

# SUGARCANE DISEASES PREDICTION AND TREATMENT SYSTEM

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## ABSTRACT

Sugarcane disease is a major challenge for the sugar industry in India, often leading to significant crop destruction and financial losses. Early detection and treatment of these diseases are crucial, but farmers may lack the expertise to identify them. This study explores the use of machine learning, specifically image processing and deep learning techniques (CNN), as a potential solution to this problem. By training a deep learning model on a dataset of disease-infected sugarcane images, the study successfully develops a model capable of detecting and classifying sugarcane diseases. This research offers a promising approach to assist farmers in detecting and classifying sugarcane diseases using deep learning algorithms. In addition, the model's potential for real-time implementation through mobile applications or drone-based monitoring systems provides a scalable and accessible solution for disease detection in the field, contributing to more efficient crop management and increased agricultural productivity. Furthermore, by accurately identifying specific diseases, this approach can help reduce the misuse of pesticides, enabling farmers to apply targeted treatments and promote more environmentally sustainable farming practices.

## Keywords:

Deep learning, Convolutional Neural Network (CNN), Image processing, Machine learning, Disease detection, Crop management, Precision agriculture, Real-time monitoring, Mobile applications, Drone-based systems, Pesticide reduction, Sustainable farming, Agricultural productivity