

**Title :- Weather Based Crop Insurance Payout  
Estimator**

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## **ABSTRACT**

The increasing unpredictability of weather patterns poses a significant challenge to Indian agriculture, often leading to crop losses and financial instability for farmers. The Weather Based Crop Insurance Scheme (WBCIS) was introduced to offer timely compensation based on deviations in key weather parameters. However, manual claim processing under the scheme is often slow and inefficient. This project presents an intelligent, automated system called the WBCI Payout Estimator, which leverages machine learning and real-time weather APIs to streamline insurance payout estimation under WBCIC guidelines. By analysing weather data against crop-specific trigger thresholds, the system predicts whether a payout-triggering event has occurred, estimates the payout percentage using a regression model, and calculates the final compensation using a trained sum insured predictor. The system focuses on four main weather parameters: temperature, rainfall, humidity, and wind speed. Each month is divided into two fortnights, and the app checks whether the weather in each period exceeds the predefined limits for a given crop and season. If trigger conditions are met, the corresponding deviation is used for payout prediction. Built using Python and Flask, the web application allows users to input crop, district, season, year, and area details, and instantly receive an estimated payout based on real-time and historical weather data. The backend fetches weather data from the NASA POWER API and applies trained models to ensure accurate results. The proposed system not only enhances transparency and efficiency in insurance disbursement but also empowers farmers with timely and accurate financial insights. It serves as a decision support tool that simplifies complex calculations and helps both farmers and officials understand potential compensations with ease.