

Lambs from Magallanes & the Chilean Antarctic Region are naturally grown on the chilly and extensive meadows of Chile's Patagonia. A region of rustic pastures and persistent winds is the environment in which we produce the most exclusive and incomparable lamb. Our lamb is well known around the world for its exquisite flavor, excellent texture and low fat cover.



Commercialization of lamb from **Chile's Patagonia** is based on its origin, where it is produced on the extended pampas, which are famously associated with animal welfare and cleaner production. Although this has always been the principal model for the "**Cordero de Magallanes**" (**Magallanes Lamb**), customers worldwide currently demand concepts associated with healthy and nutritional foods as well.

On the other hand, other concepts associated with the demand are the organoleptic quality (characteristics of taste, aroma and texture) as well as the nutritional facts of the products.

The background information provided by this work may serve as a basis for new strategies for the sale of the Lamb from Chile's Patagonia region in the external and internal markets. In addition, characteristics for the lambs identification as a different product and a higher level of competition.

Lambs in their first stage were used from various areas for a line of work-oriented studies into the variables that affect the quality of the meat. The Patagonian lambs were studied to identify the physical and chemical characteristics that are present in lambs produced in three Magallanes agro ecological areas: steppe, intermediate zone and wet zone.

To perform the study, lambs were used from a number of different sites of the three areas indicated. Approximately 60% of the surface area corresponds to the agricultural sector of agro ecological steppe, where the majority of the regional sheep reside. A total of 41 farms were considered, or 56.94% of the total farms that exist. Randomly selected for the intermediate sectors and the wet area were 21 (29.17 %) and 10 parcels (13.89 %), respectively.

Lambs used in this study were slaughtered in local plants and samples were taken from the loins (*Longissimus dorsi*) of five lamb carcasses. The lambs' average weight approached the average weight of the consignment and venue to which they belonged. This information was then transmitted to the Institute of Nutrition and Food Technology (INTA) in Santiago, Chile for analysis.

Carcass Weight: A Parameter to Assess

Relevant information is the weight that the lamb carcasses achieve before being marketed. The information gathered indicates that the Magallanes lamb, on average, does not exceed 12 kg "on hook" in the sectors of steppe and intermediate zone. In the wet zone, with the greatest potential forage, the lambs achieved 13.4 kg "on hook." These values correspond to the regional reality for lambs slaughtered between four and five months of age. The weights for the lambs in these latitudes are cataloged as light in the markets of Spain, the Nordic Countries, France, and Mexico.

Quality Information

The nutritional value of our lamb is described in the following work. This is established through the contents of protein, fat, ash, moisture, and minerals such as iron and zinc. These are parameters which define its characteristics and that allow you to compare our lamb with other meats available on the market.

To understand the importance of knowing the fat composition of lamb meat, it should be noted that meat contains three different types of fat acids:

- Saturated Fatty Acids (SFA).
- Monounsaturated Fatty Acids (MUFA).
- Polyunsaturated Fatty Acids (PUFA).

The consumption of saturated fatty acids is associated with the occurrence of cardiovascular diseases. In contrast the monounsaturated and polyunsaturated fatty acids are beneficial for health, especially the latter. Omega-3 and omega-6 are part of the polyunsaturated fatty acids which help to prevent heart problems, high blood pressure and control the level of cholesterol.

Table 1 compares the results of the study among the three geographical areas where Magallanes Lamb occurs, this along with the lamb meat from other areas and meat from other species.

In relation to the total fat, the figures from Magallanes Lamb are 6.4%, lower than those of other species. This includes lamb from other latitudes, whose values range from a minimum of 9.21% in pork to a maximum of 10.17% in other lambs.

For the total of the harmful saturated fatty acids (SFA), the local lamb is slightly higher in its content to the reference values of lamb, beef, pork and veal.

In terms of healthy fatty acids from Magallanes lamb, the monounsaturated (MUFA) slightly surpasses the level of other lambs, pork and veal. The figures of polyunsaturated fatty acids (PUFA) reach values similar to beef and are lower than pork, veal and the lamb from other regions.

The energy expressed as kcal/100g is similar to beef and slightly higher than that of pork and veal (values of 144 to 148 in Magallanes lamb and 127 to 136 in pork and veal, respectively).

Magallanes Lamb							
	Steppe	Intermed.	Wet	Lamb	Beef	Pork	Veal
Humidity (%)	70,0	70,4	71,8	75,7	76,3	78,4	76,9
Raw Protein (%)	22,6	21,9	21,6	12,5	10,9	10,3	11,5
Total fat (%)	6,4	6,4	6,4	10,2	10,3	9,2	9,6
Total SFA (mg/100 g)	2970	2867	2950	2600	2919	2079	2180
Total MUFA (mg/100 g)	1900	1905	1937	1840	2399	1659	1740
Total PUFA (mg/100 g)	558	804	523	1040	458	1429	1490
Ashes (%)	1,1	1,1	1,1	1,4	1,5	1,1	1,4
Energy (kcal/100 g)	148	146	144	145	143	127	136
Fe (mg/100 g)	4,2	3,8	3,8	1,7	2,6	1,6	1,7
Zn (mg/100 g)	5,1	4,4	2,4	1,4	1,0	1,3	1,6

* Saturated fatty acids (SFA).

* Monounsaturated fatty acids (MUFA)

* Polyunsaturated fatty acids (PUFA).

The values of protein found in this study ranged from 21.6% to 22.6% for Magallanes Lamb. Percentages much higher than those described in the results for pork, beef, veal and lamb from other latitudes. However when comparing content in lean meats (those with low-fat), the average protein of the three zones are similar to those reported in the literature for various other types of meat, as well as the moisture, ash and energy. The reference data is highly variable and this is due to the composition of the meat which is dependent on the age of animals to slaughter, feeding nutrition, breeds, and crosses between the breeds, among other factors.

Iron and Zinc content in (mg/100g)		
	Fe	Zn
	mg/100g	mg/100g
Beef	2,3-2,6	2,4
Beef loin	2,0-2,6	1
Pork	1,6-2,5	1,3
Pork loin	1,3-1,7	2,9
Veal	1,7	1,6
Chicken Breast	0,7	
Salmon	0,5	
Chicken	1,5-1,6	0,7
Rabbit	1,5	
Lamb (not lean)	1,5-2,0	1,4-3,3
Lamb loin steppe zone	4,2	5,1
Lamb loin intermediate zone	3,8	4,4
Lamb loin wet zone	3,8	4,2

In regard to iron and zinc content, table 2 references various popular meats versus lamb from this region.

Our bodies require 10 mg daily of iron for infants, 12 mg for adolescents, and 12 and 15 mg for men and women, respectively. The sources of iron are red meat, chicken, fish, and shellfish. In relation to zinc our bodies require 3 to 5 mg per day in infants and 10 to 15 mg in adolescents and adults. Zinc is found in red meat, fish, dairy products, cereals, nuts and beans.

The Magallanes lamb greatly exceeds the levels of iron and zinc in relation to all the meats listed, lean or not. This background is relevant if you consider that a country like New Zealand maintains an advertising policy in which it informs the public about the large amount of iron that lamb meat has, compared with other common consumer meats (pork, chicken and beef). This campaign, in particular, is meant for the female segment, who are known for their shortcomings of this element, with the effects of menstruation and pregnancy.

The high content of this mineral in this type of lamb meat could constitute an interesting element of marketing. Zinc forms the structural part of hormones and enzymes that influence the entire metabolism, which supports the process of wound healing and the immune system.

The content of iron and zinc from the Magallanes pampas is significantly higher than the other meats described in this study. Which is particularly important when determining the meat composition of lambs who have been raised in this environment.

What Can We Conclude?

The information presented above would allow us to classify the meat from Chilean Patagonia as a functional food, or extremely healthy, by their nutritious principles (proteins, mono and polyunsaturated fats) and especially by the content of iron and zinc. It would be possible to characterize and differentiate this product, by vital information, to the consumer in the national and international market.

