

Objective: To evaluate the performance of a machine learning model in predicting cotton prices.

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. For cotton, data spans from 04/03/2024 to 13/03/2024. Similar data is available for corn, tomato, onion, paddy, and potato.

Analysis Approach:

1. Accuracy Calculation:

- $$\text{Accuracy (\%)} = \left(1 - \frac{\text{Deviation}}{\text{Real-Time Price}}\right) \times 100$$
- Deviation and accuracy are computed for each crop and date.

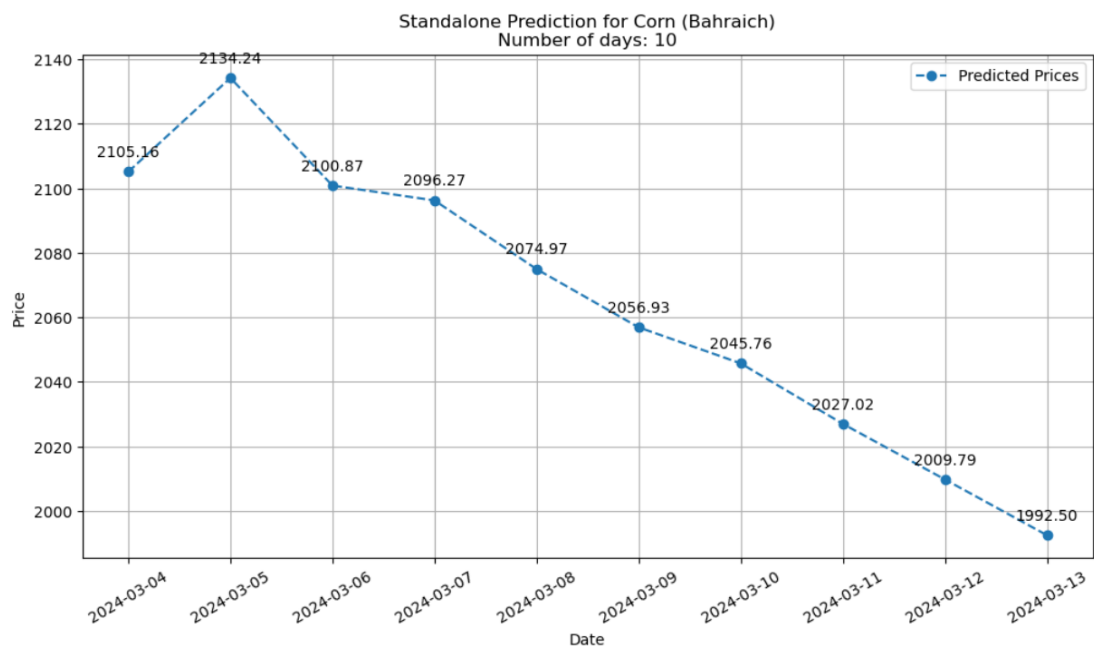
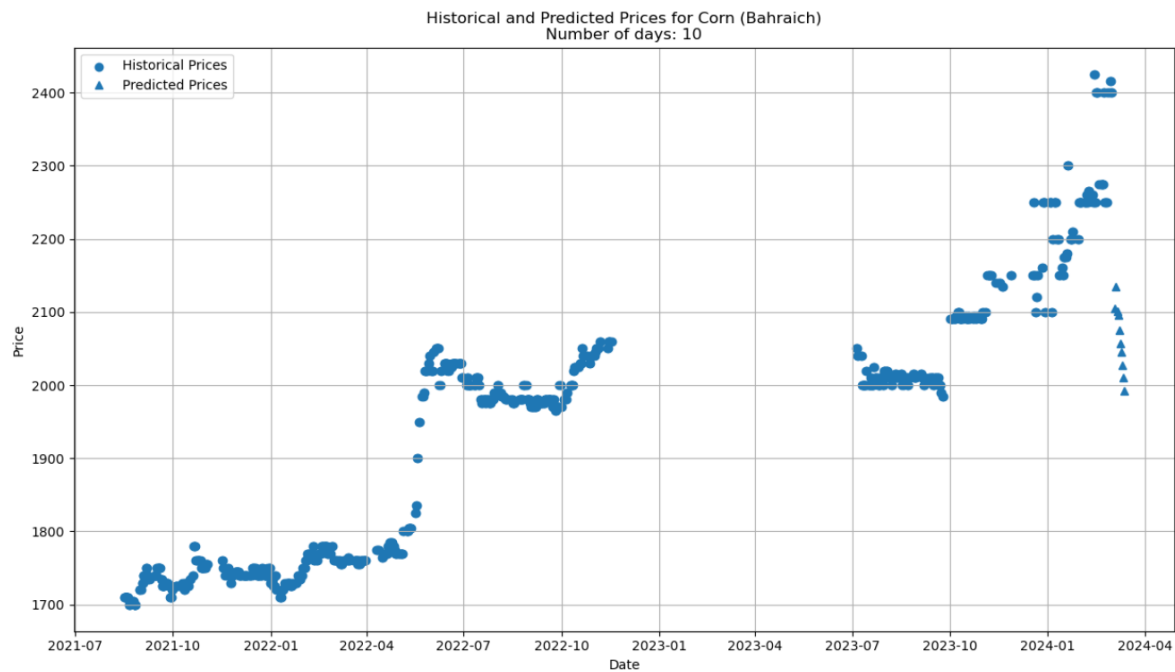
2. Descriptive Statistics:

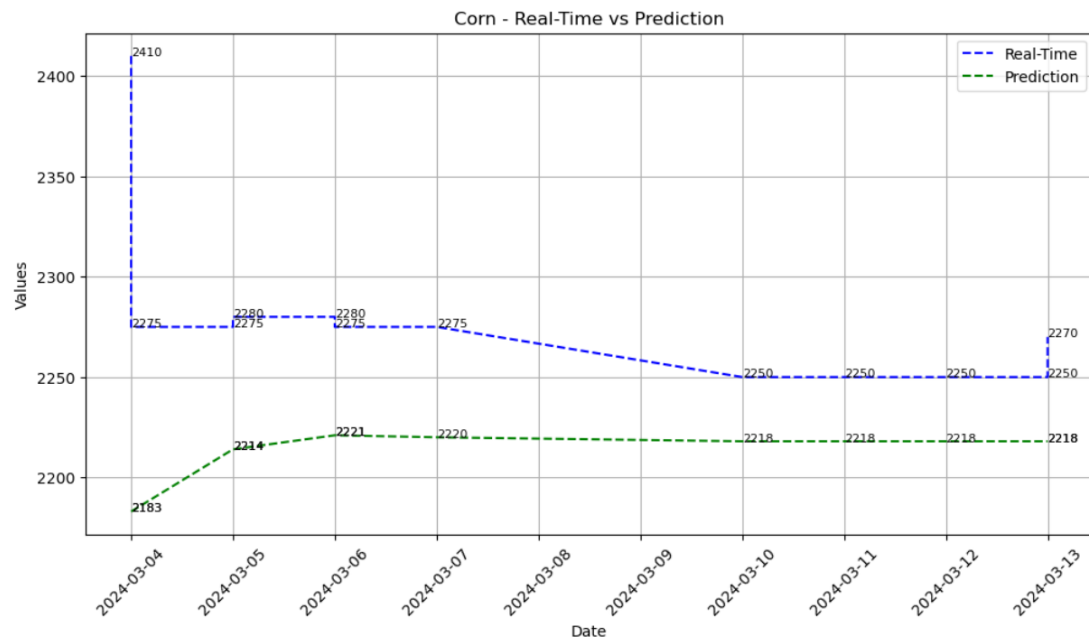
- Average real-time price, predicted price, deviation, and accuracy percentage are calculated for each crop.

Key Findings and Output:

1. Corn:

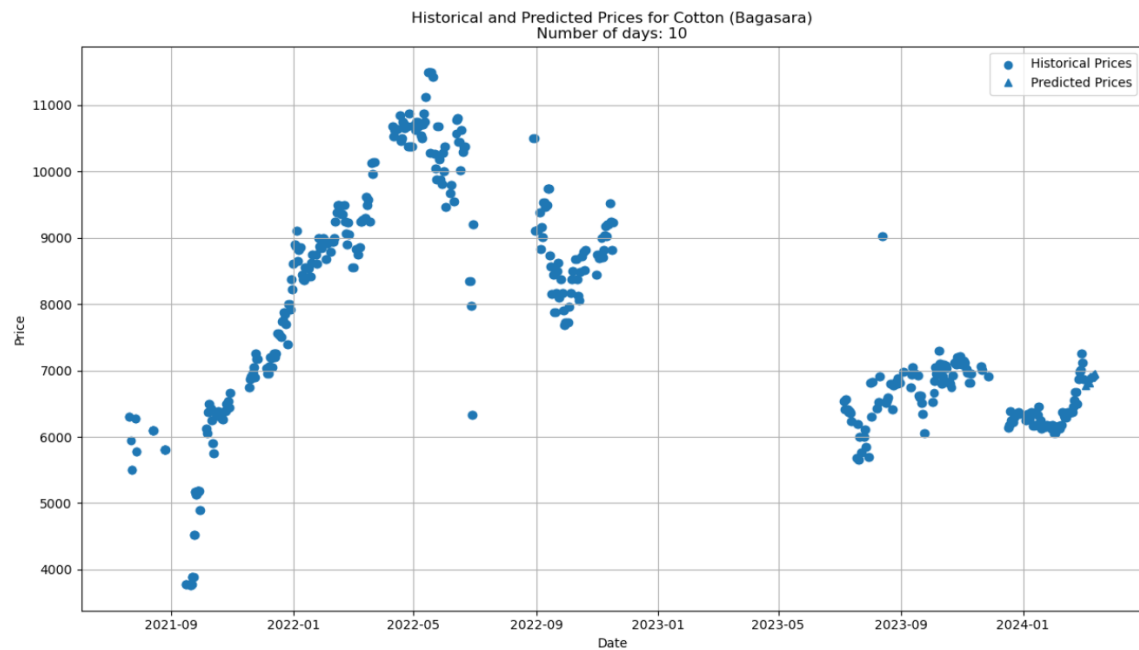
- Average Real-Time Price: 2278.33
- Average Predicted Price: 2212.74
- Average Deviation: 65.60
- Average Accuracy: 97.12%

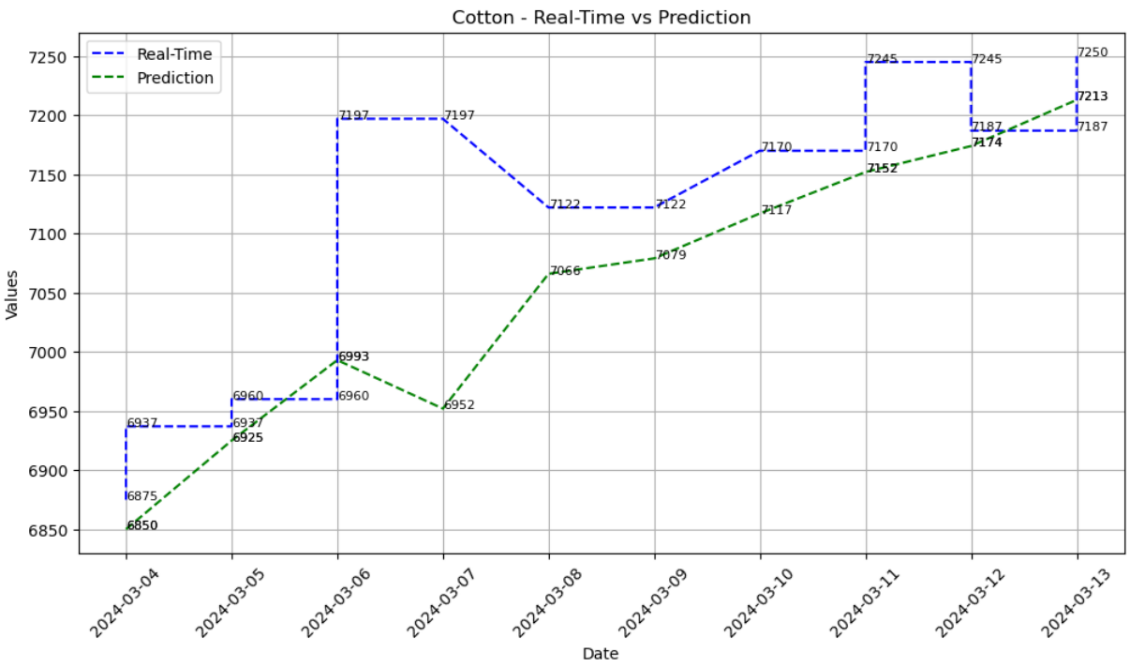
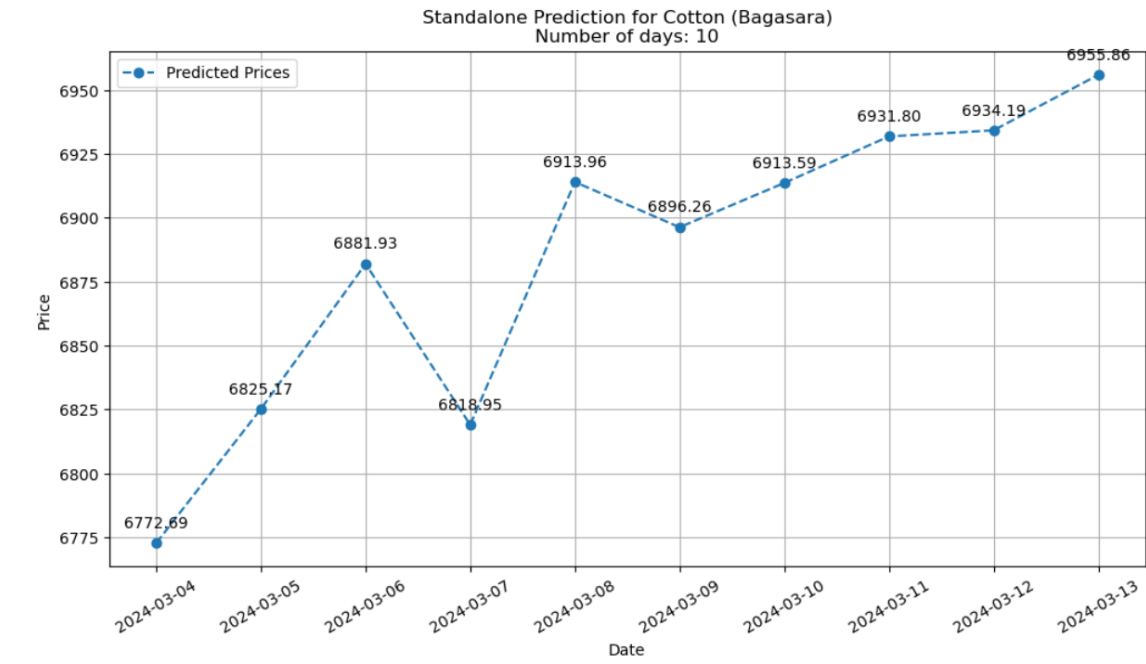




2. Cotton:

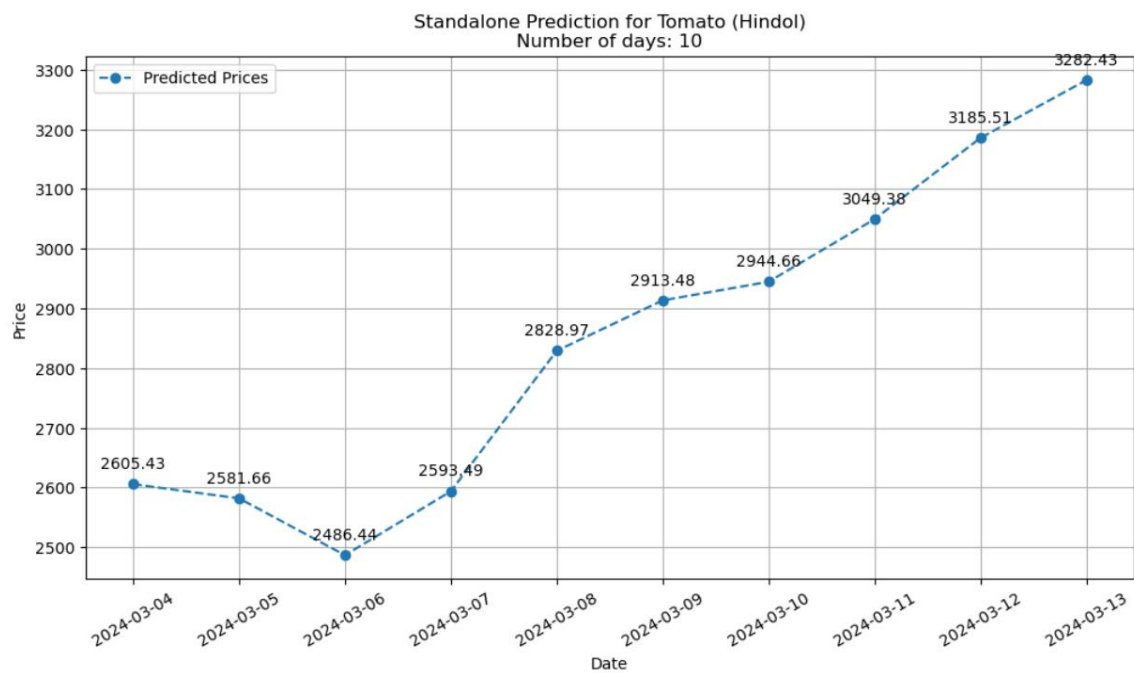
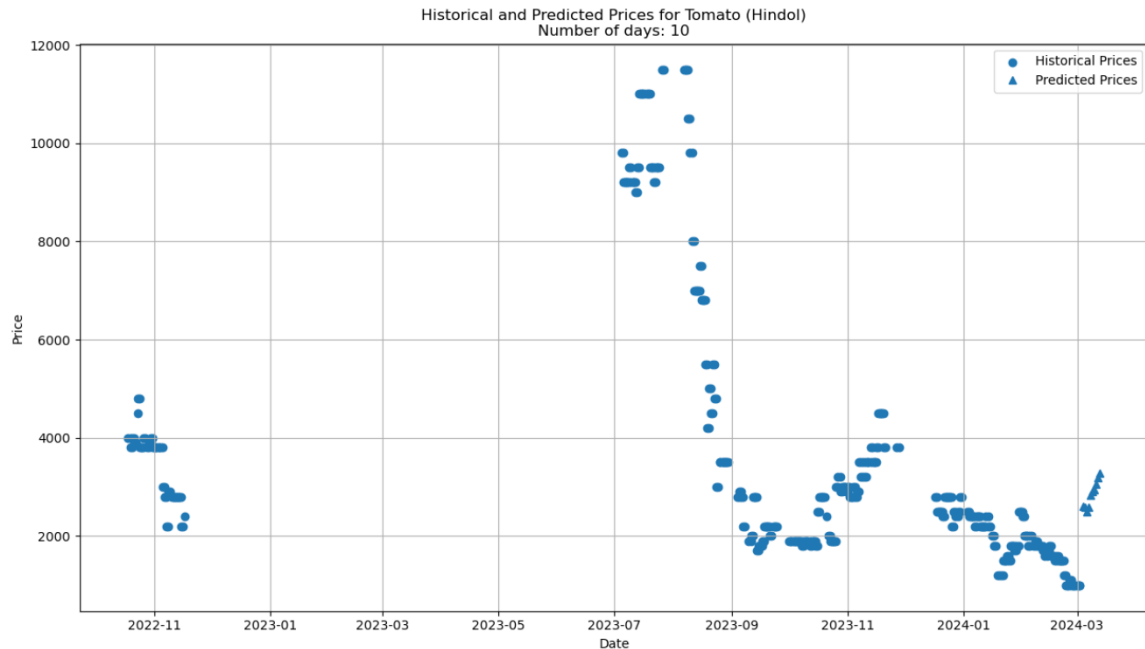
- Average Real-Time Price: 7110.06
- Average Predicted Price: 7052.21
- Average Deviation: 57.85
- Average Accuracy: 99.19%

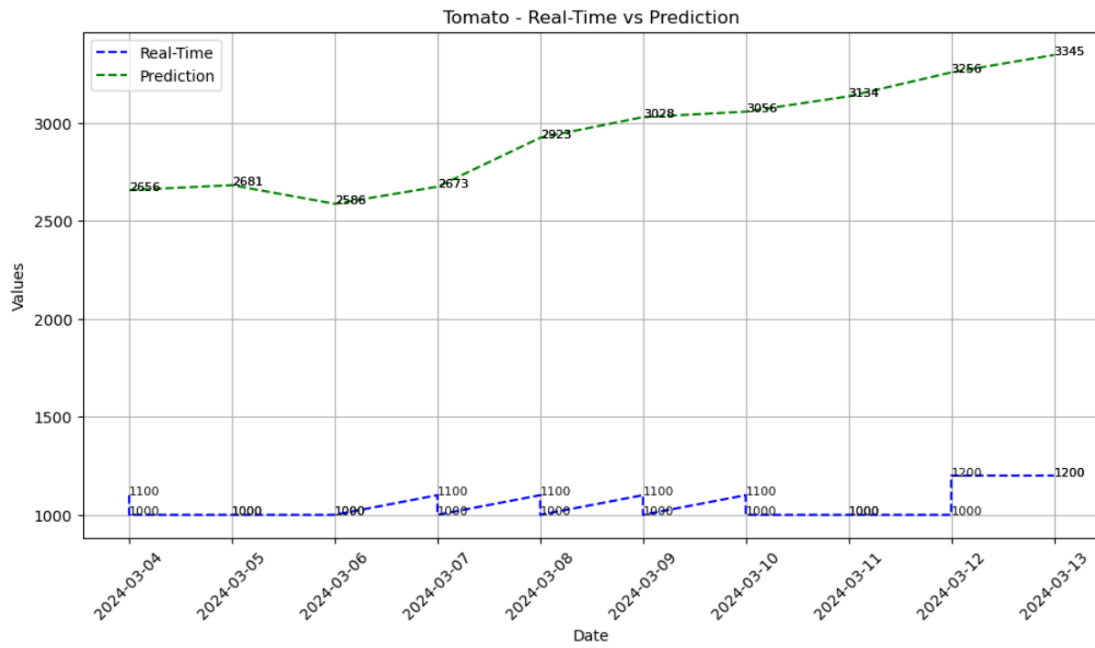




3. Tomato:

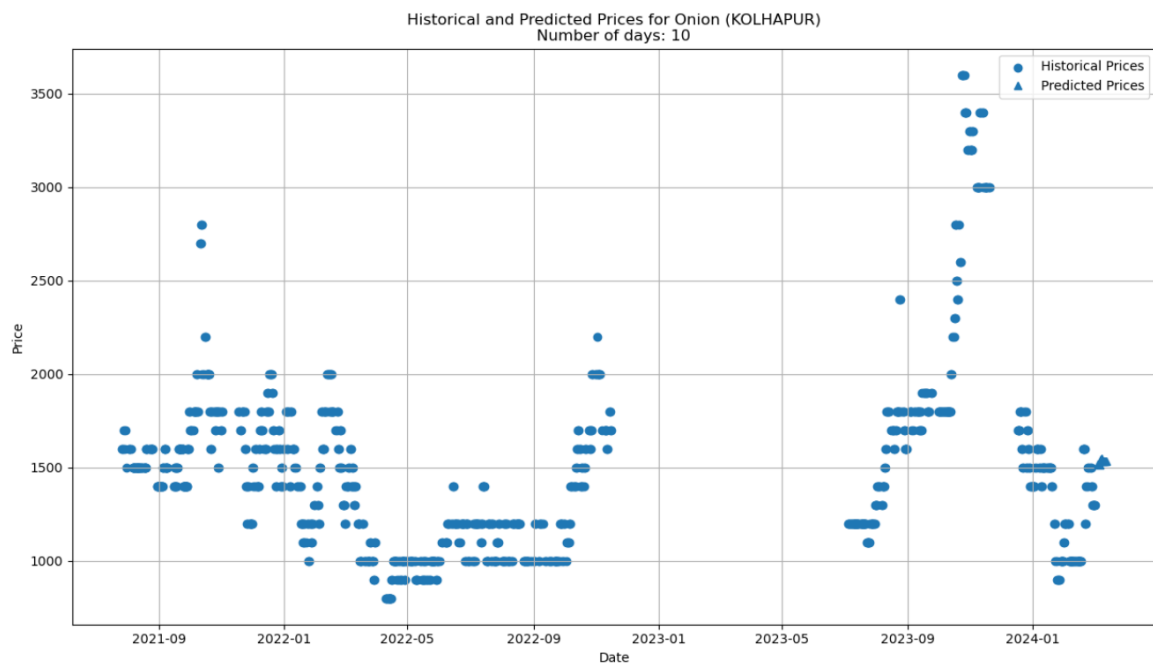
- Average Real-Time Price: 1055.00
- Average Predicted Price: 2934.37
- Average Deviation: 1879.37
- Average Accuracy: -78.14% (Poor model performance)

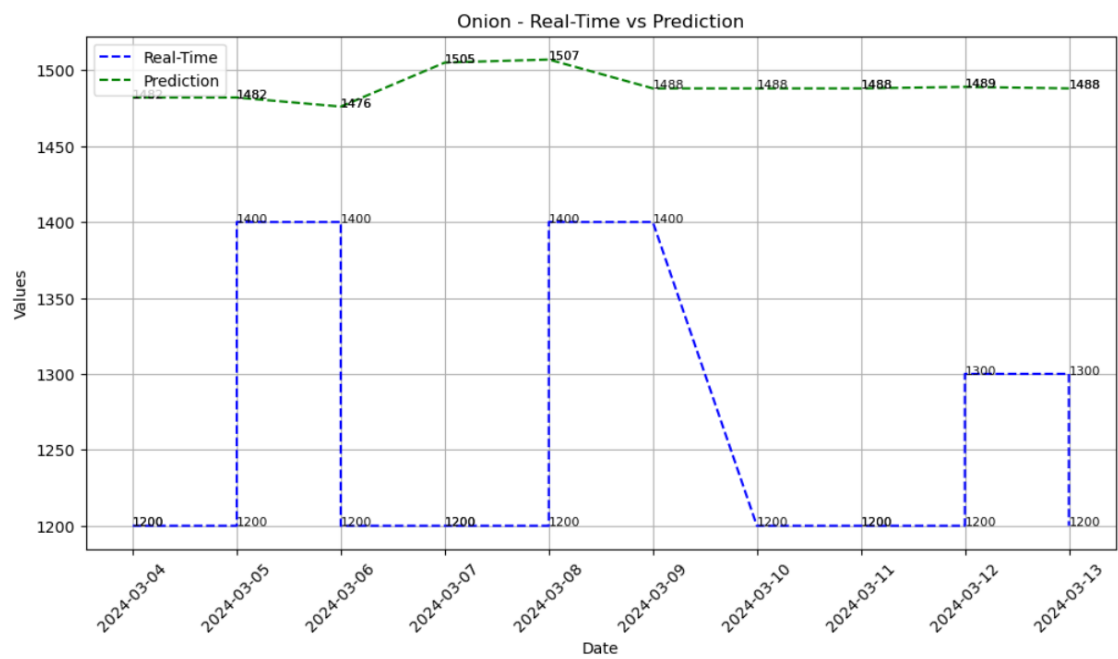
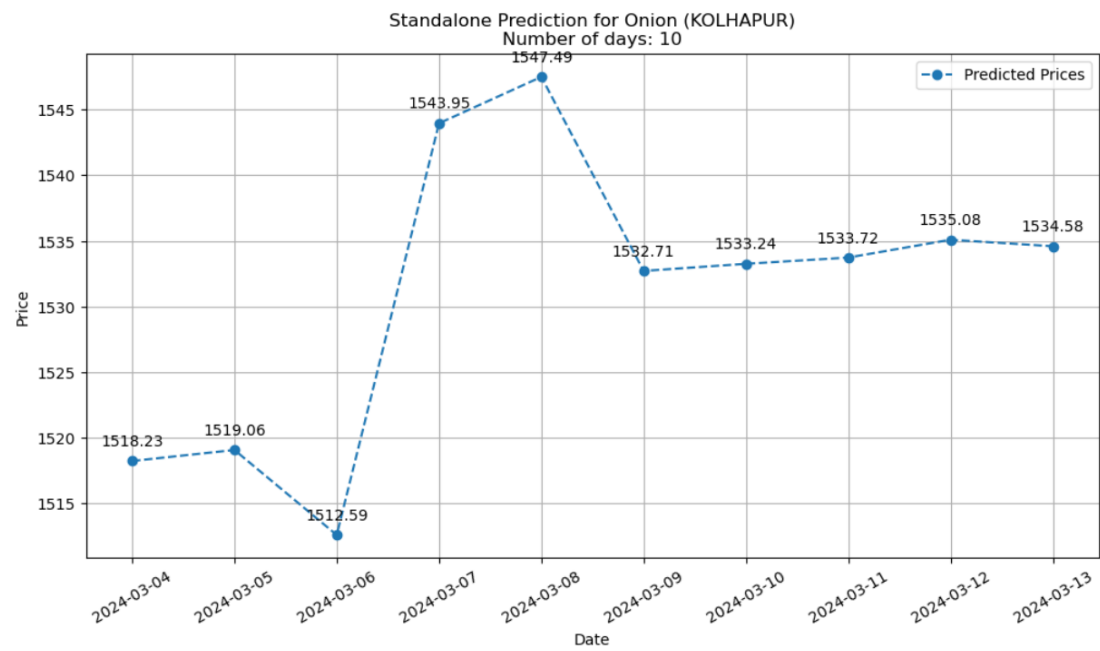




4. Onion:

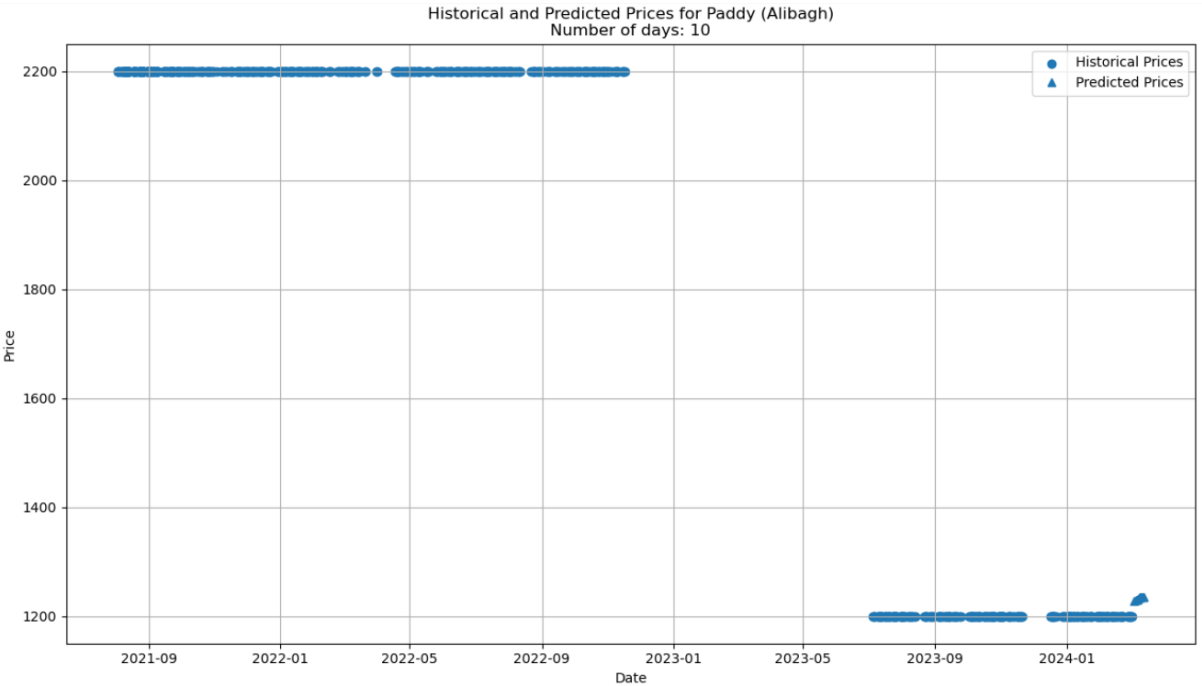
- Average Real-Time Price: 1255.56
- Average Predicted Price: 1490.05
- Average Deviation: 234.49
- Average Accuracy: 81.32%

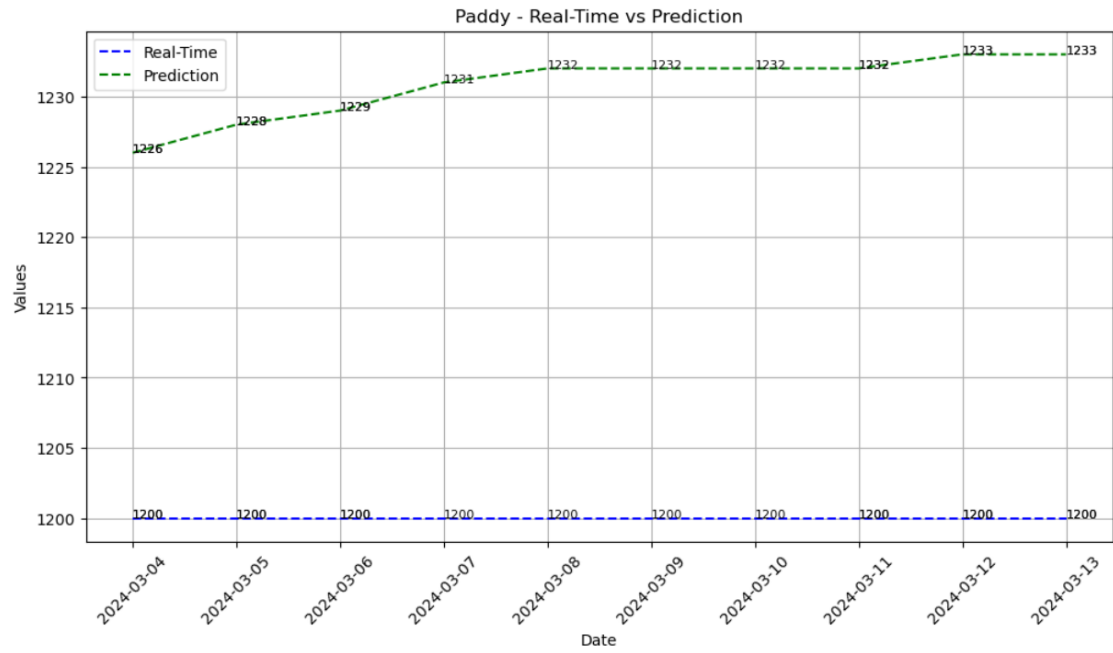




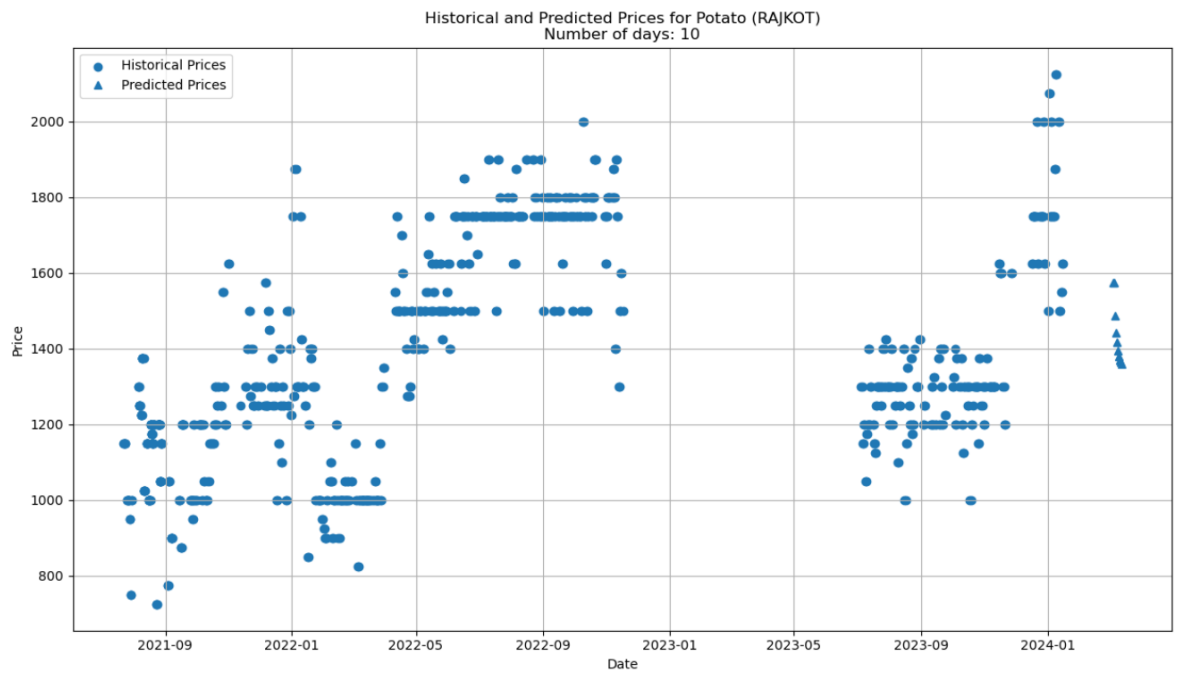
5. Paddy:

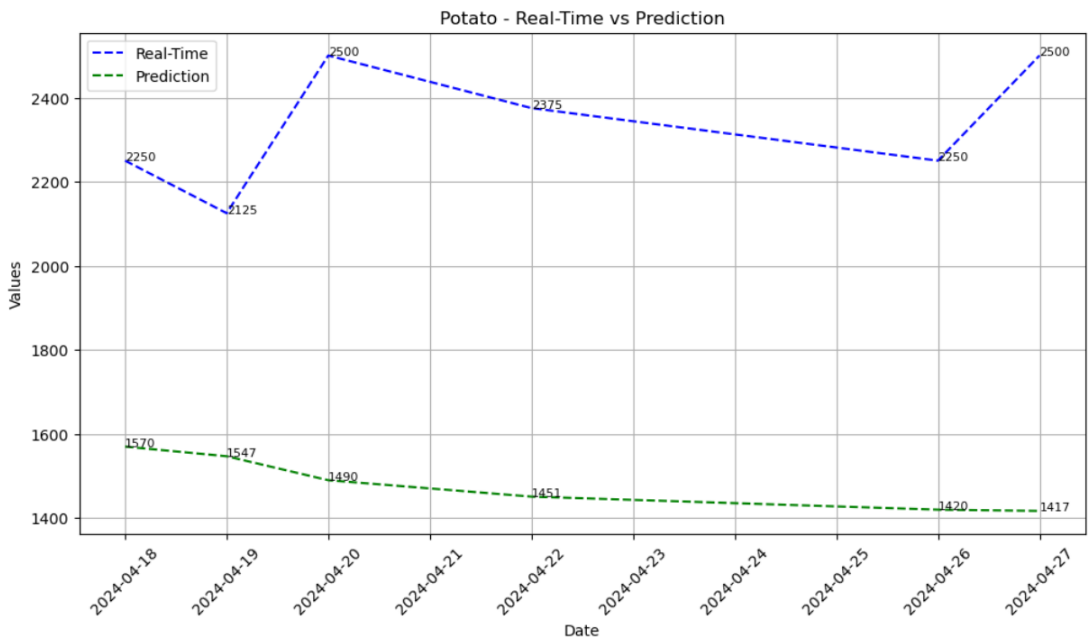
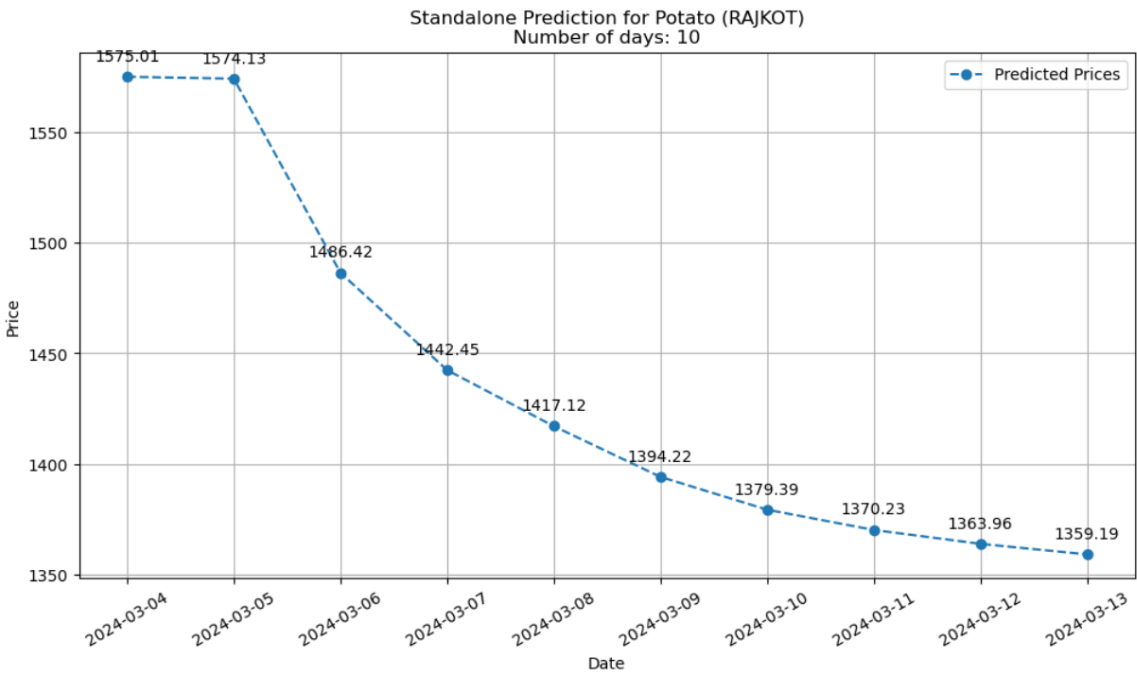
- Average Real-Time Price: 1200.00
- Average Predicted Price: 1231.06
- Average Deviation: 31.06
- Average Accuracy: 97.41%





6. **Potato:**
- Average Real-Time Price: 2333.33
 - Average Predicted Price: 1483.04
 - Average Deviation: 850.29
 - Average Accuracy: 63.56%





Conclusion:

The model shows high accuracy for predicting cotton (99.19%), corn (97.12%), and paddy (97.41%) prices but performs poorly for tomatoes. For onions and potatoes, accuracy is moderate. This analysis highlights the model's strengths and areas for improvement.