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DORONIN A.V., Candidate of Sciences (Economics), Senior Research Fellow
National Academy of Agrarian Sciences of Ukraine

THE CURRENT STATUS OF GRAIN MARKET IN UKRAINE

Market development trends of grain in Ukraine, which provides both food safety and food produce export of the country, were analyzed in this paper. There is a tendency of increasing corn and rice. It has been defined that raw crop produce is the major item of Ukrainian export. Thus, the latter depends on the fluctuations of market conditions very much. The polynomial model which describes the level of grain and leguminous crops productivity in Ukraine for the period from 1913 to 2012 and envisages further yield increase of these crops was developed. The ways of enhancing the adaptability of grain crops under current conditions were identified.

***Key words**: grain market, food safety, ecology, structuring, government regulation, efficiency, market condition, export, import*

Introduction. Grain market always was and remains a main industry of the agricultural sector of Ukraine, which provides not only food security of country, but also agroproducts export. From this industry development is depends not only population providing of food products of plant origin, but and animal products. There are all necessary conditions: fertile soils, favorable climatic conditions, larger domestic and foreign markets, favorable geopolitical position of Ukraine in the middle of Europe, the presence of seaports, etc. In this case the dynamic development of crop industry not provides the population of country in animal products, which leads to the need of consumer market balance through a large part of pork imports.

At the same time the efficiency of grain crops is insufficient. Therefore, external economic activity for Ukrainian producers is play the primary role in the context of crop production export and their processed products and import regulations in accordance with the requirements of the World Trade Organization.

The issue of domestic grain market and solving the problems of export relations in the global market are engaged V. Boyko [1], V. Vlassov, S. Kvasha [2], M. Lobas [3], A. Shpychak [4], L. Khudoley [5] and others.

It is important to note that those achievements that are associated with the development of the domestic market of plant growing production in conditions of constant transformations is requiring the further research. It is becoming increasingly important a search of outer segments of the world food markets, and ensuring their presence there the domestic agricultural products.

*Statement of the problem***.** Research purpose is determining the level of grain growing production development in Ukraine and directions of production adaptability improving in modern conditions.

Results and discussion. In the early of 90-s of XX century in Ukraine, during the transition to market relations for all sectors of the economy were conditions created of free pricing and for agriculture reference prices introduced, which grew much slower than on goods and services that are consumed in agriculture, which disparity resulted in prices does not in favor of farmers. This, in turn, was influenced on the structure of sown areas of agricultural crops – industrial crops increases as more profitable.

Due to corn sown area expansion of (4,6% in 2001 to 13,1% in 2012), have the share of grain and leguminous plants increasing – 55,8% in 2001 to 56,8% in 2012. Including the share of food crops was decreased – 32,8% in 2001 to 27,4% in 2012, while the share of grain forage crops was grown – 23,0% in 2001 to 29,4% in 2012 (Table 1) [6–12].

Table 1

Structure of grain and leguminous crops in Ukraine by the 2001–2012 (farms of all categories)

Agricultural crop	Structure of sown area by the years, %						
	2001	2005	2008	2009	2010	2011	2012
Grain and leguminous crops including:	55,8	57,6	57,6	59,1	56,0	56,6	56,8
food	32,8	30,3	29,8	28,9	26,4	24,1	27,4
wheat (winter and spring)	25,5	25,6	26,2	25,5	23,9	21,1	24,5
rye (winter and spring)	3,3	2,4	1,7	1,8	1,1	1,1	1,0
rice	0,1	0,1	0,1	0,1	0,1	0,1	0,1
millet	1,3	0,5	0,6	0,4	0,4	0,7	0,6
buckwheat	2,6	1,6	1,1	1,0	0,8	1,0	1,1
haricot	0,1	0,1	0,1	0,1	0,1	0,1	0,1
grain fodder	23,0	27,3	27,8	30,2	29,6	32,5	29,4
barley (winter and spring)	14,7	17,3	15,5	19,1	16,7	12,5	13,7
corn	4,6	6,6	9,3	8,1	10,1	17,2	13,1
oat	2,1	1,8	1,7	1,6	1,2	1,1	1,0
leguminous (without haricot)	1,4	1,5	0,9	1,3	1,5	1,1	1,3
sorghum	0,1	0,1	0,4	0,1	0,1	0,6	0,3

In the agricultural producers sown areas structure was formed under many factors influencing. The main ones are: structure of agricultural lands, their quality specialization, product demand, and availability of means of production and labor resources, and climatic conditions. In Ukraine the socio-economic crisis had a negative impact both on the development of agriculture in general and crop production (Table 2) [13, 14].

Table 2

Production of grain and leguminous crops in Ukraine by the 2001–2012 (farms of all categories)

Agricultural crop	Production by the years, thousand tones					2012 in % to	
	2001	2005	2010	2011	2012	2001	2011
Grain and leguminous crops including:	39706,1	38015,5	39270,9	56746,8	46216,2	116,4	81,4
wheat (winter and spring)	21348,5	18699,2	16851,3	22323,6	15762,6	73,8	70,6
rye (winter and spring)	1822,5	1054,2	464,9	578,9	676,8	37,1	116,9
rice	68,9	93,0	148,0	169,9	159,8	231,9	94,1
millet	266,5	140,6	117,1	278,8	157,4	59,1	56,5
buckwheat	387,6	274,7	133,7	281,6	238,7	61,6	84,8
barley (winter and spring)	10185,7	8975,1	8484,9	9097,7	6936,4	68,1	76,2
corn	3640,7	7166,6	11953,0	22837,8	20961,3	575,7	91,8
oat	1115,7	790,7	458,5	505,6	629,7	56,4	124,5
leguminous	827,3	757,5	592,3	491,0	473,4	57,2	96,4

If in 1990, in Ukraine, the production of cereals and leguminous was amounted of 51,0 million tons, in 2000, only 24,4 million tons [13]. And only in later years, grain production is growing rapidly: from 39,7 million tons in 2001 to 46,2 million tons in 2012, or 16,4%. During this period it should be noted the production of corn growth in 5,7 times – up to 20,9 million tons in 2012 among cereals.

At the same time in 2012 wheat production is reduced to 26,2% – up to 15762,6 thousand tons, rye on 62,9% – to 676,8 thousand tons, millet on 40,9% – to 157,4 thousand tons, buckwheat on 38,4% – to 238,7 thousand tons, barley on 31,9% – up to 6936,4 thousand tons, oat on 43,6% – to 629,7 thousand tons, leguminous on 42,8% – to 473,4 thousand tons [13, 14].

Compliance elements of crops growing technology, the main ones are the nutrition of plants and protect them from pests, diseases and weeds with soil and climatic conditions of Ukraine is provided increasing of these crops productivity during this period: cereals and leguminous on 15,1% – to 3,12 t/ha in 2012, in particular of rye on 9,7% – to 2,27 t/ha, rice on 69,7% – to 6,21 t/ha, buckwheat on 29,9% to 0,87 t/ha, corn on 47,8% to 4,79 t/ha, oat on 4,5% to 2,09 t/ha (Table 3) [13, 14].

So, by the 2001–2012 years are seeing the growth in production of grain and leguminous crops, both by their share increase in the total sown area, and thus their yield increase.

Table 3

Yield of grain and leguminous crops in Ukraine by the 2001–2012 (farms of all categories)

Agricultural crop	Yield by the years, t/ha					2012 in % to	
	2001	2005	2010	2011	2012	2001	2011
Grain and leguminous crops including:	2,71	2,60	2,69	3,70	3,12	115,1	84,3
wheat (winter and spring)	3,10	2,85	2,68	3,35	2,80	90,3	83,6
rye (winter and spring)	2,07	1,73	1,67	2,07	2,27	109,7	109,7
rice	3,66	4,34	5,05	5,73	6,21	169,7	108,4
millet	1,06	1,17	1,37	1,78	1,03	97,2	57,9
buckwheat	0,67	0,69	0,67	0,99	0,87	129,9	87,9
barley (winter and spring)	2,60	2,06	1,97	2,47	2,11	81,2	85,4
corn	3,24	4,32	4,51	6,44	4,79	147,8	74,4
oat	2,00	1,76	1,48	1,81	2,09	104,5	115,5
leguminous	2,01	1,89	1,51	1,46	1,56	77,6	106,8

Due to only yield growth is increased production of rice. It is seeing production of rye, buckwheat, oat only of their sowing areas reducing. Decrease of wheat, barley and legumes production is occurred as by reducing of their share in the total sown area, and thus in their productivity decrease.

On the basis of the polynomial model that describes the level of grain and leguminous crops productivity in Ukraine by the 1913–2012 years, was made the forecast of these crops yield, which includes its increase on 15% (Figure).

Thus, in Ukraine there are all preconditions for increasing the production of grain crops that provide not only food security but also export products.

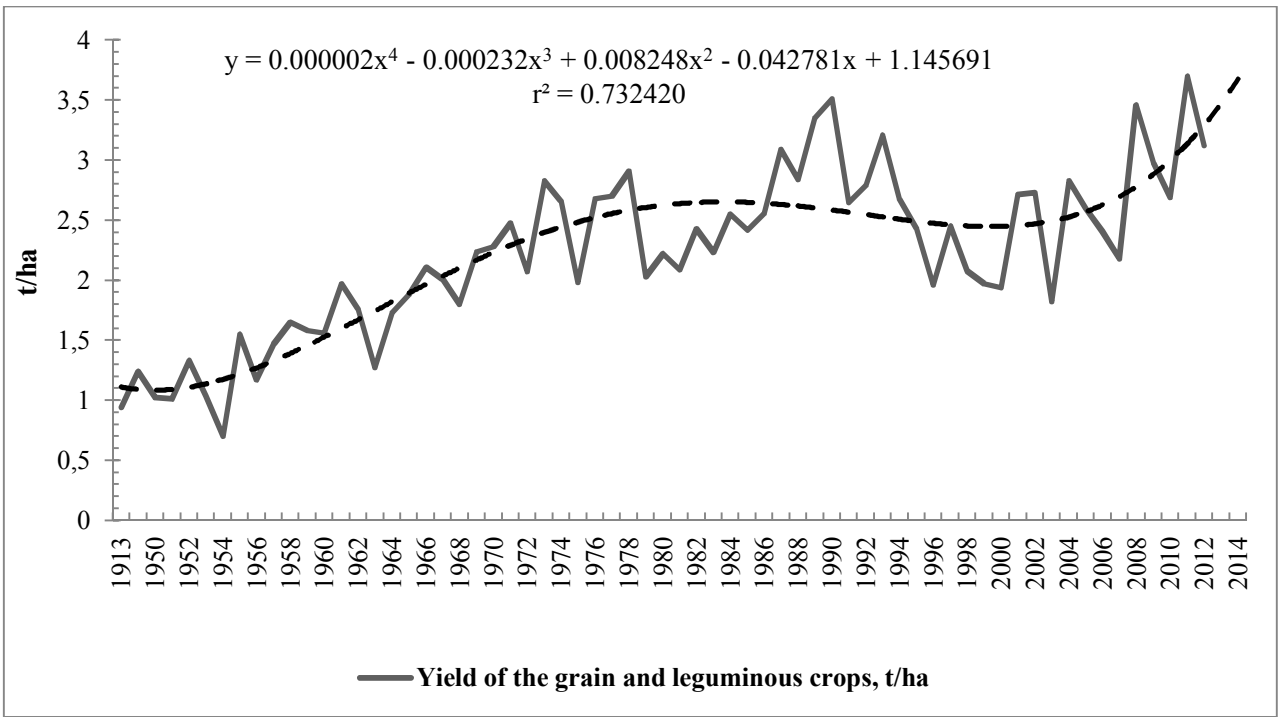

Figure. The dynamics of the grain and leguminous crops yields in Ukraine by the years

It should be noted extensive development of trade relations of Ukraine in the market of grain products industry. In 2005 the geography of exports was comprised 75 countries, in 2012 already 101 countries, or on 26 countries more. In 2005–2012 years the main importers of Ukrainian wheat were Spain, Egypt, Israel and Tunisia, which over the years were imported 7,6; 6,0; 4,2 and 3,0 million tons respectively. The main importers of corn were Belarus, Spain, Iran, Tunisia and Egypt, having purchased of 1,1; 5,5; 3,9; 1,8 and 8,2 million tons respectively. Regarding to the third major grain crop – barley, the main importers are Middle East countries: Saudi Arabia, Iran, Syria and Jordan, which were taken from Ukraine by the 2005–2012 years 18,3; 2,5; 2,0 and 1,9 million tons respectively [2].

The main agri-food products of Ukrainian exports to European Union countries are raw production of plant growing (seed of cereal and oil crops), crude sunflower and other oils. In the export of structure of agroproducts from Ukraine to the EU by the 2012, cereal crops are constitute 40,2%, seed and fruits of oil crops – 24,9% respectively, fats and oils – 16,6%, wastes of food industry – 10,6% [2].

During the period of 2008–2012 level of profitability of corn production is increased from 10,6% in 2008 to 19,8% in 2012, but during the same period the effectiveness of wheat production are reducing from 17,6% to 11,8% and barley – from 19,8 % to 11,4% (Table 4) [15–19].

In 2012 reduction the efficiency of wheat production was due to an increase in production cost of 1 ton of wheat on 116,4%, respectively, the average selling price of 1 ton of wheat has risen only on 105,6%, reduction the efficiency of barley production was due to an increase in the cost of production of 1 ton of barley on 102,3%, respectively the average price of 1 ton – grew only on 88,2%.

In recent years the reason of the loss of efficiency of grain industry is the lack of development of agricultural market infrastructure and sales of grain, the lack of an effective mechanism of state regulation of pricing on grain products in conditions of both overproduction of grain and harvest failure, high level of credit rates and inadequate of budgetary support. In the modern conditions, government regulation of the grain market in Ukraine does not play the stimulus role in relation to grain production and is not able to responding effectively on the challenges of the global economy.

It is advisable on a national level is create and involve the effective mechanisms for regulation of market products of plant growing. For stabilize prices of industry products the state must carry purchasing and commodity interventions, coordinate and harmonize the pricing policy at the national and international markets.

Table 4

Economic efficiency of main grain and leguminous crops production in Ukraine by the 2008–2012 (agricultural enterprises)

Index	Year					2012 in % to	
	2008	2009	2010	2011	2012	2008	2011
Wheat							
Total cost of 1 ton, UAH	643,0	753,0	996,0	1128,2	1391,4	216,4	123,3
Average selling price of 1 ton, UAH	756,4	796,3	1091,2	1327	1555,1	205,6	117,2
Level of profitability, %	17,6	5,8	9,6	17,6	11,8	–	–
Barley							
Total cost of 1 ton, UAH	701,7	760,2	959,9	1158,9	1419,5	202,3	122,5
Average selling price of 1 ton, UAH	840,3	723,2	956,5	1344,3	1581,7	188,2	117,7
Level of profitability, %	19,8	-4,9	-0,4	16,0	11,4	–	–
Corn							
Total cost of 1 ton, UAH	663,0	716,5	956,5	977,2	1270,1	191,6	130,0
Average selling price of 1 ton, UAH	733,4	870,4	1242	1354,3	1521,0	207,4	112,3
Level of profitability, %	10,6	21,5	29,9	38,6	19,8	–	–

Among the external economic partners of Ukraine related to the product of agrarian sector of economy is very significant is the European Union. Trade balance of agri-food products between Ukraine and the EU is positive, except of 2010.

In 2008, Ukraine was exported agri-food products to EU countries on valued at 3,2 billion dollars U.S., imported respectively – the amount of 2,5 billion dollars U.S., trade balance was positive (0,7 billion dollars U.S.), that is due to the accession of Ukraine to the World Trade Organization. In 2012, is seeing an increase export of agro products from Ukraine to EU countries up to 4,9 billion dollars U.S., import respectively – to 3,0 billion dollars U.S., trade balance was positive (1,9 billion dollars U.S.), which is gives hope for favorable perspectives of Ukraine in the creation of a free trade area with the EU.

The basis of Ukrainian exports to the EU is constitute grain crops and seed and fruit of oil plants, whose share respectively was 30,2 and 37,4% in 2008, while in 2012 the share of cereals is increased to 40,2%, but respectively is decreased the share of seed and fruit-oil cultures – up to 24,9% [2].

Raw materials orientation of Ukrainian exports makes Ukraine's position on foreign markets is vulnerable, as the demand on raw goods is unstable and characterized by significant variability price. It is therefore necessary to provide an increase in export of Ukrainian goods with high added value. However, import of meat and meat preparations is decreased from 465 million dollars U.S. in

2008 to 397 million dollars U.S. in 2012, respectively whose share in the structure of import was 18,5% in 2008 and 13,4% in 2012 [2].

It should be noted that in Ukraine export of crops is increases, and the largest share of import from the EU is takes meat and food offal, in the future this tendency could adversely influence on the development of the domestic livestock industry.

The main directions of adaptability of crop production in modern conditions increasing are: placement of agricultural crops in favorable soil and climatic conditions, creation of varieties and hybrids, adapted to the natural conditions of Ukraine, plant growing industry is transfer to post-industrial development models, raw material base for bioenergy is provide, forage base for livestock is create, development of organic production, structuration of grain market.

To achieve these goals it is necessary to solve the issue of soil fertility increasing by complex organizational and technological measures introducing, such as: the use of research based crop rotation at cultures growing, the orientation on organic fertilization system, the efficiency of fertilizer application by optimizing the dose, timing and methods of application in the soil improving, soil tillage technologies development, reducing the negative impact of plant protection chemicals as the plant itself, and the useful microflora of soil.

Farming is providing by the adapted varieties and hybrids of agricultural plants with higher productivity and also their environmental resistance to conditions of the environment, the organization of seed production of agricultural crops is requires in Ukraine. Thus even, adapted varieties and hybrids to weather and environmental conditions cannot always provide the high productivity of agricultural crops through the process of global warming on our planet.

Application of postindustrial models of crop production industry is includes the development and implementation: resource saving bioadaptive technologies of agricultural crops growing, integrated plant protection, methods of optimization the process of growth and development of plants, with climate change considering and on the principles of precision farming.

In the conditions of growing problem of our country ensuring of affordable by the price of energy carriers is appropriate the production of alternative fuels expedite, including production of plant growing. Production and use of biofuels will accelerate the solution of the following strategic objectives for the development of Ukraine, in particular agriculture as reduce dependence of producers on imported fuel and satisfaction of demand for these products at a lower price providing.

For ensure the needs of livestock by feeding basis it is necessary to provide the expansion of fodder crops sown areas, including corn for silage and perennial grasses and reduce the share of exports of corn grain.

Development of organic production is necessary to carry out through the prohibiting the use of chemically synthesized fertilizers and plant protection products, hormones, antibiotics, genetically modified organisms, growth regulators, etc., and appropriately labeled products that meet the requirements of organic. Unfortunately, the lack of relevant legislation in Ukraine is makes it impossible of organization of the system of accreditation and normalizing activity of certification bodies and also prevents the positioning of our country as an exporter of organic products in the international market.

For improvement the structure of grain crops is necessary manufacturing products ensuring that is in high demand in the global market – wheat, corn, barley, and the sown area of corn for silage and perennial grasses – to ensure the needs of livestock of necessary feeding basis.

Conclusions. In Ukraine there are all preconditions for plant growing production increasing which provide not only state food security but also products export. The main function of the state in regulating the grain market must be predicting the market situation. Process of formation of the national grain market in conditions of globalization is still at a formative stage, so this market is still far from being not fully fulfillment of its functions and tasks ensure, such as balance of supply and demand, increase the profitability of agricultural producers the solution of social and environmental problems of the industry.

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Анотація

Доронін А.В.

Сучасний стан зернового ринку в Україні

Проаналізовано тенденції розвитку ринку зерна в Україні, який забезпечує не тільки продовольчу безпеку держави, а й експорт агропродовольчої продукції. Виявлено тенденцію до збільшення виробництва кукурудзи та рису. Визначено, що основними товарами українського експорту є сировинна продукція галузі рослинництва. При цьому сировинна орієнтація українського експорту робить його залежним від кон'юнктурних коливань. Розроблено поліноміальну модель, яка описує рівень урожайності зернових та зернобобових культур в Україні за період з 1913 по 2012 роки та передбачає збільшення урожайності цих культур на перспективу. Визначено напрями підвищення адаптованості виробництва

зернових культур в сучасних умовах.

Ключові слова: ринок зерна, продовольча безпека, екологія, структуризація, державне регулювання, ефективність, кон'юнктура ринку, експорт, імпорт

Аннотация

Доронин А.В.

Современное состояние зернового рынка в Украине

Проанализированы тенденции развития рынка зерна в Украине, который обеспечивает не только продовольственную безопасность государства, но и экспорт агропродовольственной продукции. Выявлена тенденция к увеличению производства кукурузы и риса. Определено, что основными товарами украинского экспорта является сырьевая продукция отрасли растениеводства. При этом сырьевая ориентация украинского экспорта делает его зависимым от конъюнктурных колебаний. Разработана полиномиальная модель, которая описывает уровень урожайности зерновых и зернобобовых культур в Украине за период с 1913 по 2012 годы и предусматривает увеличение урожайности этих культур на перспективу. Определены направления повышения адаптированности производства зерновых культур в современных условиях.

Ключевые слова*: рынок зерна, продовольственная безопасность, экология, структуризация, государственное регулирование, эффективность, конъюнктура рынка, экспорт, импорт*