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## RESEARCH ARTICLE

## Effectiveness of Social Media Based Agro Advisory Services in Andhra Pradesh– An Analysis

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## ABSTRACT

*Extension organizations are using social media and innovative content-generating approaches to reach farmers and assist them with their information needs. But to what extent are farmers using the information received by them and converting the information into practical application is the question to be answered. Hence a study to find out the effectiveness of the social media-based agro-advisory services was conducted in the IT revolutionized the state of Andhra Pradesh with a sample of 126 farmers from three districts through random sampling method. The effectiveness of social media was analyzed by developing a composite index with four sub-indicators having a Cronbach alpha of 0.8 which stated that the majority of the farmers 39.7 per cent had medium effectiveness of the messages they received. The study found out that most of the farmers receive information daily and the information needs are mostly around crop health management. The understandability of the information was good which helped in increased yields followed by the rate of adoption and increase in income of farmers. These results help to strategize the strengths of messages shared through social media and help as guidelines in new content development by extension organizations.*

**Key words:** Effectiveness of social media; Social media; Effectiveness of messages; Farming community.

**D**igitalization of communication networks has opened access to many new networking platforms such as social media which had provided a two-way, real-time communication and information dissemination among large networks in the shortest span in an economical way. The impact of social media was acknowledged, and many extension organizations set up profiles on different networking platforms (YouTube, Facebook, Twitter, WhatsApp), and other platforms to expand their access to farmers. To reach farmers and assist with their information requirements, extension groups are experimenting with social media and innovative content generation methods. The preference of farmers in social media usage specifically for sharing agricultural information needs to be ascertained *Thakur et.al., (2017)*. In recent years, research on social media use and impact has become very popular. Many studies were

reviewed which stated that the information shared through social media is successfully reaching farmers on a large scale within the shortest period. Farmers used the technology sent through WhatsApp and even believed that the information is valuable, according to the findings of *Jaiswal et.al., (2018)*. According to the study, the farming community has expressed curiosity in using social media to get agricultural information, and it is very helpful, inexpensive, and convenient. According to the study of *Singh et.al., (2021)*, the majority of young farmers used social media (YouTube, WhatsApp, and Facebook) as a source of agricultural information. For farm-related information, the young farmers have subscribed to agriculture-related video sharing sites (YouTube channels). The majority of young farmers have 4-5 WhatsApp groups where they could share and obtain information about farming and related topics. However, studies on the extent

of the use of messages shared through social media are still lacking. This study was framed to answer the question, to what extent are farmers adopting the knowledge they receive and putting it all into practical application. Hence a study to find out the effectiveness of the messages communicated through social media to the farming community was conducted in the IT revolutionized state of Andhra Pradesh.

## METHODOLOGY

To analyze the effectiveness of the social media-based agro advisory services to farmers an ex-post-facto study was conducted in Andhra Pradesh. From the pool of farmers in the three districts of Srikakulam, Chittoor, and Guntur who were the participants in the social media groups of the state department of agriculture, KVK, ATMA, and NGOs, 126 farmers were selected through random sampling with 43 respondents from Guntur, 43 from Chittoor, and 40 from Srikakulam. Well-structured questionnaires were designed for data collection. The data was gathered using a structured questionnaire and the survey method. The effectiveness of information sources by farmers is defined as the extent to which messages posted through social media are used by them. It was measured by developing a composite index. Based on an intensive review of literature and suggestions from experts four sub-indicators were decided for the construction of the index which was as follows,

SI1: Farmers' information-seeking behaviour

SI2: Purpose of social media utilization

SI3: Understandability of information

SI4: Farmers' perceptions of the advantages of using social media

The Cronbach's Alpha calculated for the instrument was found to be 0.818 which states that the index was good to use.

A sub-index is computed by adding the scores of all of the items in that sub-index, with the total value indicating the total score of the sub-index. Scores of all the four components/sub-indices were normalized through the min-max method.

$$U_{ij} = \frac{Y_{ij} - \text{Min}Y_j}{\text{Max}Y_j - \text{Min}Y_j}$$

Where :

$U_{ij}$  = Unit score of the  $i^{\text{th}}$  respondent on  $j^{\text{th}}$  component

$Y_{ij}$  = Value of the  $i^{\text{th}}$  respondent on  $j^{\text{th}}$  component

$\text{Max}Y_j$  = Maximum score on  $j^{\text{th}}$  component

$\text{Min}Y_j$  = Minimum score on  $j^{\text{th}}$  component

As equal weightage was considered for all the sub-indicators the summation of average index scores of those selected sub-indicators was chosen for the composite index of the effectiveness of social media-based agro advisory services.

The effectiveness index =

$$\frac{\sum Si}{n} = \frac{SI1 + SI2 + SI3 + SI4}{4}$$

The respondents were grouped into low, medium, and high effectiveness based on the mean and standard deviation.

## RESULTS AND DISCUSSION

*Effectiveness of social media-based agro advisory services to farmers:* The effectiveness index of farmers thus calculated was analyzed among all the farmers and presented in the following table. The respondents were grouped into low, medium, and high effectiveness based on the mean and standard deviation. As it is a composite index the value ranges between zero to one.

Data from Table 1 indicate that a vast majority of the farmers had medium effectiveness of messages which accounts for (39.70%) followed by low (33.3%) and high (27%) effectiveness of messages. Farmers believe that the messages are valuable and that they are assisting them in their growth. The majority of farmers rate the messages as having a medium utility, which is neither too low nor too high. The data obtained is broadly consistent with the major trends found by Jain *et al.*, (2018) which stated that (45%) of the farmers found the overall effectiveness of WhatsApp messages as sometimes effective followed by never effective (31.66%) and always effective (23.34%) in agricultural development. We can enhance the effectiveness of the information by making it more farmer- and problem-oriented. Increasing the utility of messages by sending them in a location-specific and easily comprehensible format would help in increasing the effectiveness.

**Table 1. Effectiveness of social media-based agro advisory services to farmers**

Category	No.	%
Low effectiveness (<0.6496)	42	33.3
Medium effectiveness (0.649-0.800)	50	39.7
High effectiveness (>0.800)	34	27
Total	126	100

Note: Mean=0.72 SD=0.15

**Table 2 Information-seeking behaviour of farmers**

Category	No.	%
Daily Basis	66	52.28
Weekly Basis	18	14.28
Monthly Basis	20	15.87
Occasional Basis	22	17.47
Never	0	0
Total	126	100

*Sub-indices interpretation of effectiveness Index:* Farmers' information-seeking behaviour relates to the farmers' frequency of interaction with different sources of information to learn about various agricultural knowledge and practices. Table 2 shows that the vast majority of respondents receive information daily (52.28%), followed by those who receive it only periodically (17.47%) during a certain stage of the crop. The proportion of farmers who receive information on a weekly and monthly basis is almost the same. Because the respondents in the research are farmers who are members of social media groups, there have been no respondents who are not a part of social media. These data also suggest that half of the respondents receive information every day, while the other half receive it weekly, monthly, or only occasionally. These results are in good agreement with other studies of *Joshi and Dhaliwal (2019)* which revealed that the majority (50%) of the respondents were using Facebook daily and (38%) were using Facebook monthly. WhatsApp was being used by (82%) of the respondents daily and on weekly basis by (8%) of respondents. The majority of the respondents (78%) were found to be using YouTube

daily and (40%) of them were using YouTube monthly.

The findings were also in line with *Shivaprakash et al., (2022)*. As a result, it's critical to transmit real-time information that keeps farmers informed about innovations of farming and related industries in real-time as their information-seeking behaviour is mostly oriented on a daily basis.

The purpose of social media utilization in the present study was operationalized as the types of information that farmers obtain. Considering the types of information, in Table 3 mostly the information about pests, disease, and nutrient management were given the highest priority by ranking highest. It indicates that crop health management is the area where farmers are in high need of information and new technologies. Different government schemes on agriculture and rural development are the next highest-ranked as farmers need updated information about all the new schemes which can benefit them. Market forecasting and weather forecasting are ranked fifth and sixth respectively by the farming community followed by other information needs. The data obtained is broadly consistent with the major trends found by different researchers. According to Singh et al., farmers' awareness of insect pests and diseases enhanced (31.0%) and their usage of pesticides declined (16.5%). Similarly, weather-based agro-advisory assisted farmers with irrigation timing to prevent crop lodging (22.7%). Farmers also reported improved market pricing awareness (24.1%) as a result of using social media to receive information on agriculture. The results were in acceptance with the study of *Joshi and Dhaliwal (2019)*, which stated that the information gathering was ranked first, communicating with fellow farmers was placed second, and sharing

**Table 3. Purpose of Social media Utilisation to farmers**

Information	Frequently No.(%)	Sometimes No.(%)	Never No.(%)	Total Score	Rank
IPM (Integrated Pest management)	78 (61.90)	46 (36.50)	02 (01.60)	328	I
Disease management	74 (58.73)	48 (38.09)	04 (03.17)	322	II
Nutrient management	68 (53.96)	54 (42.85)	04 (03.17)	316	III
Government schemes on agriculture	68 (54.00)	48 (38.09)	10 (07.93)	310	IV
Market demand and supply	62 (49.20)	54 (42.85)	10 (07.94)	304	V
Weather forecast	56 (44.44)	66 (52.38)	04 (03.20)	304	VI
Seed and Inputs	60 (47.62)	56 (44.44)	10 (07.93)	302	VII
New farming Technologies and machinery	60 (47.61)	54 (42.85)	12 (09.52)	300	VIII
Sowing and Transplanting labour needs	48 (38.09)	74 (58.73)	04 (03.17)	296	IX
Water use efficiency and soil health management	50 (39.68)	68 (54.00)	08 (06.35)	294	X

the information was ranked third. Similarly, selling or purchasing agricultural products, knowing market rates, and branding agricultural commodities were placed fourth, fifth, sixth, and seventh, respectively, for solving farm-related problems.

The findings are in line with *Pradhan et al.*, (2018) who stated that rural farmers can improve their farming practices with the help of modern ICT enabled extension services.

**Table 4. Understandability of the information to farmers**

Category	No.	%
Easy to interpret	66	52.38
Understandable	38	30.16
Difficult to interpret	20	15.88
Very Difficult to interpret	02	1.58
Total	126	100

Understandability of information was characterized as an individual's ability to comprehend or interpret the information received. Table 4 shows that the vast majority of respondents thought that the information was easy to understand, followed by those who thought it was simply understandable to them. Only a few farmers have expressed concern about the information's clarity. This challenge may be handled by creating content in image or video format that is easily understood by receivers. These results are consistent and in good agreement with other studies by *Patel et al.*, (2020) regarding the understanding of the message, which stated that the vast majority of WhatsApp users (41.67%) reported a medium comprehension of the messages, while (33.33%) reported a poor understanding and (25%) reported a high understanding of the messages. The study conducted by *Shivaprakash et al.*, (2022) stated that majority 70.00 per cent of

the farmers said messages were 'easy to understand', (19.16%) farmers said messages were 'difficult to understand' and only (10.83%) farmers said messages were 'not understanding'. Extension personnel may create high-quality videos and graphics that use local language as a medium, making farmers more receptive to the information and increasing its trustworthiness.

Farmers' perceptions of the advantages of using social media are the influence of social media tools/services on the views of respondent farmers. It was documented in five distinct categories as reported by the respondents which are an increase in individual knowledge levels, crop yields, rate of adoption, social participation, and change in income level. Farmers have specified that the application of social media and its messages had led to increased crop yields firstly (rank 1), rate of adoption secondly (rank 2), increased income as the third important development which is followed by an increase in individual knowledge and social participation. These results are consistent and in good agreement with other studies by *Mishra et al.*, (2021) which stated that farmers believe that social media helps them receive information faster, receive timely updates about agriculture, and understand more about farming techniques. *Jaiswal et al.*, (2018) also in their study found that WhatsApp had a (53.8%) impact on knowledge, followed by (49.8%) on adoption and (48.4%) on usefulness. Because the majority of farmers made it clear that agricultural growth occurred as a result of information received from extension organizations via social media, this is a positive indicator for extension service delivery impact on the rural community, as it could be used as a platform to influence many other farmers who are not in social media groups to enhance their credibility toward extension organizations and assist them in the farm, technological, and financial matters.

**Table 5. Distribution of farmers based on the perceived advantage of social media**

Area	Frequently No. (%)	Sometimes No. (%)	Never No. (%)	Total	Rank
Increase in crop yields	100 (79.40)	26 (20.60)	0	352	I
Increased rate of adoption	98 (77.77)	14 (11.11)	14 (11.11)	336	II
Increase in Income level	78 (61.90)	36 (28.60)	12 (09.52)	318	III
Increase in knowledge	84 (66.66)	22 (17.46)	20 (15.87)	316	IV
Increased in of social participation	78 (61.90)	26 (20.63)	22 (17.46)	308	V

## CONCLUSION

The study has shown the effectiveness of social media-based agro advisory services to the farming community. The study revealed that social media has been a major part of the everyday life of the farming community for their information needs as they use social media daily. The utilization behavior revealed that farmers depend on social media for information needs such as crop health management and recent government schemes mostly followed by forecasting of market demand and surplus. Based on the above results, strategies can be developed that can increase the effectiveness of messages through social media by sending the messages on the relevant topic based on location-specific, time-specific, crop-specific information. As social media is user-generated content media, farmers can develop their content and post their problems to the agriculture extension agents, scientists, or subject matter specialists through images and videos. The comprehensibility of the information stated that farmers can interpret the information shared in social media from an easily understandable to an understandable range. It indicates that the type of message shared plays a key role in its comprehensibility. Images and videos will prevent misinterpretation by the farmers and be helpful for the development of location-specific and crop-specific information which is tailor-made. Summing up the results, it can be concluded that social media helps in the farm development of farmers as most of their information needs are catered around crop health management followed by technological advancement.

## CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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