# Evaluation of Crop Price Prediction Models

## Introduction

Accurate crop price prediction is crucial for stakeholders in agriculture. This study evaluates the performance of a Neural Network (NN) model and a Machine Learning (ML) model against real-time data for predicting the prices of onion, corn, and potato.

## Dataset

The dataset 'Final\_Accuracy.csv' includes:

* Crop: Type of crop (onion, corn, potato)
* Date: Date of the data point
* Real-Time: Observed real-time price
* NN: Predicted price using the NN model
* ML: Predicted price using the ML model

Here is the DATASET-[Final Accuracy](https://bayergroup-my.sharepoint.com/personal/hrishikesh_karmalkar_ext_bayer_com/Documents/Desktop/Final%20Accuracy.csv?web=1)

## Data Preprocessing

We converted the 'Date' column to datetime format and handled non-finite values in 'Real-Time', 'NN', and 'ML' by filling them with zeros before converting these columns to integers.

## Visualization

Line plots were created to compare real-time prices with NN and ML predictions for each crop, including labeled data points and legends.

1. **Onion**

**A graph with different colored lines

Description automatically generated**

1. **Corn**

**A graph with numbers and lines

Description automatically generated**

1. **Potato**

**A graph with different colored lines

Description automatically generated**

## Results

The NN model consistently outperformed the ML model in accuracy for all three crops:

* Onion: NN closely follows real-time data; ML shows slight deviations.
* Corn: Both models perform well; NN has a marginally better fit.
* Potato: NN shows superior accuracy; ML has larger deviations.

## Conclusion

The NN model demonstrates higher accuracy in crop price prediction compared to the ML model, indicating its potential for improving decision-making in agriculture.

## Future Work

Future research should aim to enhance ML model accuracy, explore additional influencing factors, and expand the analysis to other crops and regions for a comprehensive assessment.