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PHYTOPATHOLOGICAL STATUS OF THE GENETIC MATERIAL OF SOYBEAN CROP ON TWO AGROFONDS OF INFECTION

LENCAUȚAN Marianna, https://orcid.org/0009-0002-2212-6037

National Center for Research and Seed Production, Selectia Sector
Balti, Republic of Moldova,
Corresponding e-mail: lencautanmarianna@gmail.com

The article presents the importance of leguminous crops, especially soybean, for sustainable agriculture, food security and soil fertility improvement. The main diseases affecting soybean crops in the northern part of the Republic of Moldova are analyzed, such as soybean mosaic, bacterial blight, downy mildew and root rots.

The research aims to identify soybean varieties and genetic lines with high productivity and increased resistance to diseases, under climate change conditions. The authors highlight that the use of resistant varieties is one of the most efficient and environmentally friendly methods of plant protection.

Integrated crop protection is promoted, combining genetic, agrotechnical, biological, physical-mechanical methods and, only when necessary, chemical methods. Incorrect or excessive application of pesticides can cause negative environmental effects and economic losses.

In the 2025 research, soybean genetic materials were evaluated under natural and artificial infection conditions, and genotypes with high resistance to pathogens were selected. These varieties and lines are recommended for use in breeding programs and for the creation of new varieties adapted to the unstable climatic conditions of the Republic of Moldova.

The change and instability of the main parameters of the climate of the Republic of Moldova leads as a consequence to a decrease in the level of productivity and a strong attack of harmful diseases of leguminous crops. One of the main factors of continuous growth of the productivity of agricultural lands in the conditions of the Republic of Moldova is the rational protection of the crop from attacks by pests and diseases, which annually bring considerable damage to agricultural households and remain increasingly acute today.

The integrated system of traditional protection measures includes various methods of combating most species of pests, diseases. Poor-quality and (or) late imple-

mentation of protection measures, or unilateral exaggeration of the use of chemical methods often causes some undesirable consequences from the point of view of environmental protection, as well as causes enormous economic damage to solve these rather complicated problems is possible provided that the requirements and criteria of integrated protection systems are strictly observed, which are based on a complex of selection and genetic measures.

The solution to the problem of increasing production volumes is aimed at creating (in conjunction with breeders) varieties that are adaptive to unstable soil and climatic conditions, capable of forming a high level of production even in years with epiphytotic development of the main diseases of agricultural crops.

The main idea: increasing soybean production and reducing losses caused by diseases can be achieved by creating and using resistant varieties, adapted to climate change, within an integrated and ecological crop protection system.