IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 9, June 2025
Impact Factor: 7.67

Advancements in Paddy Disease Management: Integrating Technology for Better Crop Health

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Abstract: *Advancements in Paddy Disease Management: Integrating Technology for Better Crop Health" explores the integration of innovative technologies in diagnosing and managing paddy diseases. The paper highlights the shift from traditional practices such as visual inspections and manual symptom identification to modern, technology-driven methods that utilize machine learning, remote sensing, and biosensors. By examining emerging diagnostic tools like AI-powered imaging, spectral analysis, and wearable sensors, the study emphasizes their potential in improving early disease detection, preventing crop losses, and enhancing productivity in paddy farming. The research also presents case studies that demonstrate the practical applications of these technologies in real-world farming environments, offering insights into how precision agriculture can optimize paddy health management. Furthermore, challenges such as data interpretation, scalability, and the need for cooperation between farmers, researchers, and tech developers are discussed. This paper advocates for the blending of nature and technology to create more sustainable, resilient paddy farming systems.*

Keywords: Paddy Disease Management, Precision Agriculture, Machine Learning, Remote Sensing, AI-Based Disease Detection, Spectral Imaging, Biosensors, Early Disease Detection, Crop Health, Smart Farming, Digital Agriculture, Sustainable Farming, Agricultural Innovation, Interdisciplinary Collaboration, Technology Integration

DOI: 10.48175/IJARSCT-28263