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The influence of storage conditions on the mycological load of cereals from the Banat region – Romania

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Abstract: The article explores how storage conditions impact the mycological load of grains, emphasizing the importance of preventing self-heating and overheating caused by temperature and humidity fluctuations. The study's findings underscore the importance of employing cooling systems to ensure the stability of storage conditions and prevent the proliferation of bacteria and fungi, which can adversely impact grain quality. Grain cooling, even in high humidity, has been demonstrated to be beneficial for safe storage, as it prevents sprouting and uneven ripening, while maintaining optimal humidity levels for feed and bakery cereals. This research underscores the importance of controlled storage conditions in preserving grain quality and preventing microbial proliferation. **Keywords:** corn, wheat, preservation, cooling, fungi

Introduction

The post-harvest storage of cereals is a critical step in maintaining their sanitary and nutritional quality. Storage conditions have been demonstrated to exert a substantial influence on the mycological load of grain. Factors such as humidity, temperature, and ventilation have been demonstrated to favor the development of molds, particularly of the genera Aspergillus, Penicillium, and Fusarium, which are responsible for spoilage and the production of mycotoxins. It is imperative to comprehend the repercussions of suboptimal storage conditions to effectively mitigate the risk of fungal contamination and safeguard the safety of foodstuffs intended for human and animal consumption. Material and method Samples of wheat and corn that were stored in different conditions of temperature, relative humidity, in open bulk warehouses or using cooling

Results and discussions

The results indicated that the use of grain cooling systems can keep the air conditions at the entrance to the grain basin practically constant compared to the extreme variations of the environmental

environment, while in the case of ordinary storage, without cooling, repeated movements of the products are necessary due to the overheating that occurs, as a direct consequence of the appearance of microorganisms of the class of bacteria and fungi, which leads to important depreciations in the quality of cereals. Preservation by cooling cereals, even at higher than usual humidity values, is useful in cereal processing enterprises. The advantages of applying this method are multiple in these situations and are materialized by: safe storage of sprouted or differently ripe grains, safe storage of feed grains with water content of up to 22%, cooling, in the case of bakery cereals with up to 17.5% humidity.

Conclusions

During storage, the maintenance of constant conditions through the cooling of cereals is essential to prevent overheating due to self-heating. This

