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GROWING GRAIN CROPS IN RUSSIA: HISTORICAL CONTEXT

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Abstract

The article deals with the historical context of growing grain crops in Russia. The production conditions for growing new varieties of wheat are shown. Particular attention is paid to the development of agricultural machinery for the specific soil and climatic conditions of Russia, which is one of the urgent tasks of crop production. First of all, it concerns the seeding rate - a technological method that has a huge impact on the yield and quality of products. At the same time, this is a complex and most difficult indicator to establish, requiring constant adjustment due to the emergence of new varieties and technologies. Great importance in increasing yields was attached to the rational use of basic fertilizers to improve the quality of grain crops at various phases of crop development. The main feature of the cultivation of grain crops in Russia was that the serf system of economy that existed in Russia until the beginning of the XX-th century had the most detrimental effect, first of all, on agricultural production.

Keywords: agriculture, wheat, society, land, plants.

I. INTRODUCTION

The last two centuries have passed in conditions of accelerated scientific and technological progress, which have generated fundamental changes in all spheres of social life.

Under the influence of man on Earth, huge changes are taking place, which will increasingly affect the level of development of mankind, the conditions of its habitat, residence, life, as well as the development of agricultural production.

Of all the global problems for the population of the Earth, the main problem was, is and remains the food problem. By the end of the XX century there was an increase in the production and consumption of food products, which brought the physiological level of average per capita consumption closer - 2900-3300 kcal per day - while maintaining a constant trend towards a decrease in the provision of land per inhabitant, caused by an increase in the population of the earth and the invariance of the area of agricultural land. The annual per capita calorie intake has increased to 2750, and proteins - up to 76 - 80 g. It has been established that in order to provide an annual diet of 2200 kcal per day, it is required to produce and use 320 kg of grain per person (Y.V. Sokolov, 2005). The Russian grain market is characterized by uneven territorial distribution of production, with a more even distribution of consumers across Russia with the main consumption centers in large industrial cities, which determines stable commodity flows of grain.



The specifics of the organization of the markets for food wheat and feed grains make it possible to attribute them to markets with developed competition. However, according to expert estimates, the structure of the wholesale market of the second level (with the federal borders of the market) brings it closer to moderately concentrated.

II. DISCUSSION AND RESULTS

The low fertility of soddy-podzolic soils, insufficient provision of heat are direct factors in the formation of protein and gluten in the grain of spring wheat. So, according to Ismagilov R.P., natural and climatic factors up to 40-50% determine the quality of crop products. Hence the opinion was formed that the Non-Chernozem region is a fodder grain zone. However, by applying special agricultural practices, and by neutralizing to a large extent the natural and climatic factors that are unfavorable for grain quality and making the most of the available ones, it is possible to obtain high-quality wheat grain, because. up to 20-35% the formation of product quality depends on technological methods (Pryanishnikov D.N., 1900; Knyaginichev M.I., 1951; Popova I.M. et al., 1972; Pavlov A.N., 1985; Sudnov P .E., 1986; Kalinin N.I., 1988; Ismagilov P.P., 1998; Production., 1998). Research conducted by Makarova V.M. and Melnikovoi N.I. in the Cis-Urals in the 60-70s. showed that, under local conditions, it is possible to obtain flour on the varieties Norrena, Strela and Saratovskaya-29, which is characterized by medium strength and is capable of producing bread of good and satisfactory quality without the addition of stronger wheat.

For currently introduced varieties that differ significantly from those previously released, the technological methods adopted in production are not always optimal. Therefore, to maximize the potential of the modern wheat variety and natural and climatic conditions, it is necessary to develop a variety technology (Golovkov A.M., Cherkashina N.F., 1995). So, according to a number of authors, low farming culture and violation of varietal technology do not allow obtaining high-quality food grain (Pavlov A.N., 1981; Lichko N.M., Permyakov H.H., 1987; Shatilov I.S., 1992).

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Spring wheat is one of the most valuable food crops. Its grain contains a lot of protein (up to 18-24%) and has good baking qualities.

The largest areas under crops are in Russia. In terms of sown area and gross grain harvest, wheat ranks first among other grain crops. The share of spring wheat in the gross grain harvest for 1976 - 1980 amounted to more than 41%.



The main areas of spring wheat crops are concentrated in Western and Eastern Siberia, the Volga region, in the Urals (V. I. Filatov, G. I. Bazdyrev, M. G. Obedkov, 1999; D. Shpaar, A. Postnikov, P. Protasov, F. Ellmer, 2000).

The yield of spring wheat from 1970 to 1996 ranged from 9.4 to 13.3 centners per 1 ha, spring barley - from 10.1 to 17.7 centners per 1 ha, winter wheat - from 16.9 to 28.2 centners per hectare. 1 ha (G.A. Romanenko et al., 1999).

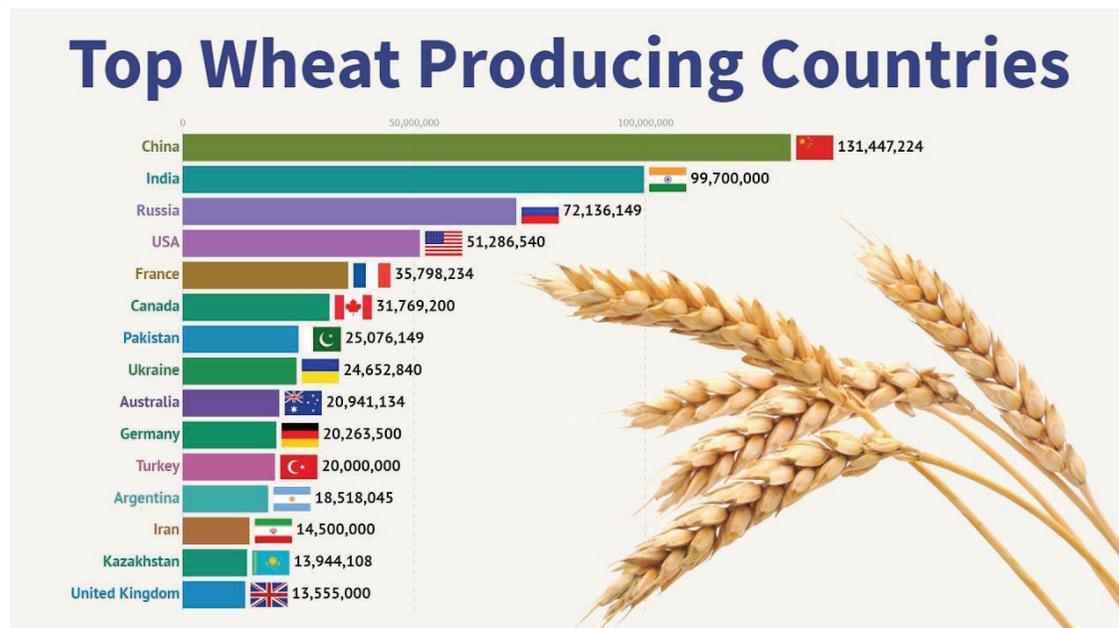
In the gross harvest of wheat produced in the Russian Federation, the share of the Southern Urals accounts for 15-16%, of which 50% is in the Orenburg region (I.P. Ioanidi, 1982; G.A. Romanenko et al., 1999).

The main zones of commercial production of grain of this crop are the Volga region, the Urals, Western and Eastern Siberia, where more than 90% of all its crops are concentrated.

It is estimated that about 52% of the sown area of spring wheat is concentrated in arid and severely arid areas, 24% in areas with insufficient moisture, and only 25% in areas provided with moisture (P.K. Ivanov, 1971). In Russia, from 1970 to 1996, the sown areas of spring wheat decreased from 29,909 to 16,378 thousand hectares, which amounted to 45.2%. The yield of spring wheat in Russia for 1971 - 1997 amounted to no more than 15.9 centners per 1 ha, in the Volga region - 14.0, in the Urals - 13.8, and in the Orenburg region - 15.2 centners per 1 ha, and such a yield for 1971 - 1997 was achieved only in 1976, 1978 and 1992. In other years, fluctuations from 4.5 to 15.2 centners per 1 ha were observed (G.A. Romanenko, A.I. Tyutyunnikov, V.G. Pozdnyakov, A.A. Shutkov, 1999; A.G. Kryuchkov, 1998).

In the 90s of the XX century, traditional food ties have weakened or ceased altogether due to a reduction in production in the main grain-producing states - members of the CIS.

The average annual volume of grain production in the Commonwealth as a whole decreased from 189 million tons in 1986-1990 to 116 million tons in 1999-2003, i.e. 1.6 times, including in Russia - 1.6 times, Ukraine - 1.7 and Kazakhstan - 2.2 times. In 2003, grain production in the Commonwealth countries amounted to about 114 million tons, including 67.2 million tons in Russia, 20.2 million tons in Ukraine, and 14.8 million tons in Kazakhstan.



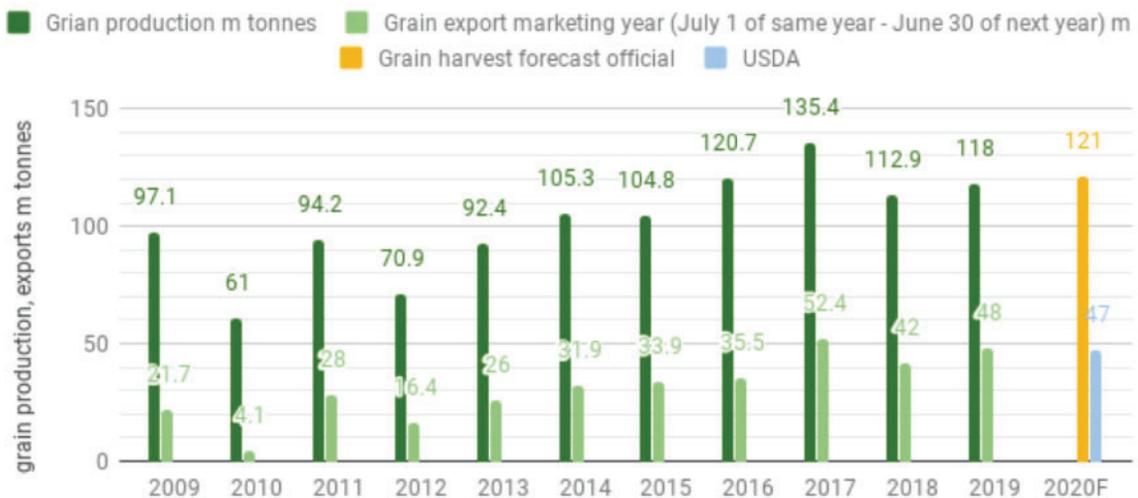
The CIS member states, which traditionally imported grain, were forced to increase its production to compensate for the reduced supplies from other Commonwealth states.



For example, the average annual volume of grain production in 1998-2002 compared to 1986-1990 increased by 1.7 times in Tajikistan, 1.2 times in Georgia and 1.1 times in Armenia. However, this did not allow them to meet their needs at the expense of grain of their own production.

In 2010 - 2015 there was a sharp decrease in the volume of grain sales by agricultural organizations, and the share of their sales to procurement organizations did not exceed 2%. In 2006, it amounted to only 1.7%. The established prices for grain purchases in regional and federal funds are the lowest and do not provide profitability for expanded reproduction.

Russia grain production, export m tonnes



source: Rosstat

As of January 1, 2006, the sown area occupied by grain crops amounted to 68.9%, or 2,660 thousand hectares of the total sown area of agrarian organizations.

In the structure of the gross grain harvest in the Moscow region in 2005, the share of wheat accounted for 65.3%, and in 2006 - 57.1%. The level of profitability of grain production in agricultural organizations of the region in 2006 was 9.9%, which is significantly lower than in previous years (A.P. Lepskaya, 2008).

Moscow is a region of great potential, one of the progressively developing regions of the Russian Federation. The agro-industrial complex of the region has significant resources, where 5.5 percent of all agricultural land in the country is concentrated, of which only arable land - 6 million hectares.

The regions of Russia have been and remain the largest breadbaskets of Russia. In 2008, about four million tons of grain were harvested - 1.7 tons for each of more than two million inhabitants. The strong varieties of soft wheat cultivated in the regions are not inferior in their merits. Demand for durum and strong wheat varieties is high all over the world. Hence the special attention paid to its cultivation at all times. At present, wheat crops of high-quality varieties are annually up to 1.5 million hectares. 80 percent of the produced grain corresponds to the highest and first class, and in the whole region, the share of food wheat in the total volume of its production exceeds 85 percent (A. Chernyshev, 2009).



III. CONCLUSION

Spring wheat is a crop that is undemanding to heat. Seeds germinate at a temperature of 1-2 °C, and plants tolerate frosts down to minus 6 °C. Ripening can end at a temperature of 12-14 °C. Vegetation period 90-110 days. Provides a high yield only on well-fertilized and weed-free fields. Spring wheat has a less developed root system with a reduced assimilation capacity compared to barley and oats. The peculiarity of spring wheat in the initial period of growth and development is uneven germination, low tillering energy, oppression by weeds, damage by pests and diseases. Place spring wheat on well-cultivated soils with slightly acidic and neutral reactions of the environment (pH 6-7). It gives the best results when sowing in the earliest possible time (in the first five days of the start of field work). A delay in sowing by 7-10 days compared to the optimal time reduces the yield by 25-40%.

REFERENCE LIST

- Argyzova N.S. (1973) The effect of nitrogen fertilizing on the yield and grain quality of winter wheat. Techniques for improving the quality of grain. Gorky. Vol. 59. Pp. 108-110. (in Russ)
- Bazdyrev G.I. (2003) Weed control in soil protection agriculture. Agriculture at the turn of the XXI century. Collection of reports. Moscow: Publishing House of the Ministry of Agriculture. Pp. 44-52. (in Russ)
- Berkutova N.S. (1991) Methods of evaluation and formation of grain quality. M.: Agropromizdat. 206 p. (in Russ)
- Danilchenko S.L. (2009) Foreign investments in the economy of the USSR (1921-1929). Moscow: MPSU. 234 p. (in Russ)
- Danilchenko S.L. (2011) Concessions in the economy of NEP Russia. Moscow: MAKS Press. 372 p. (in Russ)
- Duduk A.A. (1986) Formation of high yield of spring wheat with good grain quality on sod-podzolic loamy soils. Agriculture and crop production in the Belarusian SSR. Vol. 30. Pp. 42-46. (in Russ)
- Ershov B.A. (2020) Preservation of the Natural Monument "Siberian Larch" in the City of Voronezh. Agrarian History. Number 1. Pp. 2-7. (in Engl)
- Kondratiev R.B. (1971) The influence of the feeding area on the formation of high yields of spring wheat in Central Siberia. Seeding rates, methods of sowing and areas of nutrition of agricultural crops. M.: Kolos. Pp. 81-88. (in Russ)
- Kryuchkov A.G. (1998) Theoretical prerequisites for the formation of highly productive agrocenoses of spring wheat on ordinary chernozems of the Orenburg Urals. Science and bread (questions of theory and practice): NGO South Ural. Orenburg. Pp. 42-108. (in Russ)
- Shkarubo S.N. (2021) Historical Features of Life of the Peasantry in the XIX Century. Bulletin Social-Economic and Humanitarian Research. Tom 12, Issue 14. Pp. 73 - 80. (in Russ)
- Vasiliev A.E. (1973) Some methods of increasing the yield and preserving the baking qualities of "strong" wheat Saratov 29 in the conditions of the Udmurt ASSR. Techniques for improving the quality of grain. Gorky. T. 59. Pp. 249-254. (in Russ)
- Zakharenko A.B. (1997) The relationship of the components of agrophytocenosis and weed control. Agriculture. Vol. 3. Pp. 25-28. (in Russ)



ВЫРАЩИВАНИЕ ЗЕРНОВЫХ КУЛЬТУР В РОССИИ: ИСТОРИЧЕСКИЙ КОНТЕКСТ

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Аннотация

В статье рассматривается исторический контекст выращивания зерновых культур в России. Показаны производственные условия выращивания новых сортов пшеницы. Особое внимание уделяется разработке сельскохозяйственной техники для специфических почвенно-климатических условий России, что является одной из актуальных задач растениеводства. В первую очередь это касается нормы высева – технологического приема, оказывающего огромное влияние на урожайность и качество продукции. В то же время это сложный и труднейший в установлении показатель, требующий постоянной корректировки в связи с появлением новых разновидностей и технологий. Большое значение в повышении урожайности придавалось рациональному использованию основных удобрений для улучшения качества зерновых культур в различные фазы развития сельскохозяйственных культур. Главной особенностью возделывания зерновых культур в России было то, что крепостническая система хозяйства, существовавшая в России до начала XX века, наиболее пагубно сказывалась прежде всего на сельскохозяйственном производстве.

Ключевые слова: сельское хозяйство, пшеница, общество, земля, растения.

СПИСОК ЛИТЕРАТУРЫ

- Argyzova N.S. (1973) The effect of nitrogen fertilizing on the yield and grain quality of winter wheat. Techniques for improving the quality of grain. Gorky. Vol. 59. Pp. 108-110. (in Russ)
- Bazdyrev G.I. (2003) Weed control in soil protection agriculture. Agriculture at the turn of the XXI century. Collection of reports. Moscow: Publishing House of the Ministry of Agriculture. Pp. 44-52. (in Russ)
- Berkutova N.S. (1991) Methods of evaluation and formation of grain quality. M.: Agropromizdat. 206 p. (in Russ)
- Danilchenko S.L. (2009) Foreign investments in the economy of the USSR (1921-1929). Moscow: MPSU. 234 p. (in Russ)
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- Duduk A.A. (1986) Formation of high yield of spring wheat with good grain quality on sod-podzolic loamy soils. Agriculture and crop production in the Belarusian SSR. Vol. 30. Pp. 42-46. (in Russ)
- Ershov B.A. (2020) Preservation of the Natural Monument "Siberian Larch" in the City of Voronezh. Agrarian History. Number 1. Pp. 2-7. (in Engl)



Kondratiev R.B. (1971) The influence of the feeding area on the formation of high yields of spring wheat in Central Siberia. Seeding rates, methods of sowing and areas of nutrition of agricultural crops. M.: Kolos. Pp. 81-88. (in Russ)

Kryuchkov A.G. (1998) Theoretical prerequisites for the formation of highly productive agrocenoses of spring wheat on ordinary chernozems of the Orenburg Urals. Science and bread (questions of theory and practice): NGO South Ural. Orenburg. Pp. 42-108. (in Russ)

Shkarubo S.N. (2021) Historical Features of Life of the Peasantry in the XIX Century. Bulletin Social-Economic and Humanitarian Research. Tom 12, Issue 14. Pp. 73 - 80. (in Russ)

Vasiliev A.E. (1973) Some methods of increasing the yield and preserving the baking qualities of "strong" wheat Saratov 29 in the conditions of the Udmurt ASSR. Techniques for improving the quality of grain. Gorky. T. 59. Pp. 249-254. (in Russ)

Zakharenko A.B. (1997) The relationship of the components of agrophytocenosis and weed control. Agriculture. Vol. 3. Pp. 25-28. (in Russ)