

## OBJECTIVE

Assignment Date	1 NOV 2022
Team ID	PNT2022TMID26182
Maximum Marks	4 Marks

### PROJECT OBJECTIVE:

Agriculture is the most important sector in today's life. Totally 54% of India's land area is deemed arable, making it the world's largest agrarian economy. Soil infertility owing to over fertilization, as well as a lack of access and awareness of contemporary agricultural practices, are the different factors that contribute to low agricultural production.

Most plants are affected by a wide variety of bacterial and fungal diseases. Diseases on plants placed a major constraint on the 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. In recent years, the number of diseases on plants and the degree of harm caused has increased due to the variation in pathogen varieties, changes in cultivation methods, and inadequate plant protection techniques. An automated system is introduced to identify different diseases on 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. This system also identifies the type of crops to be grown on the soil based on its nutrient values, state and city. Fertilizer suggestion system algorithm will give suggestions for buying fertilizers based on the nutrient contents of your soil and the crop you want to grow. The main purpose of this research work is to develop a machine learning-

based recommendation system to increase agricultural productivity. A variety of datasets were used in this study to design and develop advanced models to estimate the crop, recommend fertilizer, and identify plant disease. The XGBoost model predicts a suitable

crop based on the local soil nutrients and rainfall. Random Forest [RF] model was used to propose fertilizer and develop ideas for improving soil fertility depending on nutrients present in the soil. NB Classifier and Support Vector Machine [SVM] identifies the plant disease and suggest the cure. When compared to other approaches, the proposed model delivers a high level of accuracy. Moreover, this article suggests the farmer to increase the crop yield by entering the input values and local soil conditions, wherein the model suggests recommended crop for that soil with an accuracy of 99%.