

# Literature Survey

## ESTIMATION OF CROP YIELD USING DATA ANALYTICS

### 1. Estimation of crop production using machine learning techniques.

- o In this paper Jyoti Mahajan, Kriti Banal and Samridhi Mahajan (2021) have presented a crop yield prediction system using machine learning algorithms.

- o Historical production and meteorological data was collected and processed for analysis and applying ML algorithms.

- o The ML Techniques used were decision trees, random forest, support vector regressor, gradient boosting.

### 2. Crop Yield Estimation and Interpretability with Gaussian Processes.

- o In this work Laura Martínez-Ferrer, Maria Piles, Gustau Camps-Valls (2021) introduced the use of Gaussian processes for the estimation.

- o The proposed methodology combines synergistic information on canopy greenness, biomass, soil, and plant water content from optical and microwave sensors with the atmospheric variables.

- o GPs finally allow us to identify climate extremes and anomalies impacting crop productivity and their associated drivers.

### 3. Assimilating remote sensing data into a crop model improves winter wheat yield estimation based on regional irrigation data.

- o In this study NingJin, BoTao WeiRen, DongyanZhang (2022)

- o used a regional irrigation data for winter wheat grown on the Loess.

- o Also, this involves analysis regarding different assimilation state variables and algorithms.

- o The combination of PSO+NDVI produced the highest accuracy for

yield estimation in Hongtong county

#### **4. WB-CPI: Weather Based Crop Prediction in India Using Big Data Analytics.**

- o In this paper Akhilesh Kumar Sharma, Oorja Garg, and Krishna Modi (2021) worked at collecting and analyzing temperature, rainfall, soil, seed, crop production, humidity and wind speed data, which will help the farmers improve the produce of their crops.

- o Firstly, they have pre-processed the data and used MapReduce Framework.

- o Secondly, k-means clustering is employed on results gained from MapReduce.

- o After that, they have used bar graphs and scatter plots to study the relationship between the crop, rainfall, temperature, soil and seed.

#### **5. Estimation of Crop Yield from Combined Optical and SAR Imagery Using Gaussian Kernel Regression.**

- o In this work Laura Martínez-Ferrer, Maria Piles, Gustau Camps-Valls (2021) introduced the use of Gaussian processes (GPs) for the estimation.

- o The proposed methodology combines synergistic information on canopy greenness, biomass, soil, and plant water content from optical and microwave sensors with the atmospheric variables.

- o GPs finally allow us to identify climate extremes and anomalies impacting crop productivity and their associated drivers.