

Impact of the COVID-19 pandemic on the situation of the agricultural markets in Poland

Piotr Szajner

Abstract

The agri-food sector in Poland is of great economic importance as it has a large share in the GDP, generates a positive foreign trade balance and provides many jobs in the production of agricultural raw materials, the food industry and services. The COVID-19 pandemic is causing serious economic problems in many regions of the world, including Poland. The recession and the restrictions in the social and economic life implemented for health reasons influenced the functioning of agricultural markets in our country. The impact of the pandemic was mainly visible in foreign trade, due to barriers in accessing markets, logistical difficulties, and adverse price movements throughout the supply chain. The pandemic had a smaller impact on the supply situation in the domestic market, as both plant and animal production were determined by the previous market realities.

Keywords: prices, foreign trade, pandemic, agricultural products, recession, market.

Piotr Szajner, PhD, Department of Agricultural Markets and Quantitative Methods, Institute of Agricultural Economics and Food Economy – National Research Institute.

Introduction

The COVID-19 pandemic had a tremendous impact on socio-economic life in all regions of the world. The announcement of an epidemiological threat in most countries resulted in, among other things, restrictions in access to sales markets and logistical difficulties. The consequence of the implemented restrictions is an economic recession that affects all sectors, including the agri-food sector. In Poland, this sector is of great economic, social and environmental importance. The impact of the pandemic on the functioning of the markets for individual agricultural products is therefore of major importance. The article aims to assess the impact of the introduced restrictions in social and economic life in the first period of the pandemic on the markets of basic agricultural products.

Hypothesis

The COVID-19 pandemic resulted in an economic recession, which had a relatively small impact on the functioning of the basic agricultural products market in Poland, mainly in terms of foreign trade and price changes at various stages of the supply chain.

Macroeconomic conditions

In years 2010–2019, the Polish economy was one of the fastest growing economies in the EU-28. According to Eurostat, the gross domestic product expressed in current prices increased by 37.7%, and the annual growth rate fluctuated between 1.4–5.3%. In the analyzed period, GDP in the EU-28 increased by 14.8%, and the annual dynamics ranged from -0.4% to 2.6%¹. Per capita GDP in Poland increased by 46.8% (to EUR 13.7 thousand), and in the EU-28 by 25.4% (to EUR 32.0 thousand). As a consequence, GDP per capita in Poland increased from 36.8% to 43.1% of the average level in the EU-28, and according to the purchasing power parity from 63.2% to 72.9%. Despite the positive development trends, Poland is included in the

1. Eurostat, *GDP and main components (output, expenditure and income). Gross domestic products at market prices. Chain linked volumes, index, 2010=100*, <https://appsso.eurostat.ec.europa.eu/nui/submit-ViewTableAction.do>, access 3.07.2020.

group of countries with the lowest GDP per capita in the EU, as lower values of the indicator in question occurred only in Bulgaria, Romania and Croatia².

The relatively high dynamics of GDP in Poland was accompanied by slight changes in its structure. According to the Central Statistical Office of Poland, in 2010–2018 the total share of agriculture, hunting and fishing decreased from 2.6% to 2.1%³. According to Eurostat, the total share of the sectors in question in gross value added decreased from 4.0% to 3.1%, but was still almost twice as high as the EU-28 average.

In the years 2010–2019 the cumulative consumer price index (inflation) amounted to 113.9, including the retail price index for food and non-alcoholic beverages – 125.2. As a consequence, the prices of food products increased compared to other consumer goods and services. In the discussed period, the cumulative index of increase in prices of basic agricultural products amounted to 137.7, and prices of goods and services purchased for the purposes of current agricultural production and investments – 121.7⁴. The “price scissors” index was favorable for farms.

Economic growth in Poland was accompanied by an improvement in the labor market. According to the Central Statistical Office, the registered unemployment in December 2019 was 5.2%, compared to 12.4% in December 2010. An improvement in the income situation of the population was noted, which was strengthened by social transfers from the state budget, including the program “Family 500+” implemented since 2016. As a result, household consumption grew dynamically, which was the main driver of GDP growth. The impact of investment outlays and the foreign trade balance on the GDP dynamics was smaller.

In 2020, the macroeconomic conditions in the global, EU and domestic economy deteriorated significantly. The main cause of the deep recession was the COVID-19 pandemic, which is primarily a humanitarian crisis, but also with negative socio-economic implications. The discussed economic recession is of a unique nature and it is determined by the following elements:

1. The key source of the recession were non-economic factors, as a sharp slowdown or a complete reduction in economic activity was forced by health reasons. Most countries have introduced an epidemiological emergency or state of emergency that resulted in minimizing human activity.

2. *Diagnoza sektora rolno-spożywczego i obszarów wiejskich w Polsce przygotowana dla potrzeb opracowania Krajowego Planu Strategicznego 2021–2027*, Warszawa, IERiGŻ–PIB, IUNG–PIB, IPT, IOR, IHAR, IZOO, IO, 2019, p. 6.

3. GUS, *Rocznik Statystyczny Rzeczypospolitej Polskiej*, Warszawa 2019, p. 697.

4. GUS, *Sytuacja społeczno-gospodarcza*, nr 19, Warszawa 2019.

2. In the short term, recession occurred in most countries and therefore took on a global character.
3. The pandemic negatively affected both the demand and supply sides of the market:
 - the decline in demand was the result of a reduction in consumer activity (e.g. in terms of mobility), increased uncertainty in relation to health hazards and job loss, and a restrictive credit policy of banks;
 - the decrease in supply was the result of epidemiological restrictions in the conduct of economic activity (e.g. production, logistics, transport, etc.) and restrictions on access to markets (e.g. in foreign trade).
4. Societies and economic entities expected wide-ranging anti-crisis and intervention measures by states and international institutions, which would cover not only the sphere of health protection, but also instruments enabling a quick return to the path of economic growth.

Overcoming the recession in the global, EU and national economy, the primary goal of which is to achieve the 2019 GDP level, will take place in new qualitative conditions:

1. Increased responsibility of states for the economic and social sphere, because at the same time it is necessary to create conditions for the growth of management efficiency and to guarantee social and environmental security. As a consequence, the relationship between strategic goals may change in the socio-economic policy of individual countries. The so far dominant goals of economic growth can be replaced to a greater extent by social and environmental goals.
2. Increased risk and uncertainty in achieving economic goals will result in shortening strategic planning periods with a simultaneous increase in the tendency to maximize short-term rates of return.
3. Threats to health and life will undoubtedly change social interactions, and in particular the importance of online communication channels will increase. It is anticipated that the integration of smaller social groups will increase at the expense of larger, loosely connected teams. The consequence may be the weakening of competition and intergroup rivalry.
4. Within the EU, autonomous tendencies may develop as some Member States show moderate interest in jointly tackling the most pressing problems (e.g. economic crises, migratory crises, pandemics etc.). It can be assumed that the concept of a “two-speed Europe” will return, which may result in a deepening of socio-economic differences between the Member States. The situation is complicated by the diverse macroeconomic situation of individual Member States, including mainly those with a high level of public debt in relation to GDP (Greece, Italy, Portugal and Spain).

Forecasts and projections for economic development in 2020 are prepared by many international institutions (e.g. the European Commission, World Bank⁵, IMF⁶) and domestic (e.g. NBP⁷). The common feature of all these forecasts is that they indicate the deepest socio-economic crisis after World War II. What they also have in common is high uncertainty and frequent revisions, which tend to predict increasingly pessimistic scenarios. The presented forecasts differ in terms of the assessment of recovery from the economic crisis, which is reflected in the inconsistency in the assessment of the shape of the “recession curve” (e.g. V, U, W, L). According to the European Commission, in 2020 the decline in GDP in the EU will amount to 8.3%, but in 2021 it is expected to increase at the level of around 6.1%. The Polish economy may be characterized by the smallest decline in GDP (by 4.6%) compared to other Member States, and this will be due to the small share of sectors most affected by the pandemic (e.g. tourism, HoReCa, etc.) and a more diversified structure of the economy. As a result, the deepest recession will occur in Italy, Spain, Croatia, France and Portugal – countries with a large share of tourist services in the GDP structure⁸. The economic crisis in the world, in the EU and in Poland will also be of fundamental importance for the development of agricultural markets, as the supply and demand situation, logistical conditions and access to markets will change significantly.

Foreign trade in agri-food products

In the first quarter of 2020, the dynamics of foreign trade in the national economy slowed down. Compared to the corresponding period of 2019, exports increased by 1.7% (to EUR 59.9 billion), and imports by 0.7% (to EUR 59.0 billion). The positive trade balance amounted to EUR 0.8 billion, compared to EUR 0.2 billion a year before⁹. Foreign trade in agri-food products was highly dynamic. The export amounted to EUR 8.4 billion and was by 9.9% higher than in the previous year. Import increased by 9.4% (to EUR 5.8 billion). The positive balance of exchange

5. The World Bank Group, *The Global Economic Prospects*, Washington DC <https://openknowledge.worldbank.org/handle/10986/33748>, access 4.07.2020.

6. International Monetary Fund, *Global Financial Stability Report: Markets in the Time of COVID-19*, Washington DC, www.imf.org/en/Publications/GFSR/Issues/2020/04/14/global-financial-stability-report-april-2020, access 3.07.2020.

7. Narodowy Bank Polski, *Raporty o stabilności systemu finansowego*, Warszawa, <https://www.nbp.pl/home.aspx?f=/systemfinansowy/stabilnosc.html>, access 4.07.2020.

8. European Commission, *European Economy Forecast. Sommer 2020*, Institutional Paper 132/July 2020, Brussel, https://ec.europa.eu/info/sites/info/files/economy-finance/ip132_en.pdf, access 4.07.2020.

9. GUS, *Biuletyn statystyczny*, nr 4, Warszawa 2020, p. 173.

increased by 11.0% (to EUR 6.6 billion). The share of agri-food products in total exports and imports amounted to 14.1% and 9.8%, respectively, compared to 13.0% and 9.1% the year before¹⁰. Changes in the geographic structure of foreign trade resulted from the withdrawal of Great Britain from the EU. The EU market remains the main export destination: EU-14 (52.5%) and EU-13 (17.7%). The share of countries increased to 12.8%. Important sales markets were also economically developed (12.8%) and economically developing (9.4%) countries. In the system of countries, the main recipients were: Germany, Great Britain, the Netherlands, France, Italy and the Czech Republic. In the geographical structure of imports, the EU was also the most important trading partner: EU-14 (57.2%) and EU-13 (10.2%). The economically developing countries (16.5%), from which agricultural products from other climatic zones were imported, also have a large share. In the country system, the main import partners were: Germany, the Netherlands, Spain, Denmark, Norway and Italy. A negative balance occurred in trade with EFTA countries (EUR 209.6 million) and developing countries (EUR 162.1 million). A large positive balance occurs in trade with the EU (EUR 2.0 billion).

The exports of plant and animal products increased by 15.9% and 1.9%, respectively. The share of plant products in exports increased to 60.3%, and the share of animal products decreased to 35.3%. The largest share in the structure of exports belonged to: meat and meat products (19.1%), cereals and its products (13.2%), tobacco products (12.2%), fish and its products (7.0%), dairy products (6, 8%) and fruit and its products (6.0%). Imports of plant and animal products increased by 8.9% and 11.1%, respectively, and their share in the commodity structure was 28.8% and 67.8%, respectively. The main products in the commodity structure of imports were: fruit and its products (11.3%), oilseeds and its products (10.1%), fish and fish products (9.7%) and meat and its products 9.1%).

In the period of January – April 2020, the average EUR exchange rate increased from PLN 4.2504 to PLN 4.5450, and the American dollar from PLN 3.8287 to PLN 4.1856¹¹. The depreciation of the zloty is favorable for exporters, but unfavorable for importers. Low global food prices have a negative impact on the profitability of export transactions. In the period under review, the world food price index fell from 102.5 points to 92.4 points compared to the period 2014–2016¹².

10. P. Szajner, *Handel zagraniczny produktami rolno-spożywczymi*, „Rynek Rolny. Analizy, tendencje, oceny” 2020, nr 3 (349).

11. NBP, *Średnie kursy walut*, <https://www.nbp.pl/home.aspx?f=/statystyka/kursy.html>, access 24.08.2020.

12. FAO, *Food Price Index*, <http://www.fao.org/worldfoodsituation/foodpricesindex/en/>, access 24.08.2020.

Tabele 1. Foreign trade in agri-food products

Description	Export		Import		Balance	
	I-III 2019	I-III 2020	I-III 2019	I-III 2020	I-III 2019	I-III 2020
Animal products	4 385,4	5 082,8	3 618,2	3 940,8	767,2	1 141,9
Vegetable products	344,0	348,3	192,1	200,2	151,9	148,1
Other products	7 667,9	8 424,4	5 317,1	5 815,6	2 350,8	2 608,8
Total	4 385,4	5 082,8	3 618,2	3 940,8	767,2	1 141,9

Source: IAFE-PIB calculations, data from the Ministry of Finance.

The price situation on the agri-food products market

In April 2020, compared to the previous month, the prices of consumer goods and services decreased by 0.1%. The main cause of deflation was the economic recession triggered by the COVID-19 pandemic. Deflationary tendencies are beneficial to consumers, but dangerous for enterprises, which – adapting to the fall in prices – reduce costs. In the long run, deflation may increase unemployment. The decline in the consumer price index was the result of the downturn in the services market due to the introduction of the epidemiological threat. In the period from January – April 2020, compared to the corresponding period of the previous year, inflation amounted to 4.2% and was higher than the assumed inflation target for 2020 (2.5% ± 1 percentage point).

In April 2020, the upward trend in retail prices of food continued, which increased by 0.3% compared to March. The rise in retail food prices in the conditions of lower inflation meant that food prices increased compared to other goods and services. Similar trends are confirmed by the comparison of the total food price index and inflation in January – April 2020, as the food prices increased by 7.6%. Individual commodity groups of food products were characterized by different retail prices dynamics. From January to April of this year, compared to the same period of 2019, the prices of potatoes, meat and preserves, sugar and cereal products increased the most. The fall in prices concerned butter and vegetable fats. Relatively high food prices in the conditions of the deteriorating labor market conditions and falling household income will negatively affect consumption in the domestic market.

According to the Central Statistical Office, in April 2020, the purchase prices on the cereals and potatoes market increased – compared to March, by 1.1–7.9%

and 6.1%, respectively. Purchasing prices decreased in the animal products market, including live poultry by 12.0%, live pigs by 3.2%, live beef by 2.1% and raw milk by 3.1%. In the period of January – April 2020, compared to the corresponding period of 2019, the prices of most basic agricultural products fell, except for the prices of live pigs and potatoes, which increased by 34.0% and 2.6%, respectively. In the discussed period, the purchase prices of cereals dropped from 2.8% to 2.0%. The purchase prices of poultry and beef fell by 3.1% and 2.6%, respectively, and raw milk by 1.5%. The drop in purchase prices was unfavorable for farms as it negatively affected the profitability of production. It should be noted that the profound price drop concerns industries that are highly dependent on exports and linked to external markets, i.e. the poultry, beef and dairy markets.

Table 2. Retail price indices of food products

Description	III 2020 = 100	I–IV 2019 = 100
Consumer Price Index (inflation)	99,9	104,2
Food and non-alcoholic beverages	100,3	107,6
Bread and cereal products	100,6	105,9
Flour	99,9	105,2
Raw meat	98,3	114,5
Cold cuts	100,4	113,0
Fish	99,9	104,7
Dairy products and cheese	100,2	103,6
Butter	97,3	94,6
Potatoes	100,2	129,0
Jam, honey, chocolate and confectionery products	99,7	103,0
Sugar	101,9	109,5
Vegetable oils	99,4	99,3

Source: GUS data.

Table 3. Purchase price indices of basic agricultural products

Description	IV 2020, III 2020 = 100	I–IV 2019 = 100
Wheat	107,9	90,5
Rye	105,2	80,0

Continued on the next page.

Table 3. Purchase price indices of basic agricultural products (cont.)

Description	IV 2020, III 2020 = 100	I–IV 2019 = 100
Barley	101,1	85,2
Oat	102,6	85,9
Corn	104,8	92,2
Potatoes	93,9	102,6
Cattle	97,9	97,4
Pork livestock	96,8	134,0
Poultry livestock	88,0	96,9
Cow milk	97,1	98,5

Source: GUS data.

The supply and demand situation on the market of basic agricultural products

Grain market

The impact of the pandemic on the production of cereals in Poland and in the world is practically imperceptible, as it is primarily affected by weather conditions. On the other hand, its impact on consumption is large, as in the short-term perspective, the demand for cereal products, most of which are relatively cheap and easy to store, has increased. In addition, the demand for ethanol used in the production of disinfectants has increased. In the long term, the pandemic may reduce the demand for industrial products, i.e. ethanol for the production of biofuels and starch products. The scale of the impact will depend on the duration of the pandemic and the related economic constraints. Restrictions on the movement of people, logistics and transport may impede foreign trade.

The global cereal market is characterized by volatility and prices are exhibiting volatile trends. Initially, they fell due to the low fuel demand. By the end of March 2020, as a result of the growing demand for flour and other shelf-stable grain products, grains began to rise. The risk of lower harvests due to the drought in spring also contributed to this. In response to the growing demand, Russia and Ukraine introduced export restrictions to protect their own markets, which also contributed to price increases. At the same time, the demand for imports increased in deficit

regions (North Africa, Middle East, Asia). The improvement in weather conditions resulted in a decline in prices in April and May 2020. The trends in the global market had a considerable impact on the Polish market, since after the poor harvest in 2019, domestic supply decreased by approx. 4%. The decline in domestic supply was partially mitigated by the lower use of cereals for fodder. In the first quarter of 2020, export demand increased, when twice as much cereals were exported than in the corresponding period of 2019. Consumer wheat was exported to North Africa and the Middle East, and the competitiveness of exports was strengthened by the depreciation of the zloty. At the same time, lower imports and the risk of smaller harvests resulted in higher prices on the domestic market.

In the 2020/21 season, global cereal production may increase by 2.4% compared to the 2019/20 season, and consumption by 1.6%¹³. The lower consumption dynamics are a result of the slower than expected increase in industrial consumption. Reserves at the end of the season may increase by 2.1%. In Poland, the harvest is expected to be better than last year, but due to the low level of initial reserves, the domestic resources will decrease by 4.0%. Domestic consumption will fall by 2.0%, and exports will also decrease. Outflows in the cereal balance will decrease by approx. 7.0%, and closing reserves will increase by approx. 9.0%. The average wheat prices in 2020 may be 10.0% higher than in 2019, and the prices of other cereals will be similar to the level from the previous year.

Table 4. Balance of cereals in Poland (in thousand tonnes)

Description	2018/2019	2019/2020 estimate	2020/2021 prognosis	
			2019/2020=100	
Initial reserves	7 856	4 382	1 149	-73,8
Production	26 657	28 871	30 779	6,6
Domestic reserves	34 513	33 253	31 928	-4,0
Import	2 687	1 140	1 490	30,7
Total resources	37 200	34 393	33 418	-2,8
Domestic consumption:	27 913	27 424	26 829	-2,2
including grazing	17 490	17 040	16 450	-3,5
Export	4 905	5 820	4 190	-28,0
Total expenses	32 818	33 244	31 019	-6,7
Closing reserves	4 382	1 149	2 399	108,8

Source: IAFE-NRI calculations.

13. International Grains Council, <https://www.igc.int/en/markets/marketinfo-sd.aspx>, access 10.08.2020.

Oilseeds market

Rapeseed is the only oil plant produced and processed on a large scale in Poland. The production of other oilseeds is small, but in recent years there has been a large re-export of flaxseed oil. Surplus production in the rapeseed market occurs in the years of high harvest and the industry is then a net exporter. In years of low harvests caused by unfavorable weather conditions, the industry loses its self-sufficiency and becomes an importer.

The pandemic will not affect the supply of rapeseed from this year's harvest. Agrometeorological conditions will determine the production. According to the IAFE-NRI, winter rapeseed was sown on an area of approx. 930 thousand hectares, i.e. by approx. 10% more than last year, which was due to high profitability. With a fall in spring rapeseed crops to approx. 20 thousand, the total acreage of cultivation will be approx. 950 thousand hectares, approx. 9.0% higher than in 2019. Good wintering and the condition of rapeseed plantations in spring indicate that average yields will increase by 2.0% (to 27.6 dt/ha), and the harvest by 10.0% (up to 2.6 million tonnes).

In the longer term, the recession of the European and world economy caused by the pandemic and the decline in demand for oilseeds and their derivatives from key importers (e.g. China) pose a threat to the domestic rapeseed market. The consequence of these changes may be a decline in oilseed prices on the international market, which will translate into a decline in domestic prices and profitability of rapeseed cultivation. The export demand for rapeseed and its products may also be lower. In the 2020/21 season, with an increase in domestic harvests, but an expected slight decline in Europe, rapeseed prices will be higher than in the previous season. However, the increase in these prices in the domestic and European markets will be small due to the projected increase in global soybean crops and low oil prices.

Table 5. Balance of rapeseed in Poland (thousand tonnes) *

Description	2019/2020	2020/2021**	I April 2019	I April 2020
Production	2373,2	2622,0	–	–
Export	325,7	360,0	30,2	64,2
Import	506,7	420,0	138,3	126,7
Consumption	2554,2	2682,0	–	–

* Excluding inventory.

** Estimate of IAFE-NRI.

Source: GUS, Ministry of Finance and IAFE-PIB data.

According to the IAFE-NRI, in 2020, despite the increase in rapeseed harvest, oil production will – similarly to the previous year – amount to 1.3 million tonnes due to reduced demand in the domestic and European biofuel sector. With low crude oil prices, the profitability of biodiesel production decreases. At the same time, lower demand for diesel oil, as a consequence of the economic recession, will limit the demand for bio-components¹⁴.

With the expected decline in demand from the biofuel sector, the demand for canola oil in the food sector may remain stable. It is expected that the decrease in the consumption of vegetable fats (including rapeseed oil) resulting from the 3-month closure of an important sales channel, which is the HoReCa sector (hotels, restaurants and a large portion of mass catering), will be compensated by an increase in their direct consumption in households.

In the first quarter of 2020, the results of foreign trade in rapeseed, oil and meal improved, as the positive balance amounted to EUR 1.5 million, against a negative balance of EUR 12.8 million a year ago. In 2020, the trade balance will amount to EUR 57.3 million, compared to EUR – 6.8 million in 2019. The export of rapeseed meal may also be higher, as indicated by the trade results in the first months of this year, while maintaining a very low import. Rapeseed oil exports may be lower due to the expected decline in demand from the European biofuel sector.

Sugar market

In the sugar campaign of 2019/20, sugar production amounted to 2 065 thousand tonnes, and domestic consumption to 1 720 thousand tonnes. Production was about 20.0% higher than the demand in the domestic market and a large part of it was sold on the international market. In the 2020/2021 season, the sugar industry contracted sugar beets on an area of approx. 250 thousand hectares, against 240 thousand hectares in the previous season. The sowing of sugar beet was carried out in optimal agro-technical terms and favorable weather conditions. Very little rainfall in April this year hindered germination. The low water content in the soil and the high risk of drought in the summer adversely affected the condition of the plantations. The rainfall in May improved the crop conditions and the average root yields may fluctuate around 60 tonnes per hectare. The sugar beet harvest may amount to approx. 15 million tonnes, and the sugar production to approx. 2.2 million tonnes. The domestic sugar consumption shows slight changes and will amount to approx. 1725 thousand tonnes, and exports will play an important role in the market balance.

14. Oil World, <https://www.oilworld.biz/t/statistics/commodities>, access 10.08.2020.

In the first quarter of 2020, sugar exports amounted to 152.6 thousand tonnes, and imports to 44.6 thousand tonnes. Low prices in the world market negatively affected the results of foreign trade. In February – April, world white sugar prices fell from USD 413/t to USD 325/t, but in May they rose again to USD 350/t. These prices are below the EU sugar reference price (EUR 404.4/t). In exports, prices increased from EUR 392/t to EUR 425/t¹⁵.

Prices on the domestic market exhibited an upward trend. In the first quarter, the selling prices for bagged sugar increased from PLN 1.88/kg to PLN 1.92/kg, and for packaged sugar from PLN 2.01/kg to PLN 2.10/kg. Relatively low sugar prices adversely affect the situation of the sugar industry. In the discussed period, retail prices increased from PLN 2.64/kg to PLN 2.66/kg, and in April to PLN 2.72/kg. In the period of January – April, sugar prices were on average 9.5% higher than in the corresponding period of 2019. The increase in retail prices was caused by large bulk purchases of sugar by households in the first period of the pandemic.

The market of protein crops

The production of fodder legumes and cereal-legume mixtures in 2019 amounted to 346 thousand tonnes, against 353 thousand tonnes in 2018. The decline in the harvest in the last two years was the result of drought during the growing season, as the cultivation acreage was approx. 200 thousand hectares. Lupine is produced the most (117 thousand hectares, 149 thousand tonnes of harvest in 2019), while field beans (26 thousand hectares, 61 thousand tonnes) and fodder peas (22 thousand hectares, 40 thousand tonnes) are of lesser importance. The production of protein crops that can be used in industrial feed production in 2019 amounted to approx. 250 thousand tonnes against 260 thousand tonnes in the previous year and 303 thousand tonnes two years earlier. Cereal and legume mixtures are used directly on farms.

Part of the produced protein crop grains are exported, which in the previous season amounted to approx. 75 thousand tonnes, and in the period from July 2019 to March 2020, approx. 40 thousand tonnes. The subject of export is mainly lupine grain. Imports are smaller than exports, but their systematic growth is taking place. In the three quarters of the 2019/2020 season, imports amounted to approx. 35 thousand tonnes, against approx. 35 thousand tonnes throughout the 2018/19 season.

The pandemic did not have a significantly observable impact on the situation in the protein crops market.. The purchase prices for peas are approx. PLN 943/t, sweet lupins approx. PLN 1066/t and field beans approx. PLN 1012/t. The offers of the purchase

15. International Sugar Organization, *Daily Prices*, <https://www.isosugar.org/prices.php>, access 20.06.2020.

prices for grain from the 2020 harvest are approx. 5–7% lower than the current levels and the present price quotations do not differ substantially from previous years.

Further development of the situation on the protein crops market will be less dependent on the impact of the pandemic, and the most important will be administrative decisions related to the extension of the moratorium on the ban on the use of GMO feed, which will apply until the end of 2020. If the moratorium is extended and in the following years it will be possible to import GMO soybean meal, then there would be no strong impulse to change the current conditions on the market of high-protein plants. The cultivation acreage would be 200 thousand hectares, and the harvest, depending on the weather conditions, 350–450 thousand tonnes. In the case of a ban on the use of GMO feed, which is inconsistent with the EU legislation¹⁶, an increase in the demand for domestic fodder protein can be expected, which would result in an increase in prices and profitability of the production of protein crops. Production support in the form of supplementary payments and training has not brought satisfactory results so far. Imports of soybean meal in the 2019/20 season will increase to 2.5 million tonnes. In the 2020/21 season, it will temporarily decrease by 0.1–0.2 million tonnes, but will return to the upward trend in the longer term.

Table 6. Production, foreign trade and consumption of high-protein crops

Description	2018/19	2019/20 estimate	2020/21 prognosis
Total production	353	346	383
including legumes in pure sowing	260	250	281
cereal-legume mixes	93	96	102
Export	75	50	47
Import	35	46	33
Total resources	313	342	369
Farm consumption (feed mixes)	93	96	103
Potential consumption in the feed industry (legumes in pure sowing)	220	246	267
Total high-protein feed consumption	4086	4270	4258
including the share of legumes %*	7,7	8,0	8,7

* In terms of product weight of protein, this share is on average about 2 pp. less.

Source: GUS, calculations, estimates and forecasts of IAFE-NRI.

16. Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003 on genetically modified food and feed, L 268 of 18.10.2003.

Livestock market

The pandemic does not affect the current number and production of live pigs, which are determined by the pre-existing market situation. In December 2019, the population amounted to 11.2 million animals and was 1.7% higher than the year before. A relatively large increase in the number of pregnant sows (3.6%) signals that in June 2020 the increase in the number of pigs may be higher than in December 2019. In the first half of 2020, pig production will amount to approx. 1.3 million tonnes and will be by approx. 1.0% lower than last year. In the second half of 2020, production may increase by approx. 2.0%. Throughout 2020, it will reach a level of approx. 2.6 million tonnes and will be 1.0% higher than in 2019.

The pandemic may affect the livestock and production of pigs through prices, but this impact will not be visible until the end of 2020. If the decline in demand accelerates the annual decline in pig purchase prices and grain prices are higher, rearing conditions will deteriorate and the growth phase of pig production will be reduced. If the deterioration in the profitability of production was sudden and large, the population may drop to 10.9 million in December 2020, and to 10.6 million in June 2021.

The pandemic affects foreign trade, as epidemiological restrictions have caused difficulties in logistics and the functioning of the HoReCa channel. In the first quarter of 2020, pork exports decreased compared to the same period of 2019 by 36.2%, and livestock by 38.9%. Pork import decreased by 5.8%, and piglets by 3.7%. In the coming months, the situation may improve as the economy picks up, but it will not be as it was before the pandemic. In the first half of 2020, exports in terms of meat will amount to approx. 320 thousand tonnes and will be 20.0% lower than last year. Imports may amount to approx. 370 thousand tonnes in meat equivalent and will also be 20.0% smaller. The decrease in the import of piglets may be relatively small (5.0%). In the second half of this year, exports may amount to approx. 340 thousand tonnes, and import approx. 400 thousand tonnes. The pork industry will remain a net importer.

The impact of the pandemic on the pork market most clearly manifests itself in the price level. The drop in demand in the country and in the EU meant that in April this year the annual growth rate of the livestock purchase prices decreased. In the first quarter of 2020, the purchase price amounted to PLN 6.17/kg and was 45.9% higher than the year before. In April 2020, it amounted to PLN 6.08/kg and was 6.3% higher than the year before. In the summer months, livestock prices will depend on the EU economy, domestic demand and exports. However, any possible improvement will not mean a return to the pre-pandemic situation. In December

2020, the purchase price of live cattle may be 4.50–5.00 PLN/kg and will be 20–30% lower than last year. An important factor determining the level of domestic prices will be the zloty exchange rate against the euro.

In March 2020, retail prices of pork were 27.1% higher than a year before, and in April the price increase was 17.0%. The large difference in price dynamics resulted from the decline in demand caused by the limitations of the socio-economic life. It is estimated that in 2020 pork consumption will amount to approx. 38 kg per capita and will be 0.5 kg lower than in the previous year.

Cattle

In 2020, cattle stock and production are determined by the previous supply and demand situation, and the impact of the pandemic is small. In December 2019, the cattle population amounted to 6261 thousand animals and was by 1.3% higher than a year earlier. In June 2020, the population is expected to decline by 1.0% (to 6,250,000). The production of live cattle in 2020 will amount to approx. 1.1 million tonnes of live weight and will be approx. 3.0% lower than in 2019.

The impact of the pandemic on the live cattle market is relatively large, which is a result of the fact that 70% of production is exported, mainly to the HoReCa sector. In the first quarter of 2020, beef exports were 5.3% higher than in the previous year. In the following months, exports will decline by 10.0% – for the entire year it will amount to 395 thousand tonnes.

Lower demand in Poland and the EU contributed to a decline in cattle purchase prices. In the first quarter of 2020, the average purchase price was PLN 6.39/kg, including young slaughter cattle PLN 6.49/kg. The prices mentioned were 2.0% lower than the year before. In April, the purchase price of cattle was PLN 6.12/kg, and for young slaughter cattle PLN 6.22/kg. These prices were lower than the year before by 5.7% and 5.2%, respectively. In the summer months, the purchase prices of live cattle will depend mainly on the demand on the EU market. Any possible improvement in the situation will be rather small. Prices will probably be lower than a year ago due to limited tourist traffic and lower turnover in the HoReCa sector. In December, the prices of live cattle will be approx. PLN 6.00/kg, and the prices of young slaughter cattle PLN 6.10/kg.

In April 2020, retail prices for beef were 2.5% higher than in April 2019. A slight increase in retail prices for beef may cause consumption to remain stable at 3.5 kg per capita.

Poultry market

The Polish poultry industry is largely influenced by the situation of international markets, as exports account for 47.5% of production. The reduced supply of broilers meant that in early 2020 prices in the EU were higher than a year before, and in March their increase was supported by the stockpiling of inventory due to the pandemic. In the following months, however, a drop in prices was recorded. Similar price trends occurred on the domestic market. In the first quarter, the average purchase price was PLN 3.77/kg and was 0.7% higher than in the previous year. In April and May, purchase prices dropped. During the first five months of the year, the average price was PLN 3.60/kg and was 5.4% lower than in the previous year.

The supply of poultry meat on the domestic market was large, which is confirmed by the growing supplies of raw material to the industry. In the first quarter, purchasing amounted to 558.9 thousand tonnes and was 3.5% higher than in the corresponding period of 2019. The high dynamics of purchases also continued in April and May (by an average of 3.7%). The poultry industry is one of the dynamically developing segments of the domestic agri-food sector, despite the pandemic and limited access to outlets as well as outbreaks of avian influenza. In 2020, livestock production will increase by 1.5% (to 3.1 million tonnes). The slower dynamics will be the result of a decline in exports by 3.0% (to approx. 1.4 million tonnes). A significant decrease (of 38.0%) will concern import, but its share in the market supply is small, more so because chicks have a large share in its structure. The decrease in exports will be a consequence of the introduction an epidemiological state of emergency in many countries, which resulted in restrictions in the functioning of the HoReCa sector. Logistical difficulties related to access to markets, the recovery of markets by Brazil and the growing competition from Thailand and Ukraine will also have a negative impact on exports. The embargo on exports to Russia is of little importance for the domestic industry, as it was not a major sales market. The export will be stimulated by the spreading ASF epidemic in China, which will increase import demand with poultry meat in order to fill the supply shortages on the meat market.

Despite the economic recession and deterioration of labor market conditions and the income situation of households, poultry consumption is expected to increase in 2020 by 1.5% (to 28.5 kg per capita). One of the reasons for this is the slower growth in retail prices of poultry meat than in total food prices. In the five-month period of 2020, compared to the corresponding period of 2019, the retail prices of poultry increased by 4.4%, and of food by 7.6%. The reason for the relatively small price increase is the large supply in the domestic market. A factor stimulating consumption growth is the change in the consumption pattern. Due to limitations

in the movement of the population and the functioning of the HoReCa sector, consumption in households increased and consumption in catering establishments decreased.

Table 7. Balance of poultry meat and offal

Period	Production	Import	Demand	Export	Domestic consumption
2018	2934	79	3013	1325	1688
2019	3057	89	3146	1461	1685
2020*	3103	55	3158	1418	1740

* IERiGŻ – PIB forecast.

Source: *Compilation of IERiGŻ-PIB based on data from the Central Statistical Office and the Ministry of Finance.*

Dairy product market

The Polish dairy industry is self-sufficient at the level of 123% and a significant part of the production of dairy products is created for export. The large share of exports in the market balance makes the industry dependent on the economic situation on the international market. The pandemic caused a recession in the global economy. It was expressed in the deterioration of the situation on the labor market, a decline in demand and a decrease in foreign trade turnover. The downturn also occurred in the global market for shelf-stable dairy products. The FAO world price index for these products fell from 200.6 points in January to 196.2 points in April¹⁷, and the Global Dairy Trade¹⁸ index fell from 1039 points to 902 points. World butter prices fell from 4,038 USD/t to 2,531 USD/t and skim milk powder from \$ 2,605 USD/t to 1,667 USD/t¹⁹.

The global price drop and the reduction in demand in the international market negatively affected the situation on the domestic market. Difficulties with managing (exporting) the supply of shelf-stale dairy products and falling prices as well as the risk of drought in the summer will result in the acceleration of restructuring processes in the industry. It is expected that in June and December of 2020, the dairy cow herd will drop to 2,170 units and 2,140 units. In the production of raw milk, the long-term upward trend will be halted and it will decrease to 14.0 billion liters.

17. FAO Food Price Index, <http://www.fao.org/worldfoodsituation/foodpricesindex/en/>, access 24.08.2020.

18. Global Dairy Trade, <https://www.globaldairytrade.info/en/product-results/>, access 24.08.2020.

19. CLAL – Advisory in Dairy and Food Product, <https://www.clal.it/en/#>, access 24.08.2020.

Impact of the COVID-19 pandemic on the situation of the agricultural markets in Poland

During the four months of the first half of 2020, the purchase of milk amounted to approx. 4 billion liters and was 2.6% higher than in the corresponding period in 2019. In 2020, the purchase may amount to approx. 11.9 billion liters. Growing supplies of raw material to the dairy industry resulted in an increase in the production of dairy products: butter (by 5.6%), liquid processed milk (by 7.5%), rennet ripening cheeses (by 1.6%) and cottage cheese (by 3.6%).

In the first quarter of 2020, there was a deterioration in foreign trade results in terms of raw milk. Export decreased by 4.5% (to 1.2 million tonnes), and imports increased by 10.0% (to 0.5 million tonnes). The dairy industry remained a net exporter, but the balance of trade decreased by 13.7% (to 0.7 million tonnes).

The downturn in the milk market is visible in the drop in purchase prices in the period of January – April by 1.5% (to PLN 1.36/l). On an annual scale, the average purchase price will amount to 1.31–1.33 PLN/l and will be 1.3–2.8% lower than in 2019. In the period under discussion, dairy products actually became cheaper than food, as their retail prices increased by 3.6%, but butter decreased by 5.4%. At the same time, the total price of food increased by 7.6%.

There is an oversupply on the EU market. The European Commission has launched market intervention instruments (such as private storage aid) to mitigate the negative effects of the pandemic. However, the scope of these activities was not large, as there was no economic downturn, which would be manifested by a large surplus of supply.

Table 8. The supply and demand situation in the milk market

Description	2019	2020*
Livestock of dairy cows in June (thousand units)	2221	2170
Livestock of dairy cows in December (thousand units)	2164	2140
Production of milk (mln l)	14070	14000
Purchases of milk in January – April (mln l)	3946	4046
Purchases of milk throughout the year (mln l)	11828	11900

* IERiGŻ – PIB forecast.

Source: GUS data, IAFE-PIB calculations.

Summary

The COVID-19 pandemic resulted in the introduction of an epidemic emergency in Poland, and many countries introduced a state of emergency. Conventionally, there were significant limitations in the functioning of economic entities of the domestic agri-food sector, which manifested themselves in the following ways:

- restrictions on the movement of people (e.g. logistics, tourism, economic emigration, etc.) as well as goods and services that negatively affected international trade,
- restrictions in the operation of HoReCa sector enterprises, which resulted in a decrease in demand for food products,
- deterioration of the situation on the labor market and decline in household incomes, which resulted in a decline in food spending.

In the first period of the pandemic, a significant risk of drought also posed a serious threat to the domestic agri-food sector. The rainfall in May improved field crops and permanent plantations, but significant production and commercial risks remain. In industries that report high seasonal demand for hired labor, difficulties may arise with the performance of works (e.g. harvesting). Another type of production threat still remains the risk of ASF and bird play, and the persistent embargo on the export of certain agricultural products to Russia.

Taking into account the above market conditions, it is estimated that in 2020 the greatest economic difficulties will appear in the following industries:

- poultry, which exports 47.5% of its production, and difficulties with exporting resulted in the fact that a large part of the production was stored. However, the poultry industry is characterized by a short production cycle and economic entities can flexibly adjust production to demand conditions;
- beef, which exports about 80% of resources, and difficulties in exporting and a long production cycle pose a great threat to distribution;
- dairy industry, which exports in processed form about 38% of raw material supplies, and difficulties in exporting result in excess supply on the internal market. Interventions (e.g. private storage aid) have a short-term stabilizing effect on the market, as after a certain period of time the accumulated stocks will have to be sold on the market;
- pork, which continues the restructuring processes, and the import of piglet plays a large role in the structure of rearing. The threat of African swine fever spreading to other parts of the country is still serious. Deterioration of the income of households and economic difficulties of HoReCa sector enterprises may negatively affect the demand in the domestic market.

Bibliography

- CLAL – Advisory in Dairy and Food Product, <https://www.clal.it/en/#>, access 24.08.2020.
- IERiGŻ–PIB, IUNG–PIB, IPT, IOR, IHAR, IZOO, IO, *Diagnoza sektora rolno-spożywczego i obszarów wiejskich w Polsce przygotowana dla potrzeb opracowania Krajowego Planu Strategicznego 2021–2027*, Warszawa 2019.
- European Commission, *European Economy Forecast. Sommer 2020*, Institutional Paper 132/July 2020, Brussel, https://ec.europa.eu/info/sites/info/files/economy-finance/ip132_en.pdf, access 4.07.2020.
- Eurostat, *GDP and main components (output, expenditure and income). Gross domestic products at market prices. Chain linked volumes, index, 2010=100*, <https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>, access 3.07.2020.
- FAO, *Food Price Index*, <http://www.fao.org/worldfoodsituation/foodpricesindex/en/>, access 24.08.2020.
- Global Dairy Trade, <https://www.globaldairytrade.info/en/product-results/>, access 24.08.2020.
- GUS, *Biuletyn statystyczny*, nr 4, Warszawa 2020.
- GUS, *Rocznik Statystyczny Rzeczypospolitej Polskiej*, Warszawa 2019.
- GUS, *Sytuacja społeczno-gospodarcza*, nr 12, Warszawa 2019.
- International Grains Council, <https://www.igc.int/en/markets/marketinfo-sd.aspx>, access 10.08.2020.
- International Sugar Organization, *Daily Prices*, <https://www.isosugar.org/prices.php>, access 20.06.2020.
- International Monetary Fund, *Global Financial Stability Report: Markets in the Time of COVID-19*, Washington DC, www.imf.org/en/Publications/GFSR/Issues/2020/04/14/global-financial-stability-report-april-2020, access 3.07.2020.
- Narodowy Bank Polski, *Raporty o stabilności systemu finansowego*, Warszawa, <https://www.nbp.pl/home.aspx?f=/systemfinansowy/stabilnosc.html>, access 4.07.2020.
- NBP, *Średnie kursy walut*, <https://www.nbp.pl/home.aspx?f=/statystyka/kursy.html>, access 24.08.2020.
- Oil World, <https://www.oilworld.biz/t/statistics/commodities>, access 10.08.2020.
- Rozporządzenie (WE) nr 1829/2003 Parlamentu Europejskiego i Rady z dnia 22 września 2003 r. w sprawie genetycznie zmodyfikowanej żywności i paszy, L 268 z dnia 18.10.2003.
- Szajner P., *Handel zagraniczny produktami rolno-spożywczymi*, „Rynek Rolny. Analizy, tendencje, oceny” 2020, nr 3 (349).
- The World Bank Group, *The Global Economic Prospects*, Washington DC <https://openknowledge.worldbank.org/handle/10986/33748>, access 4.07.2020.

received: 11.08.2020
accepted: 28.10.2020

This article is licensed under a Creative Commons Attribution 4.0 International license (CC BY 4.0)

