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1. Introduction

Russian oilseed production has seen significant growth over recent years. Hence, the questions: "What is driving the development" and "will this trend last?"

In this research, focused in the European portion of Russia, we first investigate evolution in production of each oilseed crop in four major European regions in Russia: The Northern and Southern parts of the Black Soil Region, South Russia and the Volga region.

We then consider the economics of typical farms and the opinions of experts interviewed in the field before projecting what choices farmers might make going out toward 2025.

2. Overview of Oilseed Production in Russia

Both acreage and yields of oilseeds have increased in Russia. Sunflowers are the most important oilseed. Between 1992 and 2016, Russia's sunflower output more than tripled – while acreage more than doubled. This means only 50% of the total increases comes from better production methods and/or the use of improved varieties. In other emerging agricultural production systems increase tends to be driven by productivity growth primarily.





Source: Federal Russian Statistics Service Division (2017); own calculation

However, the compound annual growth rate (CAGR) in output between 2000 and 2016 was a modest 3.1% for sunflowers. Soybean CAGR was 11%; summer rapeseed, 10.3%; and winter rapeseed, 4.5%.

When considering the evolution of sunflower acreage (see <u>Figure 1</u>) it appears that the four regions evolved quite differently. In three regions, acreage went up rather substantially while

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in South Russia, acreage saw a downward trend. Current yields are diverse, although yields improved across the board. Particularly strong growth can be observed in Black Soil regions, where current yield levels were higher already.

Land planted to soybeans and spring rapeseed has seen extraordinary growth of roughly 20% per year and even more, albeit from a very low level (see <u>Figure 2 and 3</u>). South of Russia sticks out in both crops due to relatively low acreage and low growth in acreage.

Compared with other parts of the world, current yield levels in these new crops are low – around 1.4 t/ha in soybeans and between less than 1 t/ha and 1.4 t/ha in spring rapeseed - even though yields in these crops rose quite strongly. Only in the Volga region did rapeseed yields drop a bit (see Figure 2 and 3).



Figure 2: Russian soybean – Acreage (2016), growth in acreage (in % p.a., 2000-2016); yields (Ø 2014-16) and growth of yields (in % p.a., 2000-2016)

Source: Federal Russian Statistics Service Division (2017); own calculation

Despite the stronger growth for soy and rapeseed acreage, sunflowers remain by far the main oilseed in the European part of Russia, accounting for 88% of oilseed acreage in 2000 and still 70% in 2016. Soybeans now account for 20% of oilseed acreage and rapeseed about 9%.



Figure 3: Russian spring rapeseed – Acreage (2016), growth in acreage (in % p.a., 2000-2016); yields (Ø 2014-16) and growth of yields (in % p.a., 2000-2016)

Source: Federal Russian Statistics Service Division (2017); own calculation

3. Russian farms - oilseeds rather competitive

Looking at farm-level economics, the study employs several *agri benchmark* typical farms in the Black Soil region and South Russia and, for comparison, six other countries important in the oilseed sector. In addition to farm data, Russian experts and producers were interviewed to capture their view on oilseeds. As illustrated in the charts below, the typical Russian farms enjoy ample margins for oilseeds.

3.1 Sunflower

Sunflowers are the crop of choice in many areas because of their strong on-farm economic performance relative to cereal crops. They can be established with relatively low input costs, making them more attractive for producers with low capital availability. Compared with rapeseed, for example, they require fewer inputs, in particular nitrogen fertilization, which reduces economic risks in case of a crop failure. In addition, they carry a moderate amount of risk, being more tolerant of early-summer droughts than cereals, for example.

Most of the experts interviewed – in Voronezh, Samara and Saratov regions - state that sunflowers generally are easy to grow and to market, provide stable margins and are very profitable compared with other crops in the rotation. It is very common in Russia to see sunflowers grown regularly as part of a four-year rotation: cereal, cereal, sunflower, fallow (to clean up fields and mineralize nitrogen).

The experts rated crops by profitability as compared with alternative crops for 2015, 2016 and 2017. In Voronezh, sugar beets came in first each year but sunflowers ranked second or third each year, followed by corn, soybeans, winter wheat and spring barley. Similar results were seen in the Volga region. Considering potential expansion of the share of crops because of high profitability, one needs to keep in mind that sugar beet production is restricted by contractual relationships. Hence, among crops that easily can be expanded on the grower's decision, sunflowers essentially ranked as number one or two in most cases.



Figure 4: Gross margin comparison selected Russian agri benchmark farms (USD/ha)

Source: agri benchmark 2017

Data from our benchmark farms support the superior profitability of sunflowers for the typical farm in Kursk and the Voronezh region (see yellow bars in Figure 4.). Only in 2017 at RU16000KUR was the performance of sunflowers one of the poorest.

In summary, barring changes in the market and prices, economics currently favor a continued increase in sunflower production, especially as better hybrids and more intensive management boost yields.

Evolution of sunflower yields is somewhat mixed: Compared with more developed agricultural systems, the growth rate between 2000 and 2016, at 3.6% per year, was relatively strong. However, considering the absolute values of 1.4 t/ha on average, Russian yields currently lag U.S. yields by about 0.5 t/ha, for instance. Especially in the Volga region, sunflowers are grown in very low-input regimes, mainly because of lack of liquidity and the relatively high risk of crop failure due to drought.

Russian experts and local leading-edge farmers therefore see potential to boost production via:

- better adapted varieties,
- increased use of fertilizer and crop protection (especially fungicides),
- access to credit,
- risk mitigation strategies, and
- new agronomic/technological approaches.

Experts interviewed believe sunflower yields could double in the Volga region (2.2 - 2.5 t/ha vs. current 1.1 t/ha) and increase to 3-4 t/h in the southern Black Soil region from the present 2.4 t/ha. Going forward, this means there should be significant room for yield improvement.



Figure 5: Total cost and gross revenue of sunflower production – typical Russian farms vs. international competitors* (Ø 2015/16; USD/t)

* France, Argentina, Bulgaria, Hungary, Ukraine Source: agri benchmark 2017

When considering economics of sunflowers, *agri benchmark* data indicate that they are very profitable on typical Russian farms and Russian producers enjoy a significant competitive edge over Western producers (see <u>Figure 5</u>). Argentine farms are still impacted by export taxes, which lead to depressed farm gate prices, but cost of production is similar to Russian farms – and so are data from Ukraine. Bottom line: Additional Russian production should find its way to international markets, even with lower world market prices.

Respective markets have been successfully developed by Russian exporters. Russia now is the second largest sunflower oil exporter, holding a 16% share of global sunflower oil supply. Russia also is an important exporter of sunflower cake.

However, it must be noted that even with current strong economic conditions for sunflowers, for agronomic reasons, sunflowers may have reached or even exceeded their long-term sustainable level in some regions. For example, in the Rostov region as well as in Uljanowsk, the share of sunflower in total arable land is already above 20%, which, for agronomic reasons, we consider to be the upper range of a reasonable threshold in the long run. However, in many European regions of Russia, the current share of sunflower is still well below that level. Hence, a lack of growth or even a reduction in acreage in some regions may well be offset by increases elsewhere.

3.2 Soybeans

Soybean production has increased in recent years rather strongly due to rising demand for protein from the livestock sector: Russia is a net soybean importer and hence domestic prices are high. In addition, soybeans are not far behind sunflowers in profitability. Looking at <u>Figure 4</u> (green bars) it appears that soybeans have been extremely profitable in the typical Krasnodar farm. The picture is somewhat mixed for the other farms.





*Argentina, Ukraine, USA

But when considering future expansion of Russian soybeans, one also has to look into global competitiveness, because rather soon Russia will become self-sufficient, hence any major increase in output has to be exported. Consequently, future domestic farm gate prices will be based on export parity rather than on import parity and hence be much lower than currently.

Figure 6 displays respective agri benchmark data for Russia and major global competitors. It shows that Russian soybean production is rather profitable and total cost is competitive compared with other major players in the world. From Figure 6 it also becomes obvious that due to import parity pricing, Russian farm gate prices are indeed rather high: About 30 to 50 USD/t higher than typical farm data from Ukraine and the USA.

The strong economic performance of Russian soybeans is particularly remarkable because of currently rather low yields: On average, soybean yields for Russian agri benchmark farms were in the range of 1.7 t/ha.

On national average, yields in the European part of Russia have gone up by app. 6% annually, moving from 0.8 t/ha in the early 2000s to 1.6 t/ha in 2016. This compares with 2.5 t/ha in western Canada, indicating room for improvement through many of the same factors as those cited for sunflowers.

As is the case for sunflowers, Russian producers could invest more in soybean inputs, thereby increasing yields, and still be competitive in global markets. Strategic challenges, however, stem from the fact that all the 11 interviewed experts stated that processors complain about low soybean protein content. After a closer look, the hypothesis is that varieties and inoculants are not yet adapted for the short growing season and the colder and often drier conditions in Russia. This in turn means that major investments in breeding and product development are required in order to get yields up and to make Russia a truly competitive producer in global soybean markets.

3.3 Rapeseed

Russian rapeseed production is concentrated in the more northern regions, just south of Moscow and Tatarstan, where water availability is greater. Rapeseed shows good gross margins, but its expansion is restricted by on-farm capital availability, as it requires greater expenditure on inputs such as seed, fertilizer and chemicals.

Growing rapeseed in a low-intensity regime such as sunflowers is not possible. If working capital is not sufficient, it is better to refrain from growing rapeseed at all.

Yields fluctuate significantly from year to year and by region for both winter and summer rapeseed, though the general trend has been slightly upward. Should producers be able to improve yields from the current average yield of around 1.1 t/ha to the 2.3 t/ha achieved for spring rapeseed (canola) in Canada, its acreage growth might accelerate.

Spring rapeseed has substantial potential as a crop in western Siberia (an area not included in this study), where conditions are similar to Canada's western prairie provinces.

4 Summary

Russian oilseeds generally offer positive margins and rank well compared with other crops.

Sunflowers remain an attractive option for Russian growers, and overall acreage is likely to increase, although we are of the opinion that a reduction in sunflower acreage is likely in some regions and, in fact, there are signals that this change in trend has already started. As a result, adoption of more intensive practices leading to higher yields therefore will be a primary factor in further growth.

Soybeans and rapeseed are relatively new crops for most regions. Despite this lack of experience, both crops have seen a tremendous growth in acreage and yield. Like sunflowers, soybeans offer a low-cost, higher margin alternative for producers, whereas rapeseed requires a larger up-front investment.

For both the newer crops, varieties, production systems and equipment need further development and producers face a learning curve. It is likely that current growth will continue into 2025, but with regional differences tied to agronomic conditions, the economic situation on the farms and production risk considerations.

Please contact Yelto Zimmer (<u>yelto.zimmer@agribenchmark.net</u>) for more information about this project and about all other inquiries regarding *agri benchmark*.

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