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Utilization and relationship of farmers towards weather based agro advisory services by mobile

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Abstract

The study was conducted in Maharashtra, Parbhani district, 120 farmers were using weather based agro advisory services by mobile were surveyed. The result show that majority of respondent belonged to middle age group having higher secondary education belonged to small size land holding having medium annual income, medium level of social participation, majority of the respondent had medium innovativeness, belonged to medium risk preference, respondent belonged to medium possession of ICT tools. The study aimed to understand the relationship between various independent variables and utilization of farmers towards weather based agro advisory services by mobile among the farmers. The variables namely education, land holding, cropping pattern, annual income, social participation, extension contact, innovativeness, risk preference and possession of ICT tools had positive correlation with opinion of the respondent and age, family aize were non – significant with utilization of farmers.

Keywords: Utilization, weather based agro advisory services, ICT Tools, Mobile, Agromet

Introduction

Weather is a critical factor in agriculture, with shifts in weather patterns profoundly impacting crop yields. Weather-based crop advisory services offer real-time insights on weather conditions, crop health, and recommended actions, empowering farmers to make informed crop management decisions that can enhance yields and boost income. To better serve farmers, district-level Agro-Advisory Services (AAS) were introduced in partnership with ICAR and SAUs, utilizing a network of 130 Agrometeorological Field Units (AMFUs) across the country to provide more targeted weather information and location-specific crop guidance. Building on the success of district-level AAS and leveraging high-resolution forecasting models, these services were further extended to the block level through District Agromet Units (DAMUs), established at ICAR's Krishi Vigyan Kendras (KVKs). The AAS provided by the India Meteorological Department (IMD) supports weather-based strategies for crop and livestock management, aimed at improving crop productivity, ensuring food security, and reducing losses from adverse weather conditions (India Meteorological Department, 2023).

Objectives

To study the relationship between the profile characteristics of farmers with their utilization for weather based agro-advisory services by mobile.

Methodology

The present study was conducted in Parbhani district purposively as Headquarter of the University where farmers are using weather based agro advisory services through mobile and information provided to the farmers by mobile through agriculture university under "Grameen Mausam Sewa''. Three talukas *viz* Parbhani, Manwat and Pathri were selected purposively. The sample constituted 120 farmers from 12 villages. Ex post facto research design was used for present study. Data from the respondents were collected by personally interviewings with the help of structured and pretested interview schedule. Collected data classified, tabulated and analysed by using statistical methods like frequency, percentage, mean standard deviation, correlation with coefficient.

Results and Discussion

Table 1: Distribution of the respondents according to their utilization regarding to information of crop production.

Sl. No.	Information related to crop production	Utilization (N=120)		
		Regular	**Sometime**	**Never**
1	Soil testing	54 (45)	43 (35.83)	23 (19.17)
2	Land preparation	41 (34.17)	47 (39.17)	32 (26.67)
3	Availability of seed	56 (46.67)	47 (39.17)	17 (14.17)
4	Variety	57 (47.50)	45 (37.50)	18 (15.50)
5	Seed treatment	49 (40.83)	48 (40)	23 (19.17)
6	Sowing time	66 (55.00)	45 (37.50)	09 (07.50)
7	Method of sowing	47 (39.17)	58 (48.33)	15 (12.50)
8	Irrigation	37 (30.83)	66 (55)	17 (14.17)
9	Weed management	30 (25.00)	69 (57.50)	21 (17.50)
10	Chemical fertilizers	38 (31.67)	61 (50.83)	21 (17.50)
11	Pest attack	50 (41.67)	47 (38.33)	24 (20.00)
12	Bio agent	26 (21.67)	48 (40.00)	46 (38.33)
13	Disease symptom	49 (40.83)	46 (38.33)	25 (20.83)
14	Precaution while spraying	45 (37.50)	44 (36.67)	31 (25.83)
15	Recommended doses of pesticide/insecticide	37 (30.83)	61 (50.83)	22 (18.33)
16	Deficiency symptoms	40 (33.33)	61 (50.83)	19 (18.33)
17	Crop maturity	39 (32.50)	52 (43.33)	29 (24.17)
18	Weather forecasting	62 (51.67)	45 (37.50)	13 (10.83)

The distribution of the respondents according to their utilization about information of crop production provided through advisory service has been presented in Table 1.

It was observed from the data presented in Table 1 that, majority of the respondent were regularly utilized messages given by weather based agro advisory services about sowing time (55.00%) followed by weather forecasting massages (51.67%). The respondents also regularly utilized messages of crop production were new crop varieties to be used (47.50%), soil testing (45.00%), pest attack (41.67%),seed treatment (40.83%), deficiency symptoms (33.33%), chemical fertilizer (31.67%), recommended doses of pesticide/insecticide (30.83%), weed management (25.00%), respectively.

In case of use of information about crop production, majority of respondents were sometime utilized information received from advisory service about land preparation (39.17%), method of sowing (48.33%), application of irrigation (55.00%), availability of seeds (39.17%), disease symptoms (38.33%), nutrient deficiency symptoms (50.83%), pest attack (50.83%), crop maturity (50.00%), seed treatment (48.34%), new crop varieties (37.50%), use of chemical fertilizers (50.83%), use of recommended doses of insecticide/pesticides (50.83%), soil testing (35.83%), management of weed (57.50%) and sowing time (37.50%), respectively.

The majority of respondents were never utilized information of use of bio-agent (38.33%) followed by crop maturity (24.17%), recommended doses of fertilizers (18.33%) and Precaution while spraying (25.83%), respectively.

By and large the respondents were regularly utilized information of agro advisory services about precaution while spraying insecticide/pesticide, weather forecasting, sowing time, new crop varieties to be used, seed treatment, pest attack and soil testing, respectively,

Table 2: Distribution of the respondents according to their utilization of information about market

Sl. No.	Information about market	Utilization	(n = 12)	
		Regular	**Sometime**	**Never**
1	Availability of market	58 (48.33)	35 (29.16)	27 (22.50)
2	Market price	58 (44.17)	38 (31.67)	29 (24.17)
3	Price forecasting	41 (34.17)	43 (35.83)	36 (30.00)

The distribution of the respondents according to their utilization regarding to information of market has been presented in Table 2.

In case of use of information about market, most of the respondents were availability of market (48.33%) followed by market price (44.17%) and price forecasting (34.17%), respectively. Whereas, respondents were utilized sometime information of price forecasting (35.83%) and market price (31.67%) and availability of market (29.16%) respectively. The most of the respondents were regularly and sometime utilized market information.

Table 3: Distribution of the respondents according to their utilization about information of government schemes

Sl. No	Information about Government schemes	Utilization (n=120)		
		Regular	**Sometime**	**Never**
1	Newly launched policies	82 (70.83)	23 (24.17)	15 (05.00)
2	Required documents for scheme	78 (65.00)	31 (25.83)	11 (09.17)
3	Eligibility criteria for particular scheme	77 (64.17)	33 (27.50)	10 (05.33)
4	Important dates related to particular scheme	70 (58.33)	36 (30.00)	14 (11.67)

The distribution of the respondents according to their utilization regarding to information of government schemes has been presented in the Table 3.

It was apparent from the Table 3 that, majority of the respondents (70.83%) were utilized the information about newly launched schemes on regular basis and only 05.00 per cent of respondents were used sometime. The 64.17 per cent respondents were regularly utilized information about

government schemes eligibility criteria for particular schemes, required documents for scheme (65.00%) and important dates related to particular schemes (58.33%), respectively.
From the above result it observed that, majority of the respondents were regularly utilized the information about government schemes.

Table 4: Distribution of respondents according to their overall utilization of the farmers towards mobile based agro-advisory services N=120

Sl. No.	Utilization	Frequency	Percentage
1	Never (Up to 26)	19	16.67
2	Sometime (27 to 34)	77	61.66
3	Regular (35 and above)	24	21.67
	Total	120	100.00

It was revealed from the Table 4 that majority of the respondents (61.66%) had sometime utilization of the information provided through weather based agro- advisory service, followed by 21.67 per cent respondents were regularly utilized and 16.67 per cent respondents were never utilized the information provided through agro advisory service.

Table 5: Correlation coefficients of characteristics of the respondents with their utilization about weather based agro advisory services.

Sl. No.	Independent variable	Opinion 'r' values
1	Age	0.169 NS
2	Education	0.308**
3	Family size	0.015 NS
4	Land holding	0.212*
5	Cropping pattern	0.221*
6	Annual income	0.281*
7	Social participation	0.277**
8	Extension contact	0.304**
9	Innovativeness	0.302**
10	Risk preference	0.206*
11	Possession of ICT tools	0.304**

* & ** correlation is significant at the 0.05 and 0.01 level respectively
NS - Non significant.

The correlation coefficients of the characteristics of the respondents with their opinion about agro advisory service presented in Table 5 shows the following results.
It was seen from above results that, education, social participation, extension contact, innovativeness and Possession of ICT tools of the farmers had positive and highly significant relationship at 0.01 per cent level of probability whereas, land holding, cropping pattern, annual income, risk perference had positive and significant relationship at 0.05per cent level of probability with opinion of respondent about agro advisory service.
While the age and family size had non-significant relation with their opinion about agro advisory service.

1. Age and Utilization
It was observed that, age of the respondents had positive and non significant relationship with utilization of weather based agro-advisory services. The above finding is dissimilar to Adetumbi *et.al.* (2013) [1], Bhongale (2018) [2].

2. Education and Utilization
The education of respondents had positive and highly significant relationship with utilization of weather based agro-advisory services.
Thus, it could be said that educational level of the respondents has significantly influence on the participation.
Educated people have greater inclination of new ideas and subject matter due to which open the door of excel in performance. It was therefore, assumed that, educated respondent have more knowledge about rural development which give rise utilization in the development activities due to which there was positive and significant relation between education and utilization. These findings are in accordance with the findings of Rudroju (2013) [7] and Gupta (2015) [4].

3. Family size and utilization
Family size of member had positive and non significant correlation with utilization. In present study it was found that family size had positive and non significant relationship with utilization. Above finding is supported by Gupta (2015) [4] and Bhongale (2018) [2].

4. Land holding and utilization
In the present study, it was observed that there was positive and significant correlation between land holding and utilization of farmers towards weather based agro-advisory services. It indicates that the land holding depend on utilization of the respondents, due to which there was positive and significant relation between land holding and utilization. These findings are consistent with Gupta (2015) [4] and Bhongale (2018) [2].

5. Cropping pattern and utilization
In the present study, it was observed that there was positive and significant correlation between cropping pattern and utilization of weather based agro-advisory services. It indicates that messages sent through advisory services were relevant to crops grown in these areas so that messages were more useful and regularly utilized by the farmers. The similar findings have been reported by Sindhu (2016) [9] and Bhongale (2018) [2].

6. Annual income and utilization
Annual income of the respondents had shown positive and significant rel -ationship with utilization of weather based agro-advisory services. Annual income provides the economic base for farmers; this was due to positive and good risk taking ability. The similar findings were reported by Gupta (2015) [4].

7. Social participation and utilization
Social participation of the respondents had showed positive and highly significant correlation with utilization of weather based agro-advisory services. Above finding is supported by Raghuprasad (2011) [8] and Yakubu *et.al*. A(2013) [10].

8. Extension contact and utilization
Extension contact of the respondents had showed positive and highly significant relationship with utilization of weather based agro-advisory services. It could be concluded that extension contact would help to the farmer to expose them to various development activities promoted by the

extension workers. Frequent contact with the extension workers has motivated farmers and facilitated to them has more contact with outside agencies help them in utilization of advisory services due to which there was positive and highly significant relation between extension contact and participation. The similar findings were reported by Raghuprasad *et al.* (2011) [8].

9. Innovativeness and utilization

Innovativeness of the respondents had positive and highly significant relationship with utilization of weather based agro-advisory services. These findings in accordance with the findings of Jha *et al*. (2014) [6] and Bhongale (2018) [2].

10. Risk preference and utilization

Social participation of the respondents had showed positive and highly significant relationship with utilization of weather based agro-advisory services. Better social participation of respondents enabled them to contact various sources of information for increasing the knowledge about management of their farm.The similar findings were reported by Bhongale (2018) [2].

11. Possession of ICT tools and utilization

Possession of ICT tools of the respondents had showed positive and highly significant relationship with utilization of weather based agro-advisory services. Better possession of ICT tools of respondents enabled them information for information about management of their farm and utilization of a ICT tools in their farms.

These findings are consistent with Gawli (2019) [3] and Jena (2020) [5]

Implication

The findings of the present study indicated that majority of the respondents were somewhat satisfied with opinion regarding to agro advisory service. Therefore it was suggested that other farmer who have not aware about the agro-advisory service, can be motivated to use of advisory service by creating awareness through mass media. Majority of the respondents had sometime utilization of the information provided through Weather based agro advisory service. Therefore for the regular utilization by farmers, the information was up to date about varieties available, newly released variety etc. Improve the Information about availability and application of bio-agents. Provide the information about entrepreneurship for improvement in their annual income.

Respondents were not more satisfied about market rates of mandi's therefore respondents suggesting that messages should provided on the market rates of all mandi's. Effective feedback mechanism should be developed by District Subordinate Agriculture Office collaboration with mobile service providers to clarify doubts of the farmers and to give additional information needed by the farmers.

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Conflict of Interest

No conflict of interest among researcher**.**

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