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NAS RK is pleased to announce that Bulletin of NAS RK scientific journal has been accepted for indexing in the Emerging Sources Citation Index, a new edition of Web of Science. Content in this index is under consideration by Clarivate Analytics to be accepted in the Science Citation Index Expanded, the Social Sciences Citation Index, and the Arts & Humanities Citation Index. The quality and depth of content Web of Science offers to researchers, authors, publishers, and institutions sets it apart from other research databases. The inclusion of Bulletin of NAS RK in the Emerging Sources Citation Index demonstrates our dedication to providing the most relevant and influential multidiscipline content to our community.

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THE CURRENT STATE OF BUCKWHEAT MARKET IN UKRAINE

Abstract. The purpose of the article is to study the current state of buckwheat market in Ukraine and the world. Dynamics of buckwheat growing in 2015, 2016, 2017, 2018 and its impact on the domestic and foreign buckwheat market in Ukraine are analyzed. The research is based on the statistics of the State Statistics Committee of Ukraine.

The analysis of the buckwheat origin and the area of its growing in the world is conducted. It is established that buckwheat is grown both in Eurasia and America. In Europe, Asia and America, buckwheat is gaining in popularity every year. Due to the fact that this crop is used not only for food and feed purposes, it is also a valuable medicinal plant and a good honey plant.

It is proved that Ukraine has all the necessary economic, natural and agro-climatic conditions for the buckwheat growing and not only to satisfy the internal market but also to be a leader among exporters in sales of this crop and products of its processing.

It is established that a significant decrease in the buckwheat-growing areas has been observed in recent years, which leads to a decrease in the gross output of the crop. This situation contributes to the rise in retail prices of buckwheat and the loss of positions in the foreign market as a leading exporter in the world.

Key words: market, buckwheat, buckwheat groats, export, import, dynamics of production, growing, production.

Target setting. There are constant dynamic changes at the present stage of development of the Ukrainian economy agrarian sector. These processes take place under the influence of changes in supply and demand in the agricultural market and price disparities in the agro-industrial complex. Equally important factors influencing the formation of the agricultural market are global climate changes. They require not only changes to the elements of technology of crops growing, but also the introduction of niches and replacement crops into the rotation structure. Buckwheat is an important replacement crop due to its biological characteristics.

Ukraine's membership in the World Trade Organization, as well as the prospects of joining the European Union, impose changes on the structure of crop rotations of agricultural producers and the corresponding functioning of the processing industry.

Despite the current challenges of socio-economic processes and natural changes, the main task of the agro-industrial complex is to increase the level of food security of the country and, in particular, to provide the population with high-quality, environmentally safe food products of domestic production.

The cereal crops market is an important segment of the global grain market.

Groats are the product of cereals, which are on the second place in terms of importance and processing volume. The share of cereal crop production in the total volume of grain crops is 2.2-3.0%.

Buckwheat is one of the crops that can quickly adapt to market demands, provide food security, and satisfy the population's demands for healthy nutrition while preserving the national nutrition culture of Ukrainians. Buckwheat is made from the fruits of the herbaceous plant (Fagopyrum).

Recent research and publications analysis. Well-known Ukrainian scientists, such as V. Demyanenko, M. Malik, L. Marmul, O. Orlenko, P. Sabluk, V. Sviridov, V. Sytnik, L. Khudoliy, and O. Spychak have been engaged in the issues of grain market development and its state regulation. Features of functioning of the cereal crops market as a segment of the grain market were investigated in the works of O. Averchev, Y. Bunziak, R. Morozov, I. Mykolenko, O. Nyshodovskaya, and others.

However, in the works of scientists, more attention is paid to the whole market of grain and cereal crops, but the analysis of all segments of the buckwheat market participants in Ukraine and abroad is not fully conducted.

The purpose of the article is to study the current state of buckwheat market in Ukraine and in the world. Dynamics of buckwheat growing in 2015, 2016, 2017, 2018 and its impact on the domestic and foreign buckwheat market in Ukraine are analyzed. The research is based on the statistics of the State Statistics Committee of Ukraine.

Statement of basic materials. Market of cereal crops (buckwheat) is a system of economic relations between market entities that arise in the process of crops growing, cereals production, storage, sale and consumption of cereals under free competition and market pricing, the choice of directions, forms and methods of sales and state regulation of the market and quality control of products [5].

Buckwheat growing is one of the major segments of the cereal crops market, and the crop itself is a key one.

Common buckwheat – Fagopyrum esculentum Moench. (Synonyms: Fagopyrum fagopyrum (L.) Karst., Fagopyrum sagittatum Gilib., Fagopyrum vulgare Hill, Polygonum fagopyrum L.), belongs to the order Polygonales, Polygonacea family, Fagopyrum P. Mill genus.

Until recently, two species of domestic buckwheat (common buckwheat, Tatar buckwheat) and seven wild species were known. However, the collection of species is updated annually, and the updated classification of buckwheat testifies to the existence of 14 species of buckwheat [2].

Buckwheat belongs to the Polygonaceae family. In production conditions, common buckwheat (Fagopyrum esculentum Monch), grown for grain and as a honey crop, has become widespread [1]. Buckwheat is an annual plant that easily adapts to environmental changes [3]. The most characteristic feature in the biology of buckwheat, which distinguishes it from many other plants, is that along with flowering and fruiting, the growth of vegetative mass is observed. The homeland of buckwheat is considered the north of India, where even today there is an opportunity to find wild forms of it.

Most researchers believe that the homeland of buckwheat is the mountainous area of the eastern Asian continent. The largest number of geographic populations of Tatar buckwheat (*F. tataricum*) with greenish small flowers and common buckwheat (*F. esculentum*) with white and pink flowers are still present in Mongolia, Siberia, and Primorye. Thus, M.I. Vavilov [1] states that buckwheat comes from China. Other scientists express the opinion of the buckwheat origin from the Himalayas [3]. In particular, they indicate a large number of buckwheat forms of varying states of cultivation on the slopes of the Himalayas and in Tibet. They assume that large-fruited forms of buckwheat have come from these forms, which nowadays are widespread in Japan, China, Korea, and North America. Yu. B. Konovalov, based on the botanical and biological features of buckwheat, tends to think of its origin from the northern regions of India, adjacent to the Himalayas.

In the Eastern countries, like China, Japan, and Korea, buckwheat has been grown since ancient times. It is likely that from these countries it gradually moved to Central Asia, where traces of its crop were discovered in the second half of the XI century in ancient monuments preserved from the disappeared agricultural peoples of Mongolia, Gobi, Xinjiang, Fergana (eg, the Uighurs) [3].

This crop is relatively young in Europe. It is most likely that it was brought to Europe, in particular, to Ukraine, during the invasion of the Tatars, in the XIII century. The assumptions that the Tatars brought buckwheat to Ukraine are borne out by the fact that Poles and Slovaks, for example, call buckwheat as "Tatar" [5]. It is also believed that the Bulgarians, who shared buckwheat with Tatars, transported it in Europe. However, there is reason to believe that the buckwheat appeared earlier in Bashkir, Chuvash and Tatar peoples who lived in the basins of the southern Kama with the inflows of White and Sura River, than on the main Dnieper massif. This is evidenced by the ancient monuments of these peoples. Buckwheat was developed in the VI-VII centuries BC among Bashkir and Chuvash peoples, that is, before the Bulgarians moved to the Danube. The literature also indicates that the Slavs had buckwheat in the culture even before settling in the Russian lowland. Information about buckwheat, dating to the VIII century, recorded in "Domostroy" – the first Russian guide about farm management, authored by a clergyman Sylvester.

In the second half of the XI century in Ukraine, the former Chernihiv province became the center of buckwheat crops. It occupied more than 25% of the total acreage in this province. In some districts, such as Novgorod-Siversky and Glukhiv, it held the first place among the agricultural crops. However, its yields at that time were very low – 0.3–0.4 t/ha. In the future, its importance in comparison with other crops decreased.

Currently, its geography includes Russia, Ukraine, Belarus, Kazakhstan, Serbia, Croatia, Poland, as well as Japan, China, Mongolia, Korea, USA, Canada, Bhutan, and Brazil. In other countries, buckwheat is grown on small areas, mainly as a replacement or sidereal crop, given to it less attention and often attributed it to low-yielding cereal crops [5,6,7].

In fact, buckwheat is not inferior to the main grain crops in the national economy, and in some biochemical indicators and dietary characteristics, buckwheat grain exceeds them. In addition, buckwheat products are environmentally friendly and low investment in production, which is of particular importance in the modern world [2]. Intercrop buckwheat is attributed to the environmentally friendly direction of intensification of agricultural production in Ukraine. Thus, the word "green", which labels organic products and indicates its environmentally friendly origin, is associated with a narrow range of crops, among which buckwheat is on the leading position [9].

Due to growing demand for environmentally friendly grain and relatively high-profit earnings, buckwheat has been displacing spring wheat in the United States from year to year [8], as well as many other crops in crop rotations, where it prevents the development of harmful organisms [11] and helps to clear fields from weeds. Thus, buckwheat intercrops in Missouri (USA) provide more additional income than soybeans [7]. In the Czech Republic, the ecological and dietary properties of grain led to an increase in organic buckwheat production in 1997 (more than 200% compared to 1990), and in 1999, the share of organic buckwheat grain was 520 tonnes of the total yield – 1500 tonnes [9]. Recently, buckwheat is in a high demand in Japan, where 20.000 tonnes of grain per year is produced and up to 110.000 tonnes of grain is consumed, and the rest is imported from China, the US, and Canada. Buckwheat sowings are expanding in Australia, where new areas in the south are being cultivated. Thus, in 1995, its sowings first appeared in the arid state of Victoria [8].

In Ukraine, the development of the buckwheat market is directly dependent on the volume of its growing, crop yields, and the availability of grain reserves.

The climatic conditions contribute to the development of the cereal crop industry and allow the production of high-quality grain cereals in volumes sufficient to meet domestic needs and generate export potential.

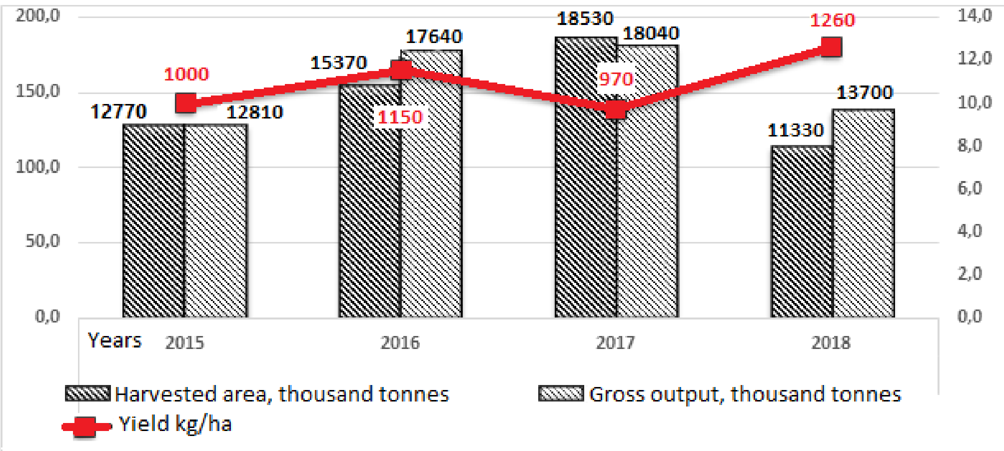

Figure 1 – Dynamics of buckwheat production in Ukraine

According to the official statistics, harvested area of buckwheat in 2018 decreased by 72 thousand hectares to 113.3 thousand hectares. At the same time, the average yield increased by 290 kg/ha and amounted to 1260 kg/ha, which led to an increase in the gross output to 137 thousand tons.

According to the Institute of Agriculture of the North-East of the NAAS, the sowings areas of buckwheat have significantly decreased in Ukraine over the last 10 years. Considering the current state of development of cereal crop seed production, the situation is critical. Two-thirds of the enterprises producing high-quality buckwheat seeds have abandoned such business because of the unprofitableness of this type of activity, and one-third of the varieties listed in the State Register ceased to maintain them in primary seed production.

Of the 18 seed companies listed in the State Register of Seed Producers in 2019, 15 are scientific institutions and enterprises of the National Academy of Agrarian Sciences of Ukraine, which produced 85% of the total volume of basic and certified buckwheat seeds.

The poor competitiveness of domestic breeding and seed production, the lack of state support for this sector and the low level of protection of intellectual property rights for plant varieties have led to a critical situation. The current situation on the seed market in Ukraine is a gradual deterioration of seed quality and, as a result, a decrease in production. The growing of elite and reproductive buckwheat seeds has decreased by 4-6 times today [14].

In 2019, buckwheat sowings areas have declined by 59% compared to 2018. So, even with the most optimistic forecasts, taking into account the favorable soil and climate conditions, the yield of 45.000 thousand hectares (in 2018 – 103.4 thousand hectares), will be no more than half the volume of last year.

The leaders in the gross collection of buckwheat among the oblasts in 2018 are Zhytomyr (28.0 thousand tons), Khmelnytsky (18.6 thousand tons), Sumy (11.6 thousand tons), Kyiv (10.7 thousand tons), Kharkiv (10.4 thousand tons) and Vinnytsia (10.1 thousand tons) oblasts. Transcarpathian farms (19.2 c / ha), Khmelnytsky and Kyiv oblast (15.6 c / ha) received the highest yield. For comparison, the buckwheat yield in the south is about 1200 kg/ha. [3].

If to follow the dynamics of changes in buckwheat growing locations in agricultural enterprises in 2016 and in 2018, it is possible to note some changes (figures 2, 3).

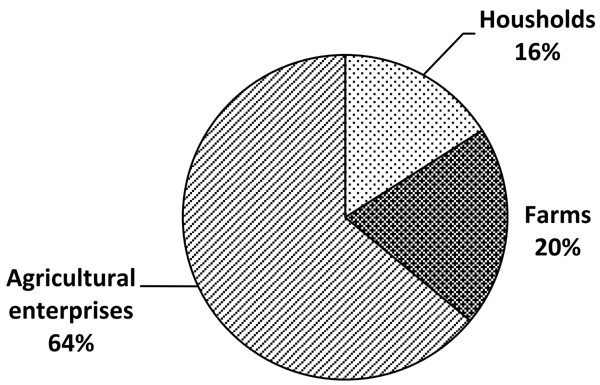

Figure 2 – Structure of buckwheat growing in Ukraine by categories of farms in 2016

This chart shows that in the structure of buckwheat growing is dominated by agricultural enterprises – 64%, farms – 20%, and the smallest share are households – 16%. In 2018, the structure of buckwheat growing has undergone some changes (figure 3).

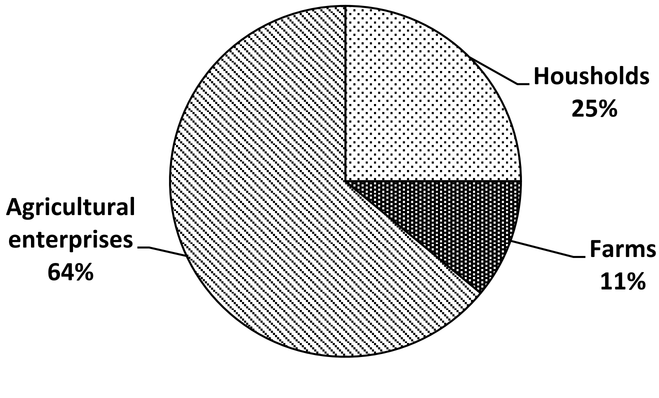

Figure 3 – Structure of buckwheat growing in Ukraine in 2018

In 2018, agricultural enterprises remained the leaders in buckwheat growing with a constant 64%. But farms reduced the volume of cultivation by 9%, while households increased their share in the structure of buckwheat growing in Ukraine. Large agricultural enterprises do not engage in labor-intensive crops because they have low profits.

This is due to the influence of several factors: fluctuations in grain prices, changes in supply and demand on the world grain market, including cereal crops, price disparity in the agricultural sector.

But the consumption of buckwheat is projected to remain at the level of previous years. This situation will increase the prices of buckwheat by at least 20-30%.

Buckwheat is a valuable cereal crop that has a high-demand and a large market but is significantly dependent on the socio-economic situation in Ukraine. The Ukrainian cereal crops market is internally oriented. Buckwheat is a leader in the consumer basket of cereals. In one year during the studied period (2015-2019), Ukrainians consume up to 120.000 tonnes in 2015, and about 100.000 tonnes in 2019 [4].

In 2015, after a sharp decline in buckwheat production, there was a gradual rise in prices for grain and groats. In the period from September 2015 to June 2016, buckwheat grain went up from 11 to 20 thousand per 1 tonne on EXW conditions, and buckwheat groats increased from 19 to 32 thousand hryvnias. The increase in domestic prices for groats was caused by a significant decrease in its production in 2015. At that time, it amounted to 66.9 thousand tonnes, which is 24% less than the previous year.

In the 2016-2018 marketing years, the price situation was more stable. The minimum purchase prices for buckwheat grain and, consequently, for buckwheat groats were observed during the harvesting period, that is, at the beginning of the season, and their maximum growth was at the beginning of March. Thus, the purchase prices for buckwheat grain in 2016 ranged from 13.5 to 18 thousand UAH/t, and for buckwheat groats, it was from 23 to 27.5 thousand UAH (figure 4). [12].

The lowest price for buckwheat was observed in 2018 – 16.3 UAH. The highest price was in 2016 – 36.5 UAH.

Unfortunately, every year there is a negative tendency to decrease the production of buckwheat in Ukraine. The situation on the market of cereal crops leads to a loss of positions in the foreign market.

In 2016, Ukraine took fourth place in buckwheat growing; in 2018 it took fifth place. The main producers of buckwheat in the world are China, Russia, Belarus, Ukraine, USA, Lithuania, Poland, France (figure 5).

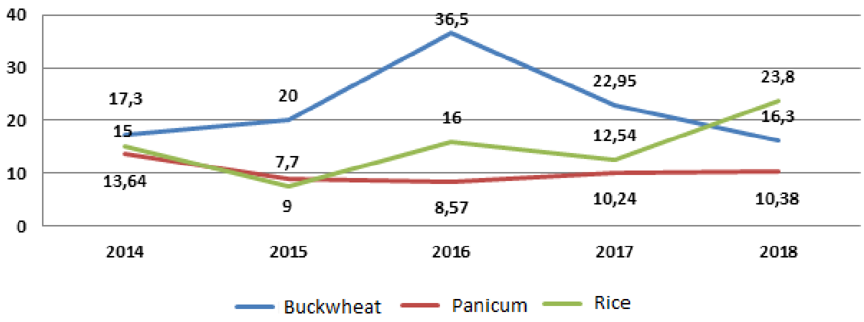

Figure 4 – Price dynamics in 2014–2018, UAH

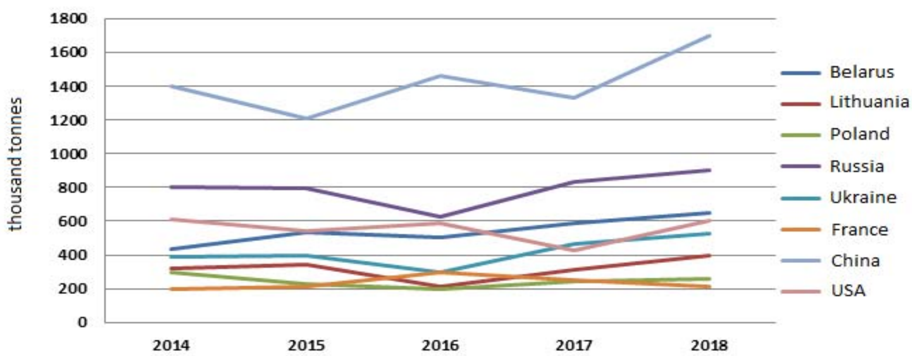

Figure 5 – Buckwheat production volumes in major producing countries, thousand tonnes

However, Ukraine continues to export significant amounts of buckwheat and remains at the top of five exporting countries. The export volume of buckwheat increased by more than half (56%) during the period under review, amounting to 3.85 thousand tonnes. A considerable part of the Ukrainian export of cereals, including buckwheat, is shipped to Asia and Africa. Nowadays, Ukraine import of buckwheat is twice as much as its exports.

Imports of buckwheat show a significant increase in 2017-2018 marketing years and amount to 87.2 thousand tonnes. The least imported buckwheat was in 2014 – 23.5 thousand tonnes. The average import in 2015-2016 marketing years was 74.7 thousand tonnes. The analysis shows that buckwheat imports are increasing every year. The largest importers are Kazakhstan, Netherlands, Belarus, Russia, and China.

At the same time, imports from January to April 2019 amounted to 7.34 thousand tonnes. In the 2017-2018 season, Ukraine imported 48 thousand tonnes of buckwheat and processed products, mainly from the Commonwealth countries [5].

Conclusions. The analysis of the origin of buckwheat and the area of its production in the world shows that buckwheat is grown both in Eurasia and America. In Europe, Asia and America, buckwheat is gaining more and more popularity every year both in the world and in the domestic market and has a steady upward trend. The main reason is, first, the change in the culture of consumption of the population, and secondly, this crop is used not only for food and feed purposes but also as a valuable medicinal and honey plant.

Taking into account the above statements, buckwheat products can become a significant export item of Ukraine to the world market. However, sowing areas occupied by buckwheat in Ukraine has tended to decline during recent years, due to a number of technological and economic reasons. This is caused by poor competitiveness of domestic breeding and seed production, lack of state support of this sector and low level of protection of intellectual property rights for plant varieties. The growing of elite and reproductive buckwheat seeds has decreased by 4-6 times to date. This situation leads to the fact that Ukrainian producers use grain with inadequate sowing qualities and low plasticity potential for sowing, which in turn leads to decrease in yield and grain quality.

The share of farms is decreasing every year, and large agricultural enterprises are not engaged in labor-intensive and low-yield crops at all. Households have increased the sowing areas for buckwheat in the last three years, but yields and quality indicators are much lower than in buckwheat farms. In our opinion, one of the ways to improve the situation is to establish a cooperative for small farms, which will create opportunities for reducing the costs of purchasing material resources, processing and sale of products.

The analysis shows that Ukraine has an outdated and underdeveloped material base for buckwheat processing. The small number of enterprises that process buckwheat to groats in accordance with the requirements of the Hazard Analysis and Critical Control Points significantly impede not only the export of buckwheat but also the consumption of safe products in the domestic market. About 87% of total production is sold domestically. However, Ukraine continues to export significant amounts of buckwheat and remains in the top five exporting countries.

In general, the buckwheat market has a wavy development trend with a tendency to decrease the growing and production of cereals in recent years.

А. В. Аверчев, Ю. Е. Кирилов, А. А. Фесенко

УКРАИНАДАҒЫ ЖАҢА НАРЫҚТЫҢ АҒЫМДАҒЫ ЖАҒДАЙЫ

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СОВРЕМЕННОЕ СОСТОЯНИЕ РЫНКА ГРЕЧКИ В УКРАИНЕ

Аннотация. Целью статьи является изучение современного состояния рынка гречневой крупы в Украине и мире. Проанализирована динамика выращивания гречихи в 2015, 2016, 2017, 2018 годах и ее влияние на внутренний и внешний рынок гречихи в Украине. Исследование основано на статистических данных Государственного комитета статистики Украины.

Проведен анализ происхождения гречихи и ареала ее произрастания в мире. Установлено, что гречиха выращивается как в Евразии, так и в Америке. В Европе, Азии и Америке гречка с каждым годом набирает все большую популярность. Благодаря тому, что эта культура используется не только в пищевых и кормовых целях, она также является ценным лекарственным растением и хорошим медоносом.

Доказано, что Украина имеет все необходимые экономические, природные и агроклиматические условия для выращивания гречихи и не только для удовлетворения внутреннего рынка, но и для того, чтобы быть лидером среди экспортеров по реализации этой культуры и продуктов ее переработки.

Установлено, что в последние годы наблюдается значительное сокращение посевных площадей гречихи, что приводит к снижению валовой продукции данной культуры. Такая ситуация способствует росту розничных цен на гречку и потере позиций на внешнем рынке как ведущего экспортера в мире.

Ключевые слова: рынок, гречиха, гречка, гречневая крупа, экспорт, импорт, динамика производства, выращивание, производство.

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