

IDENTIFICATION OF QUALITY PRODUCTIVE COMMON WHEAT VARIETIES IN UNFAVORABLE ENVIRONMENTAL CONDITIONS

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Background: The reduction in crop yields under unfavorable climatic conditions in recent years has led to enormous losses, both in terms of food supply for the population and livestock, and for the national economy. Unfavorable conditions negatively affect the productivity and quality of seeds, especially during dry summers, particularly at the stages of wheat flowering and maturation. The country is forced to import high-quality wheat from other countries, as the wheat varieties cultivated domestically, both in previous years and at present, do not ensure the maintenance of quality under these conditions. These factors constitute the main causes of economic losses recorded in years with unfavorable climatic conditions. The cause of this situation lies in the irrational use of wheat varieties cultivated in the country in relation to these extreme climatic conditions. From the above, it follows that there is an urgent need to identify, within the country, varieties that can ensure productivity and grain quality at an optimal level, meeting domestic requirements.

Aim of the study: Identification of productive and quality varieties under unfavorable conditions.

Materials and methods: In this study, seeds of six hexaploid wheat varieties (Kuialnic, Meleag, Moldova 5, Moldova 66, Moldova 614, and Bijuteria Zâmbrenilor) were used, cultivated on the experimental field of the Institute of Genetics, Physiology, and Plant Protection of the ASM during 2024–2025. At full maturity, the seeds of these plants were harvested and analyzed to determine productivity and quality, by evaluating the yield, gluten content, and gluten quality. The data obtained were statistically processed using the ANOVA software package, calculating mean values and standard deviations, as well as significant differences among the varieties.

Key results: The analysis of dry gluten content in different common winter wheat samples revealed differences among the varieties. The highest dry gluten content was recorded in the Moldova 66 sample, approximately 14%, indicating superior quality gluten with high potential for premium bakery products. The Moldova 5 and Kuialnic samples also showed high values, ranging between 12.5% and 12.7%, suggesting gluten with good dough-forming and baking properties. Moderate values, between 11.0% and 12.1%, were observed in the Meleag, Moldova 614, and Bijuteria Zâmbrenilor samples, indicating a gluten content suitable for standard bakery products. The results reflect genetic differences among the varieties and allow the identification of those with the greatest potential for use in the baking industry. Regarding the harvest, no significant differences were observed among the samples.

Conclusions. The analysis of wet and dry gluten content in different common winter wheat samples revealed significant differences among the varieties. The Moldova 66 and Moldova 5 samples stood out with the highest gluten values, indicating high potential for premium bakery products. Samples with moderate values, such as Kuialnic, Moldova 614, Meleag, and Bijuteria Zâmbrenilor, exhibited gluten suitable for standard bakery products. The results confirm the influence of variety genetics on gluten quality and allow the selection of samples with the greatest potential for the baking industry.

Keywords: *Triticum aestivum* L., dry gluten content, harvest.

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