

**THE IMPACT OF THE WORLD FOOD MARKET ON THE AGRICULTURAL SECTOR OF UKRAINE: RISKS AND PROSPECTS**

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*Ukraine, as a player on the world agricultural market, has a number of competitive advantages, including a high level of self-sufficiency in major food products, growth of agricultural production in the long run, gradual increase in agricultural exports and diversification, growth of the share of value-added products. In addition, there are potential threats to food security that need to be taken into account when formulating agricultural foreign trade policy. To ensure the balance and sustainability of the domestic food market, in line with the global trends, it is necessary to take into account the factors that determine the sustainability of the global food market, namely the factors of supply and demand and market conditions.*

*The purpose of the article is to study the development process of the domestic agricultural market of Ukraine, taking into account the influence of the world food market and identify risks and prospects for its development under the impact of external factors. Research methods: general scientific and special, qualitative and quantitative, theoretical (descriptive analysis) and empirical (work with official documentation, study of legislative acts).*

*Formed mainly under the impact of the world food market, the structure of agricultural production poses certain threats to both food and environmental security. Reducing livestock production may increase the country's import dependence, and the dominance of the two main groups of crops leads to soil depletion and a gradual decline in yields. This indicates the need to develop a diversified rational agriculture in the long run.*

*Keywords: agriculture, structure of agricultural production, world food market, food supply, food demand, market conditions.*

**JEL Classification: Q11, Q17, Q18**

**Introduction**

Ukraine's international market active entry contributed to the growth of export revenues of enterprises, which have become a significant source of capital accumulation for further development. This has created conditions favorable for production growth, reproduction processes intensification, higher level of employment in rural areas, and better usage of the means of production. At the same time, there was a deepening of specialization due to the high demand in world markets for grain and oilseeds. Currently the domestic agricultural sector plays a significant role in these global food markets, influencing both the world price levels and the state of the global food security.

Market transformations in Ukraine's economy have drawn attention to the place of agriculture in the country's economic development, namely, how agriculture can affect the country's economic growth. Opportunities to use the export potential of the agricultural sector could contribute to the intensification of macroeconomic growth, which, above all, requires stable sources of foreign exchange earnings. At the initial stage, one of the factors intensifying the agricultural sector as an exporter was the provision of quality agricultural land, relatively low science and capital intensity, which allowed to increase production without significant investment, as in fact the main asset was land.

The emerging concept of using agriculture for development redefines the roles of producers, the private sector and the state. The main producers are small-scale peasant farms, which are often the most efficient, especially with the support of their associations. However, in the event that such associations

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cannot ensure efficiency due to the scale of production and marketing, large, labor-intensive commodity farms become a more profitable form of production. The private sector acts as the organizer of value chains connecting the market with small peasant and large commodity farms. The government's mandate should be to correct market distortions, regulate competition, and take strategic action through public-private partnerships to ensure the competitiveness of the agricultural sector and expand the social inclusion of small farmers and agricultural workers. In this new concept, agriculture has an important role to play in development (World Bank, 2008).

Agriculture can be the main source of growth for countries where it is the backbone of the economy, as well as contribute to poverty reduction and environmental improvements in countries of all three groups, albeit in different ways. This requires improving the competitiveness and resilience of smallholders by diversifying income sources through labor markets and non-agricultural sectors of the rural economy, and facilitating the successful migration of those previously employed in agriculture.

The purpose of the article is to study the development process of the domestic agricultural market of Ukraine, taking into account the influence of the world food market and identify risks and prospects for its development under the impact of external factors.

### **Main results.**

Ukraine's active entry into international markets contributed to the growth of export earnings of enterprises, which became a significant source of capital accumulation, aimed at the development of agricultural production. This allowed to create conditions for increasing production, to intensify reproduction processes in agricultural enterprises, to increase employment in rural areas, to load the means of production. Agricultural producers have begun to introduce new technologies, and international competition has helped to improve production and improve product quality.

At the same time, there was a deepening of specialization. The fastest growth was shown by the most popular grain and oilseeds on world markets. According to the theory of absolute advantages of A. Smith, each country differs in its climate, territory, resources and production technology, so it should specialize in the production of the product that gives the greatest benefit in terms of production costs compared to other countries. This leads to the abandonment of the production of unprofitable goods and increase production of profitable products (Smith, 1932). This approach was the reason for the formation of the monospecialization in the domestic agricultural sector.

Over the last decade, agricultural producers have increased the share of grain crops in the structure of production from 13 to 33.9%, and technical (mainly sunflower) - from 7.2 to 26.5%. Thus, at present, these two groups of crops form more than 60% of the total gross output of domestic agriculture. Such changes in the structure have led to a significant reduction in livestock production. During this period, its share more than halved and, accordingly, the production of fodder crops decreased (up to 1.3%).

The domestic agricultural sector currently plays a significant role in world food markets. Yes, the decline in grain production in our country inevitably affects the world situation and, accordingly, affects the state of global food security. This is even more true of the sunflower oil market, where Ukraine is in the lead (Kovalchuk, 2017).

It should be noted that globally, wheat, rice and corn, according to FAOSTAT, provide approximately 20%, 11% and 7% of the food calorie supply, compared with 12% provided by dairy products, 10% sugar and 8% meat on average from 2014 to 2017. So, the most critical goods of the global market are not dairy and meat products, not vegetables, fruits or sugar, but cereals.

It should be emphasized that the current structure of agricultural production in Ukraine poses certain threats to both food and environmental security. Reducing livestock production may increase the country's import dependence, and the dominance of the two main groups of crops leads to soil depletion and a gradual decline in yields. All this indicates the need to form a diversified rational agriculture in the long run.

Thus, in the conditions of development of world integration processes, at convergence of local, regional, national and international markets in the conditions of growing competition in the country the mechanism of maintenance of balance and stability of the internal market should operate. The integration of agricultural markets requires ensuring:

- stability of providing the population with food at affordable prices;
- sustainable development of agricultural production, investment attraction, introduction of innovative technologies;
- balance of domestic markets of agricultural raw materials and food;
- increasing the competitiveness of agri-food products in domestic and foreign market;
- increasing export potential and optimizing imports, developing new markets, etc.

To characterize the balance and sustainability of the domestic food market, taking into account global trends, it is necessary to take into account the factors that determine the sustainability of the global food market. These are the *factors of supply and demand*.

Among the *demand factors* that currently characterize the world food market are:

- growth in demand for raw materials and food due to population growth and per capita income. Population is a key factor in determining overall food consumption, where income, relative prices, other demographic factors, consumer preferences, and lifestyle determine the structure of the food basket. Due to the expected 11% increase in global population (an increase of 842 million people between 2017-19 and 2029), as well as a significant increase in per capita income in all regions, total food consumption is expected to increase by 2029 at 15%. The Asia-Pacific region, as the most populous in the world, will continue to play a key role in shaping global food demand over the next decade, as it is projected to account for 53% of the world's population (i.e. 4.5 billion people) in 2029 (OECD/FAO, 2020).

The Middle East and North Africa region imports about 27% of the global grain supply, 21% of sugar, 20% of poultry meat, 20% of skimmed milk powder and 30% of whole milk powder. Markets in this region tend to be closely integrated with global agricultural commodity markets, and this interdependence will only intensify in the future given population growth, income growth and limited land and water resources for food production.

- increasing the welfare and income of the population (estimated by FAO at 3.5% per year) will be primarily due to countries with low or medium economic development (India, China).

– growing demand for animal products and sugar in developing countries. In particular, it is expected that in many above-average income countries, the predominance of animal protein intake will continue, and all increases in protein intake will be provided by animal protein. The projected increase in income will increase the consumption of meat per capita by 4% and fish by 12% by 2029. With regard to food consumption in low-income countries, it is projected that in the next decade, almost half of the extra calories will still fall on grains and roots or tubers. The second most important source of additional calorie intake will be sugar products, which will account for 26% of the total increase in calories. The growth of consumption of livestock products and other products with high nutritional value in these countries will remain limited, due to limited income.

– consumers of developed countries will have the priority of environmental safety and food quality. In high-income countries, long-term income growth and changing consumer preferences will lead to further replacement of staple foods, sweeteners and fats with foods with higher nutritional value, especially foods high in micronutrients such as fruits, vegetables, seeds and nuts. and, to a lesser extent, livestock products. As many fruits, nuts and vegetables have to be imported by high-income countries, this opens up market opportunities for countries that have the potential to export relevant goods. It should be noted that the practically achieved level of saturation of meat and dairy products will restrain further growth in demand for livestock products, while the growing concern of the population of these countries about health and the environment will increase protein consumption from

alternative sources. In particular, according to the FAO in 2018, the level of meat consumption per capita in the US was 123.2 kg, in France and Germany - 79 kg, in Ukraine - 49.3 kg with a consumption rate of 80 kg, and milk and dairy products, respectively, 223.7, 185, 171.0 and 143.6 kg. Which indicates an almost saturated state of the market for consumption of these products in developed countries compared to, for example, Ukraine.

– the impact of the COVID-19 pandemic on the world food market. In particular, the serious loss of revenue caused by the COVID-19 pandemic is expected to halt the growth of food consumption in the coming years. Consumption of vegetable oil and livestock products in low-income countries is projected to suffer the most. Smaller shifts will be observed in the consumption of basic foodstuffs, as it responds much less to income fluctuations. It is estimated that the pandemic will reduce the quality of food, but not reduce overall food consumption (OECD/FAO, 2020).

As expected, the pandemic has impacted global food markets. Quite great difficulties were observed in the chains of complex supply of meat and milk products in developed countries. In mid-2020, problems were noted in the meat processing industry, where outbreaks of Covid-19 among workers led to the closure of entire meat processing plants, and where farmers had to slaughter animals that had to get up to feed at a time when there was no place to slaughter them. In general, the global food system has coped with this crisis, but its consequences will be felt for a long time in terms of both a decrease in effective consumer demand, a redistribution of the movement of goods from the HoReCa sector to retail and online trade, and changes in the structure of consumption of goods (APK-inform, 2021).

The driving forces behind the structural changes in food consumption were, first of all, the cessation of active travel. Also, the reasons are a significant limitation of the ability to work in restaurants and a decrease in the purchasing power of the population as a result of the fact that many people have lost their jobs. That is, on the one hand, there is a decrease in purchasing power, and on the other, there is a narrowing of the opportunity to spend in traditional HoReCa sectors.

The explosive growth in e-commerce and food delivery should also be noted. Interest in local food products has increased. That is, there was a differentiated response to changes in food chains. For example, a recent study shows that poor households are more likely to refuse to buy fresh fruits and vegetables. Some studies have shown a shift towards consuming more processed foods. There has also been an increase in interest in home-grown vegetables in suburban areas. These and other changes in the food environment have had different effects on food diversity.

The demand for ingredients related to home cooking, canning and storage has increased. For example, the consumption of yeast, according to various estimates, increased by 150%. It is noted that people have begun to pay attention to healthy alternatives to meat or healthy types of meat.

– increase in world markets for demand for agricultural products as a feed base, which will be the result of the current change in food patterns in the direction of increasing the share of animal products. The total energy use of feed and protein by 2029 will increase by about 13%. This growth will be driven by the continued expansion of livestock and aquaculture in low- and middle-income countries. Medium-term forecasts also suggest a further intensification of livestock and fish farming to accelerate the production of marketable products and, consequently, higher returns on fixed capital investment. Despite ongoing innovations in the livestock sector, the share of feed energy converted into food products is expected to remain at a global level of no more than 23%.

It should be noted that new markets are now opening up for producers of traditional local and export agricultural products and, as such production becomes more differentiated, to meet changing consumer demand and take into account new product use opportunities, as well as take advantage of the integration of regional markets.

Among the *supply factors* currently affecting the world food market are the following:

– low rates of growth of food production and agricultural raw materials, which will not allow to meet more actively growing demand. In recent years, the average annual growth rate of world

agricultural production was 2.2%, in developed countries – 0.2, in developing countries – 3.4. In developed countries there are no reserves for increasing the productive potential of agriculture without harming the environment. According to forecasts, world agricultural production will grow at a slower pace than in the previous decade, and by 2029 will grow by 13%. Low- and middle-income countries with significant land and labor resources are expected to account for about 50% of global output growth. Such growth, especially in grain production, will also be fostered by national food self-sufficiency initiatives. The growth of world crop production over the next ten years will be due to 80% increase in yields as a result of more intensive use of production resources, investment in production technologies and improvement of agronomic methods. Another 18% will be accounted for by further intensification of land use through the collection of several crops per year, and the expansion of arable land, according to forecasts, – only 2%. The relative importance of increasing productivity and expanding arable land will vary by region and crop, reflecting differences in the availability and value of land and other resources.

– the impact of the COVID-19 pandemic on the current structural transformation of agricultural production. It is expected to be insignificant in the medium term. In particular, there was a stagnation in the transition from the production of basic crops to the production of fodder crops and livestock in 2020, especially in middle-income countries and least developed countries, but with the overcoming of this crisis the situation should improve.

– volumes of transitional grain stocks, which are a determining factor in the sustainability of the world food system (Table 1).

**Table 1 Trends in the world grain market, million tons**

Items	2014	2015	2018	Rate of change 2018 to 2014, %
Production	2813,3	2842,4	2918,3	103,7
Export	483,7	495,3	545,7	112,8
Changing stocks	155,2	91,8	51,0	32,9
Total consumption	2628,8	2722,1	2837,6	107,9
Food	1240,6	1256,1	1296,6	104,5
Grain consumption per capita in the world, kg per year	174,2	174,4	174,1	99,9
Incl. in countries with low incomes and food shortages, kg per year	182,2	179,9	180,0	98,8
The ratio of stock changes to consumption, %	5,9	3,4	1,8	30,5
FAO Price Index (2014-2016=100), %	115,0	98,0	95,9	83,4
FAO Grain Price Index (2014-2016=100), %	115,8	91,0	100,6	86,9

*Source: Compiled according to FAO.*

During the study period, there was a decrease in transitional stocks relative to total consumption, which has a significant destabilizing effect on world food markets. World grain production for the period 2014-2018 increased by 3.7% and reached 2918 million tons, while significantly reduced the rate of change in stocks, which characterizes grain stocks, which provide the ability to regulate the balance of the food market. In this situation, food prices decreased, although this decrease was smaller for cereals.

World stocks of key crops (wheat and rice) were adequate compared to periods of previous food crises. If we compare the crisis of 2020 and 2008, then such an important indicator for grain market

analysts as the consumption of wheat in relation to ending stocks at the beginning of the pandemic was 22%, while in 2008 it barely reached 18%. That is, the cereal market, which is the main pillar of global food security, was not in a very limited supply of cereals at the beginning of the current pandemic.

– in the next decade, global livestock growth will be about 13% due to low feed prices and stable prices for manufactured products, which stimulate investment in additional production capacity and efficiency, such as improving the genetic potential of livestock and more effective sanitary and epidemiological surveillance. It is also expected to increase the productivity of production facilities by improving the methods of fattening, which can increase the slaughter weight and reduce the time of receipt of marketable products. In addition to the ongoing intensification, production will continue to expand significantly due to an increase in livestock. The degree and relative importance of intensive and extensive growth will vary depending on the type of livestock products, resource availability and level of development and policies of countries.

– the world market for livestock products will be determined by global growth in dairy production, mainly due to Asian countries, which will be 22%. The growth of meat production will be provided by market economies and low-income countries and will amount to about 11%. At the same time, poultry production will increase by almost 20 million tons, which is almost half of the projected increase in total meat production.

– significant impact on the development of animal husbandry in the next decade will have a course for a low-carbon economy. Expected forecasts of production development show that the volume of direct greenhouse gas emissions by 2029 will increase by 6%, which indicates the need to gradually reduce the carbon intensity of agricultural production. The bulk of this growth will be in market economies and low-income regions due to higher output growth in more emission-intensive economic systems. Livestock production will account for 80% of global growth in greenhouse gas emissions.

*Factors of market conditions* also have a significant impact on the state of the world food market:

– rising prices for food and raw materials in the long run. Maintaining demand for agricultural products will be met by increasing production efficiency, which will keep real agricultural prices roughly unchanged, provided that economic recovery after the COVID-19 pandemic begins in the near future after 2021 and in the coming years there will be no restrictions on economic activity. Despite the global economic downturn, the FAO food price index rose slightly in 2020. Growth began in October and continues to maintain this trend. Based on the assumption of an accelerated economic recovery after the crisis caused by the COVID-19 pandemic, it is projected that prices will rise until 2026 and then remain unchanged. In real terms, the FAO food price index is projected to rise to pre-pandemic levels during the projected recovery period after the COVID-19 pandemic and to resume a downward trend from 2026 onwards. Although agricultural commodity price levels are expected to be below the peak levels of 2008 and 2011, they will exceed the price levels of the early 2000s, both in nominal and real terms.

For a long time, Ukraine has been an important participant in the world market of grain and sunflower oil and influences the sustainability of the world market of a number of types of agricultural products (FAS/USDA, 2021). Significant volumes of production of these types of products allow the country to increase export potential (Table 2).

Table 2 World producers of major crop products, million tons

Items	2018/2019	2019/2020	2020/2021 (expected)	Structure, %
<i>Wheat</i>				
World	731,0	763,9	776,5	100,0
European Union	136,6	154,3	135,6	17,5
China	131,4	133,6	134,3	17,3
India	99,9	103,6	107,9	13,9
Russian Federation	71,7	73,6	85,4	11,0
United States	51,3	52,6	49,7	6,4
Canada	32,4	32,7	35,2	4,5
<b>Ukraine</b>	<b>25,1</b>	<b>29,2</b>	<b>25,5</b>	<b>3,3</b>
<i>Corn</i>				
World	1124,1	1116,5	1137,1	100,0
United States	364,3	346,0	360,3	31,7
China	257,2	260,8	260,7	22,9
Brazil	101,0	102,0	109,0	9,6
European Union	64,4	66,8	64,0	5,6
Argentina	51,0	51,0	47,0	4,1
<b>Ukraine</b>	<b>35,8</b>	<b>35,9</b>	<b>29,5</b>	<b>2,6</b>
<i>Sunflower seeds</i>				
World	50,3	54,7	49,6	100,0
<b>Ukraine</b>	<b>15,0</b>	<b>16,5</b>	<b>14,0</b>	<b>28,2</b>
Russian Federation	12,7	15,3	13,3	26,8
European Union	9,5	9,4	8,9	17,9
China	2,5	3,3	3,3	6,7
Argentina	3,8	3,2	2,9	5,8
Turkey	1,8	1,8	1,6	3,2

Source: compiled according to Foreign Agricultural Service USDA.

In addition, there are potential threats to food security that need to be taken into account when formulating agricultural foreign trade policy. Such threats include the volatile level of domestic crop production in the southern regions caused by droughts due to climate change, low levels of irrigation of agricultural land and, as a result, non-compliance with technology and deteriorating soil quality. It should also be noted the low level of competitiveness of domestic products in foreign markets. Gradually, producers are solving this problem, but for a significant part of livestock producers and processors, foreign markets remain closed due to non-compliance with the required standards.

Threats include maintaining a high share of food expenditures in total household expenditures. For many years, it accounts for more than half of all total costs. Thus, in the first half of 2020, the share of total food expenditures was 51.4%, with 48.6% for households in urban areas and 57.4% in rural areas, which indicates a significant share of low-income households in countryside. At the same time, the growth of the real money income of the population is insufficient to increase the economic affordability of food. In 2020, the growth of real disposable income was only 102.6% compared to the previous period.

### **Conclusions.**

Characterizing the expectations regarding the dynamics of prices for certain types of products, it should be noted that in the near future there will be an increase in global demand for grain, especially for food needs, along with a continuing decline in corn and rice, which will put increasing pressure on prices. Oilseed prices will remain largely at current levels, as productivity growth will keep pace with growing demand, nominal sugar prices will rise, but in real terms will remain at about the same level, given the slowdown in demand growth in regions where per capita consumption is already high.

Taking into account all these factors, it can be noted that the formation of the agricultural market of Ukraine will be influenced by the following external features:

priority in the formation of world resources remains with export-oriented countries;

the concept of competitiveness is changing in the direction of strengthening the factors of rural development as a living environment that determines the quality of life and consumption;

the increase in the capacity of the world market occurs with the deterioration of the conditions for the formation of resources and unstable dynamics of production;

the focus on innovative production development, multifunctionality and environmental friendliness of agriculture is growing.

It should be noted that new markets are now opening up for producers of traditional local and export agricultural products and, as such production becomes more differentiated, to meet changing consumer demand and take into account new product use opportunities, as well as take advantage of the integration of regional markets.

Realization of scientific-technological and natural-climatic potential of the country's agri-food sector will ensure long-term sustainable development of national agricultural production, focused on effective, competitive and growing participation of the country in global food trade. This requires an increase in the share of production with high added value, which is less affected by price fluctuations; creation of trade and sales channels for the movement of products, which not only forms a stable sale, but also improves the negotiating position in relations with retail chains; diversification of processing capacities, which will allow redirecting raw materials for processing to long-term storage products and selling them in a favorable price period; effective interaction of the subjects of the technological chain for the control of technological processes, investment design, specialization and scaling of the raw materials under the market requirements; diversification and increase of exports in terms of countries and products; effective cooperation and investment.

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