

EXPLORING THE ADAPTIVE CAPACITY OF WHEAT VARIETIES OF SIBERIAN SELECTION IN AGRICULTURAL SYSTEMS OF MONGOLIA

Kozulina N. S.

Krasnoyarsk state agrarian university, Krasnoyarsk, Russia

The article presents the results of studies of the adaptive potential and technology of growing wheat varieties of Siberian selection in the agricultural systems of Mongolia.

Key words: *agro-systems, bioclimatic resources, spring wheat, variety, adaptation potential, technologies of grain crops cultivation, yield, protein, gluten, productivity increase.*

ИЗУЧЕНИЕ АДАПТАЦИОННОГО ПОТЕНЦИАЛА СОРТОВ ПШЕНИЦЫ СИБИРСКОЙ СЕЛЕКЦИИ В АГРОСИСТЕМАХ МОНГОЛИИ

Козулина Н.С.

Красноярский государственный аграрный университет, Красноярск, Россия

Аннотация. В статье представлены результаты исследований адаптационного потенциала и технологии выращивания сортов пшеницы сибирской селекции в агросистемах Монголии.

Ключевые слова: *агросистемы, биоклиматические ресурсы, яровая пшеница, сорт, адаптационный потенциал, технологии выращивания зерновых культур, урожайность, белок, клейковина, повышение продуктивности.*

At the present stage, agriculture in Mongolia retains a leading place and has a livestock-farming direction. It should be noted that agriculture has mainly grain direction. Most of the arable land is occupied by the grain cultures. The main grain crop is spring wheat. Of great importance in the production of high-quality grain is the variety and technology of its cultivation [1].

Agricultural production is faced with the problem of organization of rational structure of acreage, prevention of biodiversity reduction, violation of ecological balance in agricultural systems. When planning the area of crops, the introduction of new crops, the selection of varieties and hybrids, the use of new agricultural technology, etc., it is necessary to conduct scientific justification of all activities taking into account the soil and climatic characteristics of the region. Differences in agro-climatic resources determine the zonal features in the cultivation of grain crops [2].

Increasing wheat yield is impossible without a comprehensive study of all factors affecting the formation of productivity [4]. Among the ways to increase crop productivity, the leading role belongs to the variety. The variety of climatic and

weather conditions requires the presence in the production of a wide range of varieties that differ in their biological and economic characteristics [5].

In the framework of the economic agreement of Krasnoyarsk state agrarian university with Mongolia the work was performed for the study of adaptive capacity and technology of growing wheat of Siberian selection on the land of the Northern part of Mongolia Selenge aimak – “Badral trade” with the aim of developing recommendations for increasing the agrocenosis productivity.

Despite the positive trend in the agricultural sector of Mongolia in recent years, for its further development it is necessary to solve a number of problems related to the vulnerability and dependence of agriculture on natural factors.

The area, where the fields of the company “Badral trade” are situated, is characterized by frequent repetition of drought, so the drought resistance is an important feature for varieties grown on the farm. Breeders of Siberia created varieties of grain crops, well adapted to the sharply continental climate, drought-resistant, with good baking qualities.

The objects of the study were 3 varieties of wheat of Siberian selection: Novosibirskaya – 15, Kantegirskaya – 89, Novosibirskaya – 31. Two varieties cultivated in the farm were taken as control samples: spinous Buryatskaya and Buryatskaya – 79. All studied varieties were sown three times. Records and observations of wheat plants were carried out in accordance with generally accepted methods. The obtained data were processed by methods of statistics and dispersion analysis [3, 6].

Research results. Analyzing the obtained data, we see that among the varieties of Siberian selection grown in the territory of land use of the economy of the Northern part of Mongolia Selenge aimak – “Badral trade” the largest biological grain yield was obtained from the Novosibirskaya – 31 variety and is 26,57 centner/ha. It should be noted that the conditions for the formation of grain harvest were extreme: moisture deficiency, high air and soil temperatures. In particular, in early July, the soil temperature in the layer 0-10 cm exceeded 30⁰ C and even at a depth of 30-40 cm was about 20⁰ C, so the value of varieties is manifested in difficult extreme weather conditions.

There is a significant difference in terms of grain quality indicators. Varieties grown in the experimental farm “Badral trade” are inferior to Siberian varieties on the protein and gluten content. The lowest protein content is in the variety Buryatskaya – 79 and is 12, 45 %.

The grain of grades of the Siberian selection received in the soil and weather conditions which have developed in the territory of land use of the “Badral trade” company differs in the high content of protein more by than 16%.

The largest amount of gluten (with standard grain moisture) was observed in the variety Novosibirskaya – 15 and is 19,78 %. The lowest gluten content –6,57% was obtained from varieties of the Buryatskaya – 79, cultivated in the economy of “Badral trade”.

Thus, analyzing the results of studies on the adaptive potential and technologies of growing wheat of Siberian selection, conducted in the field of land

use of the company “Badral trade”, we can draw the following conclusions: the maximum yield of Siberian wheat varieties was formed by the variety Novosibirskaya – 31 (26,57 centner/ha). The highest rates of protein and gluten among all the studied varieties were found in the variety Novosibirskaya – 15 (16,12% and 19,78%, respectively), which determines their value for baking. Novosibirskaya – 15 as a precocious variety fully used bioclimatic resources. Despite the fact that this variety is inferior in yield to other studied varieties, however, it forms a high-quality grain in protein content, gluten and other properties. Grain of this variety can be used as an improver of baking properties of varieties cultivated in Mongolia with an average content of protein and gluten. Cultivation of the variety Novosibirskaya – 15 will allow it to be used for the production of high-quality flour in the baking industry of Mongolia. Taking into account the adaptive potential and different periods of grain ripening, it is advisable to use two varieties of Siberian selection in the Northern part of Mongolia: Novosibirskaya –31 and Novosibirskaya – 15.

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