SUMMARY

RESEARCH ON THE EFFECT OF SOME INFLUENCING FACTORS ON THE QUALITY OF WHEAT HARVESTS AND SOLUTIONS TO IMPROVE THE QUALITY IN STORAGE

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This paper, titled " Research on the effect of some influencing factors on the quality of wheat harvests and solutions to improve the quality in storage," explores the influence of various environmental and storage factors on wheat quality, offering solutions to ensure optimal preservation. As a vital component of the global food supply, wheat is cultivated across diverse climates, making it susceptible to numerous quality risks both pre- and post-harvest. The research highlights the critical role of appropriate ventilation, treatments, and storage techniques in maintaining wheat quality during storage.

To address the limitations of traditional quality assessment methods, the study incorporates advanced techniques such as acoustic identification and infrared spectroscopy, alongside established practices, to evaluate wheat and its derivatives. The research focused on three wheat varieties—Dropia, Balaton, and Glosa—stored over a five-year period in the state reserve warehouses of Curtea de Argeș. Continuous monitoring of storage parameters, including temperature and humidity, and monthly analysis of samples revealed that changes in wheat quality were relatively minor when appropriate storage conditions were maintained.

The objectives of this doctoral thesis included:

- Evaluation of wheat samples from the three selected varieties: Dropia, Balaton, and Glosa;
- Conducting baking tests using flour derived from these varieties;
- Physico-compositional properties assessment over the five-year preservation timeframe;
- Rheological analysis of the samples;
- Evaluation of macroelement levels in three wheat varieties;
- Analysis of macroelements present across three types of cereal grains;
- Monitoring of storage parameters during the welding process.

This work consists of:

The first part, the bibliographic study, called ‘‘STUDY OF WHEAT QUALITY STORED FOR A LONGER PERIOD’’, comprises three subchapters in which several aspects of modern storage methods have been developed, storage systems and general considerations about grain storage.

Within chapter two, the materials, methods used and equipment were described. In this chapter were also described the peculiarities of the three studied varieties

Chapter three, titled “WEATHER CONDITIONS DURING THE STUDY AND STORAGE CONDITIONS,” focused on tracking the evolution of parameters throughout the entire storage period, along with a description of the climate and the region where the wheat was stored.

In chapter four, the results and discussions based on the determinations carried out are presented, highlighting the evolution of qualitative parameters of the three wheat varieties.

Chapter five presents “Solutions for Improving Wheat Storage,” developing a series of solutions that can be applied to enhance grain storage methods.

Chapter six includes the final conclusions, where the outcomes of the study are summarized.

Chapter seven encompasses the bibliographic references for the present work.

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The results highlighted that proper storage is crucial for maintaining wheat quality, minimizing losses caused by insect infestation and physical or chemical degradation. Thus, the work contributes to the improvement of wheat storage practices, offering practical solutions for its long-term preservation, while ensuring the retention of its nutritional and rheological values necessary for the food industry.