

Integrating Research and Pedagogy: A Case Study on the Impact of Project-Based Learning on Student Publication Success in Agricultural Engineering

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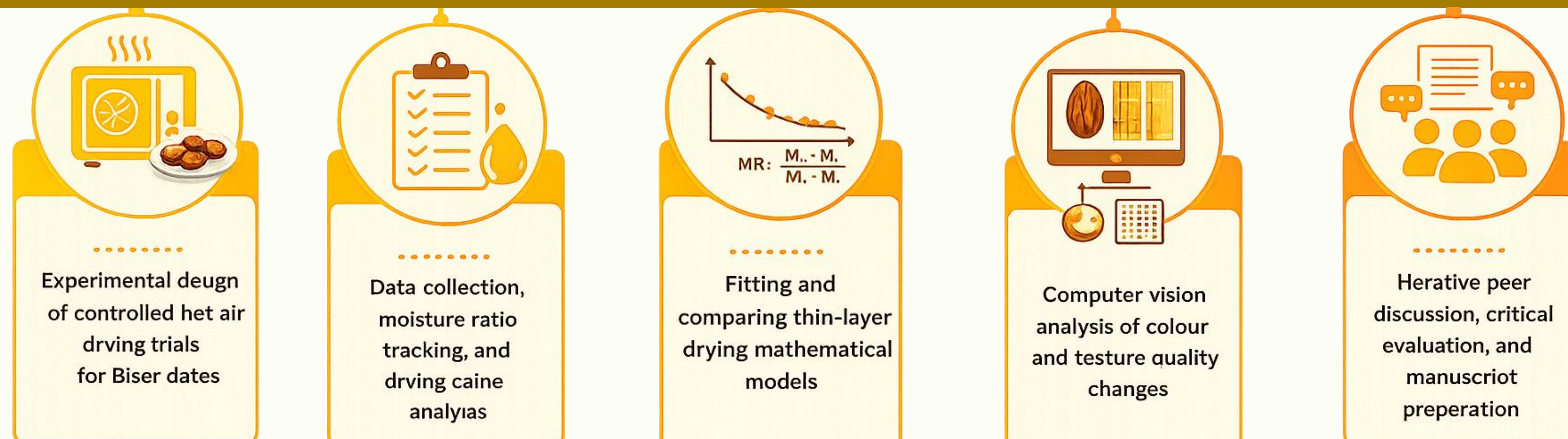
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Introduction and Objective

- Traditional lecture-based postgraduate education often limits students' exposure to authentic research practice, reducing their ability to develop independent scientific thinking.
 - Project-based learning (PBL) offers a compelling alternative by embedding real-world problems into the curriculum, allowing students to engage with the full research cycle within a structured academic setting.
1. **This study** presents a PBL case study within an MSc agricultural engineering course, where students investigated hot-air drying and computer vision-based quality assessment of Biser dates as a meaningful, publication-driven research experience.

Methodology



Results and Discussions



7. Sustainability Awareness & Real World Impact
Connect research to postharvest challenges & food security

Aligned with

2

5

12

Heat Transfer

WILEY

ORIGINAL ARTICLE

Drying Kinetics, Characteristics, and Quality Assessment of Hot-Air Dried Semi-Dried Biser Stage Dates Using Computer Vision

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ABSTRACT
Drying dates to a semi-dried, soft, preferred by most consumers, remains a challenge for small-scale processors due to limited control, longer drying time, quality degradation, and other inefficiencies of traditional methods such as open sun drying. This study investigated the mechanical hot air drying kinetics and characteristics and evaluated quality changes after drying of Biser dates from 5% to 30% moisture content (wet basis) at various temperatures using a state-of-the-art computer vision system (CVS). This study findings revealed that drying time decreased with increasing temperature, with the shortest drying time

Conclusions

Integrating PBL into research-intensive postgraduate courses produced a dual benefit: impactful student learning and a meaningful scientific contribution. Authentic problems created deeper engagement; sustainability linkages connected lab findings to real food security challenges; and students developed publication readiness and research ownership. The model is scalable and transferable to other MSc programmes.

References

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