

Raúl Oscar Dichiara, María A. Viceconte, Nicolás Castro*

**SUSTAINABILITY IN THE LOGISTICS CHAIN OF THE FOREIGN TRADE
AT THE EXAMPLE OF ARGENTINA'S BEEF EXPORTS**

It is estimated that damages in the quality of the meat because of the applications of the not sustainable behaviours like hit of the animals and the so-called “dark cut” or DFD (Dry proficient Dark) cause losses at least comparably with the nutrition of half a million people.

Keywords: Logistics chain, Sustainable meat Exports, Argentina

Introduction

The food industry is more complicated and interweaves become, so that more coordination efforts in the area of the quality and amount of meat exports are necessary. The trade success depends on the as strongly interweaving between the links of the logistics chain are. In the case of the organic meat means to understand the logistic exports process in order to suggest improvements in certain rings of the logistics chain.

The cattle is under thrown during the load, traffic, unloading and slaughter in stress factors, so that the animal prosperity and the meat quality are more

* dr. Raúl Oscar Dichiara – Researcher, Instituto de Investigaciones Económicas y Sociales del Sur (IIESS). Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET-UNS)). Full Professor of Industrial Organization and Microeconomics. Economics Department (UNS), Argentina, María A. Viceconte – Associate Professor. Administration Sciences Department (UNS), Argentina, Nicolás Castro – Administration Sciences Department, UNS, Argentina.

concerned. As economic consequences one counts important losses on macroeconomic as well as microeconomic levels (plain) (i.e. the cattle breeder).

This work presents an overhaul about the animal prosperity during the traffic and the slaughter as well as its connection with amount and quality of the manufactured meat what concern the decision about its exports.

The conquest other markets is possible only if the industrial procedure is seen of the point of view of the consumer: what is searched for product; which are the attraction factors and why becomes (or the decision is not met) to ask organic meat from Argentina. The result depends on the production capacity others sectors within de value chain in order to supply products with lasting application of limited resources.

1. Theoretical framework

The economic sustainability models show that economic sustainability is realized when all active on a market economy units are in the balance.

Then is also the market in balance. Are all submarkets of an economy in balance, is the overall market in the balance. The condition for the production of balances is that no value creation takes place. The value of the output must be equal to the value of the input. The models show the economic sustainability that the both countries are better, than if they would manufacture both goods and operate no foreign trade. The advantage to both countries can be represented with the help of opportunity cost. The opportunity costs are expressed in units of measure of a good that a country must renounce, if it wants to produce the other goods.

The work aims to concentrate itself in the first two links of the logistics chain for meat exports, namely the cattle traffic of the land to slaughter and then the meat exports themselves. The traffic, load and slaughter process are all steps that trade losses (meat quality and income) cause. This article is busy with all stress factors during the load, traffic, unloading and slaughter of animals as well as their connections with the quality (creation of value) and amount of the implemented organic cattle meat.

The general aim of this paper is to prove that the suitable traffic and consideration of animals the loss decrease within a short time make possible. This work intends to outline a logistic consequence of the organic beef exports and each links chain to describe.

The specific aims of this work are:

- description of the logistic consequences of the cattle meat exports,
- performance of the lasting uses in the traffic and slaughter place, and
- estimation of the income losses with regard to this trade activity.

2. Logistic sequence of the organic beef exports

The export of cattle is considered as a DTD (door to door) activity. Most meat exports contacts are executed under the FOB (Free on Board) or FOT (Free on Truck) conditions. The logistics of the export process includes the following step:

1. **Land traffic** of the animals within the country is from SENASA (National Health Bulls Service of Argentina) supervised.

2. **Export slaughter procedures.** It is executed in production line and with same rooms as for the domestic market. As an exception certain rituals (e.g., the

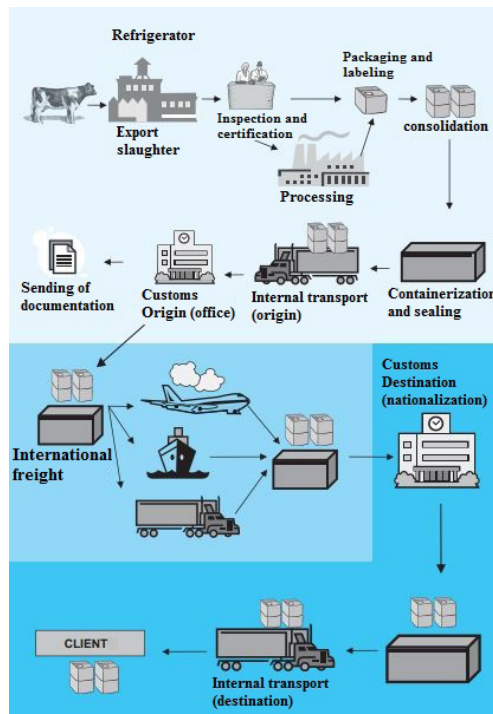


Fig. 1. Logistic sequence of the organic beef exports

Source: IPCVA.

kosher slaughter) are considered. The controls before and later of the slaughter are executed in the factory under marking by inspectors SENASA.

3. **Fulfillment**, packaging and inscription. These works are executed in meat processing factory. The labels are different according to the products. In the case of half a bovine animal it is fired and in the case to meat cuts and by- products it is stuck a label. According to the requirement in the place of destination it is stuck a colored necessary label and/or a voluntary label with information about the product. All boxes must bring one compulsory label on the official language of the place of destination.

4. **Load consolidation**. All boxes are packed up to maximally eleven unities by cooled products. The load is stowed away in a container ace “floor load-ed”. In certain cases (e.g., broadcastings of processing meat for specific places of destination) it is used European pallets (1.20 ms × 0.80 m). Other possibility is brought together the box consolidation with the help of synthetic materials. Both packaging procedures are considered as a creation of value in the export process. All consolidated load is brought in container.

5. **Containers** (8 × 8 × 20 feet or 8 × 8 × 40 feet) can be used as a part of a modal traffic system. This means the division of the load as well as the rebusiness to avoid smaller unities. In this way the way of acting DTD is promoted in



Tipos de contenedores	Carga			
	Caja promedio 60x40x15 cm.		Cajas / Totes	
	Cortes enfiados (11 cajas apiladas)	Cortes congelados (13 cajas apiladas)	Cortes procesados / cocidos enlatados	Cortes cocidos congelados (en plástico)
Standard 20 pies - Reefer Medidas (pies): 20' x 8' x 8,6' 	11 - 12 ton netas		(800 cajas) 17-18 ton netas	
Standard 40 pies - Reefer Medidas (pies): 40' x 8' x 8,6' 	23 ton netas	27-28 ton netas		(1.700 cajas) 20 - 24 ton netas

Fig. 2. Containers and cargo weights

Source: IPCVA.

connection with the application by truck. Both containers (from 20 and 40 feet) are compatible with a supporter of 40 feet. The cooled cuts are usually sent in container by 20 feet (and in certain cases of 40 feet).

The load is stowed away ace FLC (Full Load Container). The cases of so-called LCL (Less than Container Load) are rare. If a container is not completely loaded, there are then two possibilities.

- if the load is small (3 to 5 metric tons) it is sent as a flight freight; the higher expenses are soaked up by quality,
- in cases bigger loads, anyway enough are not to be loaded around a container completely, it is paid the so-called “Phanton Freight”.

All fresh or frozen products (with the exception of box products) are pernicious goods and, therefore, are used of “reefer” container under controlled temperatures. These temperatures are -18°C for frozen load (maximum border -10°C / -9°C) and 0°C for cooled goods

6. Customs house in origin. For intermodal country sea and air traffic it is done to duty (customs) in harbour or airport. The most important harbour of Argentina for meat exports is Buenos Aires. The harbour of Zarate is used only for broadcastings in storage room ships with place of destination Russia. The air traffic usually uses the Ezeiza airport if equally other airports are available like Pajas Blancas (in Cordoba province) or Plumerillo (in Mendoza province) also.

7. Traffic. The meat trade uses three different traffic means (land, sea and air traffic) even if in most cases an intermodal land and sea traffic is applied. The air traffic is expensive and the sea traffic is approved. How many expensive one means of transport is has with the so-called “Transit Time” as well as with the storage rooms. The “Transit Time” (or delivery time) means how many time on average it is used around a load by origin place to place of destination to move. It is considered that same distances and even same distance different “Transit Time” have because of different climate conditions; hold place and administration demands.

8. Country traffic in the origin (pick up). Trucks are used for container by 20 or 40 feet. The maximum load of a container of 40 feet is 27,500 kg. Net although in inner land the tolls only 25,500 kg. Net allow. However, a loss of approx. 10% means this for such meat processing plant, which are outside from province of Buenos Aires. This austerity has no means if the container in place of destination is consolidated.

9. International freight. The meaning of the international freight and with the goods traffic coupled risk is high. Her size is by the kind of goods; her packaging; the urgency of the broadcasting; the treatment and the availability of the means of transport definitely. The choice of the means of transport is decided on the basis of the “Affinity Value”, i.e. how the suitable is to be advanced of the means of transport concerning the goods. The draft “Traffic Value” includes an amount of qualities of the means of transport, like speed; load capacity; security of the load; ease and economic value, among other things.

Both drafts (“Affinity Value” and “Traffic Value”) decide what within the framework of the international meat of foreign trade the traffic of cattle meat, first of all, from the sea traffic and because from the air traffic dominated is. The air traffic is used only to do pressing broadcastings around with an export quota in the case. The air broadcastings are to be belonged only in the case brute meat during them are zero in the case processing meat.

10. Country traffic in place of destination (delivery). Some Importers sell the meat as completed to container and other use own distribution system. In both cases it is applied to a la traffic in inner one of the country.

11. Necessary documents. If between the trading partner a trade connection already exists, because she (it) Lays under it is sent by means of post office. If the customer, because of administration reasons it requires an earlier sending of the document, because she (it) is sent before electronically. As an alternative there is the possibility to undertake a negotiation about the bank system. The delivery of the original documents means the transmission of the goods property and, therefore, advances of 20% to 30% are required as a rule.

12. Customs house in place of destination. The application of warehouses for meat cuts is very rare.

13. Negotiations. There are different “doors”, e.g., the meat processing plant; the Supermarket; hotels and restaurants. The offer must fulfill different requirements with it to be able to supply such markets.

3. Economic relevance of the lasting logistics chain

The superiority of the RWV (Reasonable meadow Way Voisin) – nutritional system¹ lies on the following results to be able to reach:

¹ In Memoriam of Professor Dr. André Marcel Voison, France 1960.

1. Big cattle feed per surface unity.
2. Low expenses unity.
3. Enlargement of the productivity of the ground.
4. Protection of the environment.
5. The reaching of a positive energy balance.
6. The production of organic nutritional products.
7. Lasting agriculture.

The traffic is a rare event in the life of the animal what requires a certain adaptation of the same. It is the traffic time which runs of the land to the slaughter-house a limited however important time interval for the quality of the meat. This time is estimated after the following representation:

$$\frac{TT}{LE} = \frac{24Std}{8,670Std / Jhr \times 2.5Jhr} = \frac{24}{21,675} = 0.011,$$

where:

TT – Traffic Time,

LE – Life Expectancy.

Although all members of the logistics chain are concerned in the course of the production sound export process, cattle breeders and meat consumers are which under the economic consequences mostly suffer. The losses are estimated as follows:

- a) cattle damages: one estimates the losses bovine animal USD 2.81 (USD 37.85 Mil.) what the consumption of approx. 300 thousand buyers means;
- b) bad quality of the meat: the losses is estimated so high as USD 13.4 (USD 30.25 Mil.) what corresponds to the consumption of approx. 290 thousand consumers.

Bibliography

Castro N., *Exportación de carne orgánica argentina a "países verdes"*. Un análisis de la influencia del proceso logístico de exportación en el producto final.

IPVCA. Instituto de Promoción de la carne vacuna argentina (www.ipcva.com.ar).

Pinheiro Machado L.C., *Pastoreo racional Voisin. Tecnología agroecológica para el tercer milenio*, 2004

SENASA (www.senasa.gov.ar).

Thorgersen J., *Country Differences in Sustainable Consumption: The Case of Organic Food*, "Journal of Macromarketing" 2010.

ZRÓWNOWAŻONY ROZWÓJ W ŁAŃCUCHU LOGISTYCZNYM HANDLU ZAGRANICZNEGO NA PRZYKŁADZIE EKSPORTU WOŁOWINY W ARGENTYNIE

Streszczenie

Szacuje się, że ilością mięsa, którego jakość jest tracona poprzez niezrównoważone zachowania, można by nakarmić pół miliona ludzi. Sytuacje te wywoływane są biciem zwierząt czy wywoływaniem stresu podczas uboju. „Dark cut” określane jest również jako DFD (dry proficient dark).

Słowa kluczowe: łańcuch logistyczny, zrównoważony eksport mięsa, Argentyna

Tłumaczenie Agnieszka Gozdek