



Farm2Door: A Smart Digital Platform for Farmer-to-Customer Agricultural Marketplace-A Review

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Abstract: The demand for fresh agricultural products has increased significantly in recent years, but the existing supply chain still faces multiple inefficiencies. In traditional systems, farmers depend on intermediaries to sell their produce, which often leads to reduced profits and higher prices for customers. To address this issue, this paper presents *Farm2Door*, a digital platform that directly connects farmers with consumers.

The platform allows farmers to upload their products and manage availability, while customers can browse, compare, and place orders easily. Features such as order tracking, simple payment options, and customer feedback are included to improve usability and trust. By reducing the dependency on middlemen, the system helps in maintaining fair pricing and better transparency.

Although the model is simple, it has the potential to improve local agricultural trade if implemented effectively. Future improvements can include smarter delivery systems and better demand prediction.

I INTRODUCTION

Agriculture is one of the most important sectors, especially in countries like India, where a large portion of the population depends on it. Even today, many farmers struggle to get fair prices for their produce due to the involvement of multiple intermediaries. These middle layers increase the final price for customers but do not always benefit farmers.

With the rise of internet usage and digital platforms, new opportunities have emerged to solve this problem. Some applications already allow online selling of agricultural products, but they often fail to provide a direct and complete connection between farmers and customers.

The idea behind *Farm2Door* is to simplify this process. Instead of relying on complex supply chains, the platform allows farmers to directly list their products and customers to purchase them without unnecessary steps. The goal is not just to build a system, but to create a simple and practical solution that can be used even by users with basic technical knowledge.

II THEORETICAL BACKGROUND

To understand how the *Farm2Door* platform works, it is helpful to look at its basic structure and flow in a simple way.

[1] A. System Model

At its core, the platform works by taking user input and converting it into completed transactions. Farmers upload product details such as name, quantity, and price. On the other side, customers search for items and place orders. The system then processes these inputs and produces outputs like confirmed orders and delivery updates.

[2] B. Workflow Model

The working process of the system follows a straightforward sequence. First, the farmer lists the product. Then, the customer searches and selects the required item. After that, the order is placed and payment is processed. Finally, the product is delivered and the order is marked as completed.

Even though this flow looks simple, proper coordination between each step is important for smooth operation.

[3] C. Data Representation



The system stores different types of data to function properly. This includes farmer details, product listings, customer information, and order history. Keeping this data organized helps in quick access and avoids confusion during transactions.

[4] D. Performance Metrics

To check how well the system performs, a few basic factors can be considered. These include how many orders are successfully completed, how much time delivery takes, and how satisfied users are with the platform.

[5] E. Response Time

Response time refers to how quickly the system reacts at each stage. For example, how fast products are shown in search results, how quickly orders are processed, and how long delivery takes. Reducing delays at each stage improves overall user experience.

[6] F. Scalability

As more users join the platform, the system should still work efficiently. This means it should handle more farmers, more customers, and more orders without slowing down or crashing.

III FOUR-TIER TAXONOMY

Different agricultural platforms can be grouped based on their level of functionality.

[7] Tier 1: Basic Listing Systems

These systems only allow farmers to display their products. Customers can view items but cannot place orders directly.

[8] Tier 2: Online Stores

These platforms support buying and selling, but farmers are not always directly connected to customers.

[9] Tier 3: Semi-Integrated Platforms

These systems include both farmers and customers but lack features like live tracking and full automation.

[10] Tier 4: Farm2Door (Proposed System)

The Farm2Door model combines all major features into one platform. It supports product listing, searching, ordering, tracking, and feedback, all in a single system.

LITERATURE REVIEW

TABLE I: LITERATURE REVIEW SUMMARY

Sl.	Author(s)	Title of paper	Methods Used	Results	Remarks
1	Low, S. A. et al. (2018)	Direct-to- Consumer Marketing of Agricultural Products: Findings from the 2015 ARMS Data	Statistical analysis using USDA ARMS dataset and regression modeling techniques	Direct marketing channels were found to generate higher gross revenue for farmers, though they require increased labor and coordination efforts	Effectiveness depends on proximity to urban areas and the use of multiple sales channels such as e-commerce and local markets.
2	Rani, V. et al. (2025)	A Hybrid E-commerce Model for Farmer-to- Consumer Direct Marketing using Web and Mobile Platforms	System developed using Software Development Life Cycle (SDLC) with web-based support for farmers.	Implementation of the platform resulted in approximately 30% increase in farmer profits during the MVP phase	Adoption was initially slow due to limited digital literacy among farmers, highlighting the need for training and awareness programs.
3		Mobile Application for Direct Market	Developed using FlutterFlow and Firebase with	Enhanced transparency in pricing and improved	Successful implementation requires addressing
	Kaur, P. et al. (2025)	Access for Farmers.	emphasis on real- time pricing and logistics management.	communication between farmers and buyers.	digital literacy challenges among rural users.



IV COMPARATIVE ANALYSIS

Looking at different agricultural platforms together gives a clearer picture than studying them individually. Most modern systems try to make it easier for farmers to reach customers directly. This reduces dependency on middlemen and improves transparency in pricing.

Many platforms have already shown positive results. Farmers are able to earn better, and customers get fresher products. Technologies like mobile apps and websites have made communication faster and more convenient.

However, not all systems are complete. Some focus only on selling products, while others focus only on delivery or pricing. Because of this, users often face problems like delayed updates, lack of tracking, and poor coordination between different stages.

Another major issue is real-world usage. Not all farmers are comfortable using digital tools, especially in rural areas. Internet access can also be unreliable. Along with this, managing delivery efficiently is still a challenge for many platforms.

Because of these issues, there is a need for a system that combines everything into one place. The Farm2Door platform tries to solve this by bringing all features together, making the process simpler and more efficient.

TABLE II: COMPARATIVE ANALYSIS OF REVIEWED SYSTEMS

Sl.	Paper	Protocol/ Technique	Performance	Advantages	Limitations
1	Low et al.	Direct-to-consumer marketing using ARMS data	High revenue generation	Improves farmer income and market reach	Requires high labor and coordination
2	Rani et al.	Hybrid web & mobile e-commerce platform	Moderate-High (~30% profit increase)	Enables direct selling and better pricing.	Low adoption due to digital literacy issues.
3	Kaur et al.	Mobile app with real-time pricing & logistics	High	Enhances transparency and communication	Dependent on user technical skills
4	Traditional Mandis	Offline agricultural markets	Moderate	Established infrastructure	Lack of transparency and middlemen dominance
5	E-commerce Platforms	Online grocery marketplaces	High	Convenience and wide reach	Farmers not directly involved.
6	Agri Apps	Mobile-based farmer support systems	Moderate	Provides market information	Limited transaction capabilities
7	Local Vendor Networks	Informal distribution systems	Moderate	Quick local delivery	No standard pricing or tracking
8	Logistics-Based Platforms	Delivery-focused solutions	High	Efficient transportation	Weak integration with farmers
9	Cooperative Systems	Farmer group selling	Moderate.	Collective bargaining power	Limited scalability.
10	Proposed Farm2Door	Fully integrated farmer-to-customer platform	High	Direct sales, real-time tracking, transparency	Requires internet access and digital adoption.



V RESEARCH GAP

- Based on the study of existing systems, several gaps can be identified:
- Many platforms do not connect farmers directly with customers
- Real-time tracking is often missing
- Manual processes slow down operations
- Data security is not always reliable
- Systems are not designed for large-scale use
- User interfaces are sometimes difficult to understand
- Delivery coordination is not efficient
- These gaps highlight the need for a better and more complete solution.

I. CONCLUSION

II. This paper looked at the problems in traditional agricultural systems and how digital platforms are trying to solve them. While existing solutions have improved certain aspects like accessibility and communication, they still do not provide a complete and fully connected system.

III. The Farm2Door platform is designed as a simple yet effective solution to this problem. By directly connecting farmers and customers, it removes unnecessary steps and improves transparency. It also makes the process easier for both sides by combining all features into one place.

IV. At the same time, it is important to consider practical challenges such as digital literacy and internet access. A system is only useful if people can actually use it without difficulty.

V. In the future, the platform can be improved further by adding smarter features like demand prediction and better delivery planning. Overall, Farm2Door shows how a simple idea, when implemented properly, can make a meaningful difference in the agricultural sector.

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