

Objective: To evaluate the performance of a machine learning model in predicting prices for various crops using an extended dataset.

Dataset:

The dataset includes:

- Crop
- Date
- Real-Time Price (Actual Price)
- Prediction (Predicted Price)
- Deviation (Difference between Real-Time and Prediction)
- %Accuracy (Accuracy of the Prediction)

Data Overview:

The dataset covers dates for each crop with corresponding real-time and predicted prices. Data spans from 04/03/2024 to 13/03/2024 for corn, cotton, tomato, onion, and paddy, with potato data extending to 27/04/2024.

Analysis Approach:

1. **Accuracy Calculation:**

$$\text{Accuracy (\%)} = \left(1 - \frac{\text{Deviation}}{\text{Real-Time Price}}\right) \times 100$$

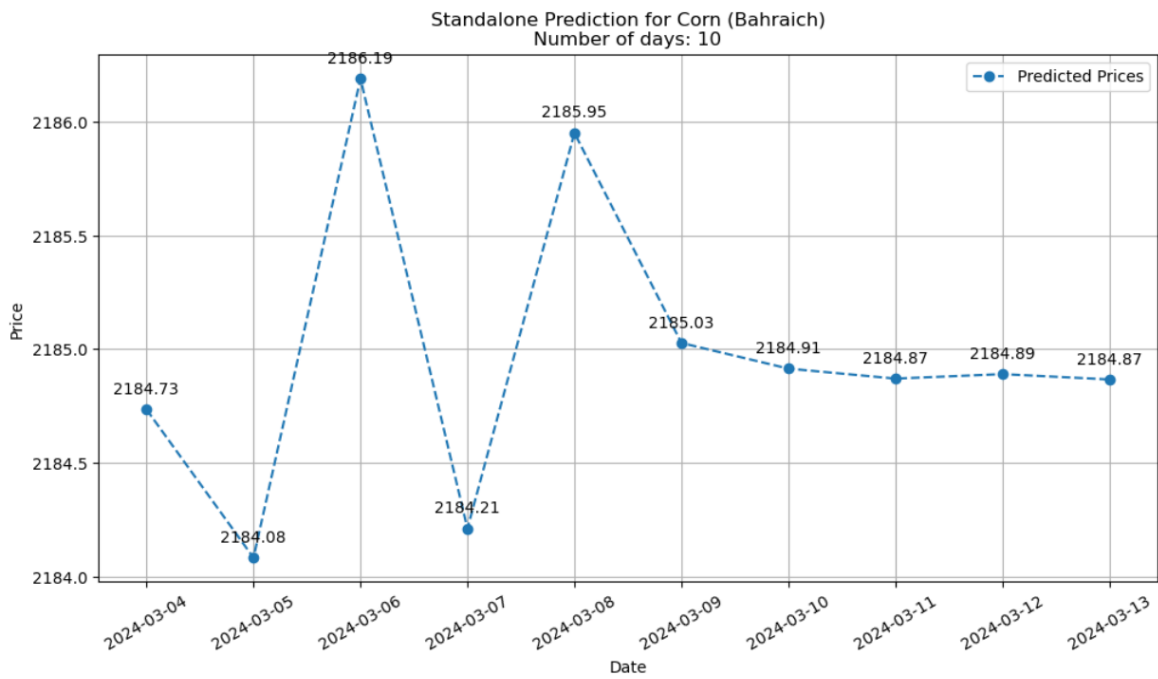
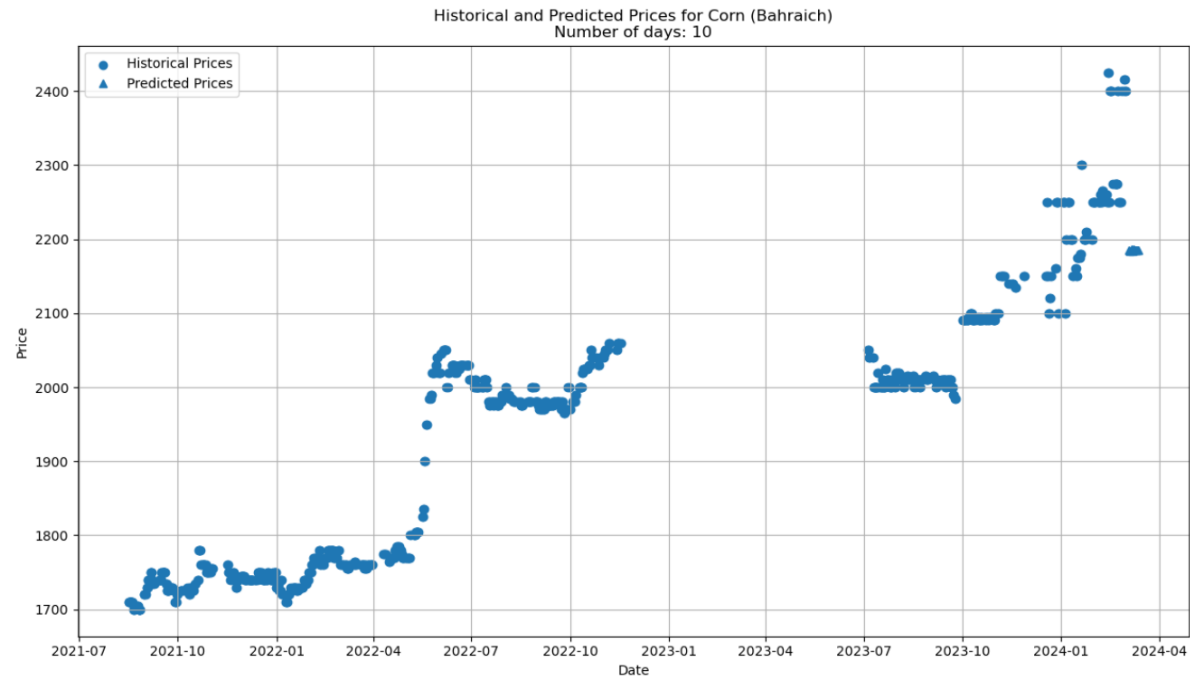
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- Deviation and accuracy are computed for each crop and date.

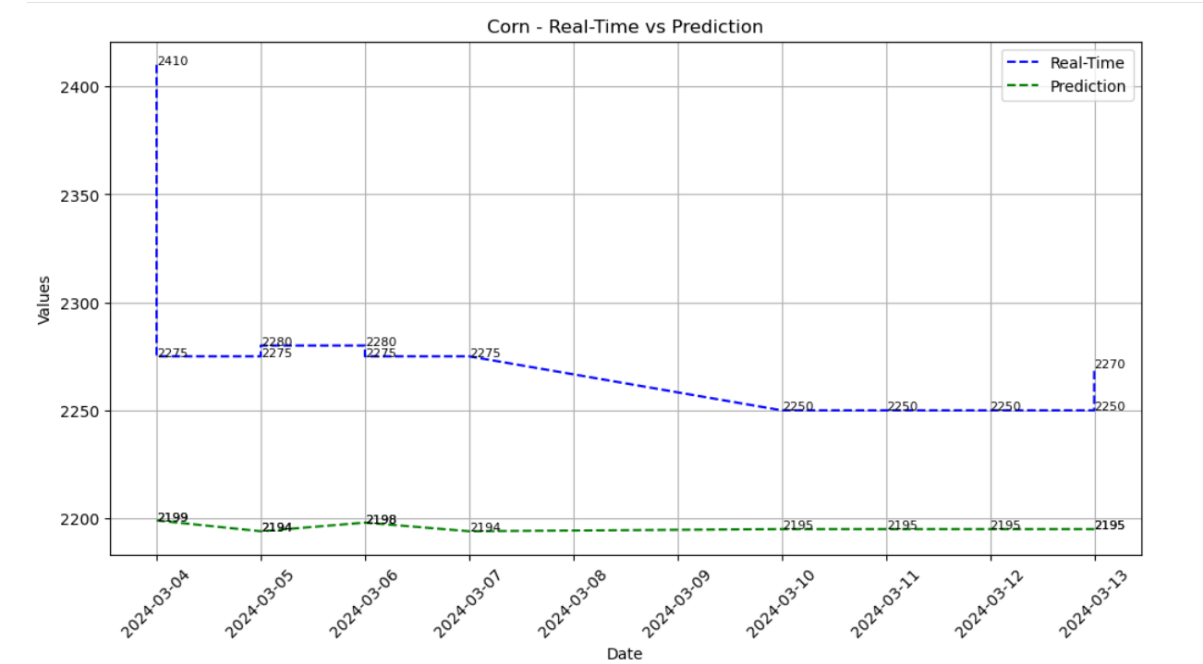
2. **Descriptive Statistics:**

- Average real-time price, predicted price, deviation, and accuracy percentage are calculated for each crop.

Key Findings and Output:

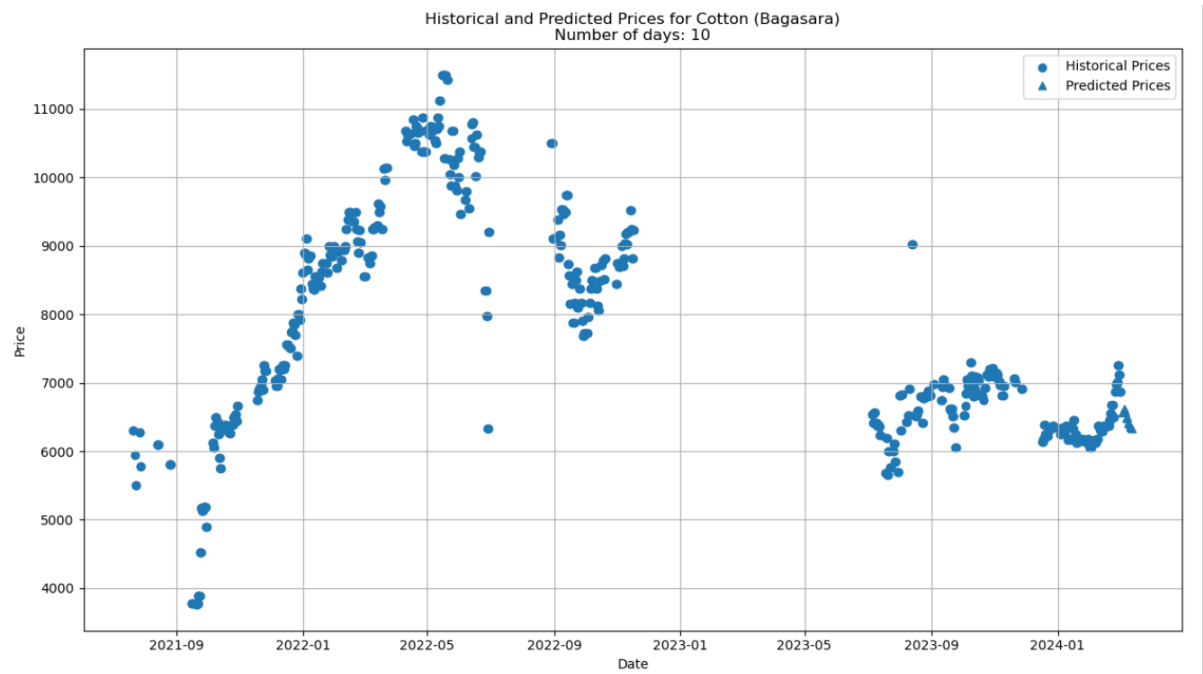
1. Corn:
- Average Real-Time Price: 2278.33
- Average Predicted Price: 2196.35
- Average Deviation: 81.98
- Average Accuracy: 96.40%

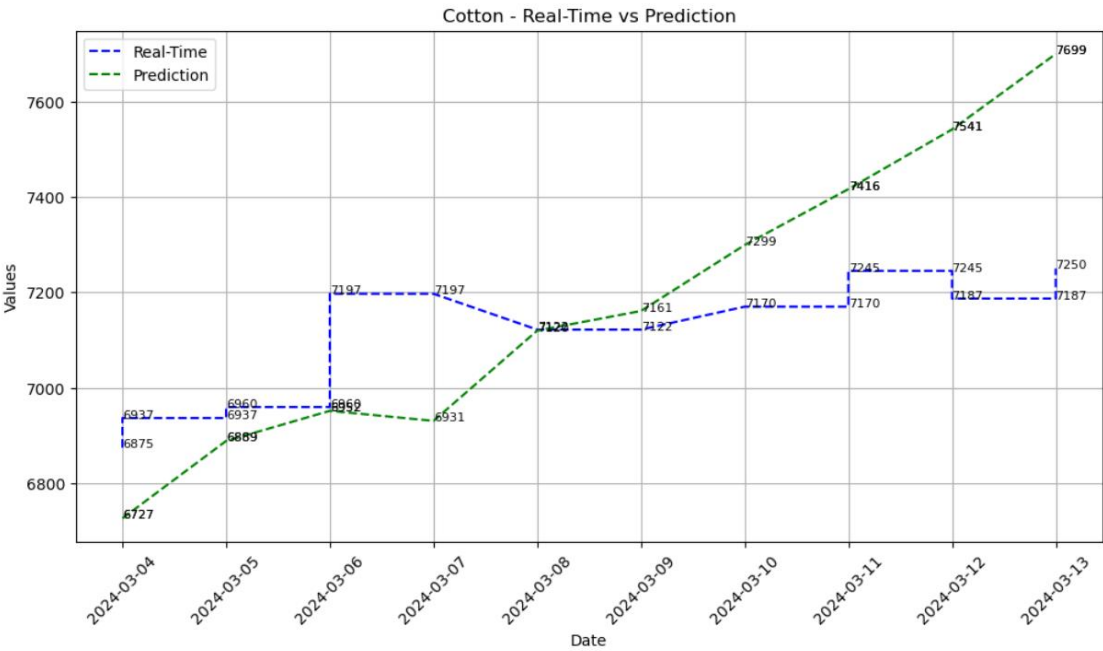
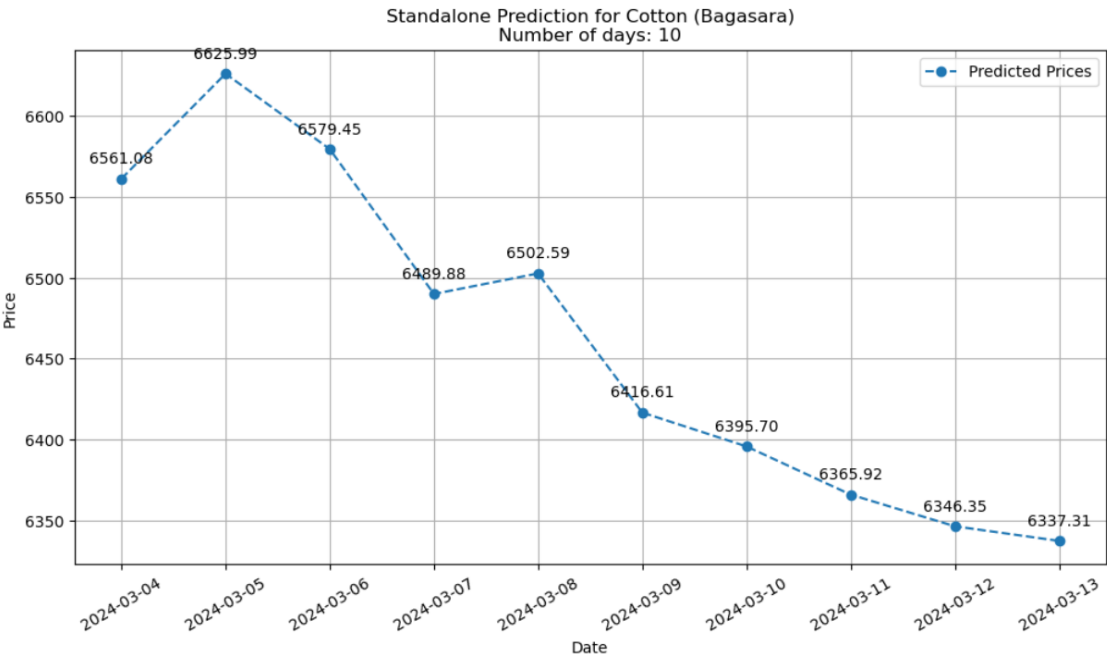




2. Cotton:

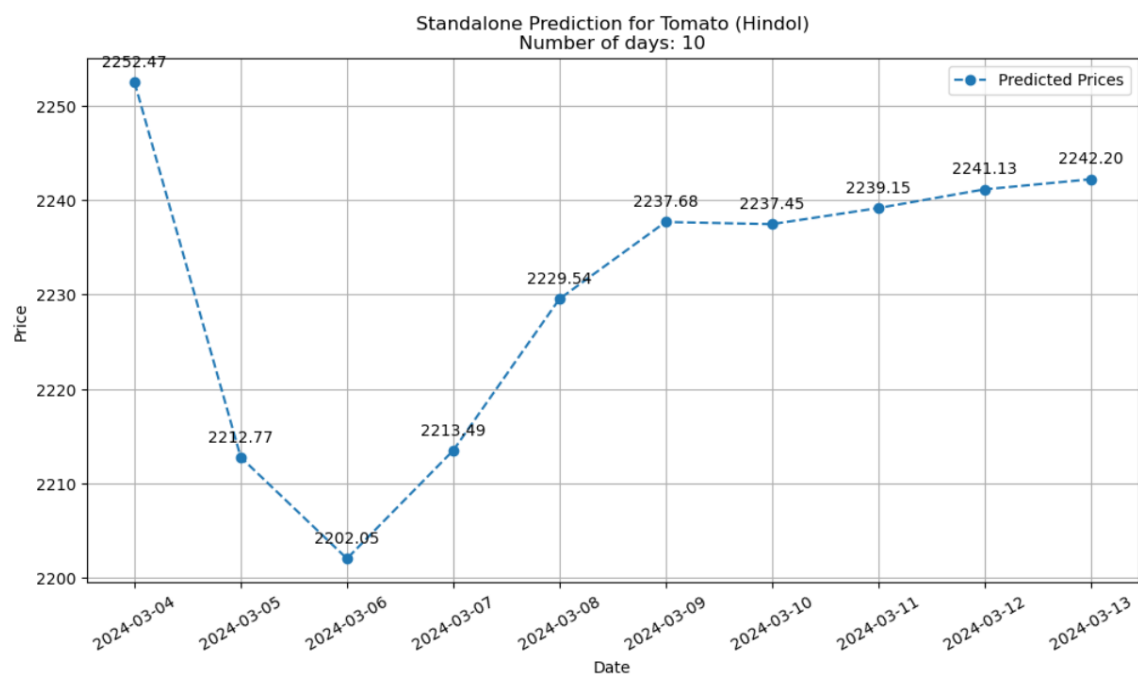
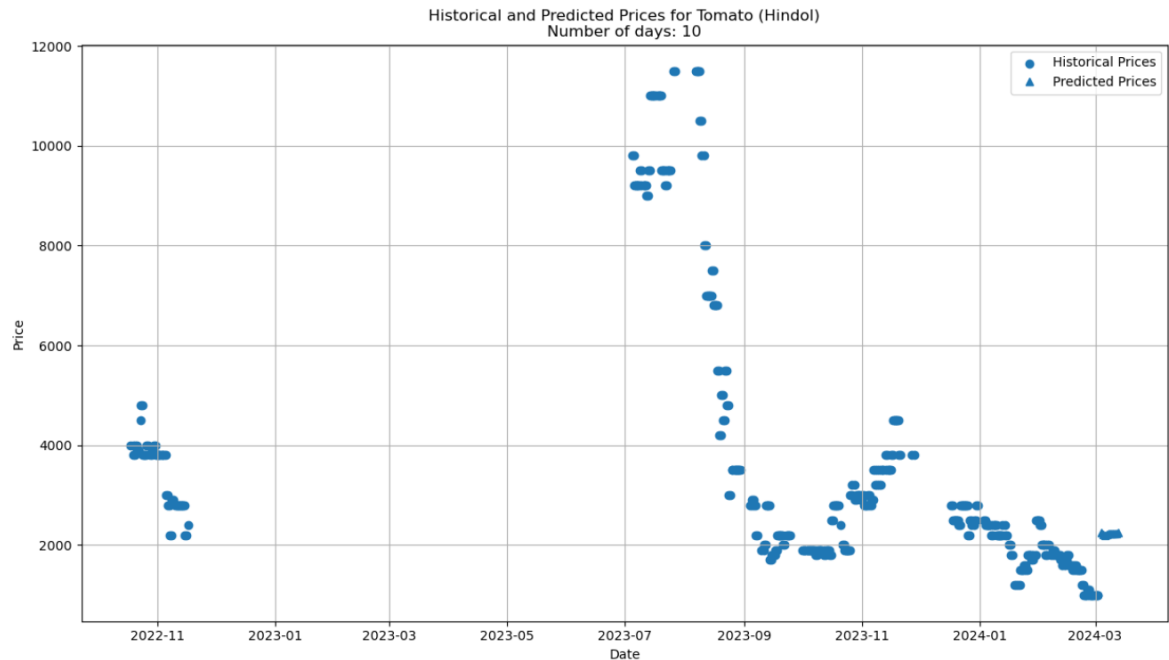
- Average Real-Time Price: 7110.06
- Average Predicted Price: 7185.30
- Average Deviation: 75.24
- Average Accuracy: 98.94%

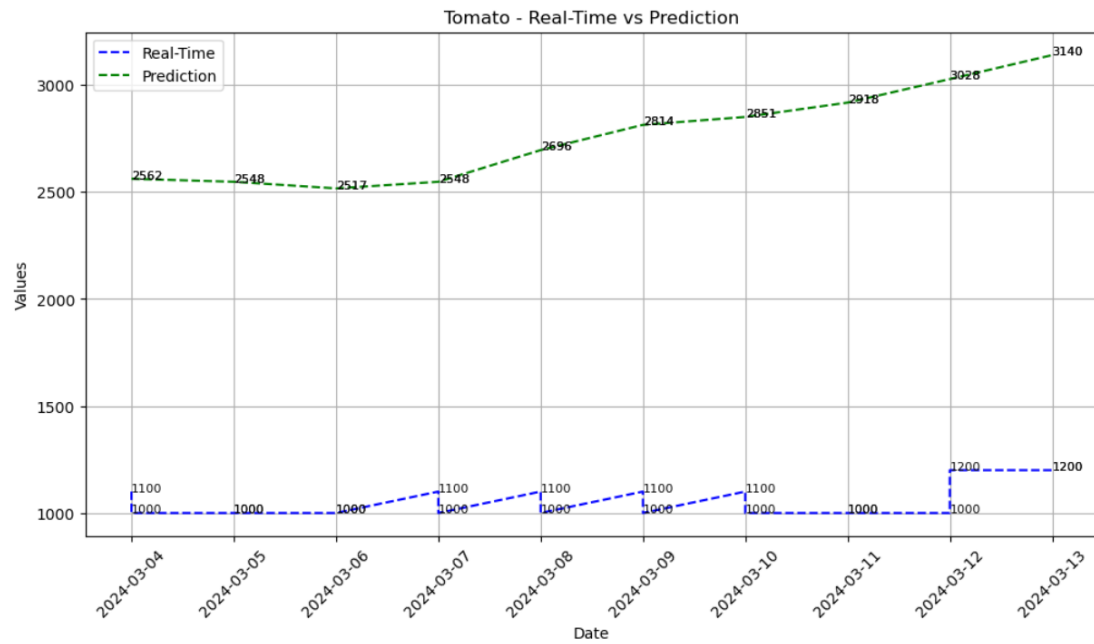




3. Tomato:

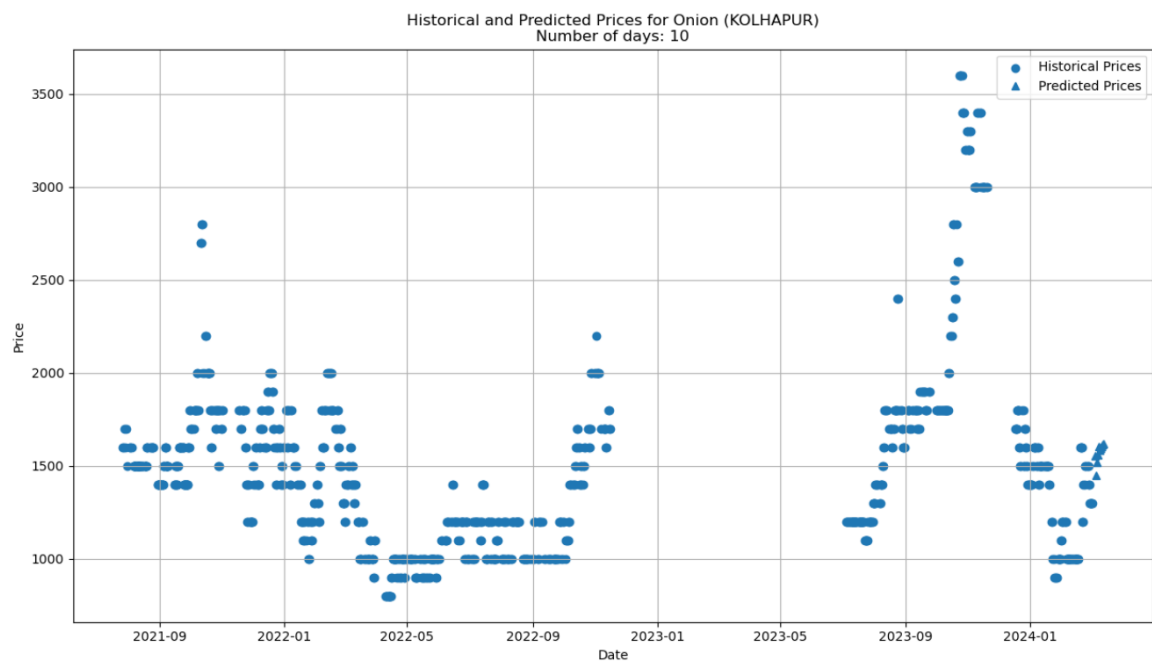
- Average Real-Time Price: 1055.00
- Average Predicted Price: 2762.70
- Average Deviation: 1707.70
- Average Accuracy: -61.87% (Poor model performance)

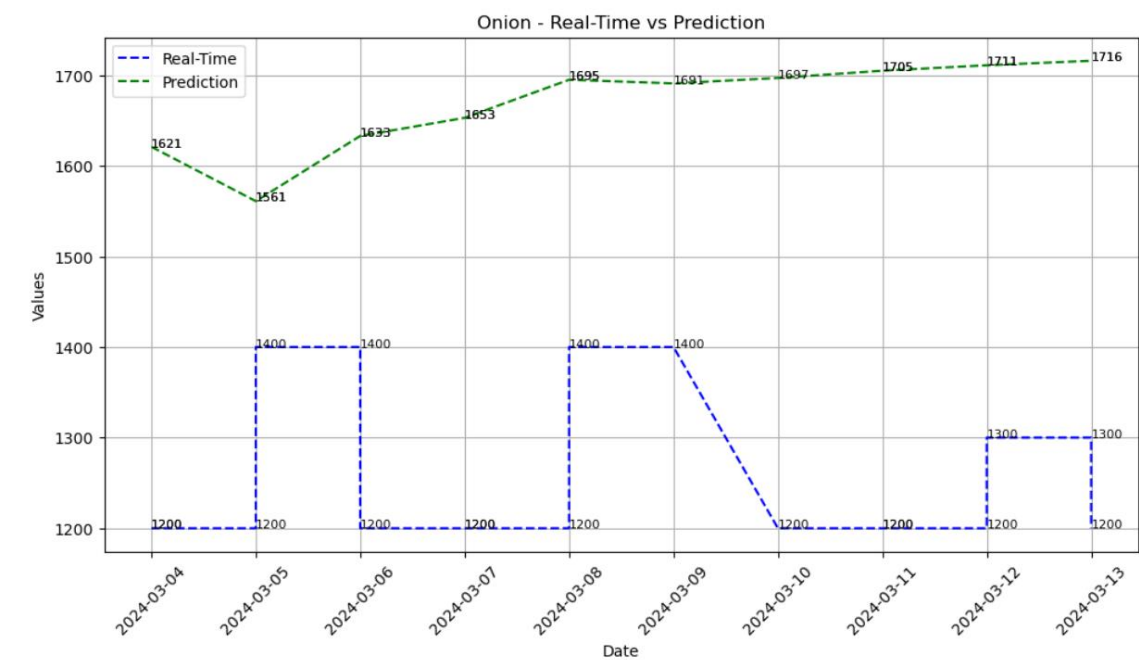
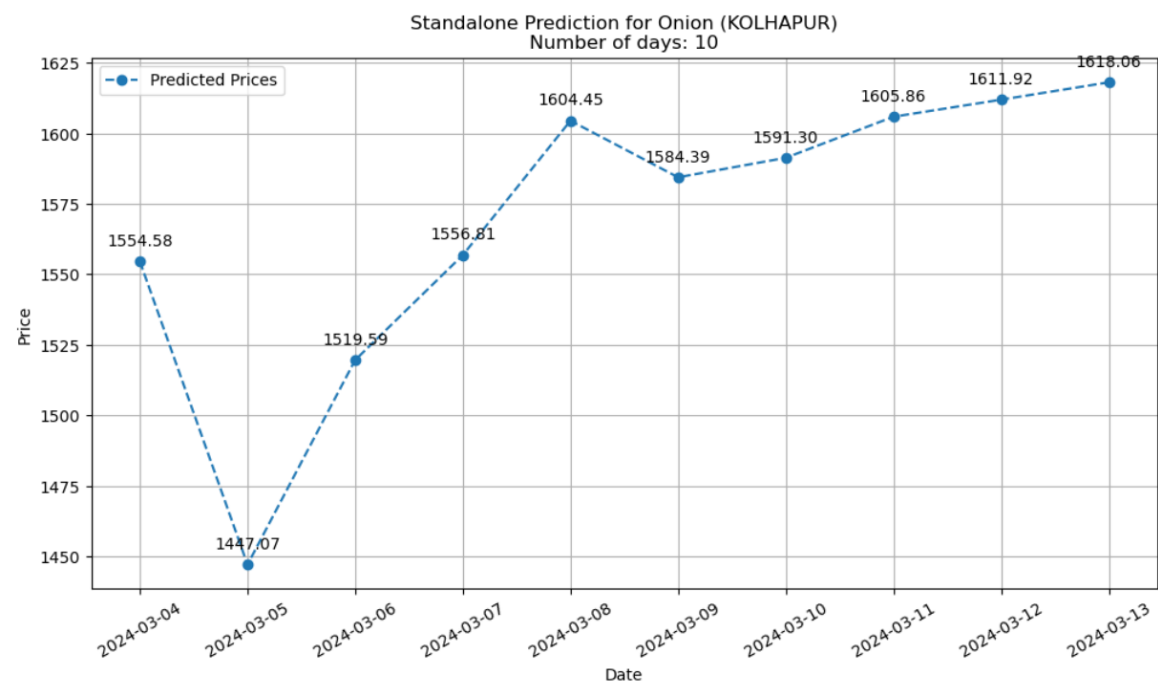




4. Onion:

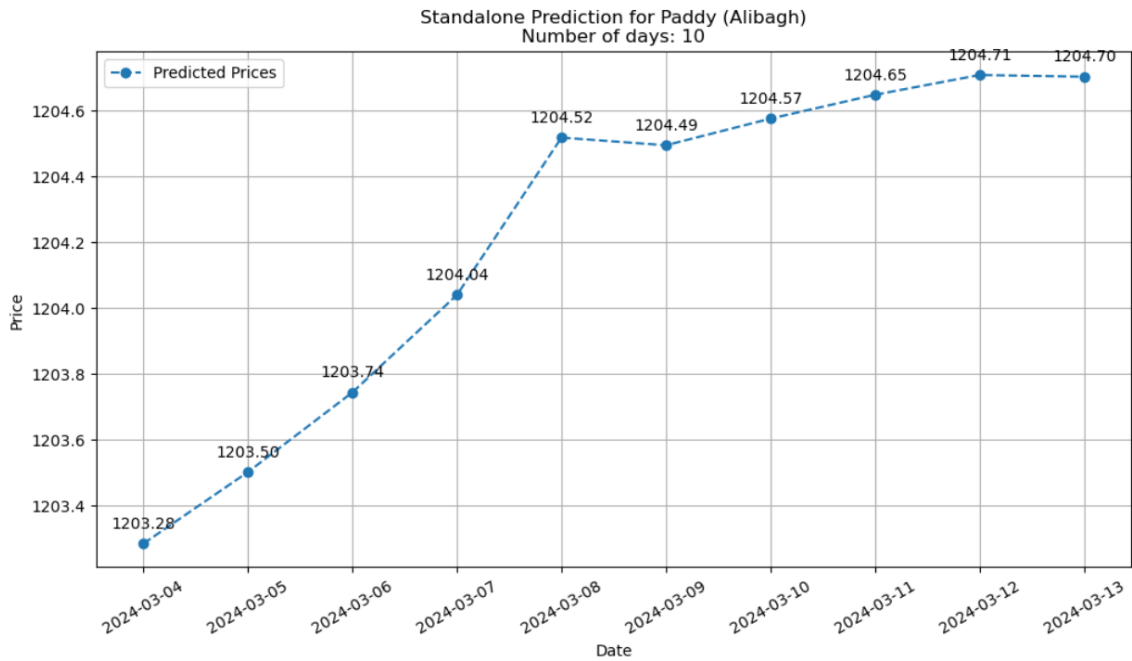
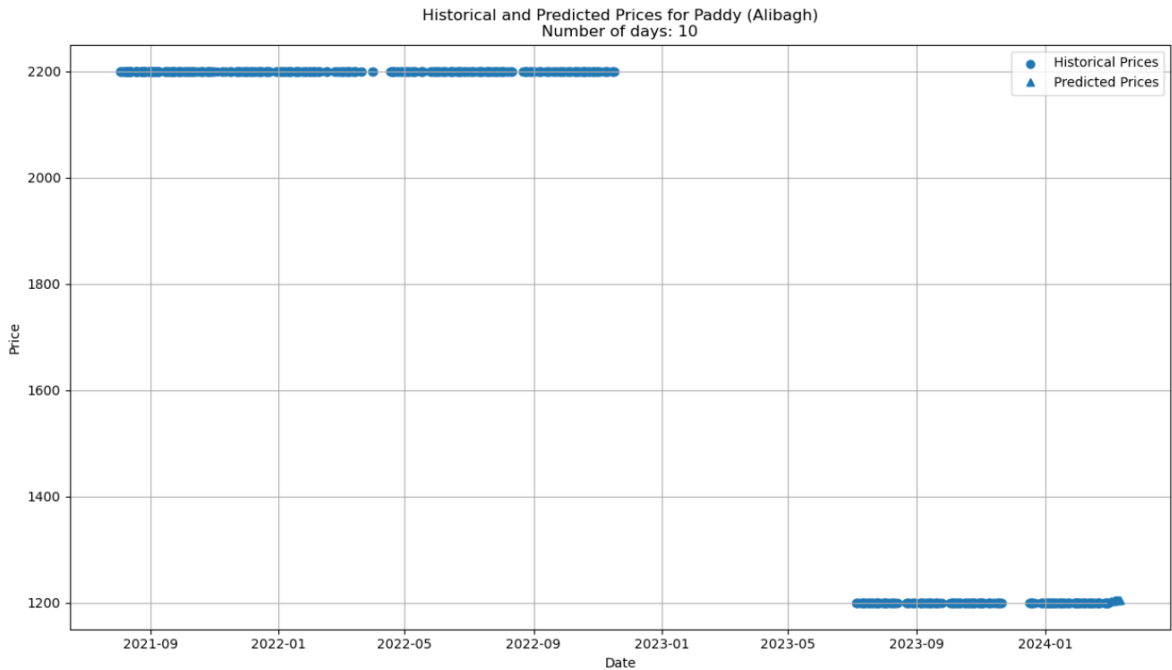
- Average Real-Time Price: 1255.56
- Average Predicted Price: 1665.85
- Average Deviation: 410.29
- Average Accuracy: 67.32%

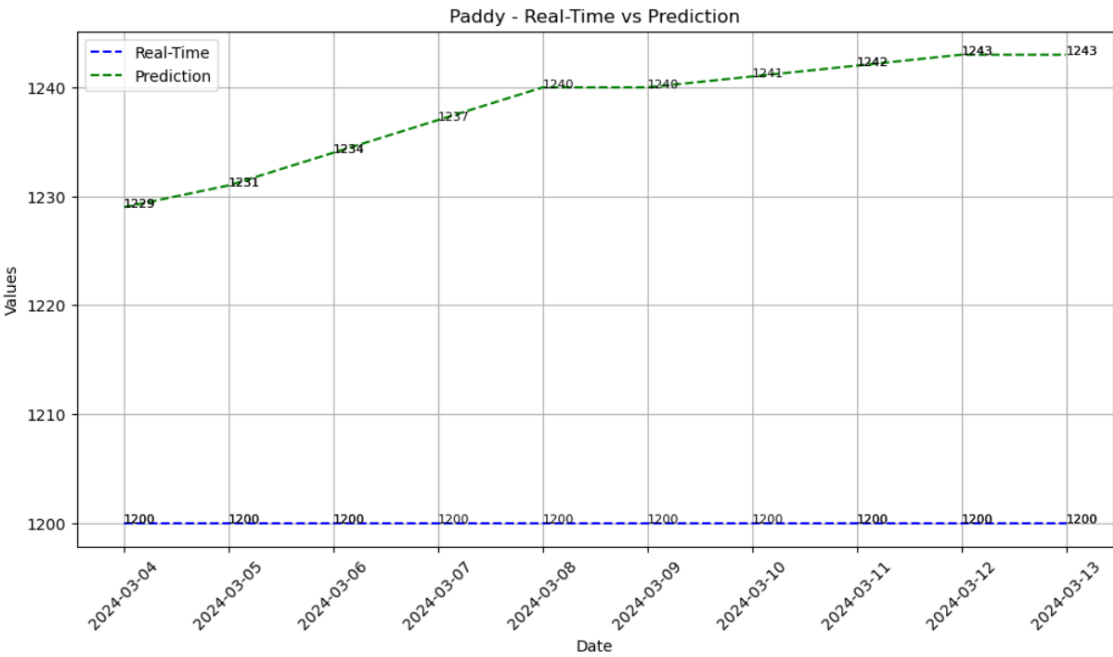




5. Paddy:

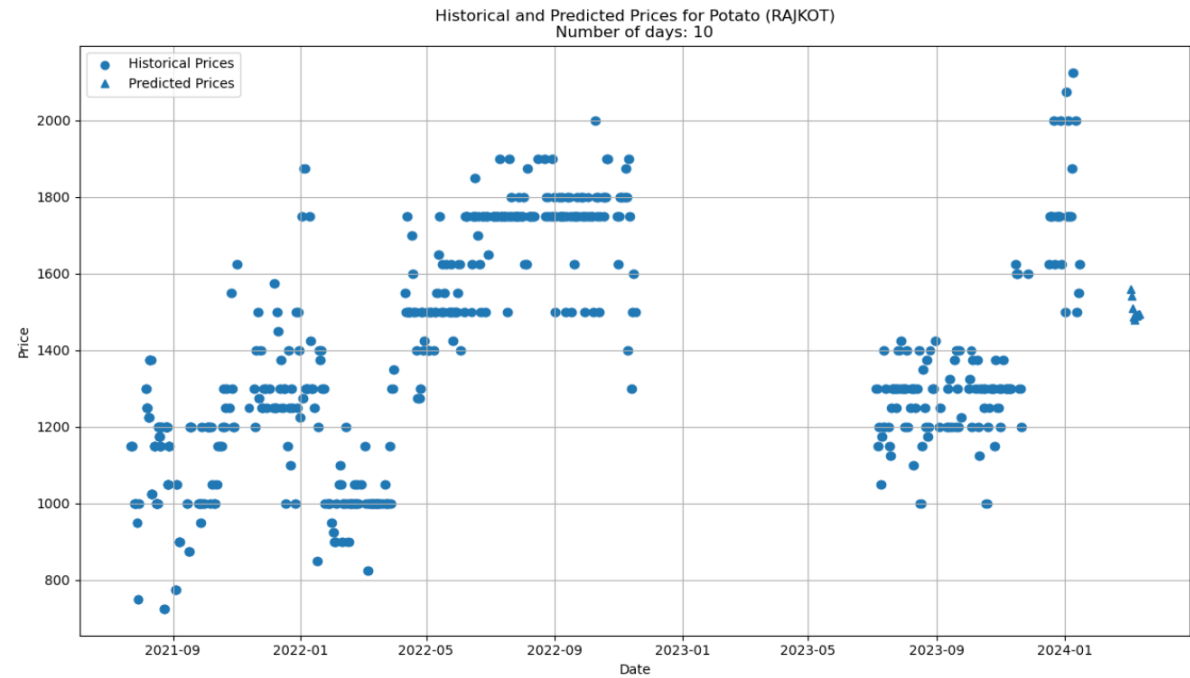
- Average Real-Time Price: 1200.00
- Average Predicted Price: 1238.12
- Average Deviation: 38.12
- Average Accuracy: 96.82%



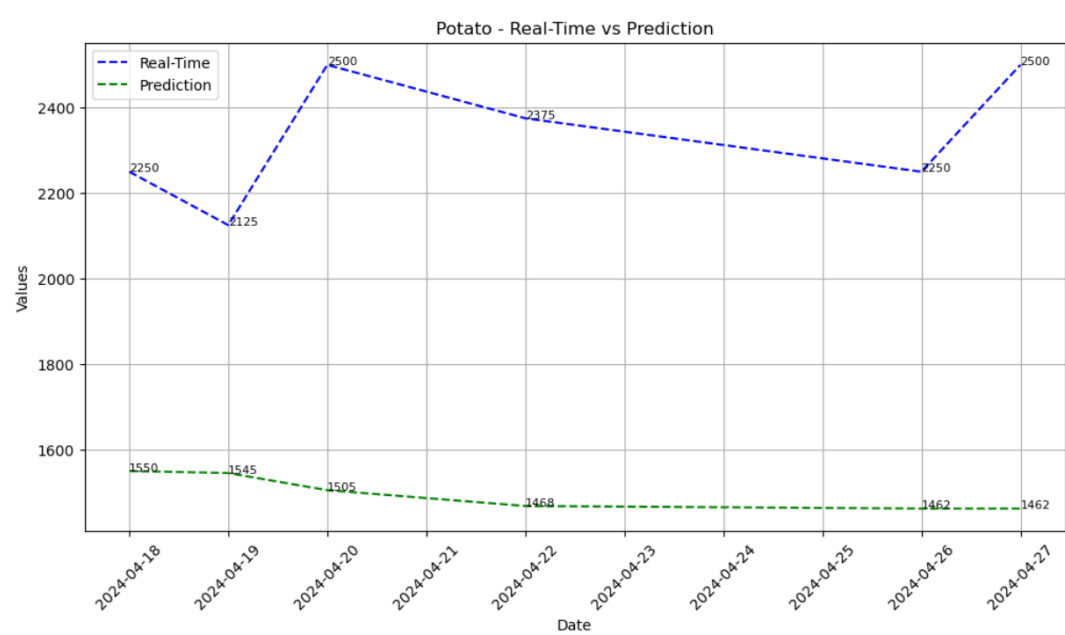
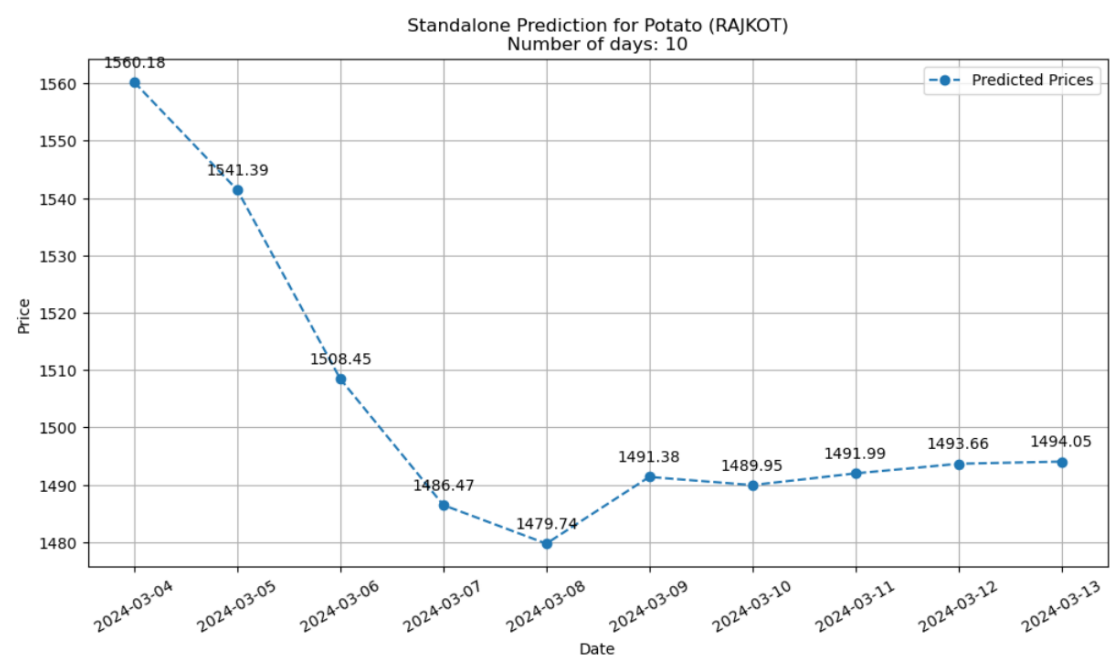


6. **Potato:**

- Average Real-Time Price: 2333.33
- Average Predicted Price: 1499.38
- Average Deviation: 833.95
- Average Accuracy: 64.26%



Paddy Neural Network



Conclusion:

The model shows high accuracy for predicting cotton (98.94%), corn (96.40%), and paddy (96.82%) prices but performs poorly for tomatoes. For onions and potatoes, accuracy is moderate. This analysis highlights the model's strengths and areas for improvement.

Visual Analysis:

The visual representation of the data (image provided) shows detailed predictions and deviations for each crop. The table in the image provides a clear overview of the model's performance across different dates and crops. This can help identify trends and patterns in prediction accuracy and highlight specific areas where the model needs adjustment