

# Agricultural Crop Yield in Indian States Dataset

This dataset encompasses agricultural data for multiple crops cultivated across various states in India from the year **1997 till 2020**. The dataset provides crucial features related to crop yield prediction, including crop types, crop years, cropping seasons, states, areas under cultivation, production quantities, annual rainfall, fertilizer usage, pesticide usage, and calculated yields.

## Columns Description:

1. **Crop**: The name of the crop cultivated.
2. **Crop\_Year**: The year in which the crop was grown.
3. **Season**: The specific cropping season (e.g., Kharif, Rabi, Whole Year).
4. **State**: The Indian state where the crop was cultivated.
5. **Area**: The total land area (in hectares) under cultivation for the specific crop.
6. **Production**: The quantity of crop production (in metric tons).
7. **Annual\_Rainfall**: The annual rainfall received in the crop-growing region (in mm).
8. **Fertilizer**: The total amount of fertilizer used for the crop (in kilograms).
9. **Pesticide**: The total amount of pesticide used for the crop (in kilograms).
10. **Yield**: The calculated crop yield (production per unit area).

## Use Cases:

This comprehensive dataset is valuable for agricultural analysts, researchers, and data scientists interested in **crop yield prediction and agricultural analysis**. It offers insights into the relationship between various **agronomic factors** (e.g., rainfall, fertilizer, pesticide usage) and **crop productivity** across different states and crop types. Researchers can utilize this data to develop robust **machine learning models** for crop yield prediction and identify trends in agricultural production.

With the agricultural dataset containing information about crops, agricultural production, and related factors, there are several potential analyses and tasks that you can perform. Here are some common data analysis and research areas that can be explored with this dataset:

1. **Crop Yield Prediction**: Build a predictive model to estimate crop yields based on factors like rainfall, fertilizer usage, pesticide usage, and area.
2. **Seasonal Crop Analysis**: Analyze the distribution of crops based on different seasons (e.g., Kharif, Rabi) to understand crop patterns.
3. **State-wise Crop Comparison**: Compare crop production and yields across different states or regions.

4. **Rainfall Impact on Crop Production:** Investigate the relationship between annual rainfall and crop production.
5. **Fertilizer and Pesticide Usage Analysis:** Study the impact of fertilizer and pesticide usage on crop yields and productivity.
6. **Crop Rotation Analysis:** Analyze crop rotation patterns and their effects on production.
7. **Agricultural Input Optimization:** Identify optimal fertilizer and pesticide usage for maximizing crop yields.
8. **Trends in Crop Cultivation:** Identify trends in crop cultivation over the years.
9. **Weather and Climate Analysis:** Explore the relationship between crop production and weather/climate conditions.
10. **Agricultural Decision Support:** Develop a decision support system for farmers to optimize crop choices based on factors like rainfall, fertilizer, and pesticide.
11. **Comparative Analysis of Crops:** Compare different crops' performance in terms of yield and production.