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Drought and Global Crisis: The Perfect Storm Hits Uruguayan Livestock Production

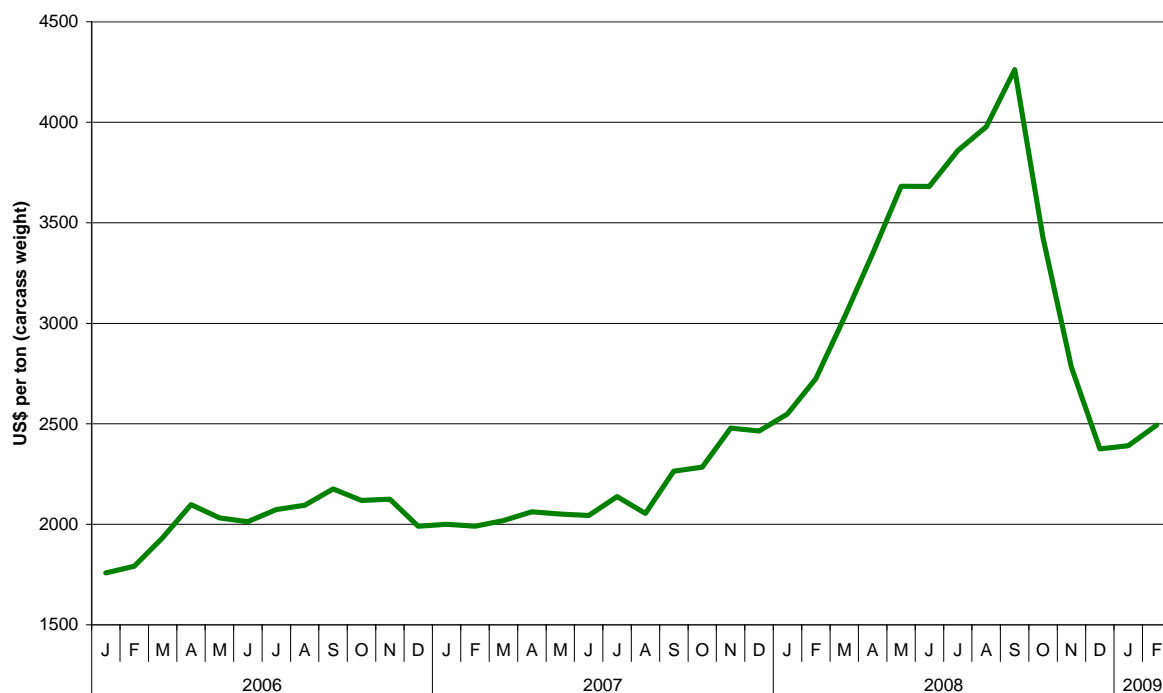
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A good and shiny start...

The year 2008 started with bright perspectives for livestock production in Uruguay. Rising beef export prices, product of a tight demand in the international markets, were transferring value to the rest of the productive chain and acting as an incentive for cattlemen to continue improving their business.

At the end of the first semester of 2008, the slaughter of bovines accumulated 1.28 million heads, a 2.4% increase with respect to the same period of 2007. The already growing trend observed in the export prices during the previous two years began accelerating at an increasing pace. On January 2006 the carcass equivalent ton of beef averaged US\$ 1,758 (Graph 1). From March to the end of this year, the price oscillated from US\$ 2,000 to US\$ 2,200. January started 2007 with an average monthly price of US\$ 2,000. One year later, on January 2008, the average price reached US\$ 2,549 per ton, carcass equivalent, representing an increase of 27.5% for the 12-month period.

Monthly Average Beef Export Price
(US\$ per ton of carcass weight)



Source: Own elaboration based on data from INAC.

Graph 1 - Evolution of beef export price, monthly average, January 2006 – February 2009

The first half of 2008 witnessed the escalation of beef export prices. By September, the average price received by Uruguay's beef exports reached its peak, US\$ 4,262, meaning an increase of 67.2% with respect to the first month of the year. Not too many people paid attention to the dark grey clouds already appearing in the horizon. They were not rain clouds, precisely, and they seemed too far...

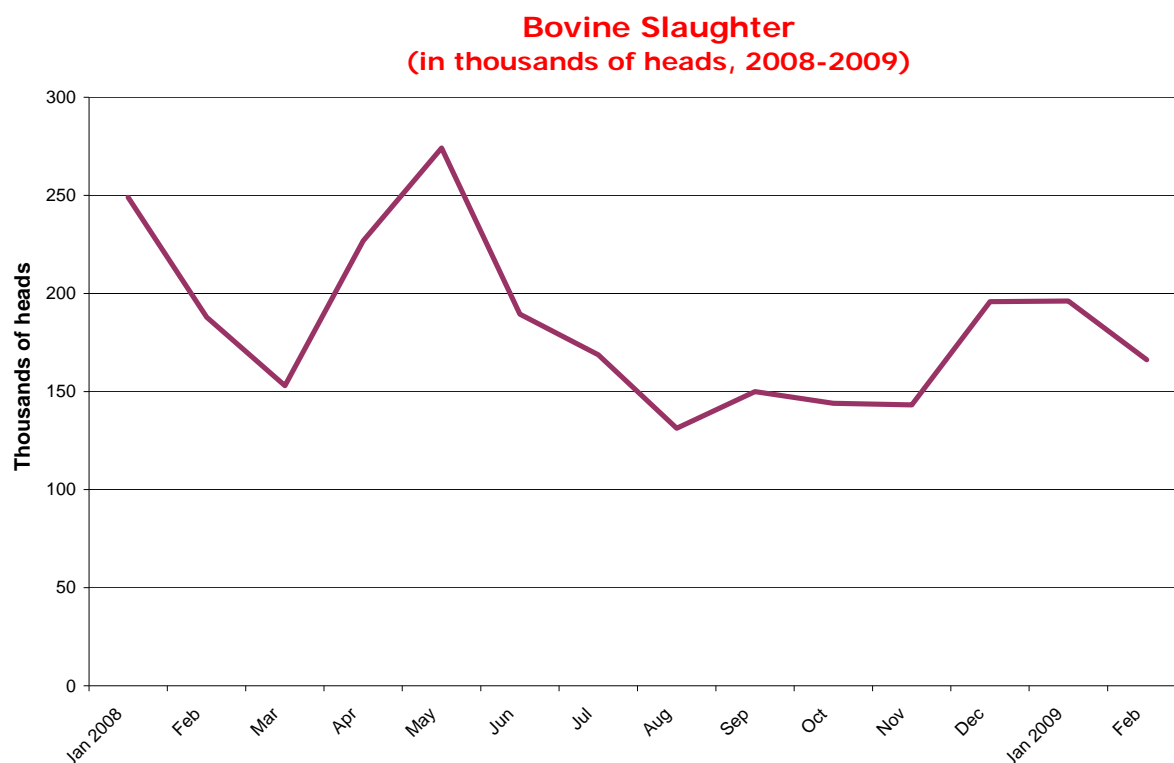
First, it was the global economic crisis...

What started as a shiny year, full of expectations, high prices and productivity, with a livestock sector exhibiting all its dynamism and receiving important investment from outside the sector, aroused by the exceptional conditions of international markets, finally closed with real problems and facing many uncertainties. The economic crisis became global affecting all markets including the commodity markets. The prices of agricultural products fell sharply, and the scene deteriorated for many of the customers of the country. The markets were adjusted to the new reality.

In the last months of 2008, the prices of all agricultural products fell down dramatically. As observed in Graph 1, in just three months, the export price of beef dropped 44.3%, from the US\$ 4,262 recorded in September to US\$ 2,375 in December. Fortunately, the fall seemed to slow down during the first two months of 2009, with most prices tending to stabilize around the magnitudes registered in 2007, prior to the climbing of prices.

On February 2009, the monthly average export price per ton of beef was US\$ 2,493, a figure that is slightly above the highest prices of 2007, registered on November and December. In opinion of many experts, although these price levels might be considered as positive under a framework of growth and increasing investment rates, both at the primary sector and industry, the new scenario is developing on a different situation. While production costs rose sharply when commodity prices were growing, now they are not recoiling at the same speed as product prices did.

In monetary terms, total beef exports during 2008 amounted US\$ 1,207.5 million. On January 2009 the value reached US\$ 82.6 million while on February it was only US\$ 75.1. These values were, respectively, 20% and 21% below the same values in 2008.

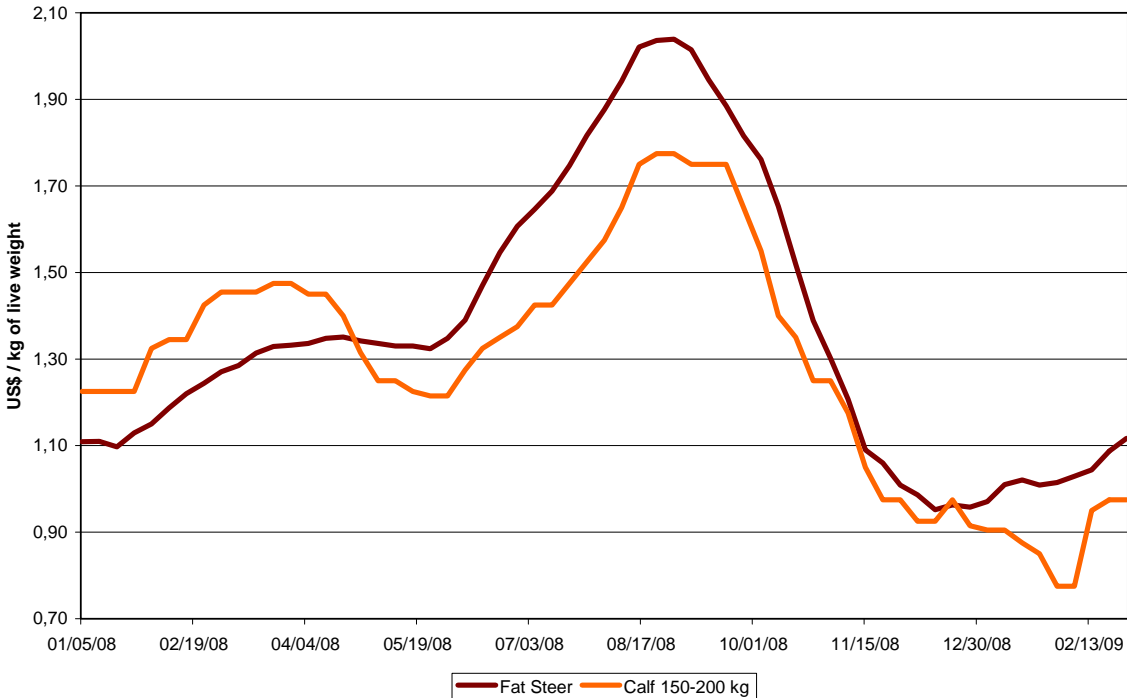


Source: Own elaboration based on data from INAC.

Graph 2 - Monthly slaughter of bovines, in thousand of heads, January 2008 - February 2009

According to data divulged by the National Meat Institute of Uruguay (INAC), cattle slaughter during the first two months of 2009 reached 402,196 heads, a number that is 17% below the 436,990 heads slaughtered during the same period of 2008. Comparing month to month, on January 2008 a number of 249,049 heads were killed at licensed slaughterhouses. During the same month of 2009, this number reduced to 196,091, a variation of -21.3%. Considering the month of February, the slaughter in 2008 was 187,941, falling to 166,223 heads in 2009, which means a negative variation of -11.6% (Graph 2).

Average Weekly Price of Fat Steer and 150-200 kg Calf
(US\$ per kilogram of live weight)



Source: Own elaboration based on data from INAC.

Graph 3 - Evolution of livestock prices, fat steer and 150-200kg calf, January 2008 - February 2009

As expected, the problems at the international markets had immediate derivations in the livestock market (Graph 3). By August 30, the weekly average price of the fat steer for slaughter peaked US\$ 2.039 per kilogram, live weight (equivalent to 92.5 cents per pound). This was the starting point of a pronounced price tumbling that lasted 15 consecutive weeks. The minimum value, US\$ 0.952 was reached at the week ended on December 13, accumulating a reduction of 53.3%. After that, the price of the fat steer slowly began to recover. During the last week of February 2009, the price averaged US\$ 1.117 per kilogram weight.

For its part, the price of replacements followed the same pattern. During the same period, the price of the 150-200kg calf dropped 48%, from US\$ 1.775 to US\$ 0.925 per kilogram, live weight. After attempting a recovery during the following two weeks, the price of the calf continued falling until reaching US\$ 0.775 during the last week of January and the first of February, 2009. However, this behavior had more to do with the second part of the story.

Many observers believe that right now, the main uncertainty is given by the exchange rate. After a very short period of recovery, verified after years of low quotations derived from the

weak behavior of US dollar, the exchange rate (UY\$/US\$) declined again, driven by official measures drawn for controlling inflation. Experts believe that this situation goes against what is occurring all over the world, even when it may sound weird given the crises started in the US. While US dollar is strengthening against local currencies, in Uruguay this is not happening because the Government preferred the use of monetary policy instruments to keep inflation under control, rather than using fiscal policies.

Most experts argue that this policy left Uruguay notoriously behind competitors in world markets. However, the country still has a couple of advantages, which are not a minor issue. Contrariwise to what happens to other beef producing countries, Uruguay has access to most key import markets of beef because of its sanitary status and traceability system.

The perfect storm...the drought completed the blowing mix...

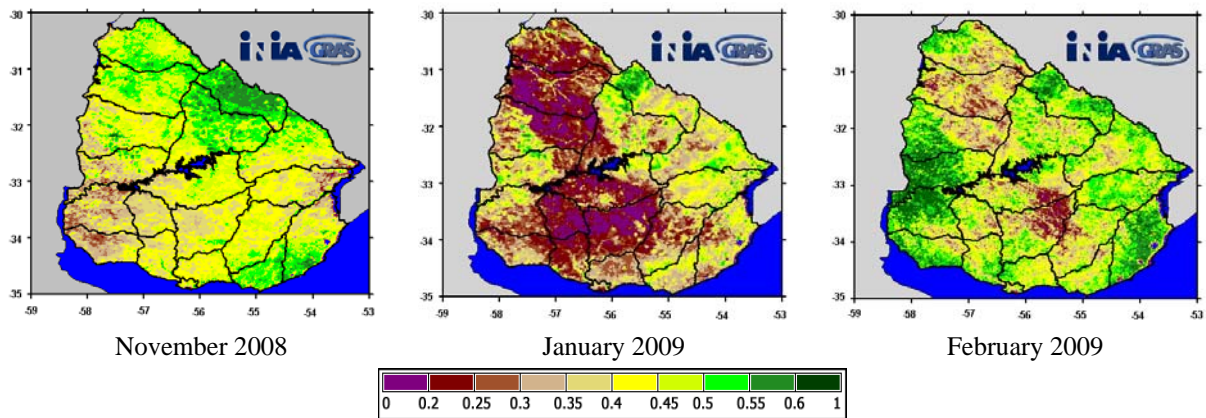
But even more serious than the impacts of the world economic crisis is the aftermath of the drought that hit the heart of the livestock sector, including both beef and dairy production. The fall in the values of the meat and livestock is nearly anecdotic when compared to the drama derived from the extensive drought that has been affecting most part of the country from late spring. It is expected to cause all kinds of negative consequences in the coming years, in the condition and number of animals (production and stock levels), as well as in the availability of pastures, all of which is going to distort prices not only in the primary sector but also in the industry and related services. It will affect local market as well as exports.

The country experienced one of the most severe droughts in its history. The lack of water affected everybody and everything. In several farms, springs and creeks became completely dry, in a way "not observed in years". The lack of water for animal consumption was worrying producers and, in some places, the situation was so critical that animals were dying. The bad condition of the cattle in the grasslands was exacerbated by the combination of the lack of rain and temperatures above average. The death of cattle was the corollary in places where the lack of drinking water supply was unsolvable.

According to experts, the country would be going through a regional process called "meteorological drought" that affects irregularly various areas of the territory. The most affected areas, exhibiting the largest water deficits, are the center and southwest of the country. In the same way, the drought affected the southern region Brazil and the east of Argentina, along the coast of Uruguay River.

Although, technically speaking, the drought started at different moments in the different areas, it reached its maximum intensity all over during January 2009. Graph 4 illustrates the effects of the drought over the vegetation (pastures production and development), measured through the Normalized Difference Vegetation Index (NDVI). These maps are developed by the GRASⁱ unit of INIA using satellite images provided by INTAⁱⁱ (Argentina).

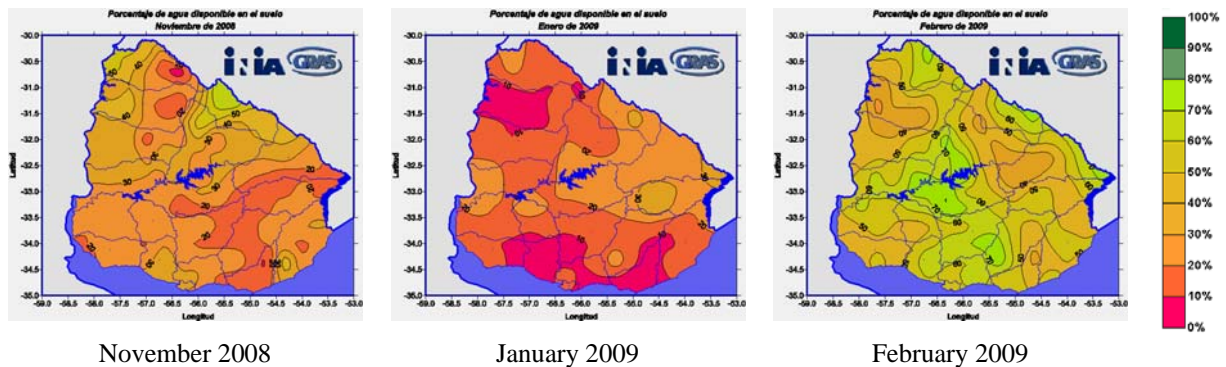
The NDVI is a variable that estimates the development of vegetation based on measuring, with remote sensors, the radiation intensity of certain bands of the electromagnetic spectrum that the vegetation emits or reflects. The values of NDVI calculated for a given month can be expressed in absolute or relative values compared to averages of historical series for the same month. When calculated as an index from 0 to 1, the smaller the values the lesser the development of the vegetation. Expressed as colors, the transition goes from dark green (0.6-1) to purple (0-0.2), from more developed to less developed, traversing the different hues of green, yellow, ocher, and brown.



Source: INIA-GRAS/INTA.

Graph 4 - Normalized Difference Vegetation Index (NDVI), November 08, January 09 and February 09

In turn, Graph 5 depicts the level of water available in the soil, measured as a percentage, related to the corresponding soil capacity. Technically speaking, the water that is available in the soil is the difference between the water level at field capacity and water level at wilting point, and depends on the water retention capacity of each type of soil, the effective precipitation, and the potential evapotranspiration. Expressed as colors, it goes from dark green (90-100%), denoting full capacity to magenta (0-10%) that means closely to null water available in the soil. INIA releases these measures with their respective maps on a 10-day frequency basis.



Source: INIA-GRAS.

Graph 5 - Percentage of available water in soils, November 08, January 09 and February 09

Again, it can be noted from the maps that January 2009 was the period where the worst conditions were observed. On average, the available water in soil was at 20% or less of field capacity during that month, in more than 95% of the national territory.

In fact, the problem was exacerbated because not only there was a shortage of forage for feeding the animals, as occurred in previous droughts, but also the cattle was deprived of drinking water, in many places. Moreover, the shortcomings of food and water summed up to the occurrence of abnormal high temperatures, accentuating the already harmful effects over the health and condition of live cattle on the fields. In some areas of the country, there were deaths due to malnutrition and emergence of diseases that found livestock in bad condition.

On January 15, the minister of Agriculture, Livestock, and Fisheries (MGAP), Ernesto Agazzi, declared a state of agricultural emergency in the entire national territory, for a period of 90 days. The Government announced several initiatives: direct fodder imports, subsidies in the dairy sector, tax-reliefs. “Some on time, some too late”, responded many observers.

From the perspective of the livestock sector, the biggest problem is in the center and the south of the country, as demonstrated by the preceding graphs. Half of the calves are produced by farmers located in areas where the lack of water was most severe. These problems, initiated since early fall and continued during spring, prevented from fodder accumulation for the critical seasons. The grasslands were unable to produce enough forage for silages and hay. Although the precipitation levels began to normalize during the second half of February, the accumulation of fodder will probably be insufficient to maintain the stock of cattle in the next winter.

Now, with the first half of March already gone, the situation of the natural grasslands is still quite “dramatic”. The level of pastures, both volume and quality, is almost null. Pastures showed nearly zero growth rates in the last 4-5 months and the vegetation - if it may be called so – was completely yellow before the first rains of March; sometimes just bare soil was found. The fields already came from a previous process of drought, not accumulating grass in the spring – because the lack of rain – and never recovered. In the case of the prairies, most of the cultivated pastures are still in a “critical situation”, with the consequent loss of quality and volume.

The most affected cattle categories are those from the breeding herd (pregnant and calving cows). The calving cows were unable to recover their body condition, because the lack of food had worsened in the last months. Many of these cows gave birth late in the calving season and then, they did not have enough time for their estrus cycle to resume on time for the next mating season.

The consequences of the perfect storm...

Somebody may consider ironic comparing the negative combination of the international economic crisis and the drought that affected the Uruguayan rural sector – remembered by many people as one of the worst in their memory – with the exceptionally harmful weather conditions (a tropical hurricane from Bermuda colliding with a cold front from the Great Lakes) that created the worst storm in history, known as “the perfect storm”. A “drought” does not look precisely as a “storm”, may be argued. However, it serves as a metaphor to illustrate the impact derived from the combination of two unrelated but already negative events, which together even potentiated their deadly outcome: the international economic crisis that caused the fall down of the commodity markets, particularly the beef market, and the severe drought that seriously affected the infrastructure of the Uruguayan livestock production.

In a figurative manner, beef producers in Uruguay probably felt like Billy Tyne, the captain of the Andrea Gail, while dealing with 100-foot waves in the middle of the storm with his brave crew, characterized by George Clooney in the movie based on Sebastian Junger’s best-selling book.

Both, the crisis and the drought summed up their effects with serious consequences to many farmers in the livestock sector. Next winter can be fatal to many of them. Although the rains fallen in late February and March have alleviated the situation, the scenario is very complicated. The lack of drinking water was resolved but the deficit of fresh grass and fodder is still a huge problem. A number of measures must be taken, in some areas, in order to ensure the survival of the livestock.

The Government was looking for some commitment from the industry to increase the slaughter of lean, not-finished, cattle. The priority is getting rid of animals that are not in good condition and may be at risk. Those animals, which are unable to attain normal slaughter weight, can still produce meat even when of lesser quality (commercial, utility, and cutter).

The stock of bovines will be reduced in about 800,000 heads by 2010, due not only by the mortality, the extraction for industry and the export of live cattle, but also and more than anything else because the low calving rates that inevitably will occur. The breeding herds were injured; the cows do not show estrus, although their calves have been weaned. Some farmers did not mate their cows, worried about getting into winter season with pregnant cows and without enough grass.

It is a little bit premature for an accurate estimation, but many specialists anticipate a drastic reduction in pregnancy, probably one of the lowest in a long time. According to their opinion, with a little luck, only 54% of mated cows will deliver a live calf. That means about 2.24 million calves born from a total of 4.15 million cows. That means a reduction of 550,000 calves, a 19.7% fall with respect to the 2.79 million produced in 2007. Nevertheless, even in the best case scenario, if everything runs “okeydokey” and calving rate achieves 60-65%, the number of calves will be unable to provide the necessary replacements, in order to maintain the current levels of commercial slaughter. Although the worst effects will be observed from 2011, when the calves born this year should attain their slaughter weight, some experts estimated a loss near to 400,000 already-born steers by the effects of the drought.

On the other hand, beef production in Uruguay is highly oriented to the export market. Thus, for a full restoration of the sector and the recovery from the damages caused by the drought, something that is a matter of urgency, it is crucial a progressive normalization of the international scenario. Beef price at international markets appears to have found its bottom value, which is almost 50% lower than the level paid by middle 2008. Today, beef prices are in axis of US\$ 2,300 per metric ton, when in mid 2008 they were above US\$ 4,000.

It is not easy yet, to estimate the real dimension of the accumulated effects from both the drought and the economic crisis, but there is no doubt that these effects will last for many years. The livestock and beef production is a key sector for the Uruguayan economy. So, the negative effects are not restricted to farmers and industry, but to the entire society.

Everybody, cattlemen, beef packers, exporters, distributors, retailers, extension specialists, researchers, government, all agents involved in the beef production chain, from the public sector and from the private sector, shall engage in keeping the sector alive in its fight against the perfect storm. Let's hope that this time, the Andrea Gail will defeat the giant wave, changing the end of the story. The beef sector had faced many difficulties in the past, probably as hard as this one. The sector always overcame those difficulties and solved the challenges.

ⁱ GRAS: Climate, Remote Sensing, and Information Systems Research & Development Unit (GRAS) of the National Agricultural Research Institute (INIA) of Uruguay.

ⁱⁱ INTA: National Institute for Agricultural Technology (*Instituto Nacional de Tecnología Agropecuaria*) of Argentina.