Estimation of Crop Yield using Data Analytics
TEAM ID: PNT2022TMID48478

LITERATURE SURVEY:

1. **Recognition of Bloom/Yield in Crop Images Using Deep Learning Models for Smart Agriculture**

   Bini Darwin, Pamela, Dharmaraj (2021) proposed a "Recognition of Bloom/Yield in Crop Images Using Deep Learning Models for Smart Agriculture". The methods which made use of conventional deep learning techniques have provided an average accuracy of 92.51%. This paper elucidates the diverse automation approaches for crop yield detection techniques with virtual analysis and classifier approaches. This work highlights the machine vision and deep learning models which need to be explored for improving automated precision farming expressly during this pandemic.

2. **Estimating and understanding crop yields with explainable deep learning in the Indian Wheat Belt**

   Aleksandra Wolanin, Gonzalo Mateo-García, You Liangzhi and Luis Guanter (2020) presented "Estimating and understanding crop yields with explainable deep learning in the Indian Wheat Belt". Forecasting crop yields is becoming increasingly important under the current context in which food security needs to be ensured despite the challenges. Machine learning (ML) techniques, and deep learning (DL) methods been used. To benefit from the increased predictive performance of DL methods while maintaining the ability to interpret how the models achieve their results. The proposed methodology can be used for other crops and regions in order to facilitate application of DL models in agriculture.

3. **Estimating wheat yields in Australia using climate records, satellite image time series and machine learning methods**

   ElisaKamir, FrançoisWaldner, ZviHochman (2020) designed "Estimating wheat yields in Australia using climate records, satellite image time series and machine learning methods". In this context, using Machine-learning methods by applying it to climate and satellite image time series we can achieve reliable crop yield monitoring across years at both the pixel and the country scale. The result estimates meet the accuracy requirements for mapping the yield gap and identifying yield gap hotspots which could be targeted for further work by agricultural researchers and advisers.

4. **Crop Production and Crop Diversity in France: A Spatial Analysis**

   Hermann Pythagore PierreDonfoe, Aleksandra, CécileDétang-Dessendre,EliseMaigne (2020) proposed a "Crop Production and Crop Diversity in France: A Spatial Analysis". This paper aims to provide empirical evidence of the effect of crop diversity on crop production and spillover effect. Based on the estimation of production functions with spatial concerns on an original and rich dataset, results of the study suggest that crop diversity has a positive and significant effect on crop production. Its marginal contribution is substantial when rainfall is low in the agroecosystem. Furthermore, spatial dependence is a major issue and could be explained by topographic, climatic and agronomic constraints.

5. **Remote sensing of crop production in China by production efficiency models: models comparisons, estimates and uncertainties**

   FuluTao, MasayukiYokozawa, ZhaoZhang, YinlongXu, YousayHayash (2021) presented a "Remote sensing of crop production in China by production efficiency models: models comparisons, estimates and uncertainties". By combing with remote sensing data, both the two kinds of production efficiency models are potentially useful for NPP monitoring or yield forecasting at regional or national scale. They can be used to examine the effect of climate variability on NPP, and consequently important for the researches on carbon cycle and food security. Models parameters calibration and models validation for various biomes are crucial for applications. Our study improved the soil-moisture simulation.