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**Argentinian wheat exports -
A revival ahead!**

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Argentinian wheat exports - A revival ahead!

Christian Bengtsson¹, Yelto Zimmer²

Executive Summary

Once an important wheat exporter, beginning in 2001, Argentina slid off the charts in the face of increased export levies and additional restrictions that priced its wheat out of global markets and caused a marked reduction in wheat acreage. Since the 2015 election, duties on corn and wheat have been abolished while those on soybeans are being reduced gradually. This paper explores the perspectives of Argentinian wheat production under the new economic framework conditions.

In order to project future wheat prices at the farm gate, it is necessary to assess the “risk premium” caused by export restrictions over and above what would be caused by export fees themselves. On average, 2008 to 2015 domestic wheat prices were more than 100 USD/t lower than one would expect when just looking at export taxes.

Next, the paper compares gross margins for three cropping systems – wheat-soybean double-cropping, first-crop soybeans and corn - in four historically relevant production regions in Buenos Aires, Sante Fe and Cordoba provinces.

Compared with the economic performance in 2015, scenario calculations for 2020 with constant input use yielded the following findings:

- (1) Gross margins rise dramatically for the three crop options considered here.
- (2) The increase will be pronounced for the wheat-soybean option – from slightly more than 50 USD to about 300 USD/ha.
- (3) The soybean-wheat option is projected to generate consistently higher margins than corn and very close to those of soybeans as a main crop.

In a second scenario, a 20% increase in input use (and a respective increase in yields) due to higher profitability have been assumed. This would lead to even stronger growth in gross margins (+ 100 USD/ha or 30%).

Based on these very favorable economic conditions, an 8-million-ton increase in national wheat production appears very realistic. Because domestic demand is almost stable, the bulk of the boost in production could make its way into exports. Projected at 8 million tons in the current year, a fourfold increase from the lows of 2013/14 could be seen. Exports in the range of 14-16 million tons are possible by 2020 which would return Argentina to the list of top global wheat exporters, right next to No. 5 Australia.

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1. The destruction of an industry...

For decades, Argentina was a major player in global commodities trade - particularly in wheat. However, for the past 15 years, government policies – primarily in the form of export taxes and other kinds of export restrictions – have caused a significant downturn in wheat production and exports. Between 2001 and 2007, wheat export levies increased from 10% to 28%. During the same time period, wheat area fell by about 38% to below the 5-million-hectare (12.35 million acre) mark. In 2012/2013, plantings plunged to just 3.1 million hectares (7.65 million acres), the lowest in 100 years.

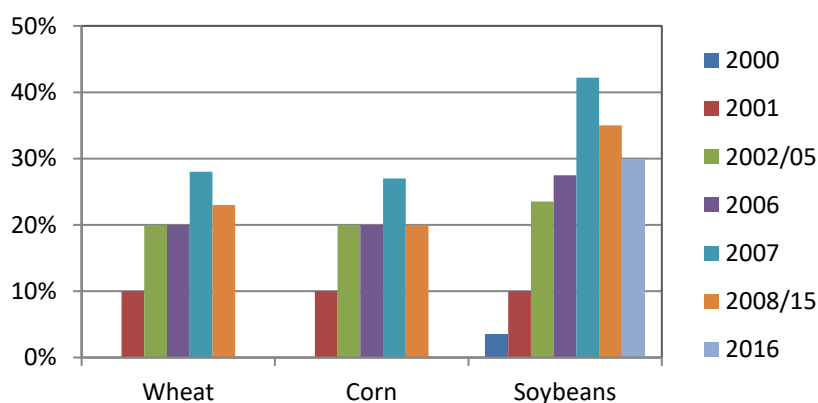
In November 2015, Mrs. Kirchner’s party lost the presidential elections against a newly formed, moderate-liberal coalition that abolished export duties for corn and wheat and introduced a progressive reduction on soybean export levies.

In this paper, we examine the prospects for wheat production towards 2020 in the new political and economic context.

2. How policy interventions affected the Argentinian wheat market

Since 2001, export taxes have been the key government policy to generate funds and regulate farmers’ returns. [Figure 1](#) demonstrates how those duties have evolved over time. Two findings are worth mentioning: From 2000 to 2007 they increased steadily while, in 2008, they were gradually reduced, then remained flat for the three main crops. While wheat and corn have always been in a similar range, soybeans have been hit much harder. However, just looking at the duties for the three crops as a whole somewhat overstates the issue for soybeans because soybean oil as well as meal were taxed at “only” 32% in recent years. This created an incentive to process soybeans domestically and thereby reduced the burden from export taxes a bit.

Figure 1: Evolution of export duties on key Argentinian commodities



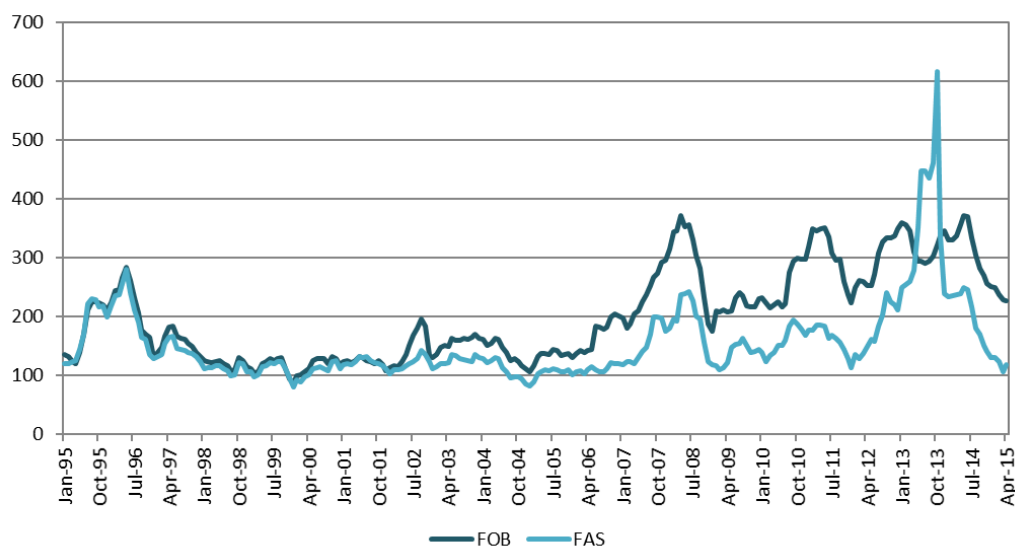
Source: Ministry of Agribusiness (2016), ed. by Hillock

With regard to wheat, it needs to be noted that in addition to the duties, the government also introduced – as in beef – the option to further restrict exports by quota and additional paper work. During extreme periods, these non-quantitative measures led to a situation in which only 2% of the export quota could be realized by exporters. Thus, trading wheat became extremely risky, which lowered the price offered by exporters significantly.

This effect can be illustrated by comparing free-on-board (FOB) prices (i.e. world market prices), which include export duties with so-called “free alongside ship” (FAS) prices. The latter represent domestic prices plus transport costs to the harbor. The spread between FOB and FAS, without any other influences, should equal the value of the export duty and fobbing costs. As [Figure 2](#) demonstrates, FOB and FAS prices historically were quite close prior to the progressive introduction and increase in export restrictions.

But from 2001 onwards the spread went up significantly. On average, between 2008 and 2015, it was 170 USD/t, while the export tax was only about 70 USD/t and the fobbing fees at the harbor were in the range of 8-10 USD/t. This implies an additional discount for Argentine wheat producer of about 90 USD/t.

Figure 2: Evolution FOB vs. FAS wheat prices (USD/t)³



Source: Ministry of Source: Agribusiness (2016), ed. by Hillock

For comparison, in corn the difference averaged 18 USD/t or 24%; in soybeans, on average, the gap was even negative (-11 USD/t). This can be explained by the fact that – as mentioned earlier – soybean oil has been taxed less than soybeans and hence soybean mills were willing to pay higher prices than one would assume when looking only at soybean export regulations.

³ The spike in FAS prices from Jan to Oct 2013 can be explained by a shortage in domestic wheat supply which caused domestic wheat prices to go up extremely.

In summary, this analysis proves that domestic wheat prices have been much more depressed than one would expect considering only export duties. In addition, wheat has been much more badly affected than corn and soybeans. This, of course, led to additional economic pressure for Argentine wheat producers.

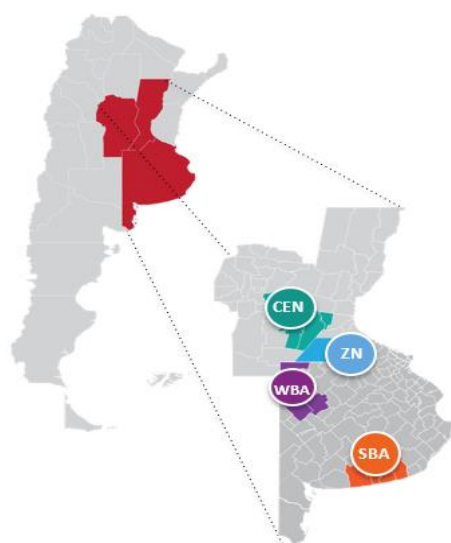
When comparing Argentina to other Western wheat-producing countries, it should be highlighted that domestic wheat prices – except for the spike in 2013/2014 – never reached a level comparable to - for example - wheat prices in Germany or the United States. This is particularly true when considering the fact that because of transport costs, the FAS price is still about 30 to 40 USD/t higher than farm gate prices. For example, in 2015, FAS prices averaged in the range of 120 USD/t, which would imply a farm gate price of not more than 90 USD/t.

Of course, looking ahead, these figures indicate that the new trade policy creates a strong incentive for growers to produce more wheat – in addition to the overall commodity price increase in Argentina.

3. Where is wheat produced in Argentina?

To project wheat production for the upcoming years, we have selected four historically most relevant production regions in the provinces of Buenos Aires, Santa Fe and Cordoba, where almost 74% of wheat production takes place. Within these provinces, the selected regions jointly account for almost 25% of the nation's total wheat acreage and up to 30% of total wheat production.

Figure 3: Map of Argentina and key wheat regions



ZN = Zona Nucleo

SBA = Southern-Buenos-Aires

WBA = Western-Buenos-Aires

CEN = Center region

The “Zona Nucleo region” (ZN), the so-called Argentine Corn Belt, represents Argentina’s premium agriculture land, with soils and performance similar to Iowa. This region, including Santa Fe’s southern department, General Lopez, historically has represented around 5% of the country’s wheat production and almost 10% of nationwide corn production.

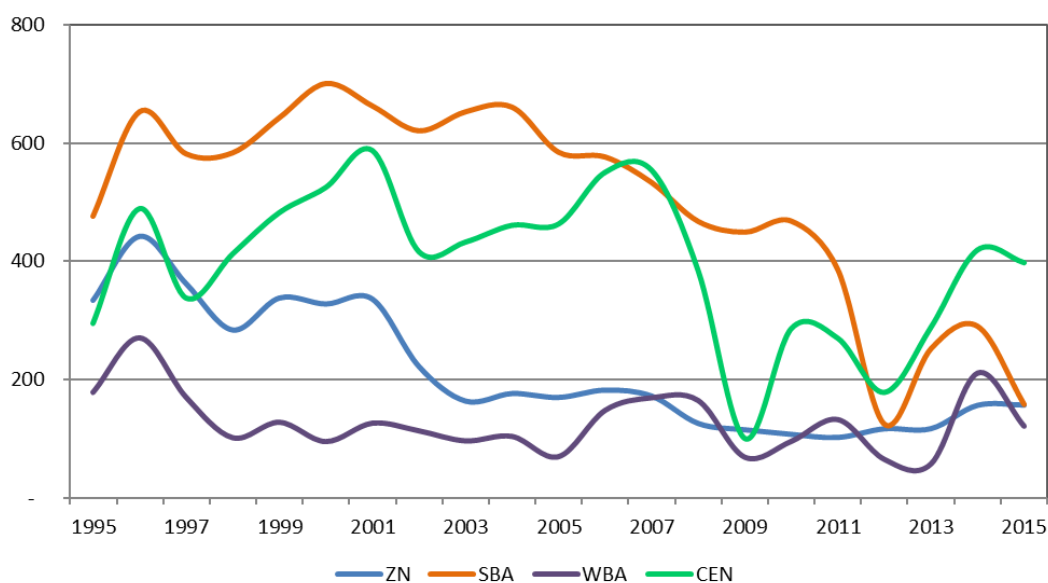
The Southern-Buenos-Aires (SBA) region represents Argentina’s most traditional wheat farms, where this crop is the more important cash crop within the rotation. This production cluster accounts for around 10% of Argentina’s planted area and almost 15% of the nation’s wheat production.

The Western-Buenos-Aires (WBA) region is yet another of the main production clusters of the province, focused mainly on corn, sunflower and soybean production. This region is responsible for almost 4% of nationwide wheat production and 7% of corn.

The Center region (CEN), located between Cordoba and Santa Fe provinces, is a major agricultural area in the middle of Argentina’s three largest cities: Buenos Aires, Rosario and Cordoba. This region accounts for almost 10% of Argentina’s wheat and corn production.

In recent years, these regions have – in parallel to a nationwide trend – experienced a drastic reduction in wheat acreage, as a result of the adverse government policies. Furthermore, farmers adjusted their input use mainly by reducing nitrogen fertilization, with effects on quality and yields. The combined effects of acreage reduction and a lower fertilization rate led to a 45% overall reduction in fertilizer demand and a 50% reduction in output.

Figure 4: Evolution of wheat acreage in key Argentinian regions (1,000 ha)



Source: Ministry of Agribusiness (2016), ed. by Hillock

As pressure increased on margins, farmers with more marginal crop land reduced wheat planted area substantially, even eliminating it from their crop rotations, while the more productive farms continued to produce despite the challenging situation. This shift in the type of land devoted to wheat translated into important increases in average yields for each region.

The SBA cluster, especially, has felt the burden of government intervention over wheat markets, reflected in an unprecedented 65% reduction in wheat planted area in this period, as shown by the orange line in [Figure 4](#), which illustrates the evolution of wheat acreage for all four regions discussed.

The rather positive evolution of wheat acreage in all four regions analyzed here between 2012 and 2014 can be attributed to relatively high wheat prices during the same period, as demonstrated in [Figure 2](#).

4. Agronomic background of Argentinian wheat production

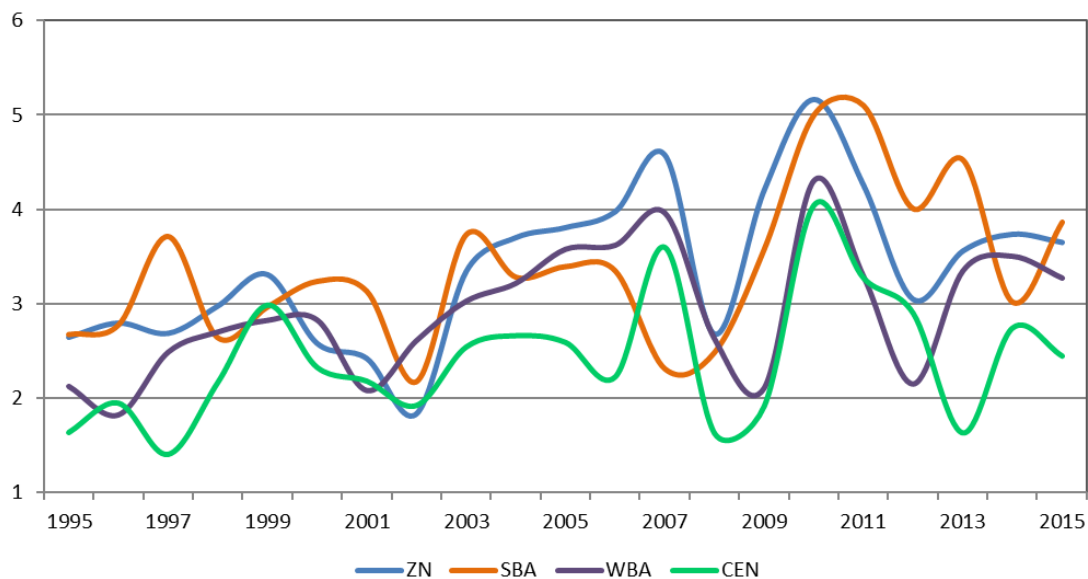
Argentinian wheat production predominantly takes place in a double-cropping system: Growers first seed wheat in May/June and harvest it in November/December. Immediately after harvest, they plant a short-season soybean variety. Alternatively, both corn and so-called first-crop soybeans are conventional, one-year crops.

On most Argentinian farms, the three cropping options compete for the same land. Soybeans became the top-performing option in 2008 because of lower risk, greater profits and flexibility. Thus, soybean acreage has been growing the most. Agronomically, it is possible to run rotations with very high shares of soybeans – even continuous soybeans are possible.

However, in the long run, a high proportion of soybeans is problematic because they lead to a depletion of humus content in the soil – especially when not combined with catch crops. Producing wheat and corn therefore is an attractive agronomic option for Argentinian growers to raise or maintain humus contents.

Hence, when wheat prices aren't depressed – or when soybean prices are low - the most profitable and agronomically optimal rotation will include wheat/soybeans in double cropping, even though double-cropped soybean yields (ranging from 1.5 to 2.5 t/ha) generally are slightly lower than single-crop soybeans.

Even though the overall annual rainfall in Argentina is high, ranging from 900 to 1,000 mm per year, wheat yields tend to be rather low (see [Figure 5](#)) compared to similar locations elsewhere. A primary reason is their use as a double crop, which means the varieties grown need to be rather short season ones. Additionally, it needs to be kept in mind that in recent years, economic conditions - particularly in wheat – have been rather tight. As a result, growers spend very little on inputs in wheat (see Table 1).

Figure 5: Wheat yields in key Argentinian regions (t/ha)

Source: Ministry of Agribusiness (2016), ed. by Hillock

On average, between 2013 and 2015, the wheat yield by region was: ZN: 3.8 t/ha; SBA: 3.9 t/ha; WBA: 3.1 t/ha; and CEN: 2.6 t/ha. As indicated by the data for 2010, the agronomic potential in these regions is significantly above those values – even with rather low input usage.

5. Projected economics of wheat production in 2020

The combined effect of wheat and corn export duties being abolished and soybean duties being reduced from 35% to 30% will be analyzed here in more detail.

To project future gross margins⁴ for each crop, we have designed a status quo and two future scenarios in which we have taken into account different export tax schemes for soybeans as well as changes in wheat fertilization and yields in order to reflect strong incentives to boost wheat output.

For the baseline scenario, we used current FOB price levels, a stable 30% export tax for soybeans, the 10-year average yields for each typical farm, and the current input levels and prices for seeds, fertilizers and crop protection. These assumptions have been built into the existing typical farms. They are characterized by the features displayed in [Table 1](#).

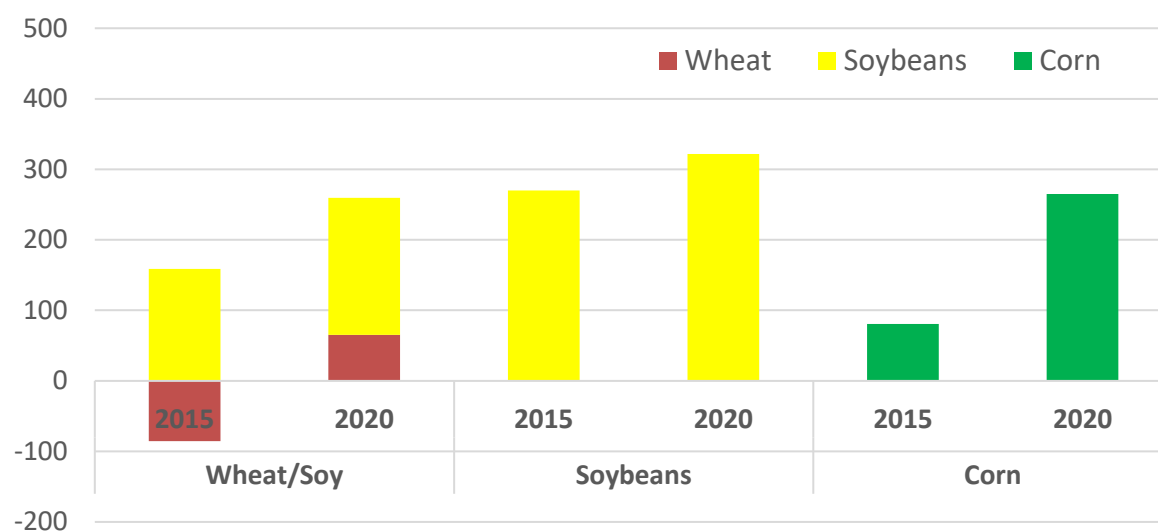
⁴ When considering gross margins displayed in Figure 7, one needs to keep in mind that in Argentina it is very common to just use contractor services to manage field operations. This implies gross margins are almost equal to profits and therefore tend to be much lower than one would expect otherwise.

Table 1: Key features of wheat production on typical Argentinian farms

	ZN	SBA	WBA	CEN
Yield (t/ha)	3.8	4.2	3.3	2.6
N input (kg N/ha)	103	105	68	57
Seed input (kg/ha)	120	110	130	140
Herbicide (USD/ha)	14	42	23	14
Fungicide (USD/ha)	21	21	-	-
Insecticide (USD/ha)	2	2	2	2
Operations USD/ha; 100% contractor)	132	149	133	133

Source: *agri benchmark* (2017)

Based on these characteristics and the aforementioned assumptions regarding future export policy, respective results have been generated and an example for a typical farm in the SBA region is displayed in [Figure 6](#).

Figure 6: Gross margins of a typical farm in SBA, 2015 vs. 2020 (baseline scenario)

Source: *agribenchmark* (2017)

Key findings can be summarized as:

- (1) Gross margins rise dramatically for all crop options considered here.
- (2) The increase will be pronounced for the wheat-soybean option – from slightly more than 50 USD to about 260 USD/ha (+500%).
- (3) Except for the ZN region, the wheat-soybean option is becoming the second most attractive cropping strategy; in two regions (WBA and CEN) by a margin of app. 100 USD/ha better than corn.

For the optimistic scenario, we used the same FOB price levels with a progressive reduction of soybean export taxes that converge to 18% towards 2020, as recently announced by the government⁵. In this scenario, implying much more attractive market conditions, wheat yields and fertilizer use have been modified upward. Across the board, we assumed an increase in fertilization by approximately 22% and, consequently, expected yields are projected to go up by the same percentage (see Table 2).

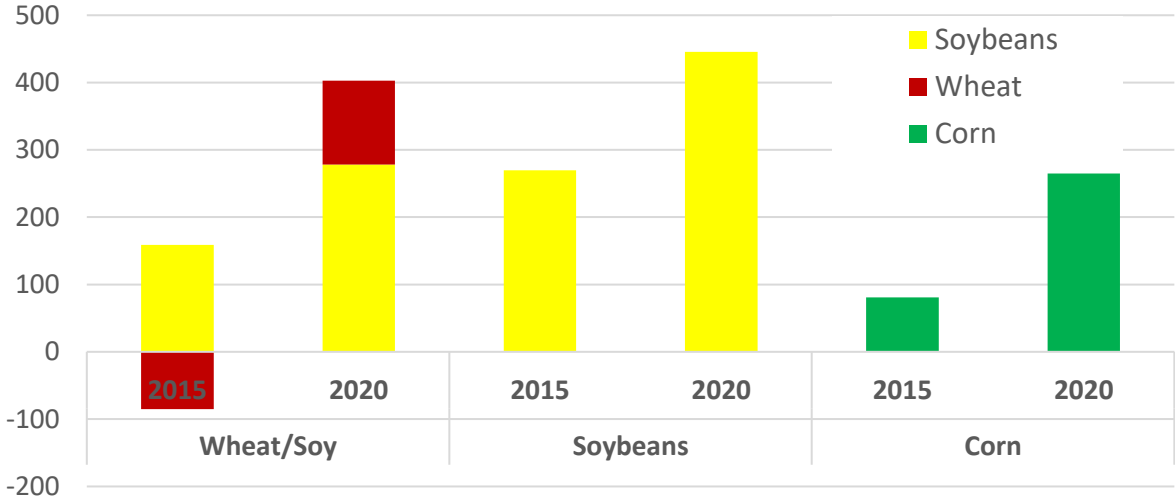
Table 2: Assumptions of input use and wheat yields for the optimistic scenario

	ZN	SBA	WBA	CEN
Yield (t/ha)	4.5	4.9	3.9	3.3
N-Input (kg N/ha)	126	128	89	87

Source: *agri benchmark* (2017)

In summary, these modifications will, of course, improve crop economics even further. In [Figure 7](#) we illustrate these effects for the typical farm in the SBA region.

Figure 7: Gross margins of a typical farm in SBA, 2015 vs. 2020 (optimistic scenario)



Source: *agri benchmark* (2017)

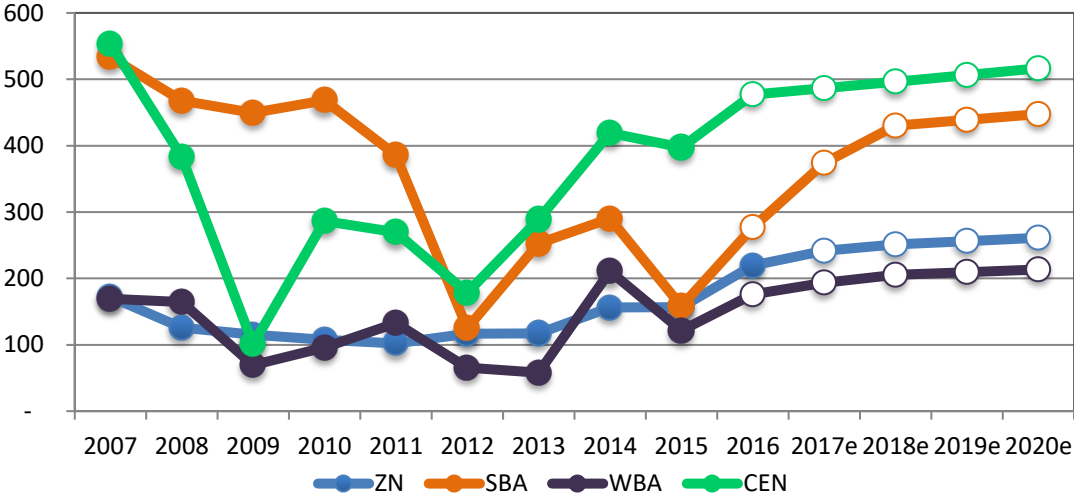
In more detail, compared with the baseline scenario, gross margins will improve even further, by about 120 and 140 USD/ha for first-crop soybeans and wheat-late soybeans, respectively.

⁵ Initially, the government was eager to more quickly reduce export taxes on soybeans. The fact that the government stepped back from the initial goals indicates how important export tax revenues are.

6. Implications for Argentinian wheat production and exports

Of course it is difficult to predict the exact changes in cropping pattern that will develop, but we basically assume that the changes illustrated will lead to a return of wheat acreage to previous levels – and with higher yield levels than before. Figure 8 illustrates how such a change may look by 2020.

Figure 8: Projected evolution of Argentinian wheat acreage of key regions (1,000 ha)



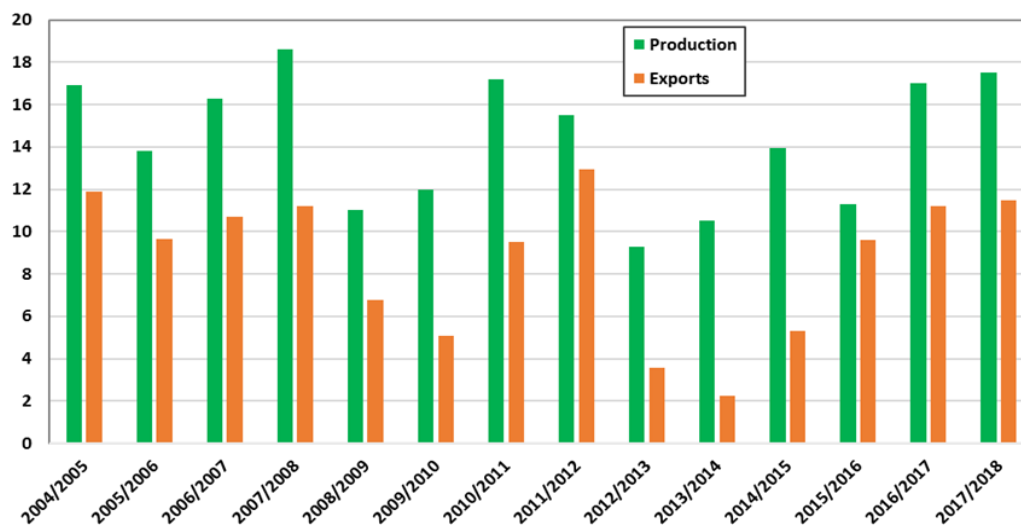
Source: agri benchmark (2017)

While it is assumed that SBA and CEN will return to a little less than previous acreage, both ZN and WBA most likely will increase their wheat acreage even beyond this threshold - ZN in particular. Officially, the initial estimate for wheat production in 2016-17 is that harvested area grew by some 44% nationwide and production will increase by 62%.

Across the regions analyzed here, the projection displayed in Figure 8 would constitute an increase of more than 70% in wheat acreage against 2015. Assuming that higher intensity will allow for a 20% increase in yields as well, total output from the four regions analyzed here would equal around 5.9 million tons or about 130% (+ 3.3 million tons) more than in 2015.

As indicated earlier, the four regions currently account for about 25% of the national wheat output. Against this background, it is a fair assumption that – even if agronomic conditions are not that favorable in the remaining 75% of the acreage - it also should be possible to generate an additional 4.7 million tons in the rest of the country. In total, an increase of 8 million tons seems to be a very realistic scenario. Assuming wheat prices in Argentina rise as the risk premium evaporates, domestic wheat consumption is not very likely to increase substantially. This means Argentina’s wheat exports very well may be boosted by an amount close to the increased production.

Figure 9: Evolution of Argentinian wheat production and exports (1,000 t)



Source: FAS-USDA (2017)

Adding the projected increase to wheat exports between 2014 and 2016 (see [Figure 9](#)), export levels in the range of 14 - 16 million tons are a realistic scenario for 2020. Already in 2016/17 exports amounted to 11 million ton. Argentina is underway to move up the list of global exporters to right next to Australia, which is ranked as number 5.

7. Conclusions

- (1) A revival of Argentina as a major player in global wheat markets is a rather safe bet. An increase of exports by about 100% versus 2016 is realistic.
- (2) Given the strong competitive position of Argentinian wheat (and general crop production), this expectation remains true if global commodity prices remain bearish. Even with global wheat prices of 150 USD/t, wheat production will remain rather profitable in Argentina.
- (3) Given the very dynamic growth of Russian wheat exports – in the range of 15% per year over the past decade – it has to be assumed that global wheat markets will be under pressure due to soaring supply.
- (4) While the changes in relative performance of the different cropping options can be considered quite realistic, the projected growth in overall profitability of crop production in Argentina is probably overstated because:
 - (a) The Argentinian land market is very dynamic and competitive. Hence a relevant share of the increased margins will be transferred to landlords.
 - (b) It is rather likely that input suppliers and the machinery industry also will benefit from this improved economic performance in crop production.

However, relative to the situation in 2015, the economic situation of crop production in general and, for wheat production in particular will improve significantly.

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