Utility and Impact of Agromet Advisory Services among farmers in Mandya District, Karnataka

ABSTRACT

Weather is one amongst the foremost factors affecting the agriculture production and crop productivity. The effective weather information and advisory services to the farmers aiding in decision making of day to day agricultural operations right from the selection of crops to post harvest in order to avoid crop losses. Total 105 AAS bulletins were prepared and disseminated to the farmers during 2021 by District Agromet Unit (DAMU) established at KrishiVigyan Kendra, V C farm, Mandya. Random sample survey was conducted for 175 farmers (25 per block) during 2021 to assess the effectiveness, impact and usefulness of Agromet Advisory Services from each block in Mandya District, Karnatakaand analyzed the data using Dynamic Feedback System of IMD. The study revealed that 48% of farmers referred weather forecast before going for fertilizer application, 65% for spraying operations, 75% for harvesting operation. A total 69 per cent farmers were satisfied, 18 % partially satisfied and 13 % not satisfied with the advisory. The study indicated that the farmers focused more on weather forecast for spraying & harvesting operations compared to other activities of farming.

***Key words*:** Weather forecast, Agromet Advisory Services (AAS), District Agromet Unit (DAMU), Dynamic Feedback System, Spraying operation.

INTRODUCTION

Agriculture is one of the vulnerable area which is generally stricken by the climate and weather. Weather is one amongst the foremost factors affecting the agricultural production and

productivity. When farmers are well versed about the real-time weather factors such as Rainfall, Temperature, Relative Humidity, Wind speed and Wind direction. It will be effective to minimise the crop failure losses and achieve higher yields with better economic returns. India Meteorological Department(IMD) has started weather services for farmers during the year 1945 and later Agromet Advisory Services (AAS) started service in 1976, to avoid crop failure due to aberrant weather condition. Central and State Government is concentrating more on weather based agro advisory schemes to enhance the farmers livelihood. However, Agro-meteorological information viz., weather forecast, soil status information along with agro-advisory acts as real input for efficient farm management. If accurate weather forecast is available, the farmer could plan in advance with respect to selection of crops, cultivars for a particular season and can make necessary arrangements for the farming practices/operations such as sowing, time of application of fertilizer, herbicides and pesticides etc.

Gramin Krishi Mausam Sewa (GKMS) is the flagship programme of Govt. of India for weather related services to the farmers aiding in decision making on day-to-day agricultural operations. The scheme is extended to block level to address weather needs of farmers at micro-level and it is named as DAMU (District Agromet Unit). This is a joint effort of IMD and ICAR with multi organizational collaboration to implement various components. District Agro-Met Units (DAMU) was implemented in 12 districts of Karnataka in Krishi Vigyan Kendras. DAMU for Mandya District is established during June, 2019 at Krishi Vigyan Kendra, V C Farm, Mandya.The unit has been serving the farmers of the District through issuing the Agromet Advisory Bulletin separately for individual taluks based on ground level information from the concerned taluk and IMD forecast at taluk level to meet the changing needs

of Agriculture in general, Horticulture and Rainfed agriculture in particular and creating awareness by conducting various training programmes on importance of weather forecasts and weather based farm practices. Every Tuesday and Friday advisory bulletins are being prepared by KrishiVigyan Kendra for block level utilizing DSS software by Subject Matter Specialist in consultation with scientists of KrishiVigyan Kendra and officials of Department of Agriculture for major crops in the district. The bulletin is released in English and regional language and disseminated through WhatsApp, M-Kissan, Newspaper, Short Message Services (SMS), Non-Governmental organizations(NGOs), E-mail through Department of Agriculture and Research Stations. In this study the usefulness and level of impact of weather based agro advisory services among the farmers is analyzed.

MATERIALS AND METHODS

Mandya district belongs to Southern Dry Zone (Zone-VI) of Karnataka. The geographical position is Latitude-North From $12^0$45" To $13^0$57"and Longitude-East From 76^0 45" To $78^0$24" and with an altitude of 706m. The overall mean annual rainfall at Mandya district accounts to 692 mm and distribution of 7.0 mm, 155.8 mm, 309 mm and 220.2 mm in Winter, Pre-monsoon, Monsoon and Post monsoon respectively. Mandya district comprises of 07 blocks namely K.R Pete, Maddur, Malavalli, Mandya, Nagamangala, Pandavapura&Srirangapattana (Fig. 1). Every Tuesday and Friday advisory bulletins are being prepared by DAMU at blocklevel. Total 105 AAS bulletins were prepared and disseminated to the farmers during 2021. Total 34 Farmers awareness programmes were conducted on Importance of Weather forecasting:

Weather based farm practices, Meghdoot, Damini and Mausam app popularization from past two years.

The Survey was split into two phases where in Phase I survey for assessing the level of satisfaction and usefulness of AAS in different agricultural operations,175 farmers using AAS were selected from respective blocks of Mandya district. Simple random Sampling technique was followed to select respondents. A questionnaire in optional type including source and frequency of weather forecast received by the farmers, farm operations for which weather forecast/advisories are used, features and qualities of Agro Advisory Bulletins and usefulness, satisfaction level of AAS was prepared and used for data collection and it is analyzed using Dynamic Feedback System or Real Time Feedback System of IMD.

Phase II survey has been conducted to study the economic impact of AAS. A total 20 numbers of beneficiary farmers i.e., users of Agromet Advisory Services (AAS) were selected from all blocks. The same number of non-beneficiary farmers i.e., non-users of Agromet Advisory Services (non AAS) for paddy crop were selected randomly from all the blocks of Mandya District. This study helps to assess the economic benefit of the farmers occurred on adoption of agromet advisory services for paddy crop. The data was collected by personal interview either at home or at farm and it was classified, tabulated and analyzed in order to make the findings meaningful.

RESULTS AND DISCUSSION

***Usefulness and Satisfaction level of AAS*:**

Most of the farmer opined that weather plays a major role in their daily farm operations. The timing and accuracy of weather forecast helps in effective planning of agricultural activities like sowing, irrigation, fertilizer and pesticide application. With reference to the analysis on accuracy of forecast it was revealed that 48% of farmers check weather forecast before going for fertilizer application, 65% for spraying operations, 75% for harvesting operation(Table 1), total 69 per cent farmers were satisfied, 18 % partially satisfied and 13 % not satisfied with our advisories(Fig.2).

The economic benefit obtained by farmers following the advisories has been evaluated for paddy crop during Kharif, 2021. Total cost of cultivation, grain yield and net returns for paddy grown by the AAS and non AAS farmers during Kharif(Table 2). It is observed from the above table that the total cost of cultivation was found to be lower in the case of AAS farmers, who have effectively adopted the agromet advisory compared to non AAS farmers. Further, the net income and B:C ratio for paddy crop was more in case of AAS farmers i.e 43650 Rs/ha and 2.4 respectively whereas it was 41070 Rs/ha and 2.2 in case of non AAS farmers due to the adoption of Agromet Advisory Services. Which is mainly due to timely management of irrigation, pest and diseases, spraying and harvesting operation at the right time. Similar results were also reported by Jagadeesha et al. (2010) and Ananta et al (2013). Bi-weekly forecast given to the AAS farmers helped to avoid the adverse effects of weather events like heavy rain, dry spell, high wind speed which influence the growth of the crops. Most of the AAS farmers have realized higher additional benefit of 55.5 percent and 50.3 percent in soybean and cotton + black

gram crops respectively. Similarly, Ravindrababu et al., (2007), reported that the forecasts were found to be encouraging and benefit to the AAS farmers compared tothat of non AAS farmers. The above points concluded that high benefit depends on efficient management practices based on the AAS bulletin, which contains the information mainly on weather parameters and does not depend on high input application. This helped the day-to-day agricultural operations,hence AAS farmers got higher benefit than non AAS farmers. This clearly indicates enhanced livelihood of rural farmers, who adopted agro advisory services than the ones not aware of Agromet Advisory Services.

CONCLUSION

Awareness on weather based agro advisories will support farmers on decision making and reduce the crop risk. Presently DAMU Project operating at KVK, Mandya is providing weather based agro advisory services twice in a week to farmers for major agriculture crops, horticulture crops and livestock on real time basis. Weather forecast and weather based Agromet Advisories helps in increasing the economic benefit to the farmers by suggesting them the suitable management practices according to the weather conditions. This study revealed that the farmers focus more on weather forecast for spraying and harvesting operations, further awareness is need to be created to realize that they should also need to fallow weather forecast from the selection of crop to post harvest in order to avoid crop losses.It also revealed that AAS farmers got higher net returns than Non AAS farmersand the farmers are expecting to extend the dissemination of Agromet Advisory Services up to village level in future days.

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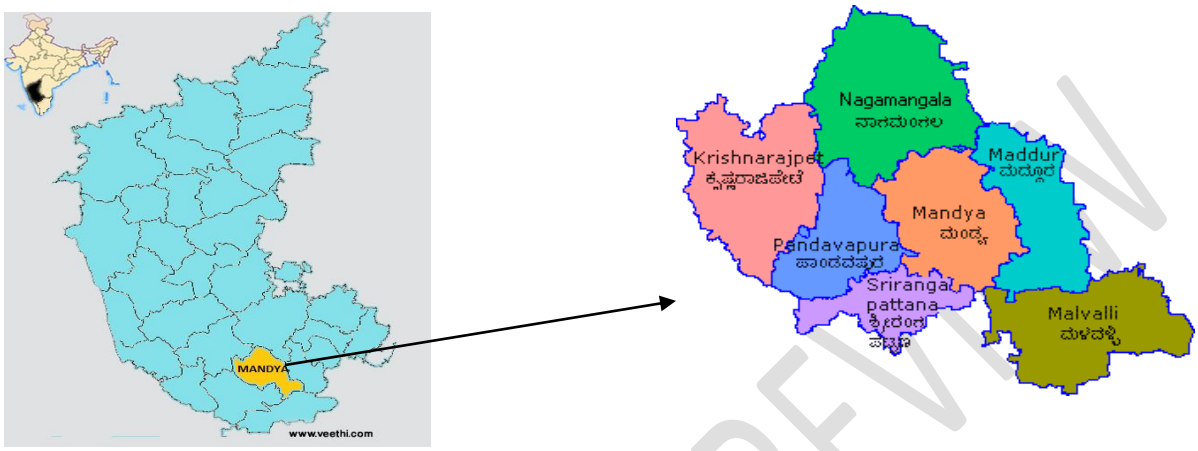

Fig. 1 Block map

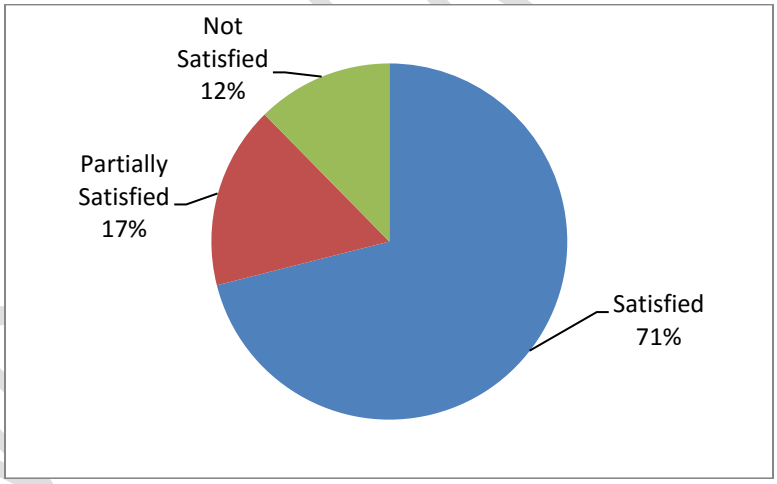

Fig.2: Level of satisfaction of AAS

Table 1: Usefulness of weather forecast in different farm activities

Farming operations	Farmer

	followed (%)
Scheduling of irrigation	**40 %**
Spraying operations	**65 %**
Fertilizer application	**48 %**
Harvesting operation	**75 %**

Table 2: Economics of Paddy crop as influenced by AAS during *Kharif, 2021*

Particulars	AAS Farmers	Non AAS Farmers
Land preparation/sowing+labour	10000	10000
Seed	750	750
FYM	3000	3000
Fertilizers and Micronutrients	3100	4000
Pesticides+ labour cost	1800	2800
Weedicides+ labour cost	2100	2100
Irrigation	0 (Cauvery command area)	0 (Cauvery command area)
Harvesting+Threshing + Labour Cost	10200	10200
Total cost of cultivation	30950	32850
Grain yield (q/ha)	38	37.6
Gross return (Rs)	64600+ 10000 (for Straw)	63920+ 10000 (for Straw)
Net income	**43650**	**41070**
BC ratio	**2.4**	**2.2**