

## LITERATURE SURVEY

Date	27 <sup>th</sup> September 2022
Team ID	PNT2022TMID46442
Project Name	Fertilizer Recommendation System For Disease Prediction
Maximum Marks	4 Marks

### Problem Statement:

Agriculture is the most important sector in today's life. Most plants are affected by a wide variety of bacterial and fungal diseases. Diseases on plants placed a major constraint on production and a major threat to food security. Hence, early and accurate identification of plant diseases is essential to ensure high quantity and best quality.

An automated system is introduced to identify different diseases in plants by checking the symptoms shown on the leaves of the plant. Deep learning techniques are used to identify the diseases and suggest the precautions that can be taken for those diseases.

## LITERATURE SURVEY

Author	Title	Year	Source	Findings	Advantages	Disadvantages
Apurva Save, Aksham Gupta, Sarthak Pruthi, Divyanjana Nikam, Prof. Dr. Shilpa Paygude	Plant Disease Detection and Fertilizer Suggestions	2022		Different approaches and models of Deep Learning methods were explored and used in this project so that it can detect and classify plant diseases correctly through image processing of leaves of the plants. The	The Accuracy of training percentage is 90.88%	The training Loss percentage is 1.3739

				<p>procedure starts from collecting the images used for training, testing and validation to image preprocessing and augmentation and finally comparison of different pretrained models over their accuracy. Finally, at the end , our model detects and distinguishes between a healthy plant and different diseases and provides suitable remedies so as to cure the disease.</p>		
<p>Devdatta A. Bondre Student, NICT Solutions &amp; Research, Belagavi, Karnataka, India</p> <p>Mr. Santosh Mahagaonkar Research Head, NICT Solutions &amp; Research, Belagavi, Karnataka, India</p>	<p>Prediction Of Crop Yield And Fertilizer Recommendation Using Machine Learning Algorithms</p>	2019		<p>The prediction of crop yield based on location and proper implementation of algorithms have proved that the higher crop yield can be achieved. From above work concludes that for soil classification Random Forest is good with accuracy 86.35% compare to Support Vector Machine. For crop yield prediction Support Vector</p>	<p>SVM calculation has a regularization parameter, which stays away from over-fitting.</p> <p>The random forest algorithm is not biased, since, there are multiple trees and each tree is trained on a subset of data.</p>	<p>Most of the existing system are hardware based which makes them expensive and difficult to maintain. Also they lack to give accurate results. Some systems suggest crop sequence depending on yield rate and market price. The system proposed tries to overcome these drawbacks and predicts crops by analyzing structured data.</p>

				Machine is good with accuracy 99.47% compare to Random Forest algorithm.		
Tiago Domingues , Tomás Brandão and João C. Ferreira	Machine Learning for Detection and Prediction of Crop Diseases and Pests:	2022		Data sets containing weather, diseases, and pests data should keep records for long periods of time. Time-series ML models, such as RNN, can be employed to accurately forecast the occurrence of diseases and pests based on meteorological measurements series. NDVI measurements can also be helpful, since they provide additional information regarding the crop's development	ML models enable researchers to get insight into data and existing correlations between various factors that influence occurrence of diseases and pests in crops. After data is processed and features are extracted, models can be used for classification, regression, among other goals	Pesticides and chemical treatments have long been used by farmers to keep pests away. The use of pesticides for crop protection is on the rise with negative consequences for human health and increased environmental damage to soil and groundwater. On the other hand, this also increases the risk.

Srinivas Chilukuri, ZS New York AI Center of Excellence	Crop Disease Detection Using Machine Learning and Computer Vision	2021		Deep learning techniques can be applied to detect wheat rust in crops based on close-shot images. In addition to good prediction accuracy, the model is able to effectively learn the right representations through the explanations inferred from class activation maps. When scaled, this approach can help in digitally monitoring crop health and could lead to significant improvement in the agriculture productivity and yield.	The Dataset can be viewed in colored, Grayscale or Leaf Segmented	In order to develop accurate image classifiers for the purposes of plant disease diagnosis, we needed a large, verified dataset of images of diseased and healthy plants. Until very recently, such a dataset did not exist, and even smaller datasets were not freely available.
Dr.P. Pandi Selvi P. Poornima	Soil Based Fertilizer Recommendation System for Crop Disease Prediction System	2021		<p>The first step involves the registration phase, where the user has to present his personal details, details of land and the soil type.</p> <ul style="list-style-type: none"> <li>• In the second step the user will upload the soil test report into the system for soil analysis. In this step, if the soils test report was not</li> </ul>	If crop gets infected, then captures the images of an infected crop via mobile camera for recommendation of best fertilizer then all data stored on cloud.	Plant diseases are a principal threat to the safety of food. In agriculture sectors, it is the greatest challenge to identify plant diseases.

				<p>submitted by the user, soil analysis will be carried out by the sensors. Sensors measure the nutrients level of the soil and the data was stored within the database.</p> <ul style="list-style-type: none"> <li>• In the third step, the corresponding crops infection status will be analyzed and recorded.</li> <li>• In the fourth step, comparison and classification of the soil type was carried out using Long or Short term Memory algorithm. Finally the fertilizers are recommended.</li> </ul>		
R. Neela, P. Nithya	Fertilizers Recommendation System For Disease Prediction In Tree Leave	2019		<p>Agriculture is the main aspect of country development. Many people lead their life from agriculture field, which gives fully related to agricultural products. Plant disease, especially on leaves, is one of the major factors of reductions in</p>	<p>Recommend the fertilizer for affected leaves based on severity level. Fertilizers may be organic or inorganic. Which the Admin or a farmer can store the fertilizers based on disease categorization with severity levels. The measurements of fertilizers suggested based on disease severity</p>	<p>The main problem of farmers is the detection of leaf diseases. The leaf disease detection</p>

				<p>both quality and quantity of the food crops. In agricultural aspects, if the plant is affected by leaf disease then it reduces the growth of the agricultural level. Finding the leaf disease is an important role of agriculture preservation. After pre-processing using a median filter, segmentation is done by Guided Active Contour method and finally, the leaf disease is identified by using Support Vector Machine. The disease-based similarity measure is used for fertilizer recommendation.</p>		
--	--	--	--	--	--	--

