

ABSTRACT

In many economies, including India and specifically Tamil Nadu, agriculture forms the backbone, supporting livelihoods and contributing significantly to the nation's GDP. However, the younger generation entering the farming sector often faces the challenge of making informed decisions on crop selection and anticipating yields. This critical issue is addressed through a novel approach deploying classification and regression algorithms to recommend crop types and predict yields.

The proposed system utilizes supervised machine learning techniques, encompassing comprehensive dataset analysis with variable identification, uni-variate, bi-variate, and multi-variate analyses, and missing value treatments. A thorough comparison of machine learning algorithms, including Random Forest, Linear Regression, KNN, XGBoost Classifier, Deep Q Network, and RNN, revealed superior accuracy in predicting optimal harvests.

This innovative solution not only aids in reducing losses and managing price fluctuations but also empowers the agricultural community, especially the new generation, to make informed decisions, ultimately contributing to the sustainable growth of the agricultural sector.

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