

PROBLEM STATEMENT

TITLE: FERTILIZER RECOMMENDATION SYSTEM FOR DISEASE PREDICTION

STATEMENT :

Farmers' conventional methods of agricultural cultivation are ineffective. It does not make proper use of all available resources. Farmers are unable to detect crop diseases due to a lack of knowledge and old practices, which often result in soil nutrient deterioration and exhaustion. The visual data collected from the user is used to detect crop-based illnesses. Deep learning techniques and CNN models are used to forecast if the crop is affected with which disease, and a viable remedy is then offered to the user.

The agriculture sector in India is advancing due to globalization [1]. As people become more health-conscious, producing quality crops is needed for today's world. Farmers spray pesticides and add fertilizers to the soil to obtain maximum production. Pesticides are toxic substances used to kill pests, weeds, fungus, etc., including herbicides, fungicides, insecticides, etc. [2]. Insecticides are substances that prevent pest attacks on crops and are more toxic than herbicides and fungicides [3].

SOLUTION 1 :

The proposed method uses SVM to classify tree leaves, identify the disease and suggest the fertilizer. The proposed method is compared with the existing CNN based leaf disease prediction. The proposed SVM technique gives a better result when compared to existing CNN. For the same set of images, F-Measure for CNN is 0.7 and 0.8 for SVM, the accuracy of identification of leaf disease of CNN is 0.6 and SVM is 0.8.

SOLUTION 2 :

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 I conclude that for soil classification Random Forest is good with accuracy 86.35% compare to Support Vector Machine. For crop yield prediction Support Vector Machine is good .

Accuracy 99.47% compare to Random Forest algorithm. The work can be extended further to add following functionality. Mobile application can be build to help farmers by uploading image of farms. Crop diseases detection using image processing in which user get pesticides based on disease images. Implement Smart Irrigation System for farms to get higher yield.