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Farmers' Perception Towards Agromet Advisory Services in Kerala

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ABSTRACT

Agromet advisory services is a vital tool which provides the valuable crop specific and livestock specific as well as location specific advices about all farm operations starting from land preparation to harvest and livestock management based on weather forecasting. Present study assessed the farmers' perception towards agromet advisory services using the overall perception scores and perception index calculated from randomly selected sample of 120 farmers of Thiruvananthapuram district of Kerala. The study revealed that nearly half of the farmers in the study area had an unfavorable perception towards the agromet advisory services and perceived that agromet advices were not relevant for the management of farm operations. The study also arrived at a conclusion that farmers with more mass media exposure, social participation and extension contact had a favorable perception towards the services. Hence, organization of awareness camps through mass media and interpersonal contact may change farmers' perception towards agromet advisory services which may further improve the adaptive capacity of the farming community of the climate-led disaster-prone region of the country.

Key words: Agromet Advisory Services (AAS); Perception status; Perception index.

All over the world, rural livelihoods are affected worse because of the anthropogenic global warming and the resulted climatic change. Farmers have been adapting to climate change for many years by using locally accessible information and depending on some amount of seasonal and climate predictability. However, farmers are finding it increasingly difficult to cope with the current rate of climate change using their traditional knowledge, as the negative effects of climate change outstrip their traditional capacities, resulting in a rise in demand for timely and accurate weather forecast information and agrometeorological advisory services (Gopalakrishnan and Subramanian, 2020). The National Centre for Medium Range Weather Forecasting (NCMRWF) under the Ministry of Earth Sciences (MoES), Government of India in collaboration with India Meteorological Department (IMD), Indian

Council of Agricultural Research and State Agricultural Universities had been providing Agrometeorological Advisory Services (AAS) at the agroclimatic zone level to the farming community based on location specific medium-range weather forecast (MRWF) (Chaubey *et al.*, 2018). These agromet advisories recommend suitable advice or changes for daily farm operations like management of seed rate, sowing, managing irrigation, changing crop variety, spraying pesticides/fungicides for disease and pest control (Gadgil, 1989).

The Thiruvananthapuram district is characterized as a hot tropical climate and the huge forest reserves have a positive impact on the climate and rainfall. In the mountain ranges, the temperature is cold, but in the coastal regions, the weather is typically hot. The main rainy season is the south-west monsoon, which lasts from June to September (District Census Handbook,

Thiruvananthapuram, 2011). While looking at the data from the agromet field unit in Thiruvananthapuram from 1983 to 2019, it's apparent that the temperature and rainfall patterns have changed drastically. The average maximum temperature has risen from 32.5°C to 33.8°C during the last 25 years, while the average minimum temperature has risen from 22.7°C to 24.7°C, indicating a 1.3°C increase in average maximum temperature and 2°C rise in average minimum temperature. The rainfall pattern has also undergone a drastic change during the period.

The district is prone to major climate contingencies such as regular drought, flood causing transient water logging/ partial inundation and sea water intrusions, heavy rainfall with high speed winds in a short span, continuous high rainfall in a short span leading to water logging and outbreak of pests and diseases due to unseasonal rains. Farmers need to be more aware of weather contingencies and harmful weather occurrences or catastrophes, such as drought, flood, cyclones, and heat waves, which occur often. A significant restriction for successful farm planning operations is observed due to the lack of reliable and timely agrometeorological advice. As a result, weather-based agromet advisory services are critical for weather-tuned farm operations. Hence there is a need for making the farmers realize the utility of agromet advisories in management of day-to-day farm activities and thereby reducing the loss and enhancing the production (*Rathore and Chattopadhyay, 2016*).

METHODOLOGY

The study was conducted in Thiruvananthapuram district of Kerala, a state on India's tropical Malabar Coast, having nearly 600 km of Arabian Sea shoreline and between latitude 10.850516, and the longitude 76.271080. Two blocks namely Athiyanoor and Nemom selected randomly and from each block two experimental and two control villages were selected after verifying that villages were receiving and not receiving, respectively any kind of agromet advisory services from Agromet Field Unit (AMFU) in Thiruvananthapuram. Respondents were the crop and dairy farmers with smart phone and internet connectivity and 15 such respondents were selected from each village following random selection making a

sample of 120 respondents.

An interview schedule was developed by including appropriate statements related to Agromet Advisory Services to capture the perception of farmers and descriptive research design was used for the assessment. The survey included queries on perception related to relevance of weather forecast on day-to-day management of farm operations, overall usefulness of the services, extent of utility of the services in managing farm inputs, input cost reduction, enhancing production and productivity, comprehension of the services etc. To understand the differential level of perception, all the respondents were categorized using cumulative square root frequency method. Respondents' perception was correlated with various socioeconomic characteristics such as age, education, farming experience, mass media exposure, social participation, extension contact, sources of information utilized, risk orientation, and achievement motivation to understand the factors responsible for differential level of perception.

RESULTS AND DISCUSSION

Average perception index and distribution of respondents : The results depicted in the Table 1 shows that the average perception index of farmers in experimental group was 0.57 and the average perception index among control group farmers was found to be 0.55. Table 2 shows the distribution of respondents according the perception index and it shows that 30.00 per cent of the farmers in the experimental group had a positive perception towards agromet services disseminated from agromet field unit in Thiruvananthapuram, followed by 23.33 per cent having a neutral perception and 46.67 per cent having unfavorable perception towards the agromet advisory services. While, among the control group farmers, only 15.00 per cent had favorable perception towards the agromet services followed by 36.67 per cent had neutral perception and 48.33 per cent had unfavorable perception towards the services. Results of Mann Whitney U test was applied to compare the perception index scores between experimental group and control group farmers as depicted in the Table 1 and it is clearly showed that there was no significant difference between the experimental group and control group regarding perception scores.

Table 1. Average value of perception index and its comparison between experimental and control group

Respondents	Experimental group (n=60)	Control group (n=60)
Mean	0.57	0.55
SD	0.07	0.04
Test statistics of Mann Whitney U test		
U Statistics	1538.00	
Z value	-1.145	
P value	0.252	

Table 2. Distribution of respondents according to perception index

Particulars	Experimental group (n=60)		Control Group (n=60)	
	No.	%	No.	%
Favorable (0.60 to 0.76)	18	30.00	9	15.00
Neutral (0.55 to 0.59)	14	23.33	22	36.67
Unfavorable (0.54 to 0.49)	28	46.67	29	48.33

Correlation of socio-economic characteristics of the respondents with the perception towards agromet advisory services : The results displayed in below Table 3 indicates the correlation coefficient between the selected independent variables and the perception of farmers in experimental as well as control group farmers towards agromet advisory services. Here, it can be seen that the variables such as education, social participation, extent of extension contact, change proneness, sources of information utilized, change proneness, mass media exposure, risk orientation and achievement motivation had a significant positive correlation with the perception level of farmers in the experimental group as well as control group towards agromet advisory services. It can also be noted that the variables such as average yield, herd size, operational land holding and annual income did not have any significant correlation with perception level of farmers in both control and experimental group regarding agromet advisory services. It can be also inferred from the same table that the variables such as extent of social participation, extension contact, mass media exposure, change proneness, achievement motivation, risk orientation, education level and sources of information utilized had a strong positive

Table 3. Relationship between independent variables and perception of experimental and control group farmers towards agromet advisory services

Variables	Perception of farmers towards agromet advisory services.	
	Experimental group(n=60)	Control group(n=60)
Age	-0.076	-0.136
Education	0.506**	0.449**
Farming experience	-0.089	-0.265*
Social participation	0.517**	0.493**
Extension contacts	0.532**	0.416**
Change proneness	0.524**	0.319*
Sources of Info. utilized	0.594**	0.406**
Risk orientation	0.521**	0.391**
Mass media exposure	0.539**	0.446**
Achievement motivation	0.421**	0.323*
Area(acre)	0.066	0.066
Herd size	0.215	0.163
Average milk production	0.251	0.069
Average yield of Banana	0.022	-0.070
Annual income	0.062	0.059

correlation with the perception of level of farmers in the experimental group as well control group.

CONCLUSION

The study revealed that nearly half of the farmers in the experimental group and control group had an unfavorable perception towards the agromet advisory services and perceived that agromet advices were not relevant for the management of farm operations. It can be asserted that educated progressive farmers in both the experimental and control groups, who frequently access various mass media and other information sources as well as having regular contact with extension agents, possessing high achievement motivation, and are more risk averse, had a favorable perception towards agromet advisory services. Those farmers with low media exposure, extension contact, social participation, risk orientation and achievement motivation had an unfavorable perception towards the agromet advisory

services. It is also clear from the results displayed that the variables like age and farming experience were negatively correlated with the level of perception of the farmers in both experimental as well as control group which shows that farmers who were older and having more farming experience were having an unfavorable perception towards the agromet services as they were following the traditional methods for solving the weather risks arising in their farming and most of them perceived the agromet services as less useful compared to traditional methods. The study made an insight that the farmers with less media exposure and following traditional methods were found to be highly reluctant towards the service and thus there is a need for changing

the attitude of such farmers by the authorities as well as there is a need for integrating traditional weather management strategies with the scientific advisories. The study also stressed that frequent training and awareness programmes should be conducted to make the farmers aware about the importance and utility of agromet advisory service in managing various farm activities and there should be an efficient mechanism to provide the block level agromet advisory services at the farmers' door steps from the AMFU.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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