

## **Data Mining for Sustainable Potato Farming in Smart Agriculture Systems Using IoT Technologies**

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### **Abstract:**

Sustainable agricultural practices are crucial to enhancing food security while minimizing environmental impact. This study explores the use of data mining techniques integrated with Internet of Things (IoT) technologies for optimizing potato farming in smart agriculture systems. IoT sensors deployed across farming fields collect data on environmental factors such as soil moisture, temperature, humidity, and crop health. This real-time data is processed using advanced data mining algorithms, including clustering, classification, and regression models, to extract actionable insights for better decision-making. The optimization of irrigation schedules, pest control, and nutrient management not only improves potato yield but also conserves water and reduces the use of chemicals. The proposed framework demonstrates the potential for achieving sustainable and efficient potato farming through data-driven solutions in smart agriculture systems.

### **Keywords:**

Data mining, potato farming, smart agriculture, IoT, sustainable farming, optimization.

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