

Original Research Article

Farmers Knowledge of Climate Change in Relation to Crop Management

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ABSTRACT

The present study was conducted in Latur, Renapur and Ausa tahsils of Latur district from Marathwada region of Maharashtra state, with an objective to study the farmers' knowledge of climate change in relation to crop management. Four villages from each tahsil were selected randomly. Total twelve villages were selected for research study. Ten respondents from each village were selected randomly to comprise a sample of 120 respondents. One short case study method of ex-post-facto medium research design was adopted for this study. The important study were that, majority (74.16%) of respondents had a medium farmer's knowledge of climate change in relation to crop management. Independent variables like occupation and social participation found to be positive and significant relationship with farmers knowledge of climate change in relation to crop management. Variables like age, education, land holding, family type, farming experience, annual income, extension contact, and economic motivation had positive and highly significant relationship with farmers' knowledge of climate change in relation to crop management. The major information needs of the farmers about climate and weather in relation to crop management is most needed for crop protection (83.3%) and crop production (78.3%) i.e., which may be due to importance of these subject matter for crop management. Whereas for crop planning information related needs 54.2 per cent of farmers needed somewhat. Similarly for general climate and weather parameters 54.2 per cent viewed that they somewhat needed the information. But in case of post-harvest management only 19 per cent perceived as the most needed information. Most needed training areas of crop management in relation to climate and weather were crop protection (80.8%), followed by crop production (73.3%), the similar results were also found for the information needs of the respondents. Whereas for crop planning training needs for majority (60.0%) of the respondents were somewhat needed. Similarly for training needs general climate and weather parameters for majority of the respondents were somewhat needed. In case post-harvest management only 18 per cent of respondents prefer this as the most needed for training.

Keywords

Farmers
Knowledge of
Climate
Change, crop
management

Introduction

Agricultural activities are very sensitive to climate and weather; these are some of the biggest risk factors in growing conditions. Indeed, agriculture has been described as the most weather-dependent of human activities (Oram, 1989), and most production

decisions directly or indirectly involve consideration of this factor. Particularly in the tropics and sub-tropics year-to-year climate variability has large influence on agriculture, which is heavily dependent on rainfall, sunshine and temperature. Climate

change projections for India for the 2050s suggest an increase in temperature of 2–4⁰C for the region south of 25⁰N and by more than 4⁰C for the northern region. While there is likely to be little change in the average amount of monsoon rainfall, climatologists expect the number of rainfall days to decrease over a major part of the country (NATCOM, 2004). Rao *et al.*, (2011) reported that the changes in production and productivity during El Niño years compared to remaining years decreased by 18.0 and 7.0 per cent respectively in Telangana region of Andhra Pradesh.

Specific Objectives

Knowledge level of Farmer's about climate and weather in relation to crop management. Relationship between profile of farmers with their knowledge level about climate and weather in relation to crop management

Method of sampling

Selection of district

The study was conducted in Marathwada region of Maharashtra state. From this region Latur district was randomly selected for research purpose.

Selection of tahsils

There were ten tahsilas in Latur district viz., Latur, Renapur, Ausa, Nilanga, Shirur (Anantpal), Chakur, Ahmedpur, Jalkot, Udgir, and Deoni Out of which Latur, Ausa, and Renapur tahsils were selected randomly.

Selection of villages

For the purpose of the study, four villages from each selected tahsil were randomly selected. Thus, total 12 villages were selected for the study.

Selection of respondents

From each village 10 respondents were selected randomly to comprised total 120 respondents for the study.

Research Design

Ex-post facto design of social research was used in the present study.

Findings of the Study

Knowledge level of Farmer's about climate and weather in relation to crop management

Knowledge items that reflect various aspects of weather and climate in relation to crop management were collected for construction of the test. Items were collected from different sources such as literature, specialist scientists working in related field, extension scientist as well as field extension personnel.

Items collected in relation to major fields included General knowledge about climate and weather parameters, crop planning, crop production, crop protection and post-harvest management in relation to crop management.

From the Table 14 it can be understood farmers possess high level of knowledge in areas of crop management and post-harvest management (70.08%) in comparison to other areas like General climate and weather parameters (68.05%), crop planning (58.08%), crop production (53.12%) and crop protection (56.03%), which may be due to farmers perception of less effect of climate and weather on post harvested produce compared to other subject matter areas which are more dependent on climate and weather. In case of other areas of crop management such as crop planning, crop

production and crop protection which are highly vulnerable to climate variability, the farmers' knowledge about them was medium level. The variation of knowledge among subject matter areas was less except post-harvest management which was high.

Overall distribution of Knowledge level of Farmer's about climate and weather in relation to crop management

From the table it was clear that majority of the farmers (74.16%) had a medium knowledge level about climate and weather in relation to crop management, 16.66 per cent of the farmers had high knowledge and 09.18 per cent had low knowledge level about climate and weather in relation to crop management.

Relationship between profile of the farmers with their knowledge level about climate and weather in relation to crop management

Coefficient of correlation between profile and knowledge level about climate and weather in relation to crop management

The results of each factor are discussed in detail under the following headings.

Age and knowledge

The data in the Table 20 revealed that there was a positive and highly significant correlation between age and knowledge level of farmers about climate and weather in relation to crop management.

Education and knowledge

The data in the Table 20 observed that there was a positive and highly significant correlation between education and knowledge level of farmers about climate and weather in relation to crop management.

Land holding and knowledge

The data in the Table 20 pointed out that there was a positive and highly significant correlation between land holding and knowledge level of farmers about climate and weather in relation to crop management.

Family type and knowledge

The data in the Table 20 pointed out that there was a positive and highly significant correlation between family type and knowledge level of farmers about climate and weather in relation to crop management.

Farming experience and knowledge

The data in the Table 20 pointed out that there was a positive and highly significant correlation between farming experience and knowledge level of farmers about climate and weather in relation to crop management.

Occupation and knowledge

The data in the Table 20 pointed out that there was a positive and significant correlation between occupation and knowledge level of farmers about climate and weather in relation to crop management.

Annual income and knowledge

The data in the Table 20 concluded that there was a positive and highly significant correlation between annual income and knowledge level of farmers about climate and weather in relation to crop management.

Extension contact and knowledge

The data in the Table 20 concluded that there was a positive and highly significant correlation between extension contact knowledge level of farmers about climate and weather in relation to crop management.

Table.1 List of selected talukas and villages from Latur district

District	Tahsils	Villages	Respondents
Latur	Latur	Chincholirao	10
		Bamani	10
		Babhalgaon	10
		Gangapur	10
	Ausa	Karajgaon	10
		Fattepur	10
		Yakatpur	10
		Sarola	10
	Renapur	Rajewadi	10
		Gavhan	10
		Kamkheda	10
		Pangaon	10
Total	3	12	120

Table.2 Statement wise distribution of Knowledge level of Farmer's about climate and weather in relation to crop management

Sl. No.	Statement	Information			
		Yes		No	
		Frequency	Percent	Frequency	Percent
Climate and Weather parameters					
1	What is the average amount of annual rain fall	80	66.66	40	33.33
2	Which of the following is the major source of energy for food synthesis	85	70.83	35	29.16
3	Which of the following weather aberration occasionally occurs in your region	80	66.66	40	33.33
Crop planning					
4	What should be the appropriate crop planning in rain fed conditions, if the annual rainfall is 500 to 750 mm	82	68.33	38	31.6
5	Which of the agronomic practice related to spacing is	60	50	60	50

	recommended for delayed onset of monsoon				
6	Which of the following contingency is recommended for abnormal delay in monsoon	70	58.33	50	41.66
Crop production					
7	How to apply urea during prolonged dry spells	60	50	60	50
8	Wind coupled with heavy rain affects soil by which way	65	54.16	55	45.83
9	Weeding harrowing, mulching etc practices are undertaken during	80	66.66	40	33.33
10	Which of the conditions favours the delay in fruit / seed setting	50	41.66	70	58.33
Crop protection					
11	Which is the favourable condition for spread and growth of many crop diseases	70	58.33	50	41.66
12	At what time of the day spraying of pesticides is effective	65	54.16	35	45.83
13	Which of the following is used as a protective against heat waves and high speed winds	72	60	48	40
14	What is the best direction of spraying	62	51.66	58	48.33
Post-harvest management					
15.	Recommended conditions for storage of harvested produce	90	75	30	25
16	which of the following condition are favourable for harvesting	95	79.16	25	20.83

Table.3 Major statement wise distribution of Knowledge level of Farmer's about climate and weather in relation to crop management

Sl. No.	Major area	Percentage of knowledge
1	Climate and Weather parameters	68.05
2	Crop planning	58.08
3	Crop production	53.12
4	Crop protection	56.03
5	Post-harvest management	77.08

Table.4 Overall distribution of respondents according to their knowledge level of farmer’s about climate and weather in relation to crop management

N=120

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	Low (Up to 22)	11	09.18
2.	Medium (22 to 29)	89	74.16
3.	High (Above 29)	20	16.66
	Total	120	100.00

Table.5 Correlation coefficient between profile of farmer and their knowledge level about climate and weather in relation to crop management

Sl. No.	Independent variables	Co-efficient of correlation
1.	Age	0.535**
2.	Education	0.283**
3.	Land holding	0.340**
4.	Family type	0.269**
5.	Farming experience	0.345**
6.	Occupation	0.220*
7.	Annual income	0.280**
8.	Extension contact	0.258**
9.	Social participation	0.221*
10.	Economic motivation	0.319**

* = Significant at 0.05 level of probability.

** = Significant at 0.01 level of probability.

Social participation and knowledge

The data in the Table 20 concluded that there was a positive and significant correlation between social participation and knowledge level of farmers about climate and weather in relation to crop management.

Economic motivation and knowledge

The data in the Table 20 concluded that there was a positive and highly significant correlation between economic motivation and knowledge level of farmers about climate and weather in relation to crop management.

It was clear that majority of the farmers (74.16%) had a medium knowledge level

about climate and weather in relation to crop management, 16.66per cent of the farmers had high knowledge and 09.18 per cent had low knowledge level about climate and weather in relation to crop management.

It was perusal that, variables like occupation and social participation found to be positive and significant relationship with knowledge level about climate and weather in relation to crop management. At 0.05 per cent probability. Variables like, age, education, land holding, family type, farming experience, annual income, extension contact, economic motivation had positive and highly significant relationship with knowledge level about climate and weather in relation to crop management.at 0.01 per cent probability.

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