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# ERAMA: World and Argentine Agro-industry Reference Scenario 2027/2028



September 2018



# World and Argentine Agro-industry Reference Scenario to 2027/2028

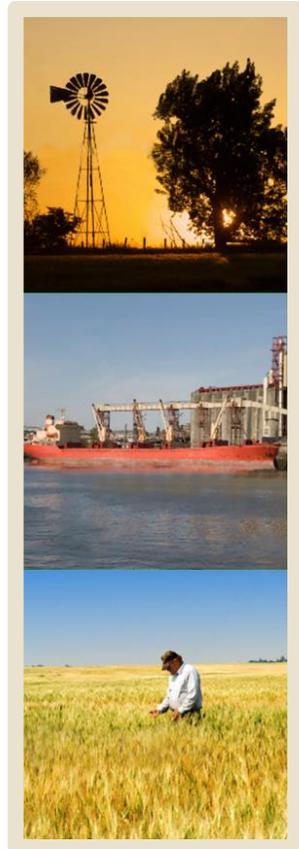
(ERAMA 2027/2028)

The ERAMA consists of a long-term vision of the level of prices, production, consumption and trade for a wide range of products. It was developed by means of the PEATSim-Ar simulation model of INAI Foundation and expert validation.

The goal is to analyze the most likely outcomes towards 2027/2028 in case the current trends remain steady. Consequently, this report is not a forecast about the future of agribusiness. Rather, it describes what would happen in the long-term if certain assumptions hold true about macroeconomic conditions, the applied policies in Argentina and other countries, meteorological conditions, trade agreements and other international events, among other issues.

During the year that passed since the previous edition of ERAMA, a series of events injected a high level of uncertainty, not only on trade quantities or prices, but also on the institutions that develop and enforce trade rules.

It is not new that world trade faces important challenges. The fear of protectionism, which was born with the financial crisis in 2008, came true through the escalation of tariff and non-tariff barriers, a trend that is still ongoing. According



to the latest WTO's Trade Monitoring Report (WTO 2018, Oct-17 to May-18), although the member countries have been applying trade facilitating measures, a worrying accumulation of restrictive measures can be observed, including tensions and rhetoric associated with them. Among those measures, they identified increases in import tariffs, quantitative restrictions and stricter customs regulations.

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On top of this, the problems were exacerbated by the conflict known as trade war, which could have a negative impact on economic activity, financial markets and international trade. In particular, if we consider that those involved are the main actors of the international scene.

WTO economists had already anticipated in April that the expected trade increase could be negatively affected by the implementation of "restrictive trade policies". This was confirmed in their most recent update, where they lowered the trade growth forecast for 2018 from 4.4% to 3.9% in September (WTO, Sept. 2018). In any case, it is possible to identify a series of factors of uncertainty that would deteriorate the forecasts of economic growth and trade, affecting the prospects of both short and long term.

The first of these factors would be a potential deepening of the commercial conflicts that could bring about uncertainty and hinder investment.



Secondly, there could be disruptive effects for trade institutions. There has been some concern about what might happen with the WTO and the multilateral trading system in the current context.

The role of Brexit and how the new trade relationships will be configured may also be of importance for Argentina and the Mercosur.

Thirdly, it is important to mention the lack of certainty around the policies can generate financial tensions. According to the IMF, "tighter financial conditions could potentially cause disruptive portfolio adjustments, sharp exchange rate movements, and further reductions in capital inflows to emerging markets" (WEO, July 2018)

On the other hand, non-economic factors shouldn't be ignored, such as geopolitical tensions, internal conflicts that weaken the prospects of various economies, and the costs of extreme weather events.

## World trade

As shown in Chart 1, world trade in agro-industrial products may increase by 18.8% in the next decade, a slow pace if compared to that of previous decades (82% and 58%, respectively), displaying a deceleration of international trade flows. Thus, in the decade between 1997 and 2007, trade increased at a rate of 5.6% per year, and between 2007 and 2017 the expansion was 4.2%. This decelerating trend has already been described in previous editions of the ERAMA.

However, according to the results of the ERAMA, there will still be room for exports to grow. Cereals trade will increase at a rate of 1.6% per year, which means that an additional 74 million tons will be imported by 2027. This total can be split in 32 million more tons of wheat, 3 of rice, 33 of corn and 1 of sorghum.

On the other hand, 29 million additional tons of oilseeds may be traded, with an

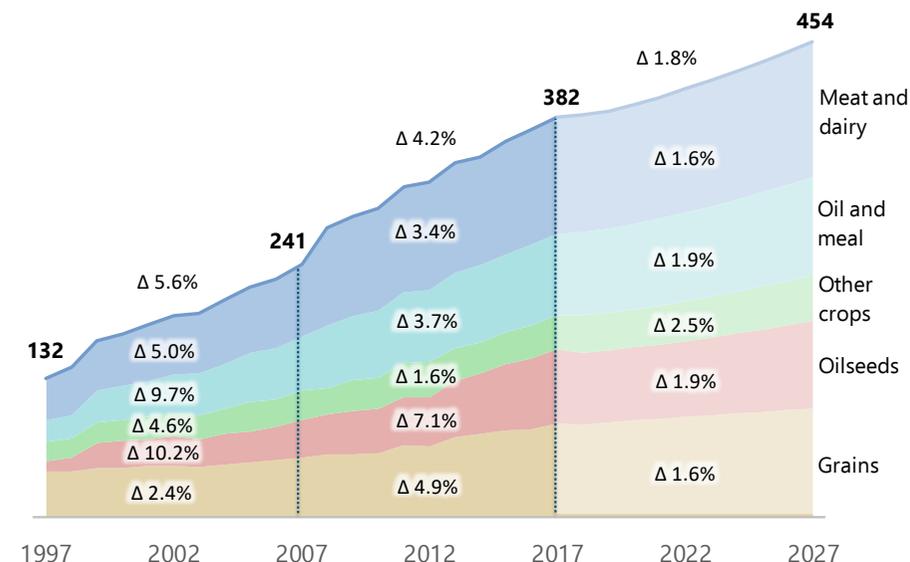
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## Chart 1: International Agroindustrial Trade

Billion USD at 2017 prices, and annual growth rate



Note: Percentages refer to the least-squares growth rate for each 10-year period.

Source: ERA MA 2027/2028.

average annual increase of 1.9%, as well as 17 million more tons of vegetable oils and 14 million of protein meals.

Regarding meats, the Reference Scenario projects an increase of 4.1 million tons in 10 years. In the case of dairy products, milk powder stands out, for an additional volume of 1.1 million tons.

It is important to note, therefore, that the slowdown in trade does not imply that there are no opportunities for the growth of exports. Despite trade tensions, importing countries will continue buying increasing volumes of merchandise.

Given the size in economic and demographic terms, the events that may affect Chinese food imports must be followed closely, because they will continue to have a great weight in the international markets. Similarly, both India and the Middle East countries will continue to be important players on the demand side. Asia and Africa will remain the main drivers of demand growth for grains and oilseeds.

## Argentina – Main Results

As can be seen in Table 1, in the Reference Scenario the Argentine production of cereals and oilseeds can go from an estimated 96.5 million tons in 2017/18 to 151.6 million in the 2027/2028 season, an increase of 3% per year. Overall planted area may increase 2.8 million hectares, to 35.7 million. This figure, however, is the simple sum of the different products, that is, regardless of the fact that some crops can occupy the same land through the double harvest. Thus, the actual demand for additional land for agricultural activity is lower. Total grain exports are projected to increase by about 30 million tons, to 71.6 million. This aggregate considers only raw exports, and would be significantly higher if processed products were included.

Table 1: ERAMA – Cereals and oilseeds  
Thousand tons

	<b>2017 / 2018</b>	<b>2022 / 2023</b>	<b>2027 / 2028</b>	<b>Δ 10 year</b>	<b>Δ annual</b>	
Production	96,458	144,959	151,590	57.2%	3.0%	
Planted area	32,944	35,840	35,756	8.5%	0.6%	
Exports	41,120	71,564	71,578	74.1%	3.1%	

Source: ERAMA 2027/2028.

**Table 2: Planted area**  
Thousand hectares

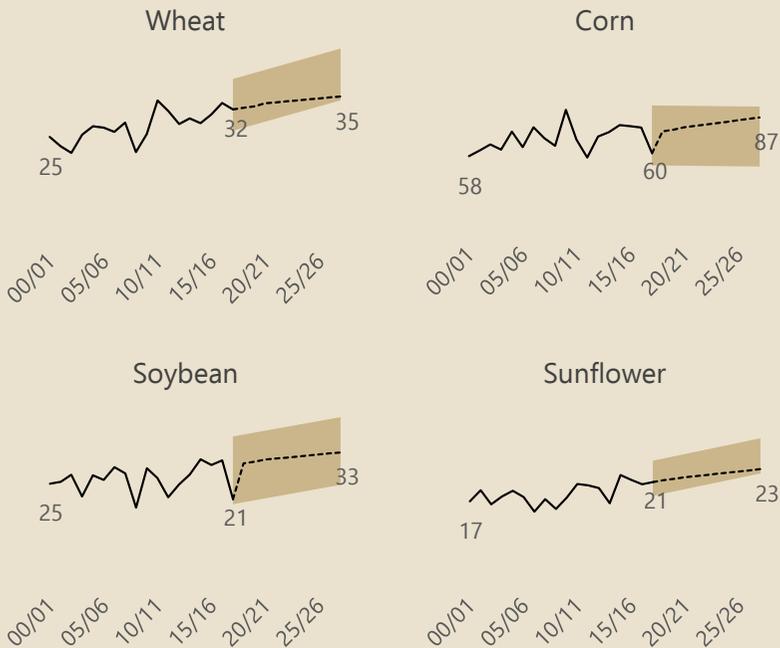
	<b>2017 / 2018</b>	<b>2022 / 2023</b>	<b>2027 / 2028</b>	<b>Δ 10 year</b>	<b>Δ annual</b>	
<b>Grains</b>	<b>13,132</b>	<b>14,879</b>	<b>14,725</b>	<b>12.1%</b>	0.7%	
Rice	202	208	213	5.5%	0.8%	
Wheat	5,700	6,319	6,283	10.2%	0.5%	
Corn	5,500	6,485	6,505	18.3%	1.4%	
Barley	900	936	907	0.8%	-0.5%	
Sorghum	830	931	817	-1.5%	-0.7%	
<b>Oilseeds</b>	<b>19,812</b>	<b>20,961</b>	<b>21,030</b>	<b>6.1%</b>	<b>0.5%</b>	
Soybean	17,700	18,554	18,568	4.9%	0.4%	
Sunflower	1,750	2,029	2,072	18.4%	1.3%	
Peanut	362	378	390	7.8%	0.7%	
<b>Total</b>	<b>32,944</b>	<b>35,840</b>	<b>35,756</b>	<b>8.5%</b>	<b>0.6%</b>	

Source: ERAMA 2027/2028.

Since 2016, changes in trade policies yielded better producer prices, mainly for corn and wheat, which in turn reflected in positive area movements, investment in technology and better inputs, and the application of good agricultural practices. However, in 2018 new export taxes were applied. The current ERAMA assumes that such measures would be applied until 2019/2020, as announced, so that the long-term projection is not affected. In order better understand the impact of these measures, it is suggested to refer to the report by [Bolsa de Cereales](#) (2018, "Cambios en derechos de exportación: Efectos sobre las campañas agrícolas 2018/19 y 2019/20")

In table 2 it is possible to see that cereal area is expected to grow more than that of oilseed (+1.5 million hectares vs. 1.2 million). Within the first group, the largest increase is explained by corn (+18.3%). Regarding oilseeds, soybean may increase 4.9% (868 thousand additional hectares).

Chart 2: Yields qq/ha



qq = 100 Kg. The shaded area corresponds to two standard deviations (about 95% confidence) over a linear trend. Source: ERAMA 2027/2028.

However, the expected production growth in ERAMA is based more on productivity than land. In this scenario, yields are the result of, firstly, a trend component. This component is not just based on historical information but also incorporates the perception of the evolution of this variable by experts from various institutions. Secondly, yields respond by converging to the average trend, after any exceptional value that could have been observed in 2017/2018 due to climatic reasons. Finally, yields are impacted by producer prices, by encouraging the use of better inputs.

Besides, the yield assumptions in the Reference Scenario should be feasible from the agronomic point of view, and reasonable when studied in

conjunction with the rest of the assumptions, particularly regarding the incentives for technology application.

The different panels in Chart 2 reveal the evolution of yields in the past and in the ERAMA. Although there are increases with respect to the current average levels, the figures for 2027/2028 are reasonably within the current potential.

## Cereal grains

**Wheat** area will be towards the end of the period at 6.28 million hectares, 583 thousand above that observed in 17/18, which constituted already a record for the last decade. Most of the increase corresponds to the 18/19 season, in which 6.2 million hectares were planted. Given this, production will reach 21.7 million tons at the end of the projected period. On the other hand, the local milling industry would demand 6.6 million tons (+12%) of wheat in the year 2027, which responds fundamentally to population growth. With these figures, exports could well exceed 14 million tons. In this



Table 3: Wheat and corn  
Thousand tons

	2017 / 2018	2022 / 2023	2027 / 2028	Δ 10 year	Δ annual	
<b>Wheat</b>						
Production	17,750	21,088	21,718	22.4%	1.5%	
Exports	12,000	14,165	14,275	19.0%	1.3%	
<b>Corn</b>						
Production	31,700	51,489	55,049	73.7%	4.1%	
Exports	21,000	38,581	40,514	92.9%	4.8%	

Source: ERAMA 2027/2028.

scenario, it is expected that the Brazilian demand for the grain will remain robust, with purchases that could reach 8 million tons by 2027.

Regarding **corn**, the Reference Scenario foresees an area planted of around 6.5 million hectares in 27/28, reaching one million hectares more than in 17/18. If the 10-year yield projection yield is met, production could reach 55 million tons. From this figure, it is possible to foresee a significant increase in exports that could reach 40 million tons, 34% higher than expected for 18/19. The comparison with 17/18 implies a growth of 93%, which is explained by the effect of the severe drought.

## Oilseeds

**Soybean** area is expected to remain below the record of around 20 million hectares in 2015/2016. Thus, most growth will be tied to yield gains. In

**Table 4: Soybean**  
Thousand tons

	<b>2017 / 2018</b>	<b>2022 / 2023</b>	<b>2027 / 2028</b>	<b>Δ 10 year</b>	<b>Δ annual</b>	
<b>Soybean</b>						
Production	35,100	57,614	60,045	71.1%	3.3%	
Crushing	35,000	42,522	44,886	28.2%	2.5%	
Exports	3,500	13,283	11,998	242.8%	3.7%	
<b>Oil</b>						
Production	6,743	8,178	8,664	28.5%	2.6%	
Biofuel	2,637	2,634	2,957	12.1%	2.1%	
Exports	3,805	5,060	5,195	36.5%	2.8%	
<b>Meal</b>						
Production	26,710	32,869	34,740	30.1%	2.6%	
Animal feed	2,051	2,583	3,007	46.7%	3.3%	
Exports	25,039	30,277	31,728	26.7%	2.5%	

Source: ERAMA 2027/2028.

2027/2028, 17.8 million of harvested hectares are expected to produce 60 million tons.

Given the policy changes in the first years of the ERAMA, it is interesting to observe the dynamics of the bean processing by the local industry. In the 5 years that preceded the 17/18 season, crushing ranged between 75% and 77% of the bean production. After the drought of the last season, it is expected that the indicator for 17/18 will reach 100%.

Going forward, the ERAMA predicts that crushing would remain below its trend. This can be explained, first, by the trade dispute in which China imposed additional import tariffs on US products. Given that the demand of the Asian country is mainly concentrated in unprocessed beans, tariff changes caused a significant drop in the price of beans in the US, and an improvement in processing margins, while the opposite effect took place in Argentina. The second change that affected the sector is the new export tax of 4 pesos per dollar exported, in addition to the existing export taxes. Finally, the scenario incorporates the elimination of the differential on export taxes. Of the three measures mentioned, the ERAMA assumes that the first two are valid until 2020, while the elimination of the differential is assumed to be permanent. Thus, although it is projected that the processing would show some recovery, it would remain below the trend observed in recent years.

**Soybean oil** production may be around 8.7 million tons towards the 2027/2028 season, of which 2.9 will be used locally for the production of biodiesel and 6.4 will be exported. The exports of **soybean meal** are projected to be 31.7 million tons. It should be noted, however, that this figure also includes soybean husk trade, which is estimated at 2 million tonnes at the end of the period.

**Sunflower** production is expected to continue increasing, in an additional 1.2 million tons, or 35%, compared to 17/18. This is explained by 322 thousand additional hectares planted, and an increase in yields of around 13% in 10 years. In this scenario, the production of sunflower oil could be near 2 million tons, and exports would increase 400 thousand tons.

## Meat and dairy

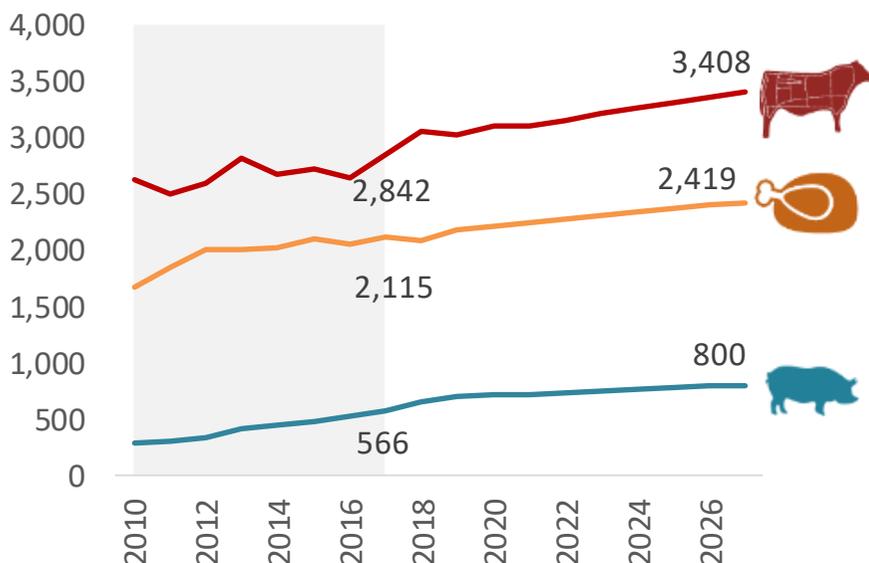
Perspectives are positive for all meats. The main driver for Argentine ex-ports will be beef, while pig and poultry will display the greatest amount of growth in the domestic demand.



**Bovine** meat production was affected by the strong drought associated with the La Niña weather event. Thus, stocks recovery will require a production in 2019 lower than previously expected. Beef production, however, may display significant growth towards the long term. The ERAMA projects beef exports of 713 thousand tons (CWE) by 2027, and a production around 3.4 million, 20% more than in 2017.

**Poultry** consumption, on the other hand, has advanced strongly in the recent history. However, it is projected that this increase will be observed at a slower pace, so that the future growth will be tied to export opportunities. In the Reference Scenario, an estimated 352 thousand tons will be exported in 2027, with a production of 2.4 million tons.

Table 5: Meat production  
Thousand tons



Source: ERAMA 2027/2028.

The **pig meat** market in Argentina is in a process of structural change, as local consumers are increasing their demand. Under the Reference Scenario, pork is the fastest growing meat, both in consumption and production, reaching 800 thousand tons slaughtered (CWE), an annual increase of 2.7%.

Regarding **dairy** products, the ERAMA foresees a moderate growth in demand for fluid milk, so that the use of milk for processed dairy products would be the main destination for additional production. In turn, all processed dairy products would exhibit progress in both production and exports. In particular, whole milk



powder could reach 262 thousand tons produced and 176 thousand tons exported.

## Alternative scenarios

Given the current uncertain context, it is of interest to measure the impact of the trade war and other policies applied by the countries involved. The Reference Scenario only takes into account the additional tariff to the soybean from the US imposed by China, assuming that the measure takes place until 2019/2020.

In order to extend the analysis, these scenarios were simulated:

- A) China's 25% tariff for US soybeans is assumed to remain in place during the next decade.
- B) Same as A, plus other measures also are included, applied by China, India and the EU to US on various agricultural products.
- C) Same as B, plus US compensates their producers with production subsidies.

Table 6 below summarizes the impact of the scenarios evaluated on Argentine exports. Several conclusions stand out:

- The effect of the tariff that China applies to soybean is significantly greater than the impact of the tariffs included in the second scenario, mainly because of the importance of the crop for Argentina, China and the US.
- Argentine exports of soybean byproducts (oil and flour) are harmed in the three alternative scenarios.
- It's possible to observe that the impact of producer subsidies is not negligible.

**Table 6: Argentine exports**  
Difference with respect to ERAMA 2027/2028

<b>000 ton</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>Mill. USD</b>	<b>A</b>	<b>B</b>	<b>C</b>
Wheat	-115	-112	10	Wheat	-23	-23	8
Corn	-917	-971	455	Corn	-157	-174	127
Soybean	1,859	1,839	884	Soybean	624	634	282
S. oil	-209	-196	-186	S. oil	-114	-106	-131
S. meal	-837	-814	-727	S. meal	-272	-269	-408
Beef	-4	-4	1	Beef	-18	-19	1

Source: ERAMA 2027/2028.

## Final remarks

When analyzing trade patterns, the competitive advantages of our country are often remarked, usually praising the availability of soil, climatic factors and the aptitude of the entrepreneurship to achieve increasing levels of production and exports, despite the multiple shocks that the sector usually faces. Regarding shortcomings, especially on the long term, it is common to find suggestions to improve on issues such as transportation and storage infrastructure, logistics, as well as innovation and adoption of technology.

However, it is important not to overlook the importance of the institutional context in which production takes place. Adequate and predictable legal frameworks, both local and multilateral, are a key to establishing a better link to the world trade, given that they provide certainty about prices, inputs and destination markets. Although the ERAMA does not measure quantitatively the value of this point, it is an important element for the future of the sector.

On the other hand, although there is an increasing global demand, growth rates may be lower than in recent decades. Therefore, there is a need to open new markets or improve access to traditional or pre-existing partners. In this way, the negotiation of new trade agreements -integral or sectoral- that guarantee the access of Argentine products in the markets of interest becomes relevant. However, this represents a major challenge at a time of proliferation of protectionist measures.

This complex international situation, as already mentioned, comprises various sources of uncertainty linked to the advance of commercial, geopolitical and financial tensions, as well as in relation to the rules of international trade. The development of a new framework, such as the WTO reform, in addition to local policy changes will be a focus of attention in the coming years, given its impact on the economy, production and trade of Argentina.

## **INAI Foundation**

The Institute for International Negotiations on Agriculture was created in June of 1999, with the aim of achieving the best possible outcomes for Argentina in the international negotiations forums, by strengthening the capabilities to negotiate.

During October 2005, the INAI Foundation was established, strengthening the original entities commitment with long run topics related to the Argentine insertion into the world market.

The activity of the INAI Foundation is possible thanks to the Grain Exchange of Buenos Aires. Likewise, it has the support of entities such as the Córdoba Grain Exchange, the Argentine Oil Industry Chamber (CIARA), the Chamber of Grain Exporters (CEC), the Argentine Wheat Flour Millers Association (FAIM), the Federation of Country Elevators Association and the Argentine Chamber of Biofuels (CARBIO).

The objectives of INAI include improving the information, capacity and depth of analysis of the public and agribusiness sectors, the strengthening of the Argentine negotiation capability in order to improve the international insertion, and the development of a close, intelligent and transparent communication between the public and private sectors.

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