Modernizing Indian Agri Supply Chain   
Empowering Farmers through an Online Platform

Abstract: Farmers are under pressure to adapt to modern times and make responsible use of technology in this technologically advanced world. The goal of this much-needed project is to modernize the Indian agriculture supply chain system by addressing numerous issues. We would like to suggest a user-friendly platform that offers farmers a number of benefits, such as the ability to bargain for fair rates and sell ahead of time before the harvest is ready, protecting it from spoiling and keeping farmers out of trouble during market yard visits. However, this also guarantees jobs in rural areas.

***Key words: bringing the Indian agricultural supply chain system up to date; user-friendly platform; pre-booking for crops; preventing commodity spoilage; vast amounts of data about farmer requirements, including equipment and cold storages; and farmer networks.***

# **Introduction**

KisanRaj is a platform that farmers can post farm products for sale, view commodities for purchase, or look up all the equipment data that is available in their locality and needed for crop cultivation, such as tractors, sprayers, and tillers. This platform is being designed and developed as part of the modernizing Indian agricultural supply chain.

**II. Problems being face by farmers now**

1. 1. Indian farmers deal with a variety of issues, some of which are covered in this paper and could be resolved: Product spoilage: The main issue is that agricultural items, like tomatoes, can become ruined in a matter of days.
2. **Price Negotiation** : In most cases, a farmer must sell to market yards or neighborhood middlemen, and the original price that a seller genuinely offers differs significantly from the amount the farmer is paid for his labor. This is primarily because small-scale farmers in villages lack access to a network of famers who can provide them with market knowledge.
3. **Market yard visits** : The farmer must visit the market yard or have constant communication in order to sell, buy, and complete a transaction. This requires more visits, additional costs, and occasionally pointless visits made just out of formality.
4. **Posting requirements**: If a farmer needs a farm product in the upcoming days or quarter, there isn't a flexible platform where he may post a request and get a response from a supplier.
5. **Equipment data** : Farmers need a variety of tools and supplies to cultivate their crops, such as tractors, sprayers, millers, etc. Small-scale village farmers need a platform to learn about the closest equipment that is available for rental.
6. **Bridge between buyers and sellers** : There has never been a direct system that allows a buyer to speak with a seller directly, negotiate, and complete a transaction in a transparent manner.

**III. The platform of the KisanRaj online application**

An internet-based platform catering to farmers in their entirety is being developed with features for the users.   
Positions: Considered are the roles of buyer, seller, and agent.   
1. Buyer: A buyer is someone who wants to buy farm products and is in need of them; they could be an agent or a farmer.   
2. Seller: The seller is the one who farms the products and will be allowed to list them on the marketplace along with other information.   
3. The agent It is well known that the majority of Indian farmers are still unaware of how to use online resources and technologies. Therefore, it is necessary to provide farmers in every village with assistance in posting and completing transactions.

**Key Features included:**

There are some features need to be included in order to address the problems, and the list includes the following:

1. Buy commodity
2. Sell commodity
3. Hire equipment
4. Negotiation platform – probably a chat window
5. Tracking Transactions and orders
6. Post potential requirements
7. Others

Let us now discuss in detail about each,

1. Buy commodity:

A buyer or farmer may need farm products and be prepared to buy them in a few days or months. In this instance, a farmer should be given the ability to view every product that is for sale from every seller, as well as a section where they can filter through all of the products and look for the specific item they need based on factors like category, price, seller's distance from them, delivery time, quality, and seller rating.

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Fig 1: Buy commodity

1. Sell commodity:

Similar to how one purchases a commodity, a seller must put something for sale. The seller must now have the ability to list a product for sale along with information about the product, including a photo, quantity available, quality, projected date of availability, price, and location of availability.

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Fig 2: Sell Commodity

1. Hire equipment:

When growing crops, farmers require a lot of equipment and are always looking for ways to get it. This can occasionally be an issue if the farmer is unaware of where to find information about the equipment that is closest to them. In order to make farming easier and prevent time wastage, a farmer has to have access to all relevant data and equipment.

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Fig 3: Hire Equipment

1. Negotiation platform – a chat window,

After a buyer selects a product from the platform's inventory, he must get in touch with the seller for more information and to negotiate a better price. In order to facilitate real-time communication for farmers, a chat window may be a good idea. This will enable direct communication between buyers and sellers and ensure that the seller receives fair compensation through negotiations. Buyers can get in touch with vendors ahead of time to sell their goods at the greatest pricing.

1. Tracking and transactions :

Once the negotiation is completed between buyer and seller, the buyer and seller needs to track the product and transaction need to be completed. This feature is also mandatory to be provided.

1. Posting potential requirements:
2. Sometimes a buyer needs a certain product, but it's not available on the platform. In this situation, the buyer posts his criteria, and the seller keeps an eye out to see if any other buyers have set requirements for any of the products. For ease of communication with customers who have previously expressed a desire to buy, the seller should also have a function whereby, whenever he lists a product, all possible customers for that specific product should be displayed to him.
3. Cold storages: Farmers typically wish to keep their products and sell them during the next crop year if they don't receive enough money for their investments. In this situation, they require information on cold storage facilities that are readily available everywhere, ideally close by.
4. Other features includes:

* farmers are notified of responses received by all buyers for each product
* The platform is a multilingual which means it is for not only a particular location or area but for all the states of the country, supporting all the communities of country.
* Access to Agricultural Policies and Regulations
* Research Reports and Case Studies
* Secure Transaction Platform:

**Conclusion:**

Through the empowerment of small-scale farmers to share expertise, list products, and engage in direct conversation and negotiation with potential buyers who are in need of farm products, the KisanRaj platform seeks to modernize the Indian agricultural market scene. This platform builds a cooperative society within the agriculture industry while improving the methods of product sales and profitability for both buyers and sellers by creating a bridge between farmers and customers.

##### References

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