Special Issue

Cutting-Edge Technologies in Grain Drying: Innovations for Efficiency, Quality, and Sustainability

Message from the Guest Editors

Grain drying is a critical postharvest operation that directly influences grain quality, storage stability, energy consumption, and overall supply chain efficiency. This Special Issue aims to showcase emerging technologies and innovative approaches that are reshaping traditional grain drying systems into more efficient, intelligent, and sustainable processes. The focus includes advanced drying methods, energy optimization, modeling and simulation, hybrid and solar-assisted systems, sensor-based monitoring, and the integration of digital technologies such as artificial intelligence (AI), machine learning, machine vision, Internet of Things (IoT), and automation. The scope of this Special Issue spans experimental research, computational studies, technology validation, and practical applications across diverse climatic conditions and grain types. The purpose of this Special Issue is to highlight transformative engineering solutions that address key challenges in grain drying such as non-uniform drying, high energy use, and quality degradation while supporting global goals for climate-resilient and resource-efficient food systems.

Guest Editors

Dr. Shubham Subrot Panigrahi

Dr. Kaushik Luthra

Dr. Griffiths Gregory Atungulu

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AgriEngineering
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
agriengineering@mdpi.com

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Dr. Mathew G. Pelletier
Retired Scientist from Agricultural Research Service, United States Department of Agriculture, Lubbock, TX, USA

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