



FarmVista: Future Price Prediction of Essential Commodities.

IDEA AND PROPOSED SOLUTION

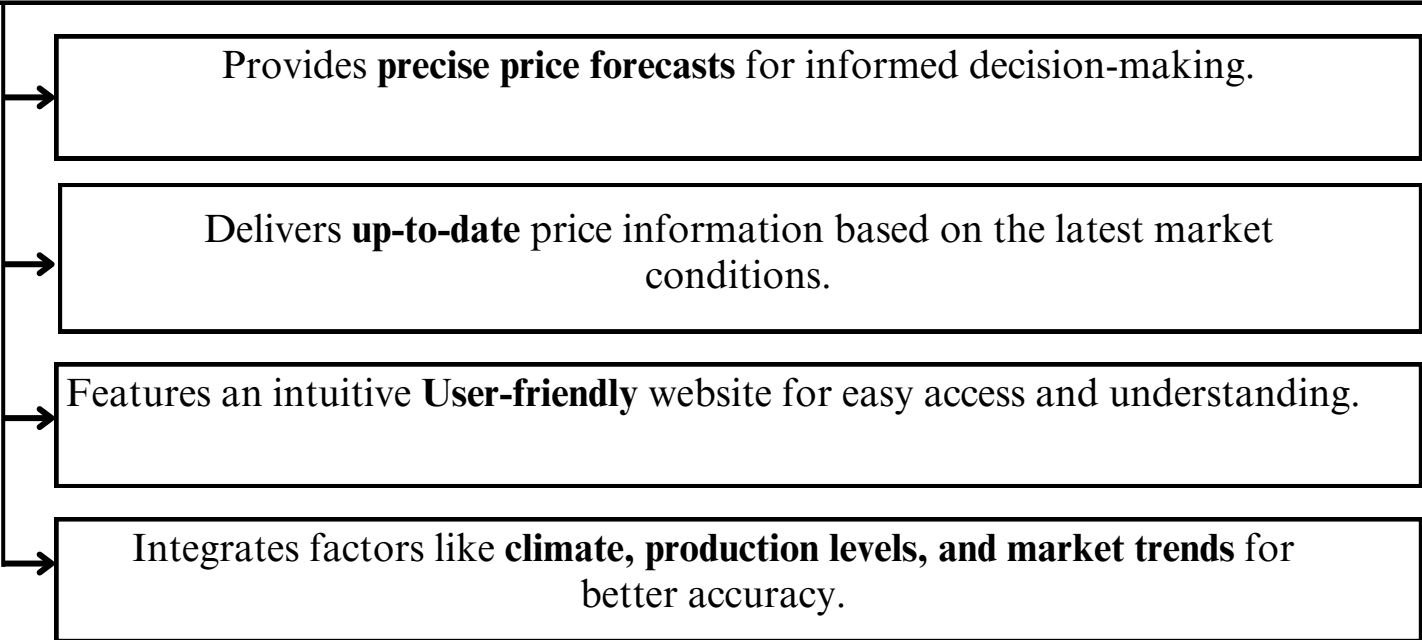
Proposed solution :

FarmVista: An AI-powered platform that predicts the prices of essential crops, helping farmers optimize production and sales, while aiding government in market stabilization and resource management.

How it solves the problem :

- **Predicts Price Fluctuations:** The model forecasts future price trends based on variables like production levels, climate, and demand, helping farmers and the government prepare for price spikes or drops.
- **Enhances Decision-Making:** Farmers can optimize when to sell their produce, while the government can make informed decisions about resource allocation, exports, imports, and market interventions.
- **Mitigates Market Manipulation:** By providing predictive insights, the model increases market transparency, reducing the ability of intermediaries to exploit price fluctuations through hoarding or manipulation.
- **Improves Economic Stability:** The model helps control inflation and ensures a more stable pricing environment for essential commodities, benefiting both the economy and agricultural sector.

Unique Value Propositions (UVP):



FarmVista

Benefits for Farmers and Government



Parameter	Farmer	Government
Price Predictions	⚖️ Helps farmers decide when to sell for better profits.	⚡ Allows early interventions to stabilize market prices.
Production Planning	🌱 Adjusts crop choices based on predicted demand and supply.	🇮🇳 Informs policies on subsidies and market regulations.
Climate Adaptation	☀️ Prepares farmers for weather-related price changes.	☁️ Guides resource allocation for disaster relief and crop insurance.
Market Transparency	🔍 Reduces dependency on intermediaries for fairer pricing.	🛡️ Prevents market manipulation and ensures price stability.
Inflation Control	💰 Avoids losses by storing crops during low-price periods.	📉 Helps control inflation through proactive market actions.
Supply Chain Optimization	🚚 Optimizes storage and transportation for better market conditions.	📦 Improves logistics, imports/exports, and buffer stock management.

Problem Resolution:

- **Data Collection & Parameter Identification:** Gather and analyze relevant data, including

₹ **Historical Prices**
💰 **Interest Rates**
🚢 **Export Prices**

🌱 **Production Levels**
🌾 **Yield**
🌐 **Global Prices**

🍴 **Consumption Rates**
📈 **GDP Growth**
🛒 **Consumer Price Index (CPI)**

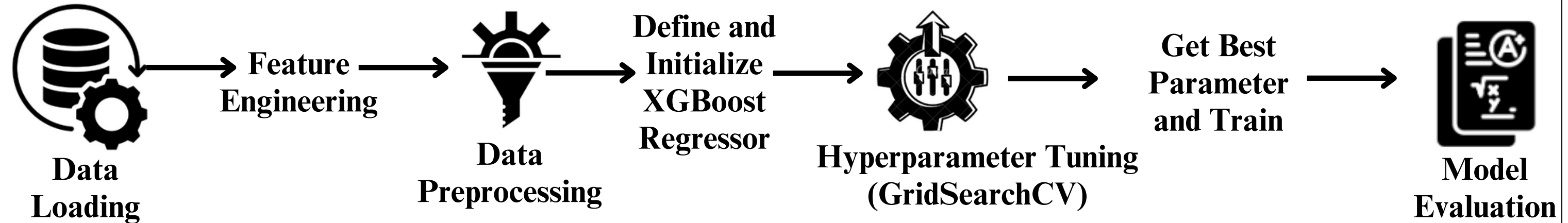
🌤️ **Climate Conditions**
📦 **Cost of Inputs**
🏢 **Wholesale Price Index (WPI).**

This comprehensive dataset ensures the model considers all influencing factors for accurate predictions.

- **Model Selection & Training:** Selected an appropriate model (e.g., XGBoost for regression tasks) and train it using the collected data. This allows the model to learn from past trends and make reliable future price predictions for essential commodities.

TECHNICAL APPROACH

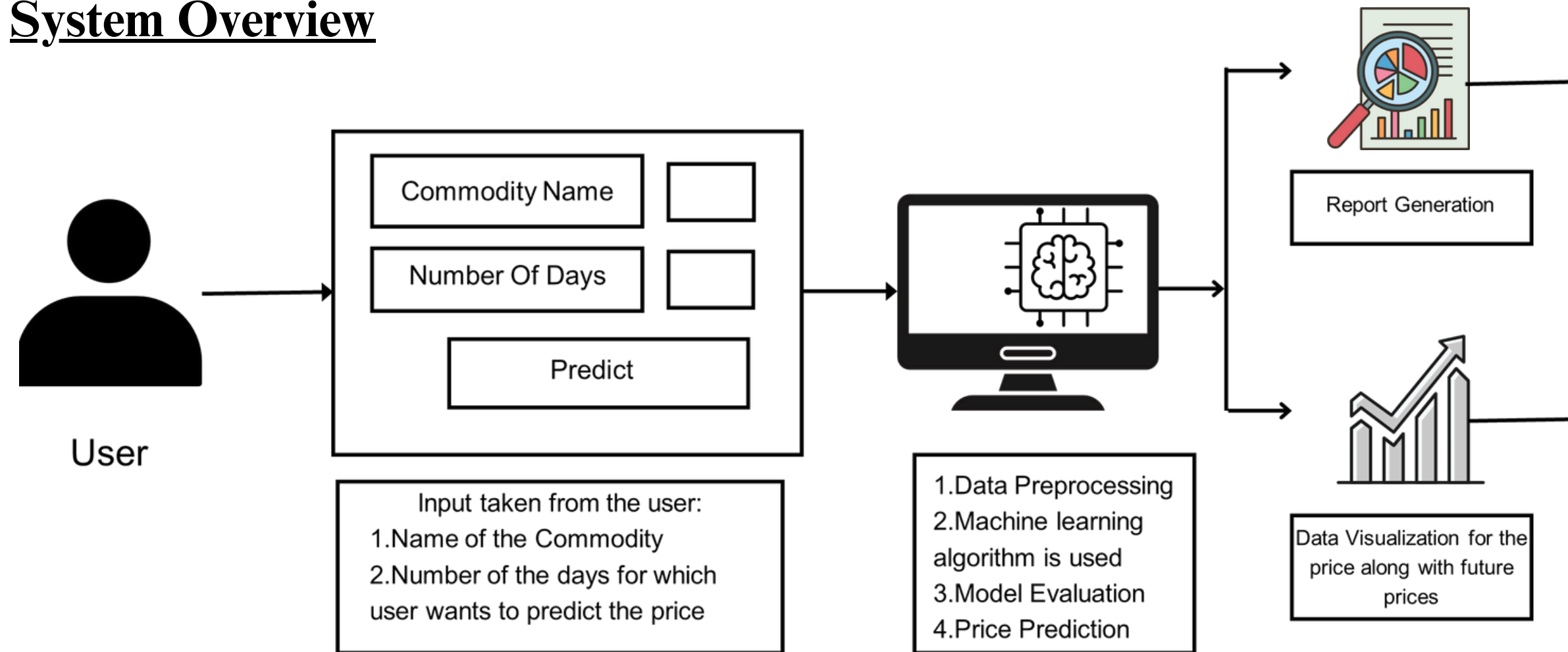
Prediction Flow Diagram



Tech Stack

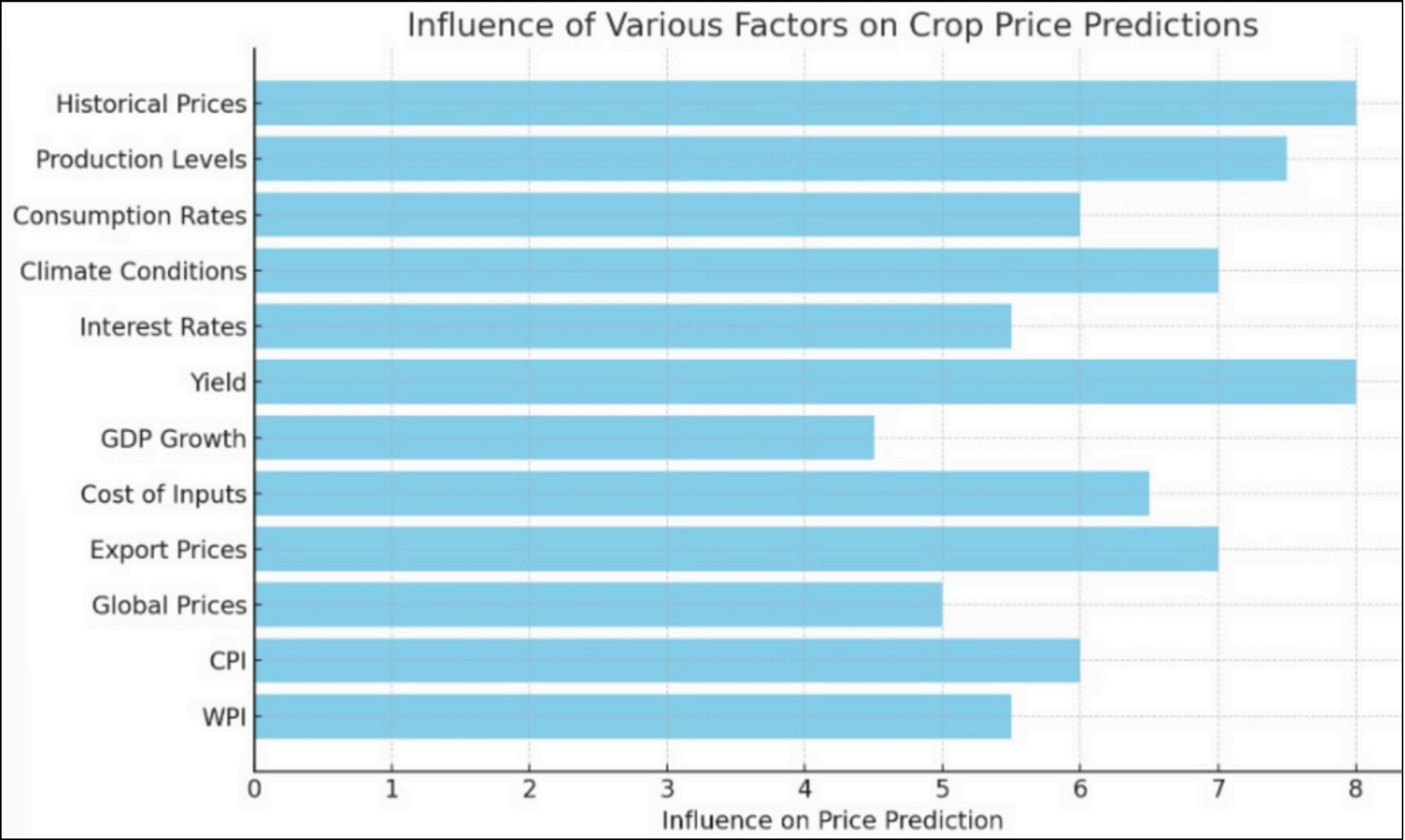


System Overview



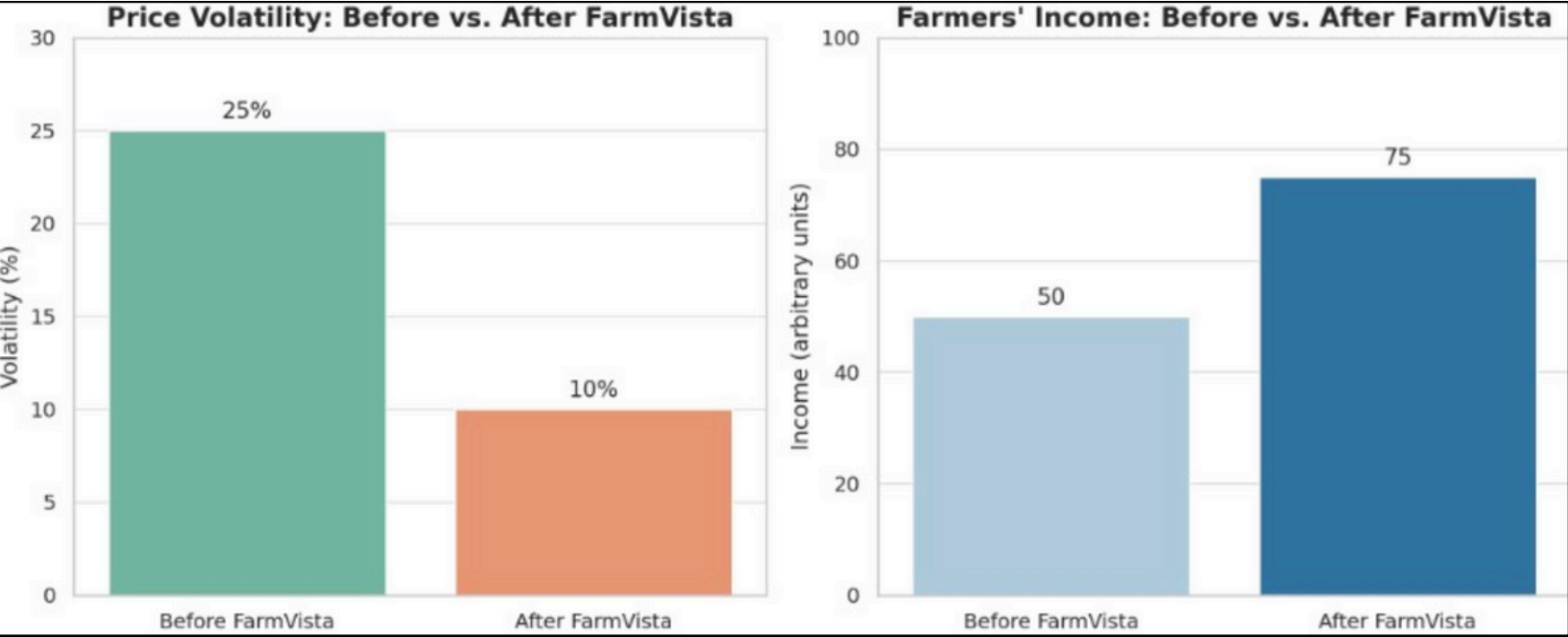
Prototype Link: <https://www.youtube.com/watch?si=DdbeljQ8dWb19KLh&v=UIQHrZQlbds&feature=youtu.be>

IMPACT AND BENEFITS



A bar chart is highlighting the influence of factors like historical prices, production levels, climate, and interest rates on crop price predictions. These factors were chosen for their direct impact on market trends. By understanding them, farmers can make informed decisions on when to sell or store crops, maximizing profits and promoting sustainable farming, which enhances the overall social and economic well-being of rural communities.

- Enhanced Profitability and Resource Efficiency:**
Accurate price forecasts help farmers sell crops at optimal times, maximizing profits and minimizing financial risks.
- Informed Decision-Making and Market Access:**
Provides valuable market insights for informed crop planning and reduces reliance on middlemen.
- Market Stability and Food Inflation Control:**
Improved price forecasting enables timely interventions to stabilize markets and control food inflation, ensuring affordability.
- Data-Driven Policy Development and Resource Allocation:**
Supports the creation of better agricultural policies and efficient resource allocation, enhancing food security and optimizing subsidies based on predicted demand.



- 1.Timely Price Forecasts:**
Mitigates over 30% fluctuations in commodities prices, reducing uncertainty for farmers.
- 2.Advanced Predictive Analytics:**
Enhances crop planning for pulses and oilseeds, addressing 10-20% volatility in these commodities.
- 3.Price Stabilization Measures:**
Alleviates inflationary pressures on essentials like onions, which contribute to 5-10% inflation.
- 4.Optimized Resource Allocation:**
Decreases 20-30% post-harvest losses, ensuring more produce reaches the market and stabilizes prices.