ABSTRACT: Farming is critical to the nation's economy and progress. Precision Farming (PA), on the other hand, is still in its development when it comes to technology-driven growth. Various plant diseases have caused pain to untold millions of people around the world over the years, with an estimated annual yield loss of 14% globally.

It is generally observed that the lack of sufficient knowledge regarding the intensity of diseases hinders the ability of farmers to effectively utilize pesticides in appropriate quantities for disease treatment. Oftentimes, an excessive amount of pesticide is used, resulting not only in financial losses but also in soil and environmental pollution. However, if datasets that are labeled based on disease severity are made available, they can be utilized to develop pesticide recommendation systems. In order to detect plant diseases at their very initial stages, images depicting minimal infection severity can be employed to train and validate a deep learning model. While detection systems primarily aim to identify a single specific illness among numerous diseases, classification techniques identify and name the diseases that pose harm to plants. Consequently, this paper explores various classification and plant disease detection methods that are based on image processing, along with their corresponding results.

Computerized disease segmentation and diagnosis from based on leaf photos has the potential to be more effective than the current method. Image capture, preprocessing, and segmentation are followed by augmentation, feature extraction, and classification using models for automatic plant disease diagnosis.

INTRODUCTION

Agriculture plays a pivotal role in India, providing sustenance to a substantial portion of the populace and making a significant contribution to the nation's Gross Domestic Product (GDP). Nonetheless, the presence of plant pests and diseases presents formidable obstacles, resulting in diminished crop yield and compromised quality. Traditional approaches to identifying and categorizing diseases in cultivated plants are arduous and labor-intensive, rendering the quest for optimized solutions a formidable task. This predicament is particularly burdensome for farmers and professionals in developing countries, who necessitate efficient methodologies for monitoring and discerning the diseases afflicting their crops. In order to tackle these challenges, the paper proposes an intelligent and effective technique. This technique employs Convolutional Neural Networks (CNNs) to discern and classify plant diseases with superior precision compared to existing methods. The focal point of this technique centers around leaf diseases, which constitute a pivotal realm of interest within the realm of agricultural practices.

LITERATURE