



International Journal of Research in Agronomy

E-ISSN: 2618-0618

P-ISSN: 2618-060X

© Agronomy

www.agronomyjournals.com

2024; SP-7(7): 272-276

Received: 24-05-2024

Accepted: 28-06-2024

Aman Qayum

Senior VP, Department of
Technology, Agribazaar, New
Delhi, India

Achintya Kumar Dubey

Agronomist, Department of
Technology, Agribazaar, New
Delhi, India

Kharif soybean advisory project-2023: Agribazaar's initiative elevates soybean cultivation and farmer welfare

Aman Qayum and Achintya Kumar Dubey

DOI: <https://doi.org/10.33545/2618060X.2024.v7.i7Sd.1122>

Abstract

In recent years, the yield of soybean crops in Madhya Pradesh and Rajasthan has been steadily decreasing. This decline is attributed to various factors including sudden climate change, heavy infestations of pests like girdle beetle and pod borer, irregular rainfall patterns, and lack of good planting materials. Additionally, farmers often lack awareness of modern cultivation practices and do not receive adequate guidance and advisory services for their crop-related queries. These issues collectively contribute to the degradation of soybean crop quality, leading to lower market prices for farmers. Consequently, many farmers have started shifting from soybean to other crops like maize and pulses, which may result in a significant decrease in the national soybean production. Physically reaching to each and every farmer of our country and addressing them is a bigger challenge, but through digital platforms it is more convenient to reach out to each and every farmer of our country and convey them relevant information. To address these challenges, a digital drive was initiated by Agribazaar in early Kharif-2023 in Guna, Madhya Pradesh, focusing primarily on soybean cultivation - "Kharif Soybean Advisory Project". The project also extended its support to other Kharif crops such as maize, paddy, and green gram, utilizing the comprehensive features of the Agribazaar mobile application. The focus of this case study is to provide a digital platform designed to empower farmers by offering a comprehensive suite of tools and services. Agribazaar provides features such as crop calendars, market rates, input stores, and a crop doctor service to assist farmers in managing their crops effectively and enhancing their productivity.

Keywords: Digital agriculture, agriculture technology, soybean, kharif, advisory project, modern agriculture, yield improvement

Introduction

This project came into action when the production status of soybean in major producing states is declining and downfall in soybean acreage for Madhya Pradesh has been observed in the field. This Project mainly focused on giving appropriate recommendations, advisories and all the possible guidance to the farmer with the help of a digital platform which can help them in increasing their yield of the crop. We mainly focus on encouraging the farmers to cultivate soybean by following our good agricultural practices and crop advisory, which will provide them with all the updated technologies, practices of agriculture in their familiar languages like Hindi.

All efforts were made to prove the effectiveness of our Agribazaar mobile application and its different features like Crop Doctor, Good Agricultural Practices, My farm, Crop Calendar, Fertilizer calculator, Mandi Bhaav, Input store, etc. Farmers are able to communicate about their crop related queries anytime and anywhere with our crop doctor, they are able to monitor their field and crop through their phones only, they are getting all the instructions and reminders regarding different agronomical practices and precautions regarding different insects-pests and disease attack through our crop calendar and notification center prior to their implication in the field.

This project will help in providing all the recent developments and information to the farmers digitally, this will also help in their crop and disease monitoring from their phones which leads them towards smart agriculture. This drive will also be helpful to improve the quality of their

Corresponding Author:

Aman Qayum

Senior VP, Department of
Technology, Agribazaar, New
Delhi, India

produce which basically leads to better market rates. This Project was started during the early Kharif season and the farmers are with us on this journey till the end of the season and harvesting of the crop.

At the end of the season some farmers who are on this journey with us, they found an increase in their produce with better qualities as compared to the previous seasons. Farmers feedback videos were made at the end of the project during the harvesting of the crop with their views, opinions and suggestions regarding this project.

Materials and Methods

Agribazaar Mobile Application

- **Field Visits:** Visited Guna to meet farmers, collected soil samples for testing, made them aware about Agribazaar Soybean Advisory Project-2023.
- **Information Dissemination:** Informed farmers about the project and app features via calls, WhatsApp, and notifications center.
- **Farmer Onboarding:** Gathered additional farmer information and made calls to onboard farmers and explained the pros of the project.
- **Notification Center:** Send notifications about weather forecasts, pest infestations, and disease control measures.
- **Crop Doctor Query Resolution:** Addressed crop-related queries through the Crop Doctor feature of Agribazaar mobile app.
- **Kisaan Sangosthis:** Organized online meetings to discuss Kharif Soybean crops.
- **Regular Updates and Monitoring:** Collected regular updates on crop health and growth from farmers over the call; and monitoring their crop status through the app.
- **Harvest Evaluation:** Evaluated the produce at harvest and discussed trading options with e-mandi.
- **Feedback Video Collection:** Collected feedback and recorded video evidence of farmer opinions about the project and services.

The Agribazaar application offered several features

- **Crop Doctor:** A feature enabling farmers to consult experts for crop-related queries.
- **Good Agricultural Practices (GAP):** Providing detailed information on modern farming practices of different crops.
- **Add Farm:** Allowing farmers to add their field and know their field health and nutrient status on the phone.
- **My Farm:** Allowing farmers to monitor their added fields and crops digitally.
- **Crop Calendar:** Offering instructions and reminders for various agronomic practices.
- **Fertilizer Calculator:** Assisting in the proper fertilization of crops.
- **Mandi Bhav:** Displaying current market rates for crops in a particular area.
- **Input Store:** Facilitating the purchase of necessary agricultural inputs.

Through these features, farmers could communicate their queries anytime, monitor their fields using their phones, and receive timely notifications about important agronomic practices and pest-disease control measures. The project aimed to deliver

the latest agricultural information and techniques digitally, improving crop quality, production, leading farmers towards smart agriculture and stopping the farmers from moving to other crops. The intended audience for this case study includes Agricultural technology companies and startups, Agricultural extension services and advisory bodies, Government agencies involved in agriculture, Farmers and farmer cooperatives and Agricultural researchers and educators.

Objectives of study

- Physically reaching out to each and every farmer of the country is near to impossible, but tackling this challenge with technology is much more convenient. This case study focuses on total digital solutions for agriculture problems of farmers and reaching out to more farmers even with less physical intervention.
- To conduct a total digital drive for making an impact over the Soybean farmers in increasing their production from previous year and educating them with modern technological tools and practices.
- Telephonic conversation with all the farmers(141), along with sending notifications to convince them to onboard the agribazaar mobile app for their betterment.
- Explaining and Advising farmers to use different features like GAP, crop doctor, crop calendar, my farm, crop health, moisture content of the field, etc. These features will help farmers in proper monitoring and management of their crop so that they can get better results.
- Explaining the importance of the Crop Doctor feature to farmers, encouraging them to share/upload their crop related queries through the crop doctor feature and resolving them within 24 hrs.
- Conducting Kisaan Sangosthis related to different Kharif crops for farmers and giving them all the updated information about recent agricultural developments.
- Taking day to day updates of the farmers over the call and encouraging them to join the Kisaan Sangosthi organized on the Google meet.
- Updating day to day details of all the activities, issues, resolutions, feedback, and process in the main log sheet with farmer names.

Following 100% digital solutions to achieve our goals, we aim below with this project

- Fight the year on year decreasing Soybean acreage due to disease and climatic challenges faced by farmers.
- With this, we will get Validation for our methodologies (GAP and Crop Calendars).
- We are aiming to prove that reaching to every farmer of the country and solving their agriculture related problems is much more convenient and feasible through digital infrastructure as compared to physical methodology.
- We will also do CCE at these farms and buy their produce if possible.
- At the end we are looking forward to testimony from these farmers on how happy they were with our services and actual user feedback on our service delivery.
- Use notification center for giving alerts, take feedback over phone to understand whether farmers were able to understand and do as advised in the notification.



Fig 1: Soil testing in the Farmers field (clicked on 31st May, 2023)



Fig 2: Educating farmers about Soil health Reports (clicked on 31st May, 2023)

Farmer’s feedback after the completion of the case study

By the end of the season, farmers who participated in the project reported an increase in yield and better quality produce compared to previous seasons. They expressed satisfaction with the services and features of the Agribazaar mobile application. The feedback videos collected at the end of the project highlighted the positive impact and effectiveness of the digital solutions provided.

The implementation of the this project led to several positive outcomes like -

- We observed that Digital solution is the best solution for addressing the farmers of each and every corner of the country.
- Reached farmers are educated and made aware about recent developments in agriculture, now they are more technologically advanced.
- Farmers reported an increase in soybean yields and

- improved quality of produce compared to previous seasons.
- Enhanced market prices for farmers due to better quality crops.
- Increased adoption of good agricultural practices among farmers.
- Positive feedback and satisfaction from farmers using the Agribazaar mobile application.

Conclusion

We draw several conclusions from this above case study which are mentioned below

Farmers are aware of emerging technologies and are willing to connect and grow. Only hurdle here is educating them on advanced technologies and how to help them implement tech driven farming.

We resolved this issue by frequent field visits, meeting farmers on their field, organizing online sangosthis, and educating them about the use of our app. This helped us in making better connections with farmers, analyzing and solving their crop related issues and making them aware about the future of digital infrastructure. This Phygital advisory project helped us to attract more farmers towards precision farming.

Resolving real time Crop Doctor Queries, Crop Calendar Advisory and management of crop and soil health helped the farmer to get more accurate information towards implementation of precise farming practices and expand their reach to a much broader horizon of agriculture

During the Middle of the season it was observed that the number of crop doctor queries increased with great significance. Due to the regular interaction with the farmers over the call, the average number of queries received per day is 11.68, which shows that farmers are seeking out for help and we are there to help. The major queries are related to disease and pest attack, nutrient management and suggestions regarding flowering and fruiting agents. Farmers were also interacting with us with the help of our customer care number which mainly involved crop related enquiries. Farmer’s were happy and satisfied by the advisory issued to them regarding their queries. Some input stores, also connected and want to do a farmers meet with us for the farmers of nearby villages. The pictorial representation below, clearly shows the difference in Crop Doctor queries at different times of the season.

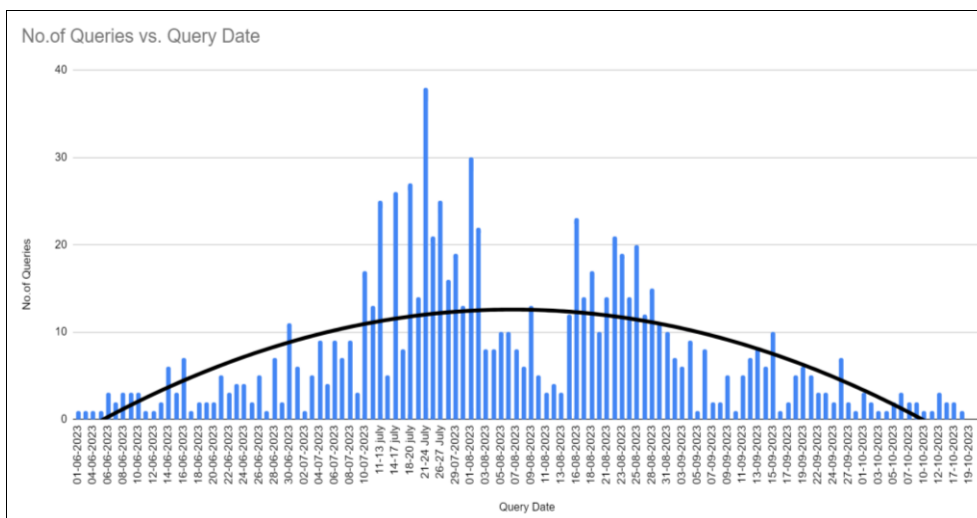


Fig 3: Variations in crop doctor queries throughout the kharif season

Organizing online Kisaan Sangosthi related to different Kharif crops for the farmers and making them aware about the recent updates of agriculture and driving them towards a more technological approach

The main objective of the Sangosthi is to provide all the updated information to the farmers, making them aware about the recent updates and progress of the agriculture. We conducted many

Kisaan Sangosthi throughout the Kharif season for Soybean, Paddy and Maize which was attended by a large number of farmers. The farmers are notified about the sangosthi with the help of telephonic conversation, Notification center and whatsapp. Every sangosthi is focused on one single crop at a time, for better understanding and conveying it to the farmers.

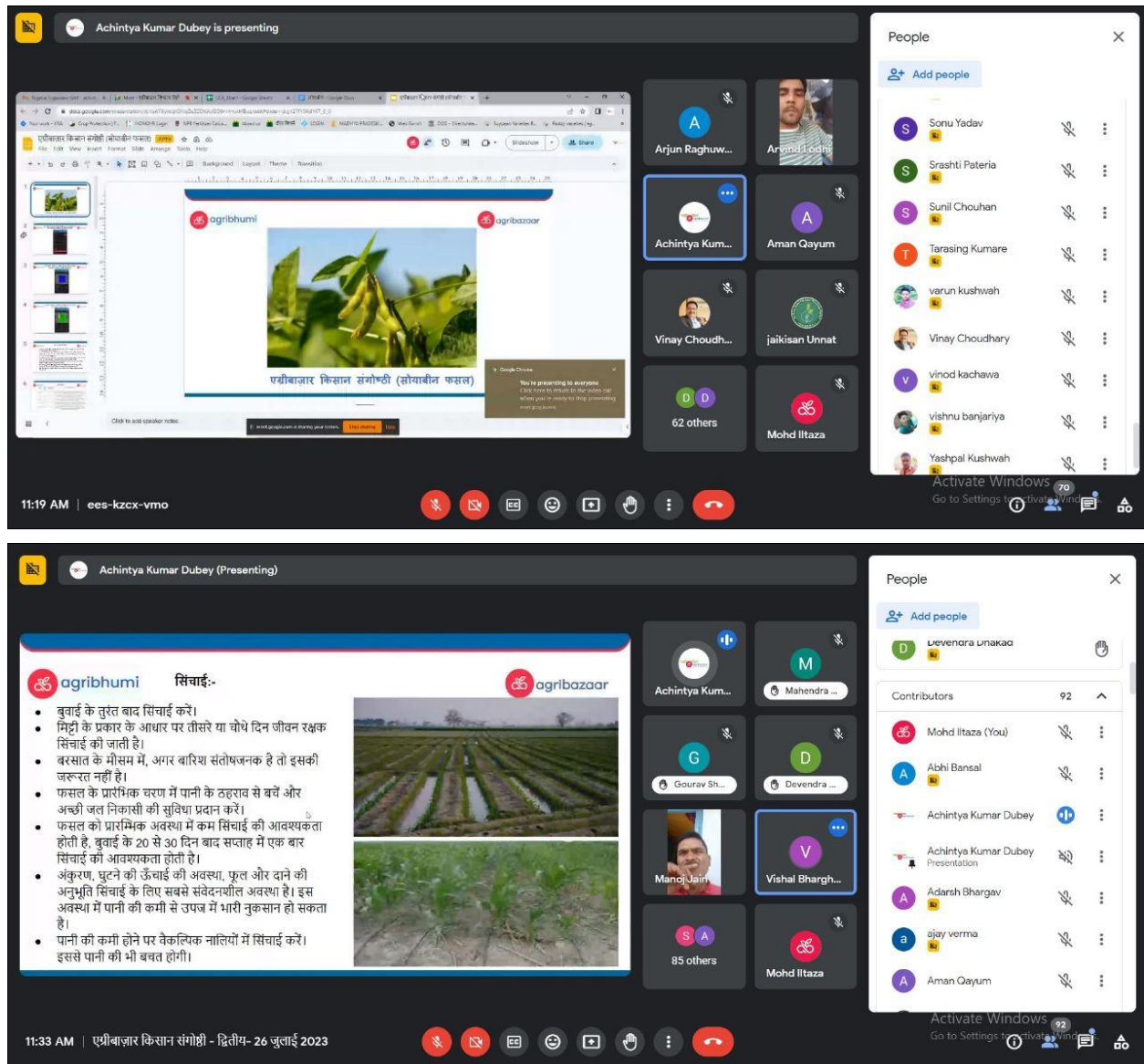


Fig 4: Farmers attending Kisan Sangosthis Online

Significance of Phygital model of farmer engagement used in this Soybean crop Advisory Project

Traditionally surveys in Agriculture are meant to be physical exercise, this limits the scope of work and is poorly scalable. Also, physical methodologies used for similar case studies have higher chances of man-made errors, but digital infrastructure helps us in marginalizing these errors. We tried to overcome this limitations of physical methodology by adopting the phygital model. The project successfully demonstrated the potential of digital agriculture solutions in improving soybean yield and quality. By providing timely and accurate information, advisories, and tools through our platform, farmers were better equipped to manage their crops, leading to improved cultivation and farm income. This initiative serves as a model for leveraging technology to enhance agricultural productivity and farmer

livelihoods. Their enthusiasm and eagerness to learn will help us to drive some more projects like this in the future. Engaged farmers were happy to see an increase in the yield of their crop only by following our GAPs and advisories. Our Crop calendar feature won't let them miss any of the agricultural activity in the field. Our crop doctor feature was there to help them and resolve any crop related query within 24 hours. Interaction with the farmers, their valuable feedback about this drive, their suggestions and requests, everything was recorded on the video. The farmers who on boarded with us on this journey from the starting, were beneficiaries of the project and how we as an agri-tech organization helped in modernizing their traditional agricultural practices.

We strongly believe that precision and sustainable farming can be implemented easily with the Phygital model connecting

farmers to other stakeholders of the Agri value chain. The success of this project was proof of concept of the phygital advisory model. The aim of the Soybean Crop Advisory Project was to implement precision farming techniques in the most natural way possible and this was delivered successfully.

Conclusion

The "Kharif Soybean Advisory Project" by Agribazaar effectively utilized digital tools to address the declining soybean yields in Madhya Pradesh and Rajasthan. By leveraging the Agribazaar mobile app, the project provided farmers with crucial support through features like Crop Doctor, Crop Calendar, and Good Agricultural Practices (GAP). This digital approach significantly improved soybean yields and produce quality, demonstrating the power of technology in modern agriculture.

Farmers engaged with the app reported enhanced crop management and better market prices due to improved produce quality. The phygital model, combining physical outreach with digital solutions, proved successful in educating farmers and addressing their challenges. Positive feedback from participants and the observed increase in yields validate the effectiveness of this approach.

Overall, the project underscores the potential of digital platforms to transform agricultural practices, offering a scalable model for improving productivity and farmer livelihoods. This success sets a benchmark for future digital agriculture initiatives aimed at advancing farming practices and sustainability.

References

1. Anonymous. Soybean Outlook. Agricultural Market Intelligence Centre PJTSAU; c2022 [cited 2024 Jun 27]. Available from: <https://pjtsau.edu.in/files/AgriMkt/2022/January/Soyabean-January-2022.pdf>
2. Prashnani M, Dupare B, Vadrevu KP, Justice C. Towards food security: Exploring the spatio-temporal dynamics of soybean in India. PLOS ONE, 2024 May 19, 19(5). Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11081262/#:~:text=The%20rate%20of%20growth%20in,in%20area%20under%20the%20crop.>
3. Lee T, Tran A, Hansen J, Ash M. Major Factors Affecting Global Soybean and Products Trade Projections. USDA Economic Research Service; c2016 [cited 2024 Jun 27]. Available from: <https://www.ers.usda.gov/amber-waves/2016/may/major-factors-affecting-global-soybean-and-products-trade-projections/>
4. Dupare BU, Billore SD, Joshi OP. Farmers' Problems Associated with Cultivation of Soybean in Madhya Pradesh, India. J Agric. Sci. Technol., 2010, 4. Available from: https://www.researchgate.net/publication/315117147_Farmers'_Problems_Associated_with_Cultivation_of_Soybean_in_Madhya_Pradesh_India
5. Kondalamahanty A, Nandy S, Alagh P. India's 2021-22 soybean output seen sharply lower on year: Platts survey. S&P Global; c2021 [cited 2024 Jun 27]. Available from: <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/agriculture/092021-indias-2021-22-soybean-output-seen-sharply-lower-on-year-platts-survey>
6. Voora V, Bermudez S, Le H, Larrea C, Luna E. GLOBAL MARKET REPORT- Soybean prices and sustainability. Sustainable Commodities Marketplace Series. IISD; c2024 [cited 2024 Jun 27]. Available from: <https://www.iisd.org/system/files/2024-02/2024-global-market-report-soybean.pdf>
7. Singh KH. Improved Technologies and Recommendations for Maximizing Soybean Productivity. ICAR-Indian Institute of Soybean Research, Indore. Ext. Bulletin No.18; c2023. Available from: https://iisrindore.icar.gov.in/pdfdoc/ExtensionBulletin2023E_3.pdf