LITERATURE SURVEY

- **Soil Based Fertilizer Recommendation System for crop disease prediction (Dr.P. Pandi Selvi, P. Poornima – 2021)**

  Agriculture is the heart and life of most Indians. But in recent days, the field was going down due to various natural calamities. In order to overcome the problem, various issues in this field need to be addressed. The soil type, fertilizer recommendation, diseases in plants and leaves. All these features need to be considered. Our proposed system was organized in such a way, to analyze the soil type, diseases in the leaves and finally to recommend the appropriate fertilizer to the farmers, that may be of great help to them. Plant disease, especially on leaves, is one of the major factors that reduce the yield in both quality and quantity of the food crops. Finding the leaf disease is an important role to preserve agriculture. Smart analysis and Comprehensive prediction model in agriculture helps the farmer to yield right crop at the right time. The main benefits of the proposed system are as follows: Yield right crop at the right time, Balancing the crop production, control plant disease, Economic growth, and planning to reduce the crop scarcity. Hence to Detect and recognize the plant diseases and to recommend fertilizer it is necessary to provide symptoms in identifying the disease at its earliest. Hence the authors proposed and implemented new fertilizers Recommendation System for crop disease prediction.

- **Study on prognostication of crop diseases using Artificial Intelligence**
  (B. S. Eleena, Meghana Mangipudi, K. Apoorva - Computer Science - Asian Journal of Research in Computer Science – 2022)

  It is universally accepted fact that crop diseases are one of the major threats in agriculture that ultimately result in drastic reduction of food supply. The present project study aims to use artificial intelligence in building a model which is integrated with a user-friendly web application. The web application is created using the Python-based Django framework. This user interface allows the user to choose a crop name and upload an image of a leaf wherein the trained model then begins the process of feature extraction on the image and tries to make an accurate prediction. The final result is displayed to the user confirming whether the crop may be “healthy” or the “diseased “and even the name of the disease that infects the plant will be displayed. The application also suggests a suitable treatment to combat the disease. Thus, the scope of this project study is very scalable as it can be easily be used by amateur gardeners as well as by farmers. The model itself can also be extended to include more plant types along with any new diseases which may arise due to factors like climate change, pest - resistance etc.

- L. Ismail et al.(2018) [1] created a framework to predict preparedness of a country to face the climate change using machine learning approach. The study is done for South East Asia. Steps for calculating the predictive index are data acquisition, data training, data testing, index predicting, index validation and index visualisation. The study is a precautionary measure to alert the regions and verify its vulnerable index using deep learning.

- Zhen Nan Liu, et al., (2018), In this paper, authors have compared different machine learning algorithms for calculating, Standardised Precipitation Index (SPI) and SPEI. After data collection, Extreme learning methods, Online sequential extreme learning machine, Selfadaptive evolutionary extreme learning machine. Authors claimed that all three algorithms can be applied successfully on drought forecasting. However, OS-ELM and SADE- ELM performs better than ELM.

- K. G. Liakos et al., (2018) presented a comprehensive review of research dedicated to machine learning applications in agriculture domain. Various parameters on which work was analysed were: crop management, livestock management, water management and soil management. ML models have applied for crop yield prediction and disease detection. ML based detection can be extracted without the need of fusion of data from other resources. Author claims that farm management systems are evlvong into real artificial intelligent systems, with the ultimate scope of production improvement. Author motivates to use ML for the benefit of agriculture as it is the basic need amongst all other needs for survival.

- Crane Droesch (2018), has used data on corn yield from the USMidwest, and shown that the approach of using semi-parametric variant of deep neural network, accounting for complex non-linear relationship in high dimensional dataset, the model will outperform both classical statistical methods and fully non-parametric neural networks in predicting yield of years withheld during model training. Authors have developed a novel approach for augmenting parametric statistical model with deep neural networks, they have termed it as semiparametric neural networks. It is used as a crop yield modelling framework, the SNN achieves better out of sample predictive performance than anything else yet published. it uses prior knowledge of functional phenomenon and functional form relating them to the outcome. So the SNN improves statistical efficiency over typical neural networks. They found that combining ML with domain area knowledge from empirical studies improves predictive skills, while altering conclusions about climate change impact to agriculture.