An Exploratory Study on Weather Advisory Services Exposure among the Mango Growers of Tamil Nadu

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ABSTRACT: Mangoes are mostly grown in India in tropical and subtropical areas between sea level and 1,500 m above sea level. Around 27 °C is the ideal temperature for mango growth. In India, there are over 1,000 different varieties of mango available. Due to climate variability the pest and disease occurrences increasing uncontrollably and affects the mango grower's income level largely. It is important that farmers should know the weather related informations to act accordingly to avoid yield losses. The study used an ex-post facto research design. Ex-post facto research is an organised empirical study in which the researcher has no direct influence over the independent variables. Krishnagiri district was purposively selected for this study as it ranks first in area and production of mango. A sample size of 100 was selected for the study. The results concluded that nearly four-fifth of the farmers (79 per cent) had medium level of exposure to weather advisory services, 15 per cent of the farmers had low level of exposure to weather advisory services and very meagre amount of the farmers (6 per cent) had high level of exposure to weather advisory services.

Keywords: Weather advisory services, mango growers, climate variability.

INTRODUCTION

Mango botanically called as *Mangifera indica* belongs to the family Anacardiaceae. India is the world's largest producer of mango producing around 20 million tonnes of mango per year. It is termed as the King of fruits because of its rich nutritional value and amusing taste. Mangoes are mostly grown in India in tropical and subtropical areas between sea level and 1,500 m above sea level. Around 27 °C is the ideal temperature for mango growth. In India, there are over 1,000 different varieties of mango available. However, only a few numbers of varieties are grown commercially throughout India. For optimal growth and yield, the majority of Indian mango varieties have certain eco-geographical requirements. In the very south of India, a few of the native mango species produce fruit all year long. The domestic and export quality of mango largely get affected by the pests and diseases. Due to climate variability the pest and disease occurrences increasing uncontrollably and affects the mango grower's income level largely. It is important that farmers should know the weather-related information to act accordingly to avoid yield losses. Bhatnagar *et al*. (2018) indicated that Kisan Mobile Advisory Services (KMAs) plays an important role in disseminating farming related information in Madhya Pradesh. Sidhu and Garg (2018)

found that two-third of the respondents felt that the information is related to their condition. Manjusha *et al.* (2019) concluded that weather-based Agromet Advisory is useful to the farmers and plays a crucial role to improve their agricultural income and protecting their crop in different seasons. Singh *et al.* (2019) illuminated that AAS provides advance weather information along with crop specific agromet advisories to the farming community by using state of the art instruments and technology through efficient delivering mechanism of the information which ultimately enables farmers to take appropriate actions at farm level. Khan *et al.* (2020) in his study conducted in Pakistan's Punjab province found that above two-third of the respondents were subscribed to ICT-enabled agro advisory services. Prasad *et al*. (2020) revealed that nearly two-third of the farmers (65 per cent) check weather predictions before going for spraying operation, nearly three-fourth of the farmers (73 per cent) check for irrigation and above half of the farmers (55 per cent) check for animal husbandry maintenance. Thakur *et al.* (2020) found that most of the cases forecasted data is well matched with actual data and hence those farmers who have adopted AAS timely in their farming operation realized more net income as compared to non AAS farmers having the same crop

grown in the target village. Chhabra *et al.* (2021) in his study conducted in temperate region of Kashmir Valley found that agrometeorological advisory services help the farmers in coping up with extreme weather conditions at the earliest to avoid yield loss. Nagaraju *et al.* (2022) revealed that AAS were highly useful to 65.05% followed by partially useful 30.11% of farmers for planning of sowing and harvesting operations and pesticide applications, respectively. These past works had advocated that the use of weather advisory services can aid farmers in minimizing the losses due to weather adversities. The level of exposure of mango farmers to these weather advisory services is need to be known. In this paper, we attempt to find the exposure level of mango growers to weather advisory services.

MATERIALS AND METHODS

The study used an ex-post facto research design. Ex-post facto research is an organised empirical study in which the researcher has no direct influence over the independent variables. Krishnagiri district was purposively selected for this study as it ranks first in the area and production of the mango. Kaveripattinam block was purposively selected based on the same criteria. A sample size of 100 was selected for the study. Exposure to weather advisory services was operationalized as the respondents' participation in the activities like reading newspaper, farm magazines, listening to radio broadcast and viewing television to get weather related information. The scoring procedure followed in this study was given in Table 1.

Based on the score the respondents were categorized into three groups *viz.*, low, medium and high levels by using mean and standard deviation.

RESULTS AND DISCUSSION

The data collected was tabulated, analysed using statistical techniques and inferences were drawn. The results of the study were presented here in Table 2.

The extent of exposure to weather advisory services by the respondents was measured as regularly, occasionally and never and scores of 3, 2, and 1 were allotted respectively. Mean score of each item was calculated and the items were ranked based on their mean score and presented in the Table 3.

A perusal of the Table 2 and 3 depicts that among all the weather advisory services available weather advisory services through TV occupied first rank followed by newspaper and mobile apps with mean scores of 2.69, 2.62 and 2.19 respectively. The possible reason might be that the accessibility and ease in utilization of the television. In the present scenario every household is equipped with television. In television a broad spectrum of channels was available to disseminate information on multiple aspects. Weather related information was telecasted in a variety of channels often at the end session of news. So, the respondents reap the benefit of the telecast. In every newspaper a dedicated column of weather details was given. The literate respondents follow this column on daily basis to get informed about the weather predictions. In the era of digital technology, a lot of mobile apps were available to serve the location specific best weather-related information to the users. Thus Television, Newspaper and mobile apps were the majority weather advisory services the respondents had good levels of exposure.

Table 1: Scoring Procedure followed for the study.

Sr. No.	Frequency of contact	Score
1.	Regularly	3
2.	Rarely	2
3.	Never	1

Table 2: Extent of exposure of the respondents to weather advisory services (n=100).

Sr. No.	Weather Advisory Services	Extent of Exposure			
		Regularly	Occasionally	Never	Total
1.	Newspaper	65	32	3	100
2.	Bulletin	7	12	81	100
3.	TV	75	19	6	100
4.	Radio	4	18	78	100
5.	TNAU Automatic Weather Station	3	79	18	100
6.	Kisan Call Centre	10	82	8	100
7.	Mobile apps	26	67	7	100

Table 3: Extent of exposure over different weather advisory services.

Sr. No.	Weather Advisory Services	Mean	Rank
1	Newspaper	2.62	Second
2	Bulletin	1.26	Seventh
3	TV	2.69	First
4	Radio	1.26	Sixth
5	TNAU Automatic Weather Station	1.85	Fifth
6	Kisan Call Centre	2.02	Fourth
7	Mobile apps	2.19	Third

Based on the overall score obtained by a respondent in extension contact the respondents were categorized into low, medium and high categories according to their mean and standard deviation. The results were furnished in Table 4 and graphically represented in Fig. 1.

Table 4: Distribution of respondents according to their Exposure to Weather Advisory Services (n=100).

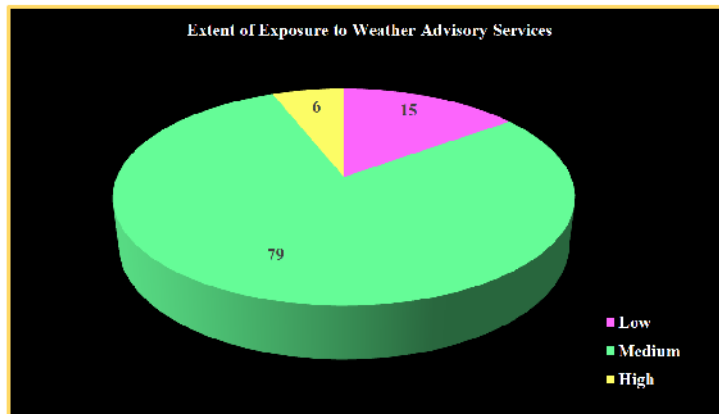| Sr. No	Category	Percentage
1.	Low	15.00
2.	Medium	79.00
3.	High	6.00
Total		**100.00**

Fig. 1. Distribution of respondents according to Exposure to Weather Advisory Services.

An investigative view at the Table 4 and Fig. 1 depicted that nearly four-fifth of the farmers (79 per cent) had medium level of exposure to weather advisory services, 15 per cent of the farmers had low level of exposure to weather advisory services and very meagre amount of the farmers (6 per cent) had high level of exposure to weather advisory services. The possible reason might be that the respondents were not aware of the merits of planning the intercultural operations according to the prevailing weather. Hence only a meagre number of respondents utilize these services at higher level and the rest have exposure at medium and low level. The findings are in line with Khan *et al.* (2020).

CONCLUSION

It is concluded from the study that 79 per centhad medium level of exposure to weather advisory services, followed by 15 per cent of the farmers with low level of exposure to weather advisory services and very meagre amount of the farmers (6 per cent) had high level of exposure to weather advisory services. Mango being a commercial fruit crop with greater export potential can give good returns if precautionary planning had been done. In the district a large number of pulping industries were present which takes only good quality fruits. The yield of the mango could be widely affected by weather abnormalities. Intercultural operations like spraying, dusting should be planned according to rain predictions. Harvesting of the fruits should be done based on rains and wind velocity. Stronger and faster winds at the time of fruit ripening could increase the fruit fall. Thus, following weather updates can improve quality and quantity of the mangoes harvested. Since only a few respondents had high exposure to weather advisory services there is immense need to increase their exposure and utilization of weather advisory services. The extension agencies could encourage the farmers to avail weather advisory services by illustrating the need and advantages of the services.

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