A Study of Adaptation of Mobile-Based Agri-Advisory Services by Farmers in Yavatmal District

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Abstract:

Agriculture is one of the key fields in the Indian economy, and mobile technology has brought striking changes in the access to agricultural information by farmers. The present study relates to the impact assessment of mobile-based agri-advisory services, with special reference to Kisan Suvidha App among farmers in Yavatmal district of Maharashtra State. This paper has tried to analyze the level of awareness, adoption, usage pattern, and effectiveness of the Kisan Suvidha App in offering better farming practices, decision-making, and overall productivity enhancement at farm level. A descriptive research design has been adopted for the study. The primary data were related to farmers of Ralegaon Taluka who use the Kisan Suvidha App, through a structured questionnaire. Secondary data were obtained from research papers, journals, reports, and official websites. The data have been analysed with the help of Excel, using different statistical tools like percentage analysis and mean values, along with regression analysis. The finding reveal strong medium –term adoption of the app, with the most farmers using it for 1-4 years and accessing it mainly on a weekly or monthly basis.

It documents that the app gained acceptance among farmers, and the majority of them use it for weather-related forecasts, agro-advisory services, and market prices of the commodities. The study points out that the app has a positive influence on decision-making, sowing practice, productivity, and confidence levels among farmers. Services like crop insurance, soil health cards, and storage facilities, however are not utilized by farmers due to a lack of awareness and digital literacy. The study offers useful insights for policymakers, agricultural extension agencies, and agri-tech developers in the quest to strengthen digital advisory services towards sustainable agricultural development.

1. Introduction:

Agriculture forms the backbone of the Indian economy and sustains the livelihood of nearly half the population. In the recent past, agricultural practices in the country have undergone a transformation for which technology, and in particular, mobile applications offering agricultural advice to farmers, are responsible. These applications have received backing from the Government of India and are able to give farmers advice with regard to farming, weather, pest control, and market availability. For semi-rural and rural areas, Mobile Agri-Advisory Services are the turning point and are helping farmers mix tradition with technology.

Yavatmal is a district within the “Cotton belt of Vidarbha,” a part of Maharashtra. Yavatmal farmers are

dealt difficult circumstances such as erratic rainfall, crop raid (particularly bollworms for cotton crops), price variations, and lack of common agricultural information. Mobile Based Agri-advisory services are coming as a salvation to such farmers and extending specific agricultural advice useful for minimizing risk and increasing their turnover as well. This is a combination of best-practice technologies and traditional knowledge.

One such initiative is the Kisan Suvidha app, is a portal that was initiated as a result of the launching of the Ministry of Agriculture and Farmers Welfare. The Friendly app is basically a one-stop shop for the farmer, providing them with information regarding the weather, market rates, suppliers of inputs, pest and disease control, health of the land, and agricultural insurance. Armed with all this information, the farmer from the Yavatmal region would be able to plan the sowing of the crops, protect them, and ever fetch them better rates.

One of the major enabling technologies is e-NAM (National Agriculture Market), which has impacted farm connectivity to markets. With a network of wholesale markets, which are inter-linked in a web, e-NAM will provide farmers of Yavatmal better market access to purchase cotton as well as soybeans. The online bidding, efficient price discovery, and transaction facility through technology will lessen middlemen in procurement.

Kisan Suvidha App:

The Kisan Suvidha app, launched by the Ministry of agriculture and farmers Welfare in the year 2016, is like a good friend to farmers; it provides them with very important information.

This mobile application, offered in various Indian languages, accesses real-time information regarding weather forecasts, price of crops, pest control methods, and much more.

1. **Weather Reports:**

Check the current weather or forecast for the next five days in your region, so you can plan your agricultural activities accordingly.

1. **Market Prices:**

Obtain the latest price for your crops in the nearest or registered markets around you determine when and where to sell.

2. **Plant Protection:**

Learn how to deal with bugs, weeds, and plant diseases with tips that are organized to your crops.

3. **Dealer Information:**

Locate the dealers for seeds, fertilizers, as well as pesticides, with details of contact information and addresses.

4. **Expert Advice:**

Get information and guidance directly from agricultural specialists and colleges to raise your farming game.

5. **Kisan Call Center:**

Directly access the Kisan Call Center for urgent responses to your queries.

6. **Language:**

The app supports your language, and it is common among Indians Vernacular.

2. Statement of the Problem:

In recent years, the government has introduced various mobile-based agri-advisory services to provide farmers with accurate and timely information related to crop prices, weather forecasts, suitable crop varieties, and the use of pesticides and insecticides. These services are also meant to guide farmers in better farm management and decision-making. However, in the Yavatmal district, it is still unclear how effectively farmers are able to access, understand, and use this information in their daily farming practices. Many farmers face challenges such as lack of awareness, limited digital knowledge, poor internet connectivity, or doubts about the accuracy of the information provided. Therefore, the research aims to study how well these mobile-based services are being adapted by farmers in Yavatmal district and whether they truly help in improving

productivity, profitability, and overall farm management from the farmers' point of view.

3. Review of Literature:

1. M Ganesan, Kavitha Karthikevan, Suma Prashant, Jayalaksshmi Umadikar (2013)

Use of mobile multimedia agricultural advisory systems by Indian farmers: Results of a survey.

Journal of Agricultural Extension and Rural Development 5 (4). 89-99, 2013

It helped the farmers in the timing of advice on crop care, control of pests, weather, and market prices. Voice messages and videos had greater use for illiterate or less literate farmers to boost their confidence and reduce their dependence on middlemen. Overall, productivity and communication in rural areas improved with mobile advisory systems.

2. R Saravanan, S Bhattarchajee (2014) Mobile phone applications for agricultural extension in India.

The study reveals that mobile applications are revolutionizing agricultural support in India by providing timely information related to crop care, weather, pests, and market prices. These applications make expert advice highly accessible to farmers, especially the small-scale ones, though challenges like low digital literacy and poor connectivity remain.

3. HK Sindhu – (2016) Opinion and utilization of mobile based agro-advisory services by farmers. – krishikosh.egranth.ac.in

This research indicates that farmers, especially young and educated smartphone users, appreciate mobile agro-advisory services for their up-to-date information regarding crops, weather, pests, and market. Poor connectivity and language limitations are significant barriers to such services.

4. E Supriyapriya M Kavaskar – (2019) Knowledge level of the members of Farmer Producer Organisation on mobile agro advisory service.

The study revealed that the majority of the FPO members had an average awareness about the mobile agro-advisory services regarding real-time information on crops, pest, and weather conditions along with market prices. However, lack of proper training, low access to smartphones, and poor internet accessibility led to low levels of adoption, which highlighted the need for awareness and training programs.

5. MK Kansijme, A Alawy, C Allen, M Subharwal ….- World development MK Kansiime , A Alawy, C Allen, M Subharwal… - World development ……,(2019) – Elsevier. Effectiveness of mobile agri-advisory service extension model: Evidence from Direct2Farm program in India.

The study established that the Direct2Farm mobile application was useful to farmers in India in providing them with appropriate recommendation about farming through their mobile phones. This assisted farmers in making better farming decisions, improving farming practices, cultivating more produce, as well as, increasing farm income, particularly for small farmers.

6. E Supriyapriya, M Kavaskar (2019) Perception of the members of farmer producer organization on mobile agro-advisory service. Journal of Global …, 2019

This study reveals that members of FPOs perceive mobile agro-advisory services positively towards improving agricultural practices and decision-making. However, issues such as lack of internet and lack of awareness and skill towards technology indicates that there is a requirement for awareness and skill development programs.

7. U Kumar (2020) Farmers' advisory services using ICTs for enhancing agricultural productivity Training Manual, 2020- researchgate.net

The study highlighted that these ICT tools, such as mobile apps and digital platforms, support farmers with timely information on weather, crops, pests, and markets for better decision-making and higher productivity. It further emphasizes that training and user-friendly desigh are essential to fully understand how ICTs can empower farmers and support sustainable agriculture.

8. Nirmal Chandra, Sushil Kumar, Kushagra Joshi, H Rajshekara, Ankita Kandpal, Renu Jethi, Arunay Pattanayak Indian Journal of Extension Education 57 (4), 46-51, (2021) Effectiveness of mobile-based

advisory services in uptake of agricultural information: A case study

It is revealed from this study that mobile application and services are able to provide farmers with appropriate and timely advice for farming, and this is helping them to gain knowledge and make better decisions to incorporate better farming practices despite a few minor setbacks such as connectivity and tech skills.

9. Ajit Kumar Ghoslya, Rajendra Rathore, BS Badhal (2022) Relationship Between Farmers' profile and Their Attitude Toward Kisan Suvidha Mobile Application.

Results have shown that farmers' attitude the Kisan Suvidja app is influenced by their age, education, landholding, experience, and comfort with technology: the younger and better –educated farmers are more positive. In sum, personal background is strongly influencial in shaping farmers' willingness to use mobile-based agricultural tools.

10. H-Rana, B Vaidya Studies in Nepali History & Society, 2024 – search.ebscohost.com

(2024) Challenges and Opportunities of Digital Agro-Advisory Services for Smallholder farmers.

Agro-advisory online platforms provide immediate assistance to small-scale farmers, yet the lack of digital literacy, affordability, and connectivity remains a major hindrance to accessing the platforms. Combining the digital agro-advisory platform with online support would ensure better outreach to the small-scale farmer population.

4. Objectives of the Study:

1. To study different services provided by Kisan Suvidha App
2. To study the degree of awareness among farmers regarding the Kisan Suvidha App and its functions
3. To assess the effectiveness of Kisan Suvidha App in enhancing farming practices, crop management and decision making
4. To measure farmers satisfaction with the apps' features and services offered

5. Research Hypothesis:

H_1: The perceived usefulness of mobile-based agri-advisory services significantly affects the rate of adoption by farmers.

H_0: The perceived usefulness of mobile-based agri-advisory services does not affect the rate of adoption by farmers.

6. Research Methodology:

This study explains the step-by-step process used to understand how farmers in the Yavatmal District are adapting to mobile-based agricultural advisory services. It focuses on how these services are being used, what factors influence their adoption, and how they affect farming practices.

6.1 Research Design:

The study uses a descriptive research design, which helps to clearly and understand how farmers are using mobile-based advisory services.

6.2 Sources of Data Collection:

Primary Data:

The main data for this study will be gathered directly from farmers through a questionnaire. A structured schedule of questions will be used to collect their responses in person**.**

Secondary Data:

Additional information will be collected from different sources such as research paper, website to support and compare with the primary data.

6.3 Sampling Design:

Universe:

All Farmers in Ralegaon Taluka.

Population:

The Farmers who have access to smartphone.

Sample Unit:

The Farmers who use the Kisan Suvidha App.

Sample Size:

A total of 100 farmers from Yavatmal District will be selected and studied as part of the research.

6.4 Data Collection Tool:

Regression Analysis:

Regression analysis is a statistical method used to study the relationship between two or more variables-typically to see how one (or more) independent variables affect a dependent variable**.**

6.5 Statistical Tools Used:

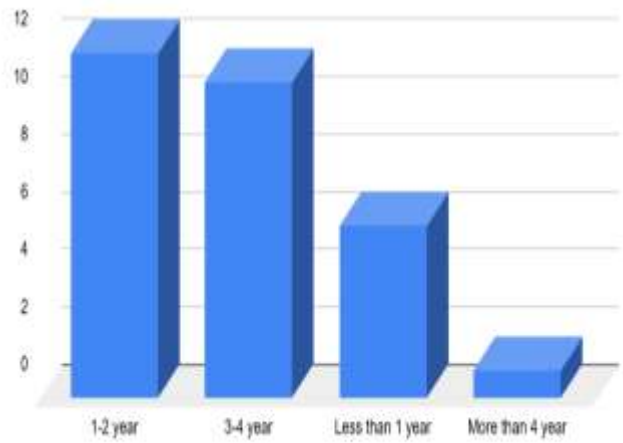
To analyse the data with the help of statistical tool like percentage, mean, mode etc. and Excel, Word will be used.

5. Data Analysis and Interpretation:

1. For how many years have you been using the Kisan Suvidha App?

- Less than 1 year
- 1-2 year
- 3-4 year
- More than 4 year

Sr. No	Option	No. of Respondents	Percentage
1	Less than 1 year	6	20%
2	1-2 year	12	40%
3	3-4 year	11	36.7%
4	More than 4 year	1	3.3%



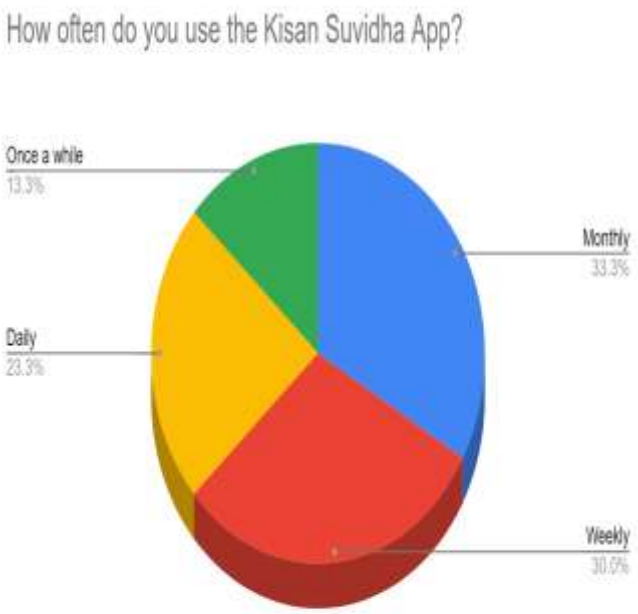
Interpretation:

This means that the application has become popular mostly in the last years, and adoption in a medium term is strong. Further the small number of users in the last term may indicate either the application is not so old or the number of users in the earlier years could be small.

2. How often do you use the Kisan Suvidha App?

- Daily
- Weekly
- Monthly
- Once a while

Sr. No	Option	No. of Respondents	Percentage
1	Daily	7	23.3%
2	Weekly	9	30%
3	Monthly	10	33.3%
4	Once a while	4	13.3%



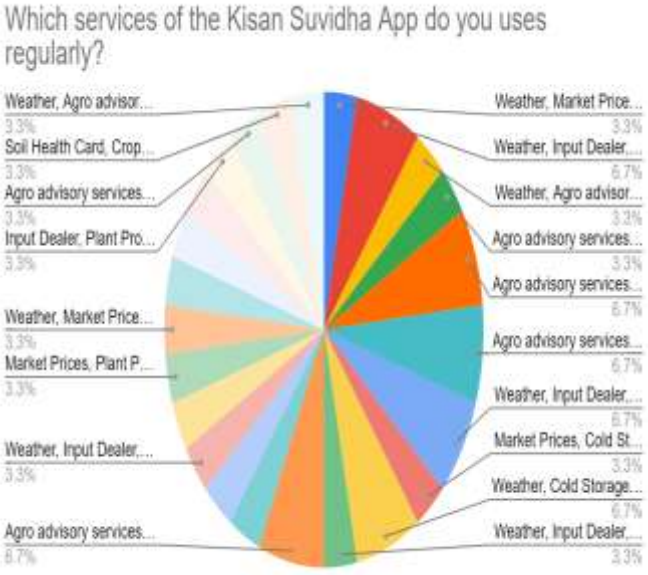
Interpretation:

The result indicate that although the farmers find the Kisan Suvidha App useful, their current usage is restricted to periodic information needs such as weather, warnings, or market prices. The high weekly and monthly usage of the can be attributed to the supportive role it plays during decision-making but the lower daily usage could be worked upon to make the app more useful to the farmers.

3. Which services of the Kisan Suvidha App do you use regularly?

- Weather
- Agro advisory services
- Market Prices
- Input Dealer
- Plant Protection
- Cold Storage & Warehouse
- Soil Health Card
- Crop Insurance
- Others

Sr. No	Option	No. of Respondents	Percentage
1	Weather	17	56.7%
2	Agro advisory services	12	40%
3	Market Prices	9	30%
4	Input Dealer	12	40%
5	Plant Protection	13	43.3%
6	Cold Storage & Warehouse	10	33.3%
7	Soil Health Card	15	50%
8	Crop Insurance	8	26.7%
9	Others	11	36.7%



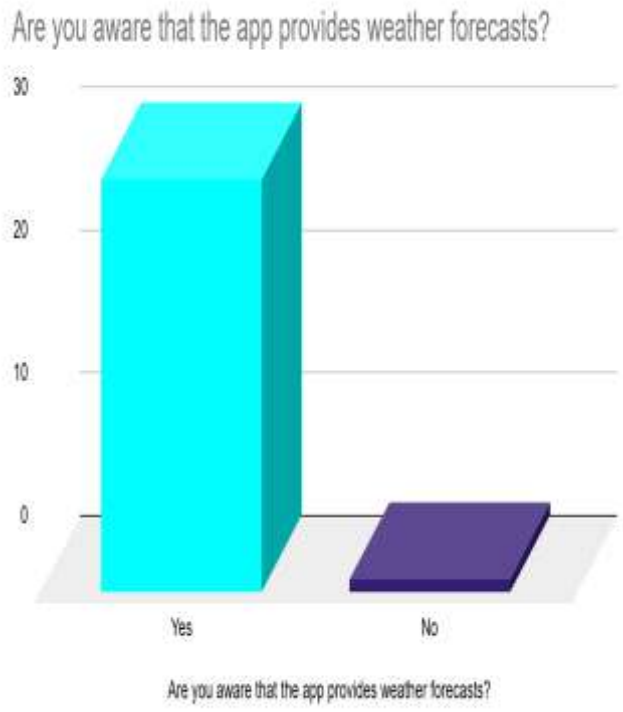
Interpretation:

This means that farmers rely to a certain extent on the app for weather and agricultural-related information because these factors influence daily agriculture operations. Market and input-related services, insurance, and soil condition are of moderate and lesser importance, implying a significant need for awareness and training to promote adoption.

4. Are you aware that the app provides weather forecasts?

- Yes
- No
- Partially

Sr. No	Option	No. of Respondents	Percentage
1	Yes	29	96.7%
2	No	1	3.3%
3	Partially	0	-



Interpretation:

This is an indication that a high percentage of users recognize the existence of a weather forecasts feature in the app, which is a great indication of awareness and visibility of this feature to its users, with only a few users being unsure.

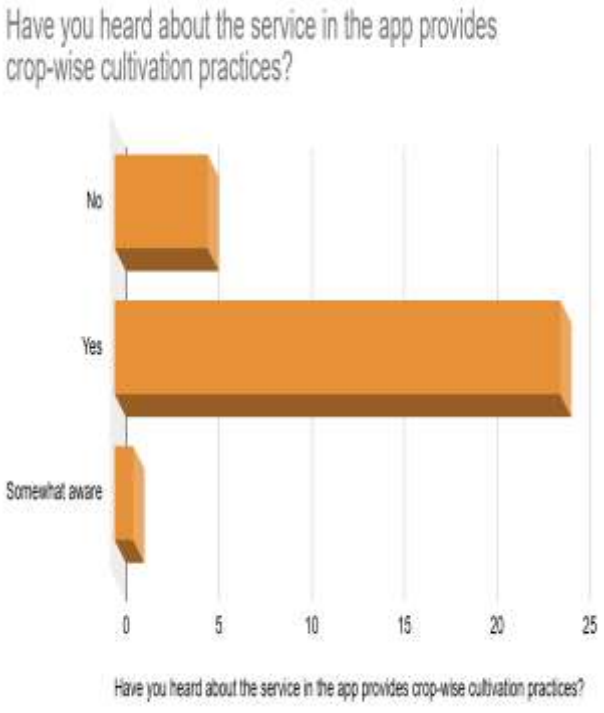
5. Have you heard about the service in the app provides crop-wise cultivation practices?

- Yes
- No
- Somewhat aware

Sr. No	Option	No. of Respondents	Percentage
1	Yes	24	80%
2	No	5	16.7%
3	Somewhat aware	1	3.3%

Interpretation:

This means that many farmers know about the crop-wise cultivation service offered by this app, but there is still some need for better awareness and outreach in communities where knowledge is absent or partial.

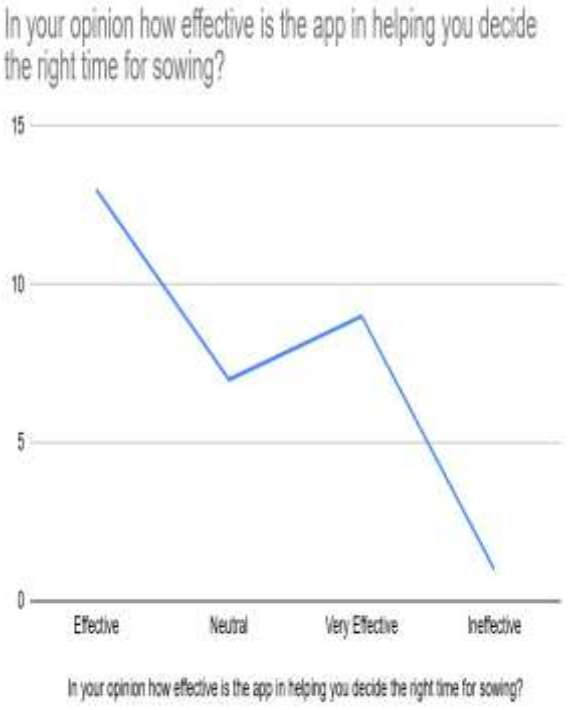


6. In your opinion how effective is the app in helping you decide the right time for sowing?

Very ineffective	Ineffective	Neutral	Effective	Very Effective

Very low	Low	Moderate	High	Very high

Sr. No	Option	No. of Respondents	Percentage
1	Very ineffective	0	0%
2	Ineffective	1	3.3%
3	Neutral	07	23.3%
4	Effective	13	43.3%
5	Very Effective	9	30%

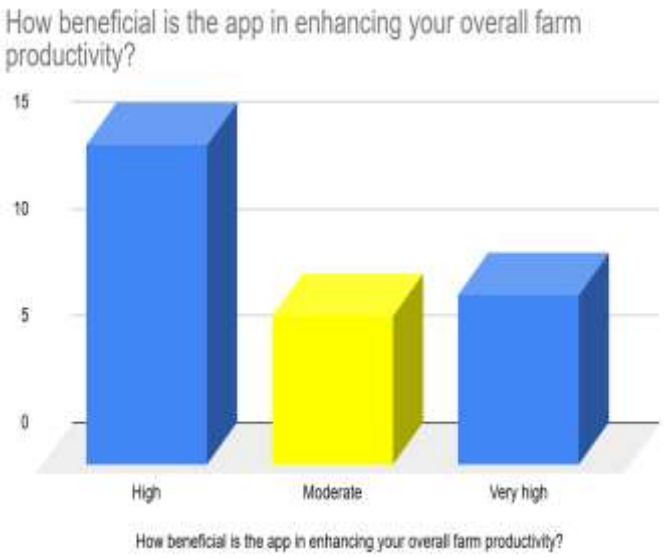


Interpretation:

These results indicate a fairly positive impression regarding its usefulness. A majority of the respondents considered it or deemed it effective, with "Effective" being the most frequently used response option. This is a further indication of the fact that it is fulfilling its purpose of helping the respondents in identifying the correct timings for sowing through the application, and is therefore a major success in this capacity.

7. How beneficial is the app in enhancing your overall farm productivity?

Sr. No	Option	No. of Respondents	Percentage
1	Very low	0	0%
2	low	0	0%
3	Moderate	07	23.3%
4	High	15	50%
5	Very high	08	26.7%



Interpretation:

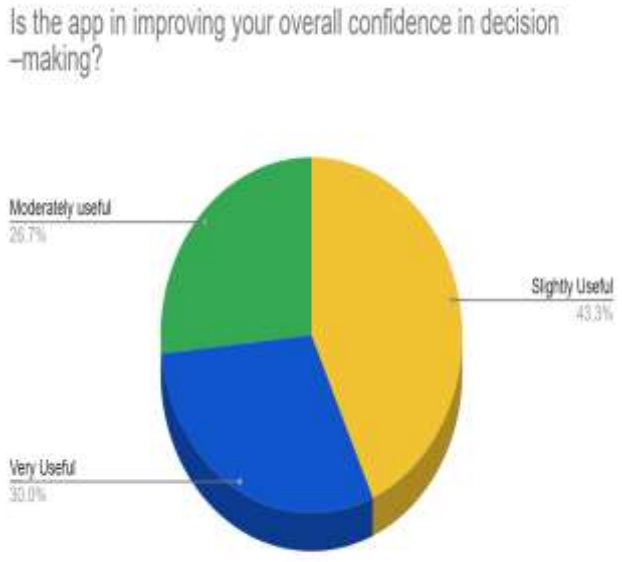
The data implies that most of the respondents found the app to be of greater benefit to their farm productivity. Although there are some who found it to be moderately or very highly

beneficial, the general view is largely positive, reflecting the value that the user population places on the app.

8. Is the app in improving your overall confidence in decision-making?

Not useful	Useful	Moderately useful	Slightly Useful	Very Useful

Sr. No	Option	No. of Respondents	Percentage
1	Not useful	0	0%
2	Useful	0	0%
3	Moderately useful	08	26.7%
4	Slightly Useful	13	43.3%
5	Very Useful	9	30%



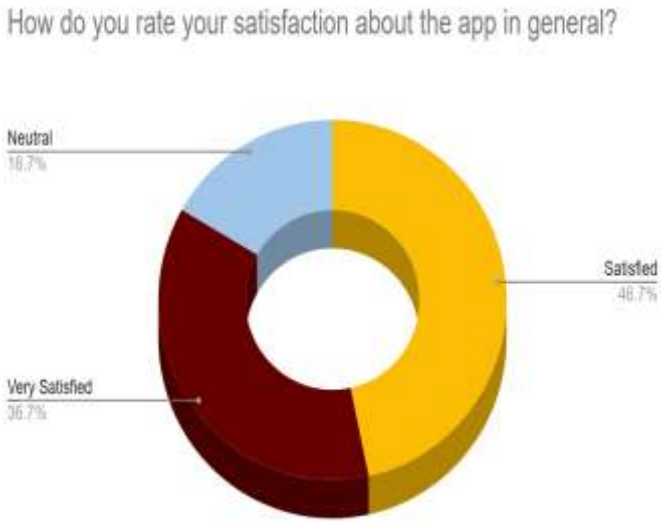
Interpretation:

The findings point towards the app being effective to some extent for all the respondents to increase confidence in the decision-making process. A high number of respondents rating the app "Slightly Useful" could imply that the app is useful, but it is perhaps not that revolutionary for most users. The combined number of "Moderate" and "Very Useful" rating respondents, at 56.7% marks a quite impressive influence of the app on the user base.

9. How do you rate your satisfaction about the app in general?

Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied

Sr.No	Option	No. of Responde
1	Very dissatisfied	0
2	Dissatisfied	0
3	Neutral	05
4	Satisfied	11
5	Very Satisfied	14



Interpretation:

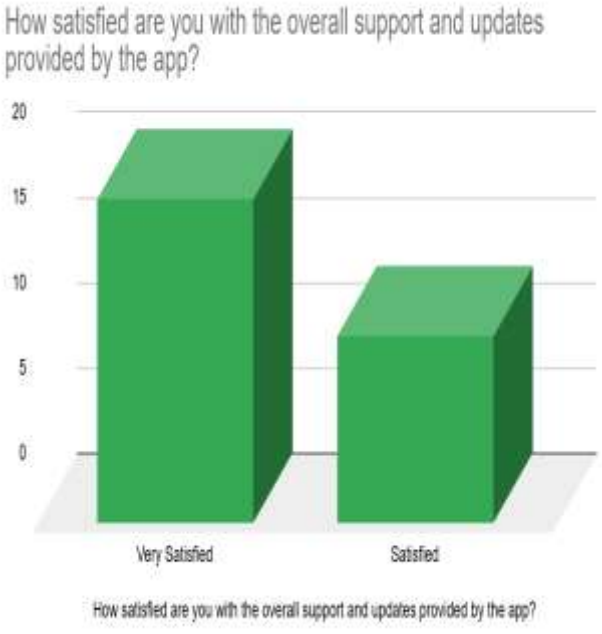
That is a very high rating, which in itself is an indication that users are satisfied with the app functionality or performance. A high percentage of users being satisfied or very

satisfied (83.4%) is a positive indication that the users appreciate or approve of the app performance or functionality. It is also clear that very few users were neutral in their response.

10. How satisfied are you with the overall support and updates provided by the app?

Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied

Sr. No	Option	No. of Respondents	Percentage
1	Very Dissatisfied	0	0%
2	Dissatisfied	0	0%
3	Neutral	0	0%
4	Satisfied	11	36.7%
5	Very Satisfied	19	63.3 %



Interpretation:

The interpretation of the results is that the general nature of reception among the users sampled was generally positive as far as the in-app support and update services are concerned. The high results for "Very Satisfied" depict strong approval, while on the other hand, "Satisfied" illustrates moderate approval. The chart only displays positive feedback categories, which thus means that among the ones that responded, it is hugely skewed to the positive end of the satisfaction spectrum.

8. Finding of the Study:

1. The finding reveal that most farmers have been using the Kisan Suvidha App for 1-2 years and 3-4 years, indicating strong medium-term adoption. Very few users fall in the categories of less than one year or more than four years, suggesting that the app has gained popularity mainly in recent years and is still expanding its user base.
2. The study finds that farmers mostly use the app on a monthly or weekly basis, while a smaller proportion uses it daily. This indicates that the app is primarily used for periodic agricultural information needs, such as weather forecasts and market prices, rather than for daily farm operations.
3. The findings show that weather information is the most frequently used service, followed by agro-advisory services and market prices. Other services like plant protection, input dealer details, crop insurance, soil health card, and storage facilities are used less frequently, indicating lower awareness or perceived relevance of these features.
4. The study finds that most farmers are fully aware that the app provides weather forecasts. Very few respondents were unaware or partially aware, which reflects high visibility and effective communication of this feature within the app.
5. The findings indicate that a large majority of respondents are aware of the crop-wise cultivation practices provided by the app. However, a small section of farmers remains either unaware or only somewhat aware, highlighting the need for improved outreach and awareness programs.
6. The results that most farmers perceive the app as effective or very effective in helping them decide the right time for sowing. Very few

respondents rated it as ineffective, suggesting that the app successfully supports farmers in critical decision-making related to sowing.

7. The findings reveal that the majority of farmers rated the app as having a high or very high impact on farm productivity. This demonstrates that the app contribute positively by providing timely and relevant agricultural information that helps improve farming outcomes.

8. The study finds that all respondents consider the app at least slightly useful in improving their decision-making confidence. A significant proportion rated it as moderately or very useful, indicating that the app plays a meaningful role in strengthening farmers' confidence, although there is scope to enhance its impact further.

9. The findings show a very high level of overall satisfaction, with most users being either satisfied or very satisfied. Notably, no respondents expressed dissatisfaction, indicating strong approval of the app's performance and features.

10. The study finds that users are highly satisfied with the app's support system and regular updates. The dominance of "Very Satisfied" responses reflects trust in the app's maintenance, reliability, and continuous improvement.

9. Managerial Implication:

The present study will, therefore, be of immense use to agricultural policymakers, agri-tech companies, extension workers, and researchers. The analysis of the adoption of mobile-based agri-advisory services among farmers in the Yavatmal District contributes to an understanding of how digital platforms and mobile applications.- such as Kisan Suvidha, IFFCO Kisan, and others – contribute toward decision-making in farming, crop management practices, and overall productivity. The finding will be useful for policymakers and agricultural institutions in developing effective digital inclusion strategies, better design, and delivery of mobile-based services in agriculture, and ensuring that such technologies reach small and marginal farmers. The insights can be used by agri-tech developers to improve user interface design, language accessibility, and the relevance of information to local condition.

Farmers' benefits: The study highlights increased and timely access to accurate information on weather forecasts, market prices, pest management, and government schemes, which leads to improved decision-making and household income stability for farmers. Theoretically, the research contributes to an understanding of the role that mobile technology plays in agricultural transformation, especially in the rural and semi-urban Yavatmal District.

In brief, the study provides useful insights to develop better digital agricultural communication, promote sustainable farming, enhance rural connectivity, and inform future research on mobile-based agri-advisory systems and technology adoption in Indian agriculture.

10. Limitations of the Study:

- **Geographical Focus:** It will be limited to Ralegaon Taluka and may not represent farmer in other regions.
- **Sample Size:** The sample size may not be large enough to generalize findings to all Kisan Suvidha App users.
- **Focus on Limited app services:** Only a few of the Kisan app services are study.
- **Technological Familiarity:** Farmers have varying levels of comfort and experience with smartphones and apps, which can impact how easily they understand and use the Kisan Suvidha App.
- **Low Engagement Level:** Survey data reliability can be affected when participants provide brief or rushed answers, often because they are short on time or struggle with digital literacy.
- **Time Frame:** The study will cover only the academic year 2025-26 so it won't show long term changes.
- **Static Nature:** Descriptive research, as it captures data at a single point, struggles to reflect changes in app usage patterns or feature updates over time.
- **Response Bias:** When Farmers are surveyed, they might give answers that sound good rather than what's true, which skews the data.

11. Recommendations:

1. To improve daily usage, the Kisan suvidha App should be designed to become a regular decision-support tool rather than a periodic reference. Introducing daily alerts such as personalized weather-based reminders, crop stage-wise notifications, pest and disease early warnings, and short actionable tips can encourage farmers to open the app more frequently. Integration of daily farm activity checklists and seasonal calendars will help embed the app into routine farm operations and strengthen continuous engagement.
2. Special efforts are required to promote lesser-used services such as crop insurance, soil health cards, storage facilities, and input dealer information. These features should be explained in simple language with step-by-step guides, short videos, and visual icons in regional languages. On-field demonstrations, farmer training programs, and collaborations with Krushi Seva Kendras, extension officers, and farmer Producer Organizations (FPOs) can significantly improve awareness and practical understanding of these services.
3. To move users from "slightly useful" to "very useful," advisories must be more localized and crop-specific. The app should provide district and village-level recommendations based on local soil, weather conditions, and cropping patterns. Including success stories, real-time problem-solving modules, and expert interaction features (such as helplines or chat support) can enhance farmers' confidence and the perceived usefulness of the app.
4. Although satisfaction levels are high continuous improvement depends on active feedback. The app should include an easy feedback and grievance redressal system, allowing farmers to report issues and suggest improvements. Regular updates based on farmer feedback, along with awareness campaigns about new features, will ensure sustained adoption and help the Kisan Suvidha App achieve its full potential as a comprehensive agri-advisory platform.

12. Scope for Future Research:

The focus of this study is wide-ranging. From the government's perspective, it assists in determining the extent to which mobile-based agri-advisory services are reaching farmers and helping them with timely advice on weather, crop prices, pest management, and improved methods of farming. It is useful for researchers as it gives them insights into rural farmers' adoption of technology, the difficulties in accessing or trusting digital advisory services, and the effect on productivity and income.

The scope of Kisan Suvidha App from a research institute, academia, and company perspective is multi-dimensional. From the point of view of research institute, the study offers a chance to assess the app's contribution to the increase in agricultural knowledge dissemination, digital adoption, and rural development. Academically, it provides scope to study user behavior, technology adoption, and socio-economic effects of agri-advisory services on farmers' decisions and output. For the Company or government agency responsible for the app, the research can be used to gauge user satisfaction, determine areas where service delivery gaps exist, and enhance features according to farmer responses. In all, the research seeks to close the gap between technology and agriculture through encouraging sound utilization of digital platforms for sustainable agriculture.

13. Conclusion:

1. The study concludes that the Kisan Suvidha App has achieved strong medium-term adoption among farmers, with most users accessing it for 1-4 years. Farmers mainly use the app on a weekly or monthly basis, indicating its relevance for periodic agricultural needs such as weather updates and market prices. However, limited daily usage suggests that the app is not yet fully integrated into routine farm operations, highlighting a gap in continuous engagement.

2. The findings show a level of awareness regarding key features like weather forecasts and crop-wise cultivation practices, fulfilling the objective of assessing farmers' awareness. At the same time, lower usage of services such as crop insurance, soil health cards, storage

facilities, and input dealer details points to inadequate awareness or perceived complexity of these features, which remains a negative aspect.

3. The app is largely effective in supporting sowing decisions, crop management, and overall farm productivity. Most farmers reported improved confidence in decision-making. However, since many users rated the app only as "slightly" or "moderately" useful, there is scope to improve the depth, localization, and practical applicability of advisory services.

4. Overall satisfaction with the app, its support system, and updates is very high, meeting the objective of measuring user satisfaction. Nevertheless, uneven usage of certain services and limited daily dependence indicate the need for better feature integration, user training, and awareness programs to maximize the app's full potential.

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