Crop Yield Prediction and Recommendation in Agriculture using Machine Learning Algorithms

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Abstract: The accurate prediction of crop yield is a complex and multifaceted task, requiring consideration of various factors such as climate conditions, soil properties, and geographic location. To achieve precise crop yield prediction, it is necessary to identify the relationships between these factors and crop yield using comprehensive datasets and advanced algorithms. In this paper, we propose the use of machine learning techniques, specifically Decision Tree and Random Forest models, to predict crop yield and provide crop recommendations. By analysing factors such as temperature, rainfall, and area, these models enable farmers to make informed decisions about crop selection and cultivation practices, while also mitigating the depletion of soil nutrients caused by continuous cultivation of the same crop. Our proposed crop recommendation system takes into account a range of factors, such as annual temperature, rainfall, and soil type and content, providing farmers with tailored recommendations for optimal crop selection and yield.

Keywords: Crop Yield Prediction, Agriculture, Machine Learning Algorithms, Recommendation Systems, Data Analysis.

REFERENCES

[1]. Shilpa Mangesh Pande, Dr. Prem Kumar Ramesh, Anmol, B.R Aishwarya, Karuna Rohilla, Kumar Shaurya, "Crop Recommender System Using Machine Learning Approach", International Conference on Computing Methodologies and Communication (ICCMC), 2021, DOI: 10.1109/ICCMC51019.2021.9418351

[2]. P. S. Nishant, P. Sai Venkat, B. L. Avinash and B. Jabber, 'Crop Yield Prediction based on Indian Agriculture using Machine Learning,' International Conference for Emerging Technology (INCET), 2020, doi: 10.1109/INCET49848.2020.9154036

[3]. S. P. Raja , Barbara Sawicka , Zoran Stamenkovic, And G. Mariammal, "Crop Prediction Based on Characteristics of the Agricultural Environment Using Various Feature Selection Techniques and Classifiers", International Conference on Computing Methodologies and Communication (ICCMC), 2022, DOI 10.1109/ACCESS.2022.3154350

[4]. Agarwal, Sonal Tarar, Sandhya. (2021). A HYBRID APPROACH FOR CROP YIELD PREDICTION USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS. Journal of Physics: Conference Series. 1714. 012012. 10.1088/1742-96596/1714/1/012012.

[5]. Namgiri Suresh, :N.V.K.Ramesh, :Syed Inthiyaz, :P. Poorna Priya, :Kurra Nagasowmika, Kota.V.N.Harish Kumar, :Mashkoor Shaik and 2B. N. K. Reddy, "Crop Yield Prediction Using Random Forest Algorithm", International Conference on Advanced Computing & Communication Systems (ICACCS), 2021, DOI: 10.1109/ICACCS51430.2021.9441871.

[6]. D. J. Reddy and M. R. Kumar, 'Crop Yield Prediction using Machine Learning Algorithm,' 2021 5th International Conference on Intelligent Computing and Control Systems (ICICCS), 2021, doi: 10.1109/ICICCS51141.2021.9432236.

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