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Farmer's response about the block level agro-met advisory bulletin under district agro met unit (DAMU) using ICT tools and communication media, Amravati district of Maharashtra

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Abstract
Under Gramin Krishi Mausam Sewa (GKMS), IMD jointly with ICAR proposes to expand the DAMU/ AMFU will frame the sub-district/ block level agro met advisory bulletins and disseminate to farmers using multi-channel communication mechanism in the country to reach out to 95.4 million farming households.

All India Radio (AIR) & KVK, Sadhana Radio Station has started preparing and broadcasting of their own agricultural programme. They are broadcasting different agricultural information. They are broadcasting different agricultural information programmes such as Krishi Ghadamodi at 8.25 am to 8.45 am and 6.30 pm to 6.45 pm at every day and KVK Happening 6.45 pm every Thursday. Also agro advisory send on the basis of the weather forecasting, a message is prepared by a team of Scientists Krishi Vigyan Kendra Durgapur, Badnera, Amravati and sent to social media such as State Agriculture Departments, NGO's of district, Newspapers, E-Mails, Text Messages, WhatsApp, Facebook, Voice Messages, Agriculture colleges and Extension networks of district and blocks on every Tuesday and Friday.

The study was undertaken in Amravati district of Maharashtra. The agro-met Advisory Bulletin may be broadcasted twice in a week and may be repeated 2 to 3 times in a day for better implementation. Also feedback was taken in every fortnight for improvement of service. DAMU reach near about 80 percent villages. ICT tools of agro-met Advisory Bulletin may be continued as it plays an important role in planning the farm operations and their management.

Keywords: GKMS, DAMU, Kisanvani, weather and agro-met bulletins

Introduction

The Government of India has entrusted upon the India Meteorological Department (IMD) the task of establishing weather observing system and development of Gramin Krishi Mausam Sewa in the country. In the carried out of plan here of, IMD has set up in the country a network of about 130 Agro Meteorological Field Units (AMFUs) which are combining or involving the several units responsible for preparation and spreading of district and sub- district agromet bulletins. These AMFUs are located at State Agricultural Universities, ICAR centres and other institutions. Each AMFU utilizes the relevant output products including weather data from conventional/automatic weather station (AWS) provided by IMD and ICAR to generate specific advisories for agricultural management and planning for the respective districts of Agro-climatic zones identified under the area of its jurisdiction and disseminate the same to the farming community. Under the Gramin Krishi Mausam Sewa, the IMD proposes to establish District Agro Met Units (DAMU) in 530 districts, in addition to already operating 130 AMFUs, in order to meet the said expansion. Among other responsibilities, DAMU will give the weather forecast from IMD to prepare and disseminate sub-district level agromet advisory bulletins.

Agro meteorology is an important multidisciplinary subject. Hence, ICAR maintains Agromet observatories as well as Automated Weather station (AWS) and record Agromet observations at its institutions, National Research Centres, Project Directorates, Krishi Vigyan Kendras (KVKs) etc. to generate agro meteorological information for use in studies on crops, pests and diseases, soil, agroforestry, livestock, horticulture, agriculture physics, soil science, etc. Such data will help ICAR institutes to study crop-weather relationship, preparation of crop weather calendar and crop weather and pest/disease forewarning models and develop region/location specific agromet yield predictive models.

The adoption of real time crop management based on weather forecast can be minimizing crop losses. The weather forecast was issued by three medium i.e. short range, medium range and long range. The weather forecast help to advice and warning to the farmers on the actual and expected weather condition to aware and taken decision on day to day farming operation such as land preparation, Sowing to harvesting of crops, the weather forecast and weather based agro met advisories help to enhancing the economic profit to the end users farmers with appropriate management practices appropriate management practices.

The emerging capacity to provide timely, skillful weather forecast offers the potential and to reduce vulnerability to vagaries of weather Hansen, (2002) [5].

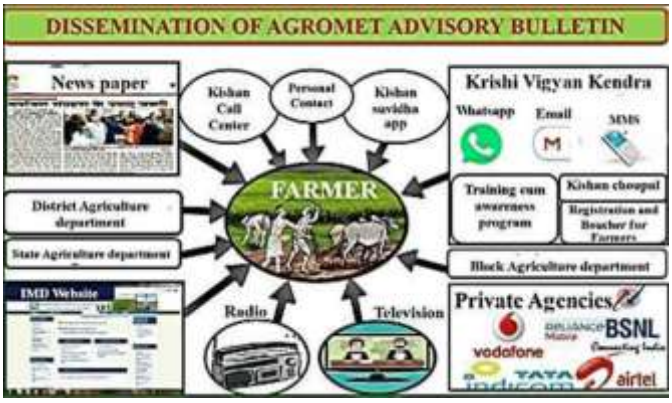

Fig 1: Mode-of-dissemination-of-agromet-advisory bulletin through various channel

Objectives

1. To improvise the existing district level Agromet Advisory Services (AAS) so as to deliver crop and location specific AAS to farmers at block level.
2. To design optimum observatory network for issuance of village level advisories for implementation of crop weather insurance.
3. To establish District Agromet Units as nodal center for catering to needs of agriculture services.
4. To provide customized advisory bulletins through last mile connectivity to farmers with personalized agromet advisory services.
5. To extend the weather based advisory service to the allied areas like livestock, grazing of farm feed etc.
6. To establish appropriate dissemination and support system for weather-based crop insurance in the country.

Agro met advisory bulletin

District Agro- Meteorological Field Unit (DAMU) funded by India Meteorology Department New Delhi. DAMU will receive weather forecast from IMD to prepare and disseminate block level agro met weather based agro advisory bulletins to different blocks of districts farmer's community. On the basis of this, weather forecasting message is prepared by a team of Scientists Krishi Vigyan Kendra, Durgapur, Badnera, Amravati and sent to social media such as State Agriculture Departments, NGO's of district, Newspapers, E-Mails, Text Messages, WhatsApp, Facebook, Voice Messages, Agriculture colleges and Extension networks of district and blocks on every Tuesday and Friday it also depicted in Fig 1.

Methodology

The study was undertaken in Amravati district of Maharashtra A list of farmers was obtained from State Department of Agriculture, Amravati & KVK, Sadhana Radio Station who responded by writing a letter about the farm broadcast during year 2020-21. From a list 700 farmers, 175 farmers were selected in all 14 blocks for sample of study. A field visit and FAP schedule was specially developed for the data collection purpose. The data was collected personally with the help of this schedule as well as season wise data collected from, in every fifteen days by the Google forms.

Results and Discussion

Distribution of the respondents by their availability of communication media

To find out the present study as well as relevant discussion have been presented under following heads: The efforts were made to know the availability of communication media with the farmers and the data, thus, obtained are presented in the Table1.

Table 1: Distribution of the respondents by their availability of communication media

Sr. No.	Category	No. of respondents (N=175)	Percentage
1.	Kisan Mobile Advisory	110	62.85
2.	Radio	140	80
3.	Television	105	60
4.	Newspaper	96	54.8
5.	WhatsApp	169	96.5

The data from Table 1 reveal that maximum of the respondent farmers were using WhatsApp, while 80 per cent of them were having radio. More than half (62.85 per cent) of them were using kisan mobile Advisory as a communication media, while 60.00 per cent of them were having Television followed by 54.8 percent newspaper as a communication media with them, respectively, similar study founded by (Agase *et al*., 2022) [1].

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To information regarding the expected weather and the data

Distribution of the respondents by their sources of getting information regarding expected weather shows in Fig 2. The information regarding the sources of getting information about the expected weather was collected and analyzed. It was found that, out of 175 respondents farmers, were getting the information regarding the expected weather from.

Different sources. Fig 2 indicates that 89.71 per cent respondent's farmers, were getting information regarding the expected weather from WhatsApp and 73.71 per cent were getting the information from Radio. This was followed by Kisan Mobile Advisory 58.28 per cent, Television (54.85 percent) and Newspaper 52.57 per cent respectively.

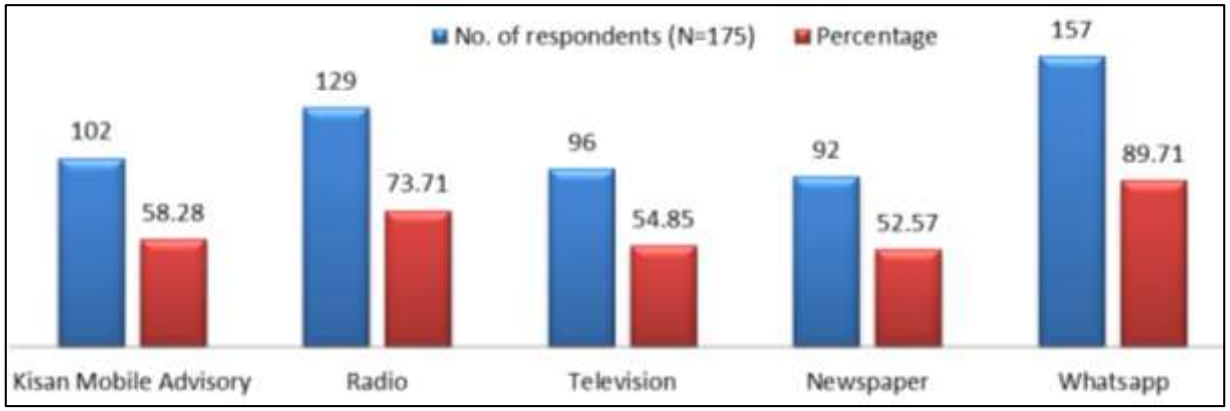

Fig 2: Distribution of the respondent's farmers by their sources of getting information regarding expected weather

Awareness about the agro-met advisory bulletin

A question was posed to the respondent farmers to know whether they were aware that the Agro-met Advisory Bulletin was prepared by Krishi Vigyan Kendra Amravati and broadcasted on Krishi Ghadamodi at 8.25 am to 8.45 am and 6.30 pm to 6.45 pm at every day and KVK Happening 6.45 pm every Thursday. The data in this respect are presented in Fig 3.

Fig 3 shows that 91.42 percent of the respondent's farmers, were aware that the Agro-met Advisory Bulletin was prepared by the Krishi Vigyan Kendra, Durgapur and broadcasted on Sadhana Radio Station, Durgapur every Thursday at 6.45pm. These results was conformity with studies, reported by (Maddison 2006) [7] and. (Agase *et al*., 2022) [1].

Fig 3: Distribution of the respondent's farmers by their awareness about Agro-met Advisory Bulletin

Use of information of agro-met advisory bulletin in planning of farm operations

The respondent farmers were asked about the usefulness of "Agro-met Advisory Bulletin". It was observed that out of 175 respondent's farmers, Agro-met Advisory Bulletin is useful. Also, the efforts were made to know about the use of information of Agro-met Advisory Bulletin in planning of farm operations. For that purpose, the respondent's farmers were asked that in which farm operation they were making use of the information given in Agro-met Advisory Bulletin and the data thus obtained are presented in Fig 4.

Fig 4 reveals that 78.35 per cent and 71.52 per cent of the sampled farmers were using the information given in Agro-met Advisory Bulletin planning the Intercultural operation of crops and sowing time of crop, respectively. This was followed by planning at the time of crop Irrigation management of (68.46 percent) and by planning at the time of crop harvesting (66.92) and planning of plant protection (63.07 percent).The majority of farmers opined that real time AAS was critical at sowing stage as disseminating of weather based advisories prior to cropping period. Particularly information gathered to timely rainfall, temperature and humidity help to the farmers to plan their farm operations as timely and accurately similar results founded by (Agase *et al*., 2022) [1].

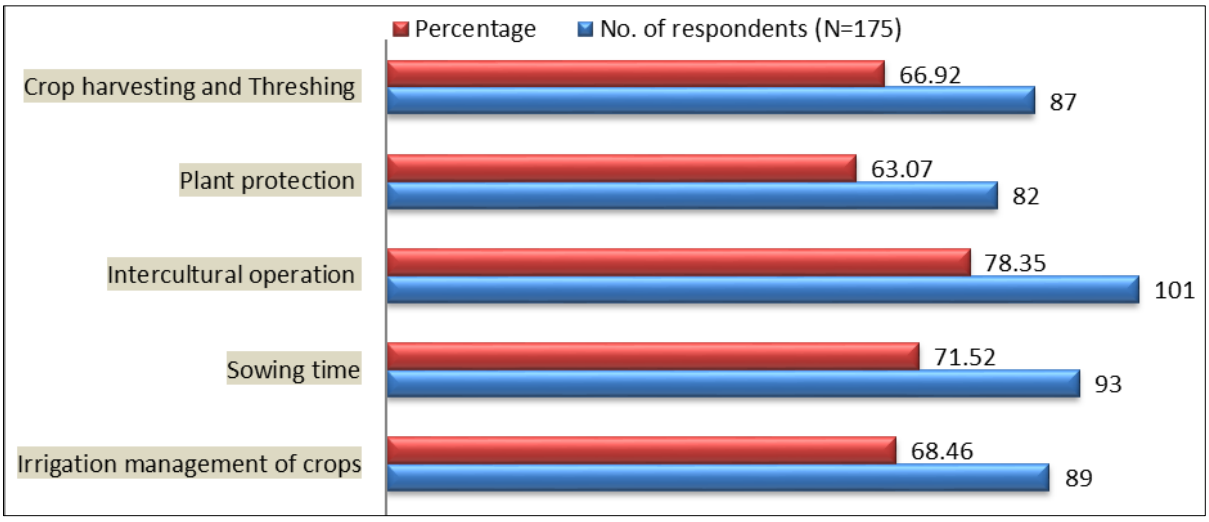

Fig 4: Distribution of the respondent's farmers by their use of Agro-met Advisory Bulletin in planning of farm operations

Rating of the information given in agro-met advisory bulletin

The sampled farmers were asked to rate the information given in Agro-met Advisory Bulletin as Satisfactory, Some Satisfactory and Unsatisfactory. The data thus obtained are presented in Table 2.

Table 2: Rating of Agro-met Advisory Bulletin by farmers

Sr. No.	Rating of Agro-met Advisory Bulletin	No. of respondents (N=175)	Percentage
1.	Satisfactory	130	75.65
2.	Some Satisfactory	35	18.65
3.	Unsatisfactory	10	5.7
	Total	175	100.00

It is observed from Table 2 that 75.65 per cent of the respondent farmers rated Agro-met Advisory Bulletin as "Satisfactory" respectively. Also this was "Some satisfactory" 18.65 per cent, and "Unsatisfactory" respondent farmers, were 5.7 percent.

It is concluded that 75.65 percent of the respondents rated Agro-met Advisory Bulletin as 'Satisfactory'. (Rana *et al*., 2005) [8], Agase *et al*., 2022) [1].

Table 3: Rating of Agro-met Advisory Bulletin used for planning of kharif crops, Rabi crops, fruits crop vegetables and livestock management by farmers

Sr. No.	Agro-met Advisory Bulletin used for	No. of respondents (N=175)	Percentage
1.	Kharif crops	149	85.1
2.	Rabi crops	143	81.7
3.	Fruits crop	120	68
4.	Vegetables	110	62
5.	Livestock management	101	58

It is presented from Table 3 showed that 85.1 per cent of the respondent farmers most of time use of Agro-met Advisory Bulletin for kharif crops 85.1 percentage and 81.7 percent as Rabi crops respectively. Also use of agromet advisory bulletins for fruit crop 68 percent and there after use in vegetables in 62 percent and livestock management were use 58 percent.

It is represented as Table 4 Agro-met advisory bulletin used for planning of kharif crops, Rabi crops, fruits crop, vegetables and livestock management by farmers for better crop management.

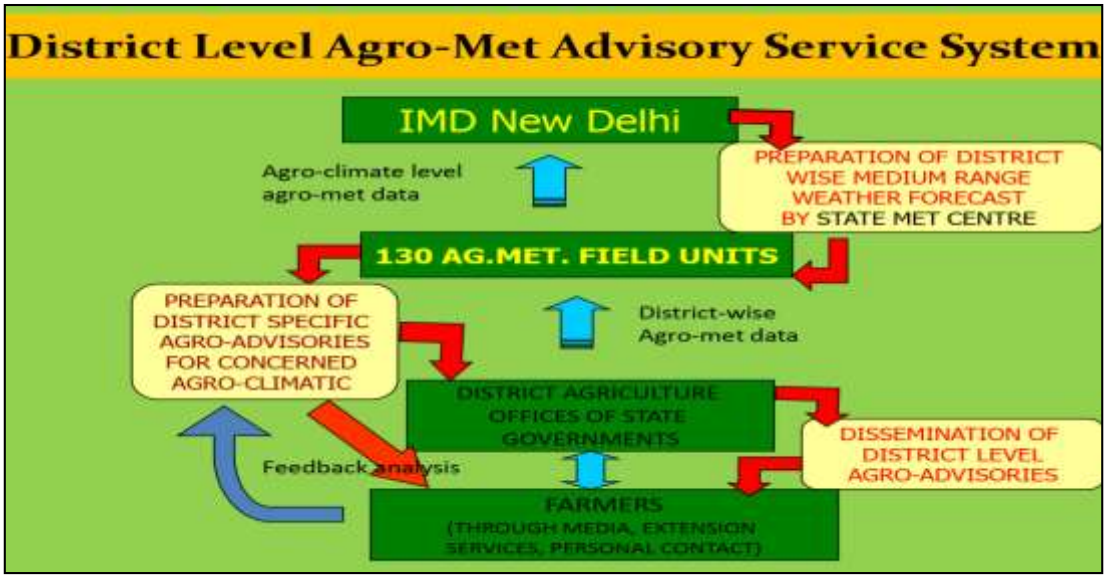

Fig 5: Working process of district level agro advisory service (Venkatasubramanian, 2014) [11]

The products comprises of forecast of seven weather parameters viz. maximum and minimum temperature, rainfall, wind speed, wind direction, relative humidity and cloudiness. These forecasted products are disseminated to Regional Meteorological Centres of IMD situated at different states and after value addition to those forecasts the medium range weather forecasts are communicated to 130 Agro-met Field Units (AMFU) on Tuesday and Friday every week. The whole procedure has been depicted in Fig. 5.

Conclusion

The studies showed that the utilization of agro-met advisory bulletins, dissemination by using the ICT tools and communication media. It was based on value added forecast and current weather conditions. It was very important and enhancing the farmers production and income as well as to giving the warning for better crop management in field. Agromet advisory bulletins was very reliable with including farm planning operations. On the basis of finding of the majority of farmers responded that this agromet advisory was really impacted significantly in terms of implementation of agricultural activities. However, timely advisories was sent to the farmers WhatsApp groups for agricultural activities. The major source of information was AAS bulletins followed by communication media.

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