and-mouth disease (FMD) in 1995. Currently over 70 percent of production is exported. To further enhance competitiveness in export markets, particularly in markets for higher quality beef cuts, Uruguay is seeking international certification for its grassfed beef production system. This paper provides an overview of Uruguay's beef industry and describes the development and operation of its beef traceability program – the DICOSE system. We also discuss how certification of the grassfed beef production system could benefit the Uruguayan beef sector and whether U.S. producers could benefit from similar certification.

Grassfed Certification: The Case of the Uruguayan Beef Industry

Introduction

Uruguay is a small, beef-exporting country located between Argentina and Brazil, both of which rank among the worlds largest beef producers and exporters.¹ It has approximately 57,000 agricultural/livestock operations, of which 52 percent (29,000) are pasture based beef and sheep ranches. Of these about 19,000 specialize in breeding (cow-calf operations), 6,000 are calf-to-beef type operations, and 4,000 specialize in finishing. Over half the ranches are classified as family farms with less than 200 acres, while another quarter are considered transitional farms with less than 900 but more than 200 acres. About five percent are farms of over 3,500 acres (MGAP-DIEA).

In 1995, Uruguay was declared free of foot-and-mouth disease (FMD) by the World Organization for Animal Health (OIE). This opened access to several important markets, which until then had been closed to Uruguay's non-cooked beef exports. However in April 2001, Uruguay suspended exports when new cases of FMD were discovered near the border with Argentina. Export markets began to reopen when no new cases were discovered after August 2001. Exports to the EU resumed in November 2001, and to the United States in June 2003 following a May 22 announcement by the OIE that Uruguay had been granted the status of "FMD-free with vaccination." Uruguay prohibits the import of live animals and/or genetic material from countries affected by FMD or other exotic diseases. It is also classified in the lowest possible risk category for bovine spongiform encephalopathy (BSE) – one in which the presence of an infected animal is deemed "highly unlikely" (European Commission). Meat

¹ Brazil became the world's largest exporter in 2004. Exports from Argentina have been restricted since the discovery of new cases of FMD in 2000.

exports play an important role in Uruguay's economy. In 2004, meat exports accounted for about 24 percent of the total value of Uruguayan exports, with beef accounting for 21 percent.

In this paper we provide an overview of the Uruguayan beef sector and describe current Uruguayan initiatives to increase the value of its beef exports. Beef exports are considered to be meat only and do not include hides and other products. In particular we focus on the effort to obtain international certification for Uruguay's grassfed beef production system. Certification, in conjunction with Uruguay's already highly developed cattle identification and tracking system (the DICOSE system), is viewed as central in the development of a national brand image for Uruguayan beef, analogous to that associated with New Zealand lamb. We discuss the potential economic benefits of certification for the Uruguayan beef sector and we conclude by discussing whether U.S. producers might benefit from similar geographic based certification efforts, such as USDA's Process Verification certification.²

Industry Analysis

Industry structure

Until the late 1970s the beef slaughter and processing industry (*frigorífico*) in Uruguay was under heavy government control. Publicly owned companies shared the domestic market on the basis of quota allocations and private firms were excluded. For example, the publicly owned Frigorífico Nacional had a monopoly in the Montevideo market. In the early 1970s, the Frigorífico monopoly ended with the reduction of its domestic quota and the entrance of smaller privately owned plants that were technologically more advanced (Jarvis and Medero). By 1980,

² The Agricultural Marketing Resource Center has developed a generic process verification manual that can be used by producer alliances in the U.S. to seek USDA Process Verification status. This and other process verification materials are available at http://www.agmanager.info/agribus/process_verify/default.asp

the government was completely out of the industry and since the mid-1980's more privately owned firms have entered the industry and compete in both the export and domestic markets.

Currently there are 35 nationally certified beef slaughterhouses, of which 24 are approved by Uruguay for export. As of March 2005, sixteen of these were approved by the USDA to export to the United States. In 2004, the top 4 companies accounted for 35.8 percent of slaughter and 38.8 percent of exports (Table 1).

Consumption

Uruguay has the world's third highest annual per capita beef consumption at 43 kg, after Argentina (56 kg) and the United States (44.8 kg). These are all measured on a carcass weight basis. Beef consumption remained fairly steady during the 1980s and 1990s but declined during the past four years primarily due to higher prices (Figure 1). Between 1999 and 2003 Uruguay registered one of the most critical periods of economic recession in its history. Real income decreased 23 percent in 2002 and 27.6 percent in 2003, while the unemployment rate reached 17 percent.

Production

Beef production expanded following the achievement of FMD-free status in 1995 which increased market access for exports of beef and live animals. Expansion was facilitated by a significant decline in sheep numbers due to falling wool prices. Sheep numbers declined from 26 million in 1991 to 20 million in 1995, and down to 9.5 million in 2004, thus freeing up

Table 1. Meat processors and percentage of domestic cattle slaughter and exports, 2004

Firm	Cattle Slaughter		Meat Exports ^a	
	Percent	Cumulative	Percent	Cumulative
Frigorífico Las Piedras	9.7	9.7	10.3	10.3
Establecimientos Colonia S.A.	8.9	18.6	9.7	20.0
Frigorífico Tacuarembó S.A.	8.6	27.2	8.7	28.7
Frigorífico San Jacinto - NIREA S.A.	8.6	35.8	10.1	38.8
Frigorífico Matadero Carrasco S.A. ^b	8.5	44.4	9.0	47.8
PUL S.A.	8.4	52.8	8.2	56.1
Ontilcor S.A.	7.8	60.6	6.9	63.0
Frigorífico Canelones S.A.	6.7	67.3	7.6	70.6
Elbio Pérez Rodríguez S.A. ^b	5.2	72.5	3.2	73.8
Chiadel S.A. ^b	4.8	77.3	4.5	78.3

^a Beef and beef offal account for about 90% of total meat exports. The remaining 10% is comprised of other meats.

^b Owned by the same group

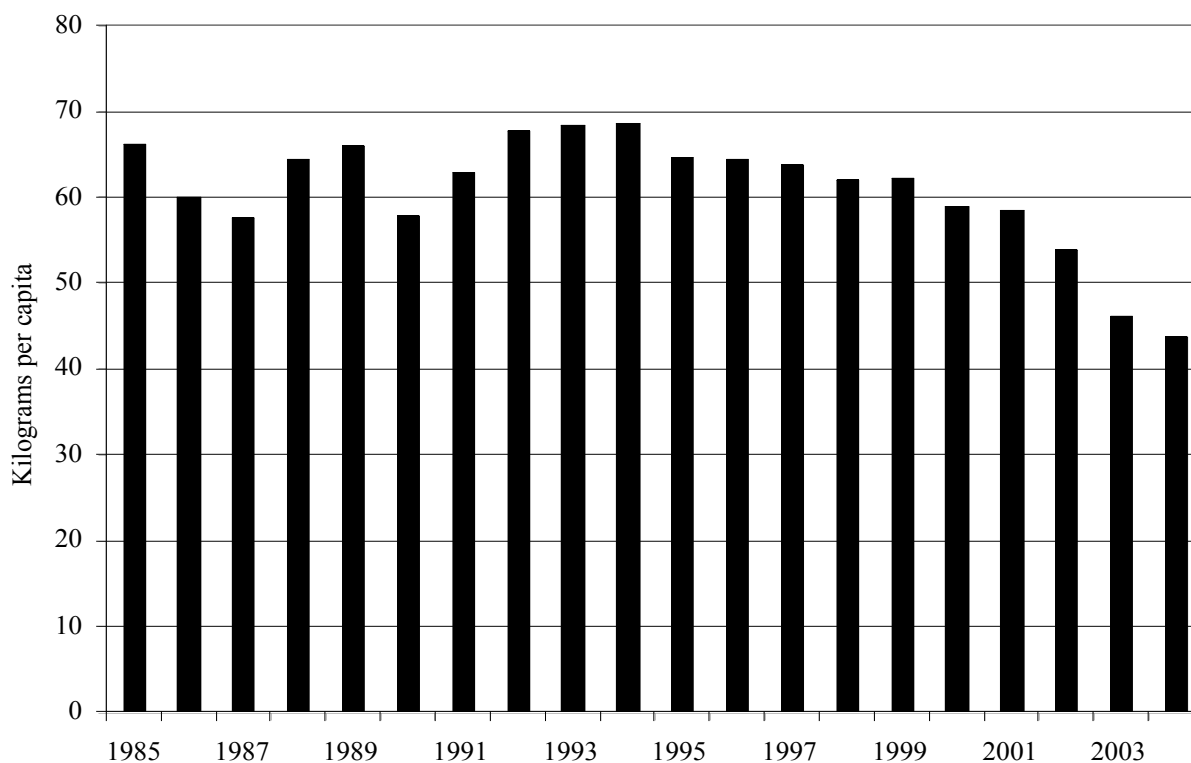


Figure 1. Annual per capita beef consumption for Uruguay, 1985 to 2004

significant additional resources for cattle.³ As of June 30, 2004, the cattle inventory was at a record high of 11.66 million head.⁴ Average slaughter was approximately 1.3 million from 1990 to 1994, rising to 1.7 million from 1995 to 2003, and to a record 2.14 million head in 2004.

Export markets

Beef exports averaged 138,000 metric tons carcass weight from 1990 to 1994 – about 40 percent of total production (Figure 2). With access to new markets, exports increased to an average of 232,000 metric tons from 1995 to 2000, accounting for about 60 percent of production in 2000. FMD caused a reduction in exports to 169,000 metric tons in 2001, recovering to a record 318,000 metric tons in 2003 as markets reopened. In 2004, exports reached a record 404,310 metric tons carcass weight (equivalent to 247,071 metric tons shipped weight) of which about 15 percent was chilled and 80 percent frozen.

In 2004, exports accounted for 74 percent of beef production. Notwithstanding the dramatic growth in exports, Uruguay still supplies less than 5 percent of the approximately 6 million tons of beef traded internationally. In recent years the United States has become the largest export market for Uruguayan beef, accounting for 52 percent of total tonnage of beef exports in 2004 (Figure 3). Other major beef export markets include Canada, EU countries (United Kingdom, Germany, Spain, Portugal), Israel, and MERCOSUR members (Argentina, Brazil and Chile).

³ The pasture consumption of five sheep is roughly equivalent to that of one cow.

⁴ Unless otherwise noted, statistics cited in the Industry Analysis section are from INAC – Instituto Nacional de Carnes (National Meat Institute) – available online at <http://www.inac.gub.uy/inacingles/index.html>

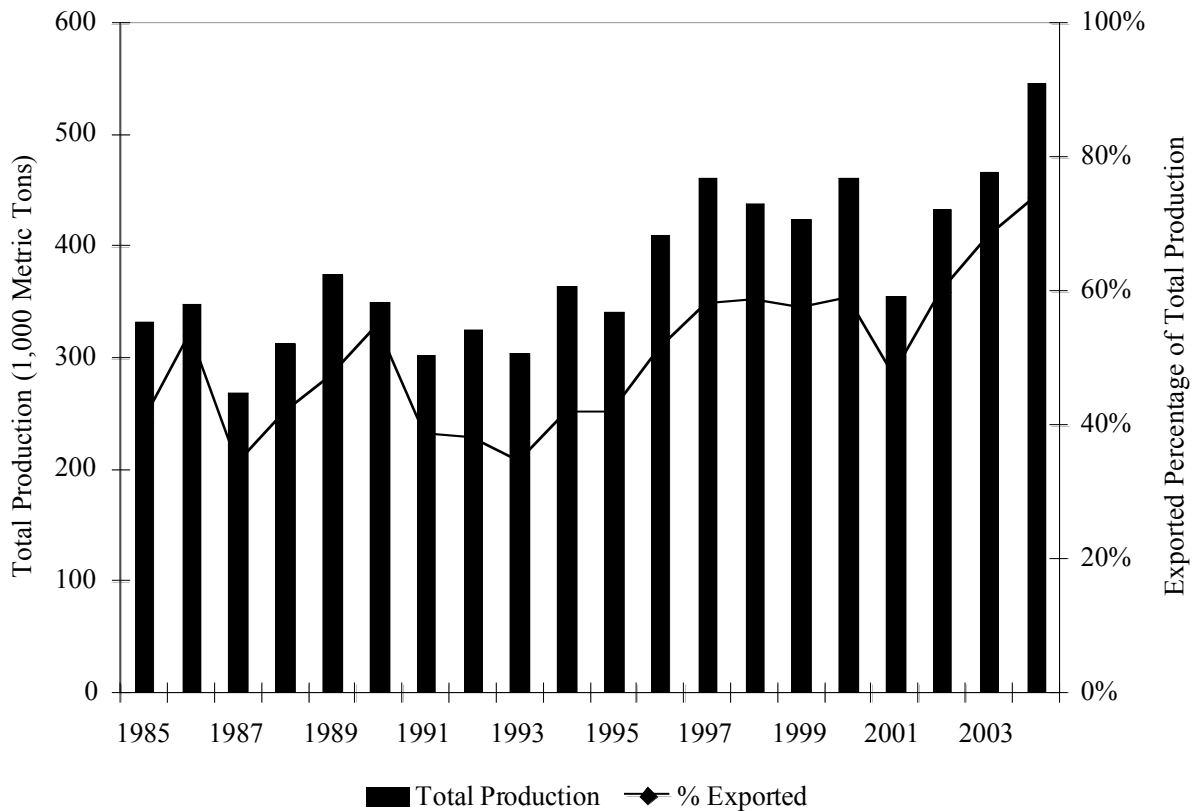


Figure 2. Total Uruguayan beef production and exports, 1985 to 2004

Beef exports to the U.S. are regulated by a WTO negotiated tariff rate quota (TRQ) currently set at 20,000 metric tons per annum for chilled and frozen beef.⁵ Exports within the quota are subject to a nominal fixed tariff of 4.4 cents per kilogram (approximately 2 cents per pound), while above quota exports are subject to an ad-valorem tariff of 26.4 percent. Between 1995 and 2002, exports to the US were generally limited by the quota. However, in 2003 and 2004, tight beef supplies and higher prices in the U.S. led to a significant increase in U.S. imports from Uruguay (Table 2). Those above quota imports, on which the 26.4 percent tariff was paid, consisted primarily of lower quality beef destined for the hamburger market.

⁵ The quota is distributed among Uruguayan companies by the Uruguayan government. In 2004 the top 4 slaughterhouses received 43 percent of the quota, with the top 8 receiving 77 percent. In 2005, 18 companies will receive quota allocations.

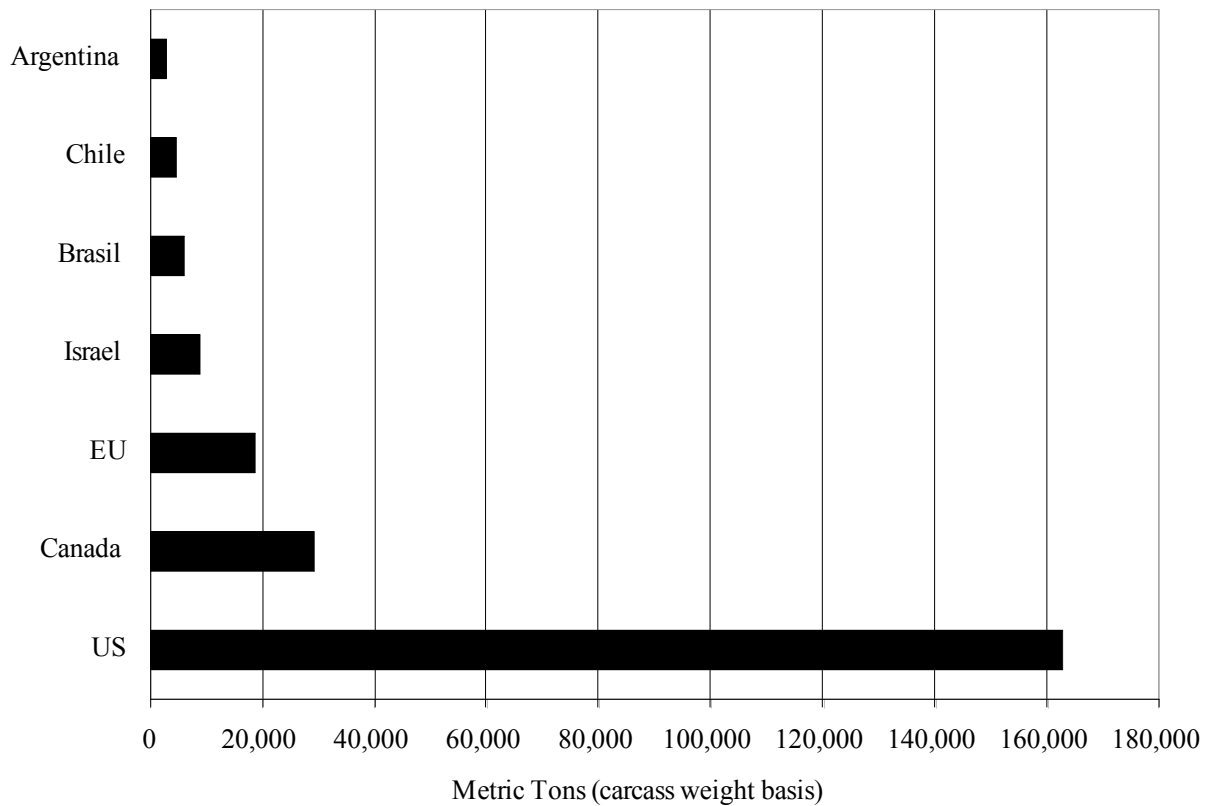


Figure 3. Uruguayan beef exports to major markets in 2004

The U.S. import market for Uruguayan beef has also changed in recent years. Between 2001 and 2004, the number of U.S. importers handling Uruguayan beef increased from 29 to 67, while the share for the top 5 importers fell from 86 percent to 56 percent.

In 2004, exports to the European Union (EU) amounted to approximately 18,600 metric tons. Each year the EU allocates 55,000 metric tons of Hilton quota import permits, of which Uruguay has 6,300 metric tons, while Argentina has 28,000.⁶ Exports within the Hilton quota

⁶ As with the U.S. quota, EU's Hilton quota permits are distributed by the Uruguayan government. About 94 percent are allocated based on a three-year average of exports, with the remainder used either for new entrants that have upgraded to meet EU specifications, or for promoting innovations. In 2004, 20 companies received Hilton permits.

Table 2: Uruguayan beef exports to the United States, 1995 to 2004*

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
<i>(\$1,000)</i>										
Value	6,228	44,144	41,923	37,282	47,823	46,815	28,294	9,272	127,257	352,234
Chilled	36	7,767	8,191	13,972	12,140	10,230	4,249	0	23,773	27,913
Frozen	455	30,446	27,715	16,919	32,211	32,119	16,060	0	88,133	313,627
Processed	5,736	5,932	6,018	6,392	3,472	4,467	8,004	9,272	15,350	10,694
<i>(metric tons)</i>										
Weight	1,704	24,117	20,656	16,210	22,254	20,817	11,667	3,767	60,046	153,743*
Chilled	9	3,021	3,344	5,024	4,948	3,800	1,602	0	8,257	7,562
Frozen	232	19,144	15,453	9,367	16,659	15,649	7,552	0	45,974	142,478
Processed	1,463	1,951	1,860	1,818	1,048	1,368	2,518	3,899	5,815	3,702
<i>(\$1,000)</i>										
Export Value (all countries)	235,610	301,744	384,249	384,249	342,292	369,090	217,007	269,472	379,000	622,000
U.S. as % of Total Export Value	2.6	14.6	10.9	9.1	14.0	12.7	13.0	3.4	33.6	56.6

* Figure does not include Puerto Rico. 2004 exports to the U.S. including Puerto Rico were 162,688 metric tons.

are subject to a 20 percent ad-valorem tariff, while quantities above the quota pay a 12.8 percent tariff in addition to a 3034 Euro per metric ton specific rate. Given the tariff structure, exports to the EU comprise mostly high value cuts such as tenderloin, striploin, rumps, and ribeye. In 2004 for example, the average FOB value of exports to the EU was \$4.96 per kilogram compared to \$2.29 per kilogram for exports to the United States. Exporting rump and loin cuts under the Hilton quota added an additional cost of approximately \$3,500 per metric ton.

Israel imports most of its beef from Uruguay and is one of its most consistent buyers. Its main purchase is forequarters from animals that have been slaughtered according to kosher requirements. Prior to achieving FMD free status, the MERCOSUR countries (Argentina,

Brazil, Paraguay, and Uruguay are member countries and Chile and Bolivia are associate countries), EU, and Israel were the primary destination countries for Uruguayan beef. MERCOSUR is in the process of becoming a common market (similar to the EU), where customs barriers in many industries have been reduced or eliminated. In describing Uruguay's advantages in belonging to MERCOSUR, Ekboir et al. (1998) state: "Uruguay has a comparative advantage in cattle breeding with respect to Argentina, and could specialize in providing young steers for finishing in Argentina with mutual benefit to both countries. Alternatively, Uruguay could import cheap Argentine grain to establish a feedlot industry aimed at external markets."

Industry structure and pricing

The industry has capacity for slaughtering about 2.3 million animals per year and has not expanded greatly since the mid-1980s. On average, since the mid 1990s, the industry has operated between 60 to 70 percent of this capacity, explaining the lack of new entrants as production increased. Since 2002, the increase in demand that accompanied the devaluation of the peso and renewed access to the NAFTA has promoted new investment in chillers, coolers, and infrastructure. Labor productivity in slaughterhouses has also increased as excess labor was reduced.

Until fairly recently, slaughter animals were priced strictly on a live weight basis. As a result, carcasses tended to be heavier because it was more profitable to continue feeding animals than to market them at lighter weights. Meat from older, heavier, grassfed animals is less tender and is unsuitable for most export markets that typically require boneless, tender cuts within certain weight categories. During the 1990s the number of younger animals increased significantly due to the industry demand and the increase in pastures and annual forages. As

producers started to sell younger animals, slaughter numbers increased while the number of breeding animals remained relatively constant (Figure 4). The number of calves weaned per breeding cow served has remained low for the past 20 years and the increase in the number of calves produced is a result of the increase of the size of the breeding stock. Most animals are pasture raised and finished with only 5 percent of steers finished (for 3 months) in feedlots. Average carcass weight averaged between 580 to 620 pounds over the past five years.

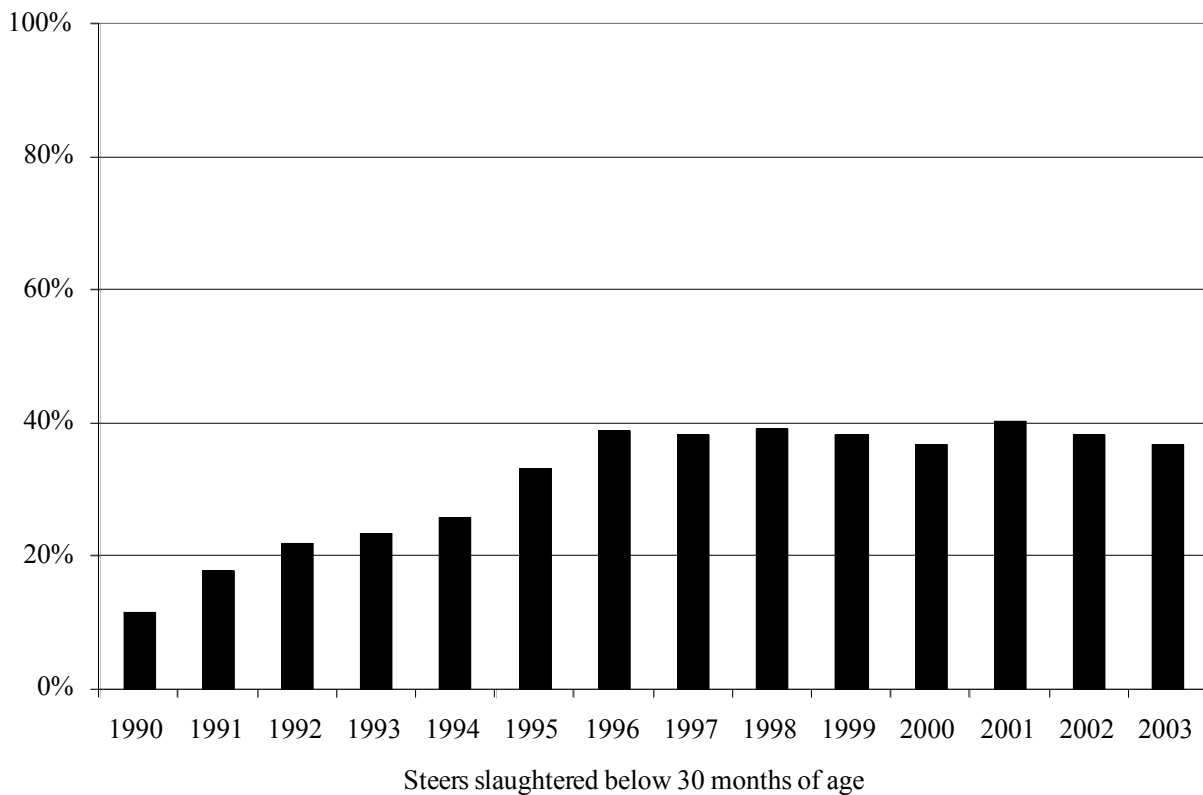


Figure 4. Percentage of steers slaughtered below 30 months of age

Several firms recently introduced value-based marketing programs. More than 20 producer and processors alliances have been developed since 2000 with some oriented to niche markets (e.g., natural or organic) and others for beef and carcass quality based on carcass

pricing. Most of the industry has now adopted carcass pricing and, last year, almost 70 percent of animals were priced on carcass weight. Some plants are now considering a new meat grading system to provide carcass measurements which would be linked to a value-based marketing program for producers.

Drivers of change

Drivers of change are the variables that are expected to affect profitability in the Uruguayan beef sector over the next three to five years. These include:

- Increased emphasis on traceability and food safety as attributes that will continue to be demanded in export markets and, to a lesser extent, in the domestic market;
- Increased consolidation of farms and ranches with larger farms emphasizing increased weight gain in young steers to meet the demand for tender beef;
- Continued movement toward a value-based marketing program (with growth hormone use continuing to be prohibited);
- Increased promotion of the “natural beef” (no growth hormones, pastoral grazing label systems, family farm operations) label for exported beef. If feedlot finishing increases, the promotion will emphasize natural beef as beef produced without hormones;
- Investments by firms from Argentina, Brazil, and the United States in beef slaughter and processing plants through joint ventures or acquisitions (PUL, a former cooperative and slaughterhouse, was recently purchased by Brazilian investors);
- Increased exports to the EU as its beef production declines and it becomes a net beef importer, and to NAFTA and MERCOSUR markets as market access improves; and

- Increased public promotion for innovation and integration in the livestock sector (e.g., MGAP-BID “Proyecto Ganadero”) and increased educational programs by processors and public organizations (e.g., Instituto Nacional de Investigación Agropecuaria, Instituto Nacional de Carnes) to provide information to producers about domestic and international trends.

Outlook

The beef industry will continue to be attractive because of growing export markets including the NAFTA countries, and the ability to take advantage of natural beef production if the EU continues to ban the use of growth hormones. Plants will likely increase their use of price-related incentives to coordinate production with incentives based on carcass weight, muscling, or other quality characteristics. Increasing capacity utilization will reduce average costs and further enhance competitiveness in export markets, while continued improvement in sanitation and production practices will help enhance the industry’s reputation for quality. Finally, continued improvement of the traceability system, as described in the following section, will be an important contributor to industry success.

The DICOSE Traceability System

In 1973, the Uruguayan government created the División Controlador de Semovientes, today known as DICOSE, within the Ministry of Livestock, Agriculture, and Fisheries to account for domestic animal stocks and movements. The objective was to curtail smuggling and help with the eradication of FMD. Under the DICOSE system, farmers are given a code consisting of a region number, a police station number, and a farm number. Every time an animal is moved,

bought, or sold, the movement must be recorded and the animal accompanied by its paperwork. The system is similar to having a passport. Police sign all sales documentation, with copies going to the seller, the buyer, the Ministry, and the police. Ministry inspectors check all trucks and documentation at each slaughter plant before unloading, and farmers are audited at random every year.

With DICOSE, Uruguay was one of the first countries in the world to be able to trace animals back to their origins, and the Ministry could use the system to ensure that farmers and slaughter plants were complying with sanitary requirements. Once animals reach the carcass disassembly stage, however, it is virtually impossible to track each cut because of multiple cutting lines in most plants. Thus, while an individual cut cannot be traced back to an individual animal, it can be traced to a specific lot number. A system that would maintain individual identity on each animal as it moves through the carcass disassembly stage would be costly to implement and there are currently no economic incentives for such a system.

In the late 1990s however, one meat company, PUL, began development of a more sophisticated traceability program that tracks the individual animal and producer. The incentive came from an Italian baby food company that was one of the firm's major customers. Under the enhanced system, when cattle come in for slaughter they are given a lot number associated with the producer. The animal then receives an individual number that follows it throughout the plant until it enters the carcass disassembly line. At this point, the primal cuts are separated according to lot number and boxed for export, and the slaughter date is stamped on the box. PUL sells beef to the Italian company by placing one animal in one or two boxes and providing the producer number. Some countries, such as Argentina, maintain an inventory number and date of slaughter

on each shipment of beef. The PUL system is more sophisticated because it includes the producer's identity.

EU traceability and growth hormone rules

On January 1, 2000, EU Regulation 830-97 was to go into effect in the EU, mandating that all beef be traceable from the table to the producer. The regulation cannot go into effect, however, until all EU nations can comply, and furthermore, the World Trade Organization prohibits a country from demanding anything of importers that they cannot comply with themselves. The level of traceability provided by the DICOSE system is sufficient to comply with current EU regulations and Uruguay was, in fact, the first country to have its traceability system accepted by the EU.

In 1981, the EU began discussing Directive 81/602, which would make the use of growth hormones in beef illegal except for therapeutic purposes. The directive banned the import of animals and the meat of animals that had been produced with growth hormones and effectively cut off all imports from the United States, Canada, Australia, and New Zealand. Although the European Economic Commission (EC) Working Group stated in 1982 that no harm would come to consumers from hormone-treated beef and the United Nations Codex Alimentarius Commission (Codex) supported the findings in 1987, EU Directive 81/602 went into effect on January 1, 1989 (for a summary of the beef hormone issue, see U.S. Department of Agriculture, 2000).

In the U.S. ninety percent of cattle go through a feedlot system where growth hormones are used to enhance feed efficiency and lower production cost. In contrast, Uruguayan cattle are fed primarily on pasture alone, and while some supplemental grain-based feed may be used, the

use of growth hormones is strictly prohibited. Thus Uruguay is also in compliance with EU rules on hormone use.

Product Differentiation and Certification

Product differentiation is recognized as a key factor in enhancing demand for Uruguayan beef in export markets. In 2001, the National Meat Institute (INAC) developed the “Certified Natural Meat Program of Uruguay” with the dual objectives of differentiating and increasing consumer confidence in Uruguayan meat products. The program involves international certification of compliance with various protocols in both the animal production and industrial phases of meat production. In August 2004, USDA announced that Uruguay’s Certified Natural Beef is “Processed Verified”—i.e., the beef is verified according to this process (National Meat Institute of Uruguay).

The main components of the Certified Natural Meat Program of Uruguay are food safety, traceability, animal welfare and environmental sustainability (National Meat Institute of Uruguay). These are expressed in the following claims made for animals marketed under the program:

- Source verification of animals and products. All cattle can be fully traced from ranch to harvest, fabrication and packaging. Identification of animals is by means of individual plastic eartags.
- No growth hormones used. No growth hormones of any kind or equivalent growth promotants have ever been administered to the animals.

- Not fed antibiotics. No sub-therapeutic antibiotics have been fed or administered as a supplement in feed or water for the purpose of growth promotion.
- No animal proteins in feed. The animals have never been fed proteins of animal origin except maternal milk.
- Grass fed. All animals in the program have been grown, raised and fattened on a grass diet. Restricted supplementation levels are accepted to support grazing.
- Animals never confined. Animals have never been confined to yards or feedlots at any time in their lives, and are raised in open pastures year round.

The program is voluntary—members (farmers and slaughter plants) join with the objective of adding value to their product. Independent certification firms verify that members are in compliance with protocol claims and thus certification involves the entire production chain from animal production to meat cutting, packing and labeling. The country brand is “Uruguay Certified Natural Beef” and the label is the intellectual property of INAC and its use is granted subject to endorsement of the accredited certifying firm.

Certification under this program links the product with its country of origin and essentially attempts to establish Uruguayan beef as a brand identity similar to that of New Zealand lamb (Clemens and Babcock). Ultimately, the intent is to certify that the whole country conforms to a process of producing high quality grassfed beef.



Figure 5. Uruguay’s USDA Process Verified Certified Natural Beef Label

Table 3 shows the progress of the certification program and Table 4 shows the number of animals certified under the program. Currently, three slaughterhouses have been certified under the program, and two others are in the progress of being certified.

Table 3. Number of certified farms, May and November 2004

	May 2004	November 2004
Certified farms	24	56
In process of being certified	139	149
Interested in being certified	120	103

Table 4. Slaughtered animals from certified farms, 2004

Period	Animals
January – March	1,152
April – June	1,248
July – September	539
October – November	1,193
Total	4,132

Benefits of certification

The objective of certification is to differentiate Uruguayan beef from that of competitors and thereby enhance demand. To illustrate the potential benefits, we consider the impact on

exports to the United States. The United States is the biggest export market for Uruguayan beef. In 2004, beef exports to the United States (including Puerto Rico) totaled 162,688 metric tons, over half of Uruguay's beef exports. As described above, Uruguay exports beef to the U.S. under a tariff rate quota (TRQ), currently set at 20,000 metric tons per annum. Exports within quota are subject to a nominal fixed tariff of approximately \$0.02 per pound, while out-of-quota exports (quantities above 20,000 tons) are subject to an ad-valorem tariff of 26.4 percent. Clearly the majority of Uruguayan beef shipments to the U.S. in 2004 were out of quota and subject to the 26.4 percent tariff. Given the differential treatment of in- and out-of-quota exports, exporters minimize tariff exposure by reserving the quota for higher value chilled beef exports, while lower priced manufacturing beef is shipped out of quota.

At current 2005 prices it is not economical to ship high quality beef out-of-quota because the tariff would not allow it to compete with U.S. domestic high quality beef. However, in 2004 neither the higher out-of-quota tariff nor the quota itself was the limiting factor on high quality chilled beef exports. In fact, only 7,562 metric tons of high quality chilled beef were shipped to the U.S. in 2004 – the remainder of the quota was filled with lower quality frozen beef.

Appendix A contains a more detailed explanation of the TRQ and how it operates.

Conclusion

Uruguay has been expanding its beef exports, particularly to the U.S., since it eradicated FMD in 1995. In addition, the acceptance of the DICOSE traceability system and the Uruguayan ban on growth hormones provide access to the EU market. Exports to the EU are constrained by the Hilton quota and to the U.S. by a Tariff Rate Quota (TRQ). To date, Uruguay has filled its U.S. TRQ with a combination of high and low quality beef. Certification of Uruguayan natural

grassfed beef would differentiate and enhance demand for high quality Uruguayan beef and would be expected to lead to a situation where the entire TRQ is filled with high quality beef. At that stage, additional enhancements in demands as a result of certification would benefit only the holders of the TRQ permits and would provide no price benefit for Uruguayan producers. Producers would benefit however, from a negotiated increase in the TRQ.

What are the lessons for U.S. producers? In the past few years almost a dozen producer alliances in the United States have been process verified and a number of other initiatives are underway. In March 2005 the State of South Dakota implemented the first state-certified beef program in the U.S. Under that program, consumers will be able to trace a product back through the meatpacking plant to the feedlot to the ranch where the animal was born. A similar initiative in Iowa would create a label for “I-80” beef. The success of such programs hinges on their ability to market a brand name tied to a distinct set of desirable attributes. Given the range of attributes which some consumers appear to value (e.g., traceability, hormone free, grassfed, no antibiotics, no GM grain, etc.) there appears to be room in the market for several such differentiated products.

However, as programs proliferate, and face competition from foreign programs such as Uruguay’s, the initial benefits are likely to diminish. Furthermore, domestic efforts such as the I-80 certification might prevent loss of market to Uruguay imports. Boland, Bosse, and Brester recently studied the role of a producer-owned lamb cooperative in the United States as part of research for the Agricultural Marketing Resource Center. They concluded that the U.S. lamb industry was part of the global lamb industry. The authors suggested that the U.S. beef industry was approaching a similar scenario. Clearly, some countries such as Uruguay may have highly differentiated products that become more competitive with U.S. beef. Producers that are

involved in alliances seeking to differentiate their beef by geographic origin or by the process in which the beef was produced must realize that producers in other countries can develop similar products and that in a global beef industry domestic certification programs are not likely going to present significant barriers to market entry.

References

- Boland, M.A., A.M. Bosse, and G.W. Brester. “Mountain States Lamb Cooperative.” Unpublished report, Agricultural Marketing Resource Center, available online March 18, 2005. <http://www.agmrc.org/NR/rdonlyres/901B8CBE-5762-46BD-BA10-DAB374D50D3F/0/mountainstateslamb.pdf>
- Boughner, D., H. deGorter and I.M. Sheldon. “The Economics of Two-Tier Tariff-Rate Import Quotas In Agriculture.” *Agricultural and Resource Economics Review* 29(2000):58-69.
- Clemens, R. and B. Babcock. “Country of Origin as a Brand: The Case of New Zealand Lamb.” MATRIC Briefing Paper 04-MBP 9, Iowa State University, Ames, IA, November 2004.
- European Commission. “Final Report on the Updated Assessment of the Geographical BSE Risk (GBR) of Uruguay – 2003.” Brussels, Belgium.
- Ekboir, J., Jarvis, L. S., Sumner, D. A., and Sutton, W. R. “Changing World Beef Markets: Implications for Low Income Countries.” Unpublished report, University of California, Davis, 1998.
- Foreign Agriculture Service (FAS), U.S. Department of Agriculture. The U.S. – EU Hormone Dispute. <http://www.fas.usda.gov/itp/policy/hormone.html/> available online April 28 2001.
- Jarvis, L. S., and Medero, M. del Rosario, M. d. R. “The Effect of External Constraints When Policy Making Is Endogenous: Beef Export Taxes, Exchange Rates, and Other Policy-Induced Distortions in Uruguay, 1961–1986.” Unpublished report, University of California, Davis, 1988.
- MGAP-DIEA Censo General Agropecuario 2000. <http://www.mgap.gub.uy/Diea/> available online March 3, 2005.
- National Meat Institute of Uruguay. “Uruguayan Certified Natural Meat Process Verified Program.” Available online from USDA, April 26, 2005 at <http://www.ams.usda.gov/lsg/arc/programs/uruguayan.htm/>.

Appendix A

Economic Theory of a Tariff Rate Quota

Figure A1 illustrates Uruguay's exports of high quality beef into the U.S. market (e.g., see Boughner et al. for a more detailed explanation of the mechanics of a TRQ). The U.S. effective import demand (ID) curve for high quality Uruguayan beef is the kinked, downward sloping, double hatched line. The first (leftmost) section of that effective ID curve is derived by subtracting the nominal fixed tariff for within-quota imports from the straight-line import demand curve immediately above. The vertical section corresponds to the quota itself – i.e., the point Q on the horizontal axis would correspond to 20,000 metric tons. The final section of the effective ID reflects the effect of the 26.4 percent out-of-quota tariff. The upward-sloping curve labeled ES is the Uruguayan export supply curve for high quality beef. The positive slope reflects the fact that higher prices induce greater quantities of high quality exports. The point of intersection of the ES and effective ID curves determines the equilibrium quantity of exports (i.e., q^* would correspond to 7,562 metric tons in 2004). The intersection also determines the Uruguayan export price (P^{UR}), and adding to that the nominal fixed tariff (plus shipping costs) gives the U.S. import price (P^{US}).

Certification and differentiation of Uruguayan natural beef would be expected to enhance demand (i.e., increase U.S. consumer's willingness-to-pay) for the product. In Figure A1, this would be reflected in an upward shift of the import demand curve and of the kinked effective ID curve. The intersection of the ES and effective ID curve would thus move upward and rightward along the ES curve. The Uruguayan export price for high quality beef would increase as the quantity exported increased up to the quota limit. When exports reach the level of the quota

however, further increases in demand would not result in higher exports nor in a higher export price. At that stage the ES curve would intersect the vertical portion of the effective demand curve corresponding to the Tariff Rate Quota (TRQ) amount, and as demand increased it would generate a higher quota rent (the difference between the U.S. import price and Uruguayan export prices) for holders of the TRQ permits, in this case the Uruguayan plants.

Eventually, if the upward shift in demand were sufficient, the point of intersection between ES and ID would be on the second downward sloping portion of the ID curve, at which point out-of-quota exports would occur. This is effectively the current situation for low quality frozen beef exports and is depicted in Figure A2. Thus, the intersection of the ES and effective ID curves at quantity q^* is above the quota limit. Note that the quota is first used by higher quality beef, Q , in Figure A2 represents the residual quota available for low quality beef. The U.S. import price is obtained by adding the 26.4 percent tariff to the Uruguayan export price (i.e., moving from the point of intersection directly upward to the linear import demand curve). The rectangle of length q^* and height $P^{US} - P^{UR}$ represents tariff revenue plus quota rent to the holders of the TRQ permits.

Further increases in demand in this situation would result in higher export prices and quantities. A reasonable assumption however, is that certification would only affect demand for higher quality beef sold as retail cuts or into the restaurant trade and would not affect demand for lower quality manufacturing beef. Thus, as depicted in Figure A1, the initial impact would be to increase the proportion of quota filled with high quality beef and at the same time increase the export price for that product. Once the quota is filled, further increases in demand benefit only the holders of the TRQ permits until out-of-quota exports become profitable. For example, The United States has 696,621 tons under a TRQ system, where the specific tariff is US\$ 44 per ton.

Of the total, Australia has 378,214 tons (54.3 percent), New Zealand 213,402 tons (30.6 percent); Uruguay 20,000 tons (2.8 percent) Argentina 20,000 tons (2.8 percent), other countries 64,805 tons (9.3 percent), and Japan 200 tons (0.03 percent). Once Uruguay fills its quota, it is competing with Australia but getting 26.4 percent less, for the same product.

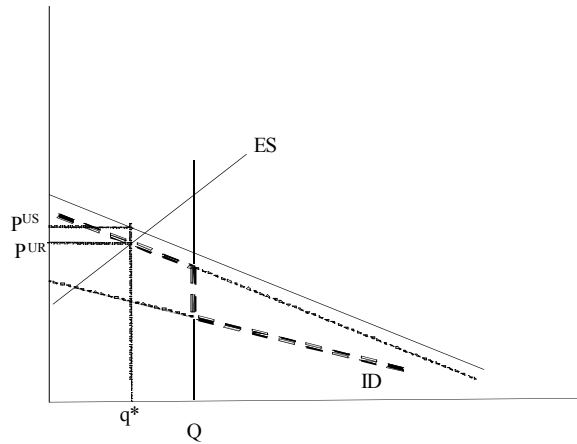


Figure A1. The TRQ for high quality Uruguayan beef exports to the United States

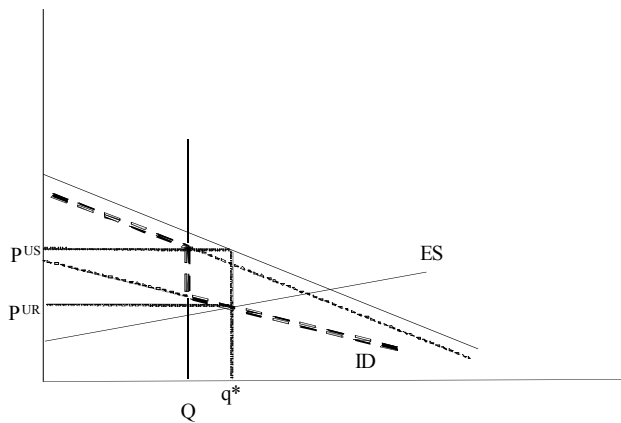


Figure A2. The TRQ for low quality frozen Uruguayan beef exports to the United States