



2023 International Conference on Integrative Precision Agriculture – Local Solutions Through Global Advances

USDA Pecan Postharvest – Moisture

Fatemeh.Mozaffar¹, Mozhdeh Rahmanpour¹.

¹Department, Institution, and location (College of Engineering, University of Georgia, Athens, GA, USA).

*Corresponding author: Fatemeh.Mozaffar@uga.edu

Abstract

As technology continues to evolve, it is likely that the industry will become even more automated and data-driven, the pecan industry is no exception to this trend. The study aims to improve our understanding of how to achieve the desired moisture content for different types of pecans, which can have significant implications for cracking and shelling efficiency, and waste reduction in a variety of industries.

Analyzing the moisture level is crucial to enhance the process of cracking and shelling pecans. The mechanical attributes of pecans, including their firmness and flexibility, are significantly influenced by the amount of moisture they contain. This, in turn, has an impact on how effectively pecans can be shelled and cracked. Pecans with excessive or insufficient moisture levels may become harder to shell or disintegrate during the process. If pecans have an elevated moisture content, they may be more prone to spoilage due to the growth of mold and other factors. Conversely, pecans with insufficient moisture levels may become excessively dry and lose their taste and texture. Therefore, studying the moisture level is indispensable for optimizing the process of cracking and shelling pecans, as well as ensuring the product's quality and shelf life.

Our primary objective is to numerically understand the impact conditioning time and temperature has on kernel and shell moisture. Our aim is to develop a model that generates a recipe for conditioning given a moisture requirement. This will support downstream operations - such as cracking and shelling - to select the most suitable conditions for their specific



International Conference
INTEGRATIVE PRECISION AGRICULTURE
Local Solutions Through Global Advances

experimental requirements. To accurately measure the pecans' moisture content, we utilized the Aqualab 3 moisture analyzer. This machine analyzes a single sample at a time, allowing for a more accurate measurement of moisture content. For larger-scale measurements, Moistech is another apparatus that can be used to measure moisture levels.

Keywords: Moisture content, Pecans, Conditioning,