

Success Story: Agromet Advisory Services – Boon to the Farmers in Vijayapura District of Karnataka

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Introduction

Agriculture in India depends heavily on weather and climate conditions. Weather through various atmospheric factors plays a significant role in reaping good agricultural output (Bal and Minhas 2017). Agromet advisory services are vital tool which provide the valuable information about all agricultural operations and weather forecasted information. The major objective of AAS is to help the farmers in capitalizing benevolent weather conditions in order to optimize the resource use and to minimize the loss due to harsh/aberrant weather conditions (Rathore *et.al.*, 2003). Agromet advisory services play critical role in agriculture under changing climatic condition. AAS benefits every farmer by minimizing the crop loss due to fluctuating weather condition in recent days.

Success story

A small farmer named Shri. Gurupadappa Shivalingappa Biradar who lived in small village in Vijayapura district of Karnataka. He cultivates range of dryland crops such as Jowar, Redgram, Maize, Groundnut as well as few vegetables in his 3.5 acres of land. After inspiring from fellow farmers, he planned to go for grapes cultivation in his field. He collected the required information from his fellow farmers and also from agriculture line department. The farmer has started cultivating grapes (Thomson seedless variety) in 2 acres of land and invested around Rs. 1.45 lakhs for 2 acres of land for construction of telephone trellis system of grape vine. Initially he realized approximately 20 tonnes of grape yield for 2 acres of land area and expected to secure gross returns of about Rs. 3 lakhs with net return of about Rs. 1.5 lakhs. However, farmer couldn't realized much of yield as well as net income in succession due to prevalence of cold wave during winter season especially during month of December and January. As a result of low temperature, crop was infected with downy mildew disease and incurred huge yield loss and increased additional cost for plant protection measures. The actual yield realized by farmer for 2 acres of land was 16.6 tonnes with cost incurred was about Rs. 1.49 lakhs. The gross and net return realized was Rs. 2.40 lakhs and Rs.91576 as shown in Table 1.

Impact of Agro-met advisory service

Farmer heard about the Agromet Advisory Services (AAS) issued by AICRPAM centre, Vijayapura through its networking centers (ICAR-CRIDA and IMD) and he come to know the service through his farmers friends and get registered with his mobile number to receive AAS bulletin as well as service. The farmer took keen interest about the service and regularly access agro-met advisories from the centre. In the next growing season, he could save his crop from cold wave conditions again appeared in the month of December and January. He was informed in advance about the expected dip in temperature through agromet advisory service (AAS) and also advised farmer on how to maintain the temperature in the field level to save his crop from cold and frost condition. When the temperature drops below a certain limit, the grapes are attacked by downy mildew disease. "By the time we realize that the crop is attacked, it is too late. But, now I am receiving SMS about agro-met services well in advance and come to know about the change in weather condition and through service I also come to know what to do for existing problems arised. That helped us a lot, said Gurupadappa". Because of AAS service, the same farmer realized around 19 tonnes of yield for his 2 acres of land area in next season and gross returns of Rs. 2.75 lakhs with cost of cultivation of about Rs. 1.42 lakhs and net income realized were about Rs. 1.32 lakhs as clearly depicted in table 1 below. The benefit and cost ratio arrived for AAS and non-AAS situation was 1.9 and 1.61 respectively. According to him AAS service is one of the best service readily available to farmers in event of uncertain weather conditions. He himself took initiative in his village and advised all his fellow farmers to adopt service. Consequently, almost all farmers in the village get registered their mobile number for accessing the agro-met advisory service. The AICRPAM centre, Vijayapura provide all the relevant weather information (rainfall, temperature, humidity and wind velocity etc.) twice in week to all registered farmers well in advance in free of cost. Based on the advisory, farmers prepare their field activities accordingly and protect from loss occurred or minimize the loss at maximum extent.

Table 1: Cost and return structure of Grapes per acre with and without agro-met advisory service in farmer field of Vijayapura district

Variables	Without agro-met advisory service	With agro-met advisory service
Yield (tonnes/acre)	8.3	9.5
Price (Rs/tonnes)	14500	14500
Gross Return (Rs/acre)	120350	137750
Cost of Cultivation (Rs/acre)	74562	71480
Net Return (Rs/acre)	45788	66270
B:C Ratio	1.61	1.92

Source: Field survey data



Fig: Grape vine orchid in farmer field of Vijayapura district of Karnataka

Conclusion

It was realized that agro-met advisory service issued by AICRPAM centre based on current and forecasted weather across the country is valuable and advanced agro-based technology readily available with farmers in the light of climate change situation. Dissemination of weather based information well in advance (rainfall, temperature, humidity and wind velocity etc.) is critical for farmers to protect their crop from adverse weather condition. Further, it helps to enhance their farm income or minimize their loss through adjusting their farm activities according to agro-met advisory service received in advance. Due to judicious and timely utilization of inputs, production cost for the AAS farmers reduced. Therefore increased yield level and reduced cost of cultivation led to increased net returns.

References

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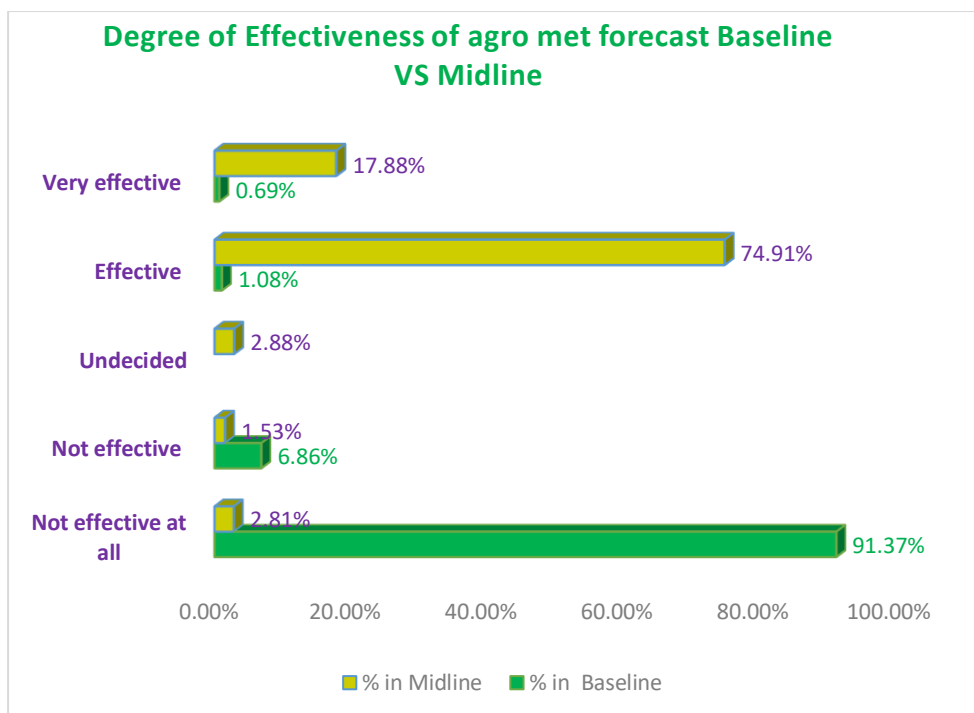
Success Stories of the On-going Services of Agro-Meteorological Information Systems Development Project, Component-C of Bangladesh Weather and Climate Services Regional Project, Department of Agricultural Extension (DAE), Ministry of Agriculture, Bangladesh

Quote & unquote from farmers & Extension Officers

- ▶ “We saved Aus Paddy by postponing harvesting of Aus Paddy for one week because of the rainfall forecast for next five days received from the project” This has been mentioned by the farmers in the Regional Meeting organised in Rajshahi district in Bangladesh in 2019.
- ▶ “We refrained from sowing of potato because of rainfall forecast at appropriate time”. This has been mentioned by the farmers in the Regional Meeting organised in Mymensingh district in Bangladesh in 2019.
- ▶ As per the Extension officer of DAE in Rajshahi district: Quotes “Mr. Atanu become famous and also named by the local farmers as “Weather Radar” who is disseminating correct weather forecast and agromet advisories to the farmers in Rajshahi district.
- ▶ Similar quotes are received from the farmers across Bangladesh on the merits of the service in respect of sowing/transplanting, application of irrigation, fertilisers, pesticides and harvesting of crops are received in regular intervals.
- ▶ It was informed (quotes) most of the farmers & Extension officer that they have received the rainfall forecast well in advance from DAE and the forecast was very accurate and they could use the same ultimately for weather-based farm operation successfully.
- ▶ Issue of Agromet advisories for livestock, poultry and fisheries are appreciated by the farmers & extension officers

Effectiveness of Meteorological Forecast of BAMIS: A Part of Mid Term Review of AMISDP Project

- Majority (74.91%) of the farmers reported that current meteorological information services or forecast is effective.
- The second highest (17.88%) farmers indicated that it is very effective to protect their crop from the disaster.
- However, the lowest (1.53%) percent farmers reported that current meteorological information is not effective, 2.88% farmers are undecided, 2.81% farmers stated that it is not effective at all to protect crop from the damages.
- In base line survey, 91.37% farmer reported that the provided agro-met service was not effective at all. They were fail to protect their crops from the damages.
- But in midline this percentage is converted into 2.82%.
- This is good sign that farmers are utilizing the information obtained from BAMIS by taking corrective action from advisory bulletin. It is noted that timing is also affecting factor to save crop from damage.



Credentials of BAMIS Portal, Number of farmers, no of website users etc

- All the alert message is disseminated in Bengali and English languages to the farmers and extension officers and other well in advance through this portal to take immediate action to save the loss of standing crops.
- Other than BAMIS Portal agromet advisories are also disseminated through other websites (BMD, AIS, Ministry of Agriculture & others)
- BAMIS Portal has been visited by large number of users (right bottom of home page of www.bamis.gov.bd): Already the visit number is 384471 as on 27/082020. The portal was officially launched in 29 June, 2019.
- IVR
- With the financial support of USAID, SOUHARDO Program and RIMES, 6650 Lead farmers of Component –C in current flood affected districts received IVR (twice- 07072020 and 14072020) regarding agromet advisories along with 126 DAE Officials.

Effectiveness of Agromet Advisory Services

- The degree of satisfaction level has been measured by using 5-scale Likert scale.
- The above index value (4.04) shows that the service of meteorological forecast provided by BAMIS is highly effective.
- In baseline survey it was measured by using 4-scale. However the result of that was 'not satisfied at all' and definite improvement occurred in this regard.
- **Index of effectiveness of agromet services in Baseline**

Component	Farmers Response			

	Very effective	Effective	Less Effective	Not Effective	Total Respondents	index	% of Satisfaction
Degree of Effectiveness	0.69	1.08	6.86	91.37	100	1.1109	15.2725
	7	11	70	932	1020		

Index of effectiveness of agromet services in Midline

Degree of effectiveness	Frequency (No. of Respondent)	Weight	Satisfaction Index
Not effective at all	90	1	4.04
Not effective	49	2	
Undecided	92	3	
Effective	2397	4	
Very effective	572	5	
Total	3200	15	

Crop save statistics of a Block of DAE, due to AMPHAN related forecast of Special Agromet Advisories (issued on 16 May 2020-<https://www.bamis.gov.bd/page/82> updated on 18 May, 2020-<https://www.bamis.gov.bd/page/83>)

Block: Mohammadnagar, Upazila: Batiaghata, District: Khulna, Bangladesh

Name of Crop	Total Land under the Crop (hectare)	Crop saved due to AMPHAN related forecast and Special Agromet Advisories		Specific Agromet Advisory that helped save crop
		Crop saved (hectare)	Economic value (in BDT)	
Boro Rice (Winter Rice)	105	20	2192000.00	Forecast of Cyclone and related Agromet Advisory
Bitter Gourd	50	14.50	64000.00	Forecast of rainfall and related Agromet Advisory
Mungbean	25	02.00	52000.00	Forecast of rainfall and related Agromet Advisory

Water Melon	70	04.45	760000.00	Forecast of Cyclone and related Agromet Advisory
Sweet Gourd	15	--	--	--
Ribbed Gourd	10	03.00	15000.00	Forecast of Cyclone and related Agromet Advisory
Sunflower	03	0.50	5000.00	
Maize	07	--	--	--
Name of Crop	Total Land under the Crop (hectare)	Crop saved due to AMPHAN related forecast and Special Agromet Advisories		Specific Agromet Advisory that helped to save crop

Other measures taken by the Farmers:

- Maintenance of households
- Keeping domestic animals and poultry in safe place and preservation of their food in safe place

Statistics was collected from Mr. Jibanonda, SAAO (Cell: 01718181187) of Mohammadnagar Block, Batiaghata Upazila of Khulna District