

## **STUDIES REGARDING ENERGY CONSUMPTION VARIATION AND DRYING TIME FOR CORN SEED IN LABORATORY CONDITIONS**

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### **Abstract**

The drying process for grain seeds ensures optimal conditions for storage and stops microbiological processes. In order to improve the drying process of corn seeds an was installation designed and built, aiming for the dehydration of cereal seeds in laboratory conditions. The purpose of this study was to determine the optimal operating parameters of the drying process in order to maximize the technological effect, namely to minimize the drying time and the energy consumption. To achieve this goal, corn seeds with humidities between 16-25% were subjected successively to be dried, in three adjoining cells with 50 mm thickness each. During the research the structural and functional parameters for the dehydration rig were modified, namely the velocity and temperature of the drying agent, until the corn moisture reached 14%, aiming to assess their influence over the duration and energy consumption per product unit. The experimental research displayed variations between 0.006 and 0.03 kWh/kg for energy consumption, and between 2 and 150 minutes for the drying time. A total number of 80 experimental variants were studied during the research, the lowest values of the drying time being recorded at a speed of the drying agent of 2.5 m/s with a temperature of 80 °C and the minimum values of energy consumption at the speed of 2 m/s with a temperature of 80 °C. The research proved that the functional and technical parameters have a major influence over the process duration and energy consumption.

**Key words:** drying, corn seed, energy consumption

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