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Results and prospects of selection of barley in Kazakhstan

Abstract. To this article data are driven about the state and prospects of selection of barley in Kazakhstan.

Key words: selection, gene pool, line, number, drought tolerance, salt tolerance, seed productivity.

One of the main issues of the modern agricultural production is improving and stabilizing grain production over the years, regardless of the weather changes. In this regard, significantly increases the role of agricultural science, especially breeding and seed production as a basis for improving and stabilizing grain production.

This is a long-term and continuous process creates the greatest progress in the development of agriculture and the economy of any country. A.A. Zhuchenko (2008) notes that there is a real need to expand the set of varieties, which differ from each other in complex biological and agronomic traits.

The changing climate of the planet caused by the influence of human activity requires varieties with high potential grain productivity, to the maximum extent using the favorable conditions of cultivation and least reduce yields under adverse growing conditions. In achieving these goals is important to study and rational use of the world's genetic resources, which are considered worldwide as the main source of crop improvement for the next decade [1].

In this regard, a comprehensive study of global gene pool and the best recognized varieties of domestic breeding, adapted to local soil and climatic conditions, allowing a variety with an optimum combination of high grain yield in a particular region of cultivation culture [2].

In the grain-producing regions of Kazakhstan main kinds of stress that negatively affect plant growth and development, is the lack of moisture, high temperature, drought, cold weather returns, salinization and reduction of soil fertility of arable horizon. In this reason, the increase in grain production is unthinkable without the constant creation

of new high-yield varieties and plastic of barley.

Features of soil and climatic conditions of different regions of Kazakhstan are the pressure of a certain type of stress in a given period of plant development and their impact on the productivity of a particular element.

Finding an answer to solve this problem is to study the adaptability of an integrated approach produced varieties, their characteristics ensure high and stable productivity in different environments.

If variety does not have the genetic varieties (flexibility) to a wide range of soil and climatic conditions i.e. do not possess the appropriate norm of reaction, it cannot resist the action of various biotic and abiotic stresses [3, 4].

The problem of steady growth of grain production, especially in the areas of risk farming can be effectively solved through the creation and rapid introduction of new high-yield varieties and stress.

New adaptive varieties of barley should be different high drought resistance, productivity, resistance to major diseases pests region. In breeding work is very important to pay attention to such biological parameters as length of interphase periods Kushenov-booting-earring.

Study of magnitude under spike internodes, foliage and leaf area, as these indicators are important factors determining the formation of crop plants.

In recent years, with the rapid development of animal husbandry and processing industry of Kazakhstan is sharply increased demand for barley grain in the domestic and foreign markets.

In Kazakhstan, the selection work on barley deployed in six research institutions: LLP «KazNI-ZiR»; LLP «NPTSZH them. AI Barayev»; LLP

«Karaganda NIIRS»; LLP «Rice Research Institute Kyzylorda them. I. Zhahaeva»; LLP «Karabalyk SKHOS»; LLP «Krasnovodopad SKHOS.»

Selection becomes integrating science and industry the production of new varieties. Actively used by a variety of methods of physiology (the value of photosynthesis, PAR) [5], biochemistry (protein content of the fractions) [6], genetics (labeling, homozygotization. Intermediary marker selection MAS) [7, 8], Immunology [9, 10] aimed at creating a highly adaptive (drought tolerance, salt tolerance) varieties with specific grain quality that determines its place in the market.

In this regard, breeders of Kazakhstan in recent years carried out a number of promising areas of research. One of these is the adaptation and selection introduced \$ US 578 accessions of barley in seven different eco-geographical conditions of Kazakhstan. The obtained data are the basis for the creation of new high-yielding varieties of barley through the use of technology pre-selection.

Following research, the creation of salt-tolerant varieties of barley. The successful development of saline lands life can only happen through a skilful combination of techniques agromeliorative with the selection of the most salt-tolerant, high-yield crops and varieties. As a result of the breeding study (Tohetovoy L.A) created new salt tolerant varieties of barley «Cheese-aruy» and «Inkar» which zoned and approved for cultivation in saline soils of Kazakhstan.

In difficult environmental conditions grain sowing regions of Kazakhstan, are crucial varieties of local selection, because, as the world practice shows, that usual introductions cannot fully solve the problem of overcoming the negative impact of environmental factors limiting strictly specific to a particular area zoning. In this regard, as a result of selection works only for the last three years above the NRU Kazakhstan breeders created and transferred to the Ministry of Agriculture GKSISK 17 barley varieties. Of these, one kind of brewing, 16 feed and food area. These varieties along with high productivity and quality of grain differ adaptability to specific environmental conditions and drought.

In this regard, the further development of breeding and seed production work on barley in Kazakhstan will provide fodder resources development program for livestock and feed processing industry in the Republic, to increase and accelerate the flow of high-quality seed in the farms, to increase the share of local content in the seed market of barley for brewing, feed and food areas.

Given the characteristics to soil and climatic condition of grain-producing regions of Kazakh-

stan increase grain production is impossible without a permanent establishment and implementation of new highly adapted and plastic varieties of barley.

A striking example of the implementation of domestic varieties in production is a sort of «Arna» (Originator LLP» Kazakh Research Institute of Agriculture and Plant Growing» author Sariev B.S.) characterized by high plasticity, homologated in seven regions of Kazakhstan, which occupies more than 400,000 hectares of the 2 million hectare, whole area sown barley.

References

1. Zhuchenko A. A. Adaptive crop (ecological and genetic bases) / Theory and Practice. – 2008. – M.: Publishing House of the Agro-rus. – Vol. 1 – 1104 p.
2. Goncharenko A.A. Creating raw materials rye with group resistance to diseases / Breeding and Seed. – 1996. – No. 3-4. – pp.13-20.
3. Cattivelli L., Mastrangelo A., Rizza F., Badeck F., Mazzucotelli E., Mare C., Crosatti C. Integrated Aspects from Breeding to Genomics of the Abiotic Stress Response: the Case of Drought//10 th International barley Genetics Symposium, Alexandria, Egypt, 5-10 April, 2008. – Alexandria, Egypt. – 2008. – pp. 35-39.
4. Smith DS., McKay., Eckermann., Eglinton JK. Investigating Root Architecture in Barley and Responses to Salinity and High Boron Coventry//10 th International barley Genetics Symposium, Alexandria, Egypt, 5-10 April, 2008. – Alexandria, Egypt. – 2008. – pp. 35-39.
5. Nichiporovich A.A., Stroganov L.A., Chmorit S.N., Vlasov G.P. Photosynthetic activity of plants in crops. – M.: Kolos, 1961. -130 p.
6. Abugaliyeva A.I. Biochemical testing of grain quality as a basis for classification of barley genetic resources / Biotechnology. Theory and practice. – 2005. – No.1. – pp. 14-25.
7. Makowski N., Klass H. Braugerste mit Sommer und wintergerstenform produziezen// Getreide. Mag. – 2000. – V.6. – No. 1. – pp. 62-65.
8. Spunar J., Spunarova M., Nesvadba Z., Vaculova K. Comparison of Malling Quality Parameters of Spring and Winter Barley Genotypes in the Czech Republic// Czech J. Genet. Plznt Breed. – 40. – 2004. – P. 104.
9. Vavilov N.I. The problem of immunity crops. Publ works. – Novosibirsk: Nauka, 1964. – 52 p.
10. Krivchenko V.I. Stability of grain spikelet to the agents of smut diseases. – M.: Kolos, 1984. – 150 p.