

Impact of Agromet Advisory Services: A Case Study on Green Gram Cultivated Farmer

Nagaraju Dharavath^{1*}, J. Hemantha Kumar¹, P.S.M. Phanisri¹, V. Chaithanya¹, Jessie Suneetha W¹. and K. Ravi Kumar¹
Krishi Vigyan Kendra, PJTSAU, Wyra, Khammam (507165), India

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Introduction:

The agromet advisory services (AAS) includes agricultural activity on crop management, planning of irrigation, time and method of planting, fertilizer application, pesticide and herbicide application along with mitigation practices of weather vagaries so that, farmers can use natural resources in an effectual manner both in quantity and quality (Ray *et al.*, 2017). The major objective of AAS is to help the farmers in capitalizing prevailing weather conditions in order to optimize the resource use and minimize loss due to harsh/aberrant weather conditions (Venkataraman, 2004). Agriculturally relevant forecast is not only useful for efficient management of farm inputs but also leads to precise impact assessment (Gadgil, 1989).

Most of the farmers face more than 40 % of the yield loss due to heavy and continuous rainfall in green gram crop in Khammam district of Telangana. Sometimes they barely get any produce in hand or attributed less quantity of produce with poor quality due to which they secure low prices in the market. In addition, due to lack of awareness on weather forecast and agromet advisory services (AAS), farmers were getting poor germination of seeds or seedlings are washed out due to heavy rainfall. Most of the farmers follow liberal use of fertilizer application and spraying of pesticides without considering rainfall forecast information, which results in high expenditures in cost of cultivation due to interrupted rainfall. Not only in green gram, in all other crops loss have occurred mainly due to aberrant weather conditions. In these circumstances, farmers are being created awareness on weather forecast, agromet advisory services and mitigation practices of rainfall crop damage.

Details of farmer:

Kolli Srinivasa Rao is a farmer resident of Somavaram village, Wyra mandal, Khammam district of Telangana, having two hectares of land, used to cultivate green gram since a

longtime. Earlier, he was worried about untimely rainfall for carrying out different farm operations from sowing to harvesting and post harvest to marketing. During the year 2019, he was acquainted with block/ASD level next five days weather forecast information and agromet advisory services which include now cast weather forecast information, Impact based forecast advisories and extended range weather forecast for 10-30 days, etc. for different crops at District Agro-Met Unit (DAMU) project under Gramin Krishi Mausam (GKMS) scheme, since he belongs to adopted village of Krishi Vigyan Kendra (KVK), Wyr, Khammam.

He was regularly updated on daily weather forecast messages and bulletins on rainfall and other weather parameters from the WhatsApp group of DAMU. In addition to this information, he has been sent rainfall warnings, and alert on lightning and thunderstorm. Besides he also downloaded the Meghdoot mobile app that provides updated information on five days weather forecast, agriculture and horticulture crop and live stock specific advisories.

Description of farmer practices:

He cultivated green gram in one hectare land (seed rate 18 kg per ha.) in medium black soil and sown the crop within cutoff date as recommended in AAS bulletins during *kharif* season, 2021. The crop sowing dates were adjusted in keeping of rainfall events to protect from mortality of seedlings, but few farmers who were not following the recommendations sown the green gram later had to sustain poor germination and some of them had resown to the crop.

By taking this tactical decision, he saved the cost incurred in purchase of seeds and resown expenditure costs up to Rs. 7400/-. Further, his crop growth and development condition was also good as compared to non following AAS farmers because of sowing stipulated date. The farmer provided drainage channel in the field to avoid excess water stagnation to save the crop from saturated condition.

He followed management practices like eradication of yellow mosaic virus (YMV) affected plants which significantly impacts on yield, caused due to white flies and spraying of pesticides as per AAS bulletins. But non AAS farmers didn't take care of management practices to control white flies therefore their field was more damaged due to YMV.

In green gram, harvesting operation is important task for getting of good quality of grains. Because in recent times many harvesting operations are coincided with incessant rainfall, causing considerable damage to pod and seed that is not suitable for consumption and marketing. Keeping above crop weather situations, he watched regularly forecast of rainfall and adjusted harvesting, sun drying and winnowing operations, and escaped from the rainfall interruption. After management of all cultural operations, the farmer got 11.24 quintals per hectare, and attributed good quality of grain while other farmers got comparatively less yield 9.87 quintals per hectare and attributed low quality of grains. Further, for transporting of produce to the market, he had an idea of clear weather condition. By the of his produce having good quality, the produce was sold at fair price in the market than other non following AAS farmers.



Plate 1: Crop at pod filling to maturity stage



Plate 2: Field visit along with farmers and creating awareness on agromet advisory services

Table 1. Cost of cultivation per acre of green gram during the year 2021-22.

S. No.	Particulars	AAS farmers	Non AAS farmers	Net benefit / loss	Per cent
1	Land preparation (Rs.)	10,500	15,250	-4,750	-31.15
2	Purchase of seed and sowing operations (Rs.)	2,900	5,550	-2,650	-47.75
3	Purchase of fertilizer and application charges (Rs.)	0	0	0	0.00
4	Weed management/Herbicides application (Rs.)	1,500	1,500	0	0.00
5	Purchase of Pesticides and application charges (Rs.)	1,550	2,500	-950	-38.00
6	Irrigation application charges (Rs.)	1,200	0	1,200	-100.00
7	Harvesting of crop charges per acre (Rs.)	6,400	5,100	1,300	25.49
8	Bagging, transporting and marketing per net yield (Rs.)	1,870	1,620	250	15.43
9	Yield (q/ha)	11.24	9.87	1.37	13.88
10	Gross Return (Rs.)	62,506	50,534	11,971	23.69
11	Cost of cultivation (Rs.)	25,920	31,520	-5,600	-17.77
12	Net return (Rs.)	36,586	19,014	17,571	92.41
13	Benefit cost ratio	2.41	1.60	0.81	50.41

Likewise, he follows weather forecast information and AAS in all other crops from unnecessary economic losses and rainfall damage.

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