



## CONSTRAINTS FACED BY THE FARMERS IN ADAPTATION TO CLIMATE VARIABILITY AND SUGGESTIONS TO OVERCOME THEM IN KURNOOL DISTRICT OF ANDHRA PRADESH

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### ABSTRACT

The present study determines the constraints faced by the farmers in adaptability measures to climate variability and suggestions expressed by the farmers to overcome the same in Kurnool district of Andhra Pradesh, India. A sample of 120 farmers were selected by random sampling procedure and they were interviewed. The study revealed that a great majority (95.83%) of the farmers perceived price fluctuations in the market, lack of varieties suitable for escaping the terminal drought (94.16%), high incidence of diseases and pests (91.66%) etc. were the major problems. The suggestions to overcome the problems in adaptability to climate variability were in the following rank order; fixing of minimum support price by the government (91.66%), evolving the varieties which can escape the terminal drought in groundnut, cotton and red gram (87.50%).

**KEYWORDS:** Constraints, climate variability, suggestions

### INTRODUCTION

Climate variability refers to the variations in the mean state of the climate and variations in other parameters (such as the occurrence of extremes) on all temporal and spatial scales beyond that of individual weather events. Climate variability is a regular phenomenon every year. Climate variability is more dynamic and adapting to this by the farmers is more challenging. The impact of climate variability is more severely felt in the arid and semi-arid regions where agriculture is mostly dependent on rainfall and ground water.

Kurnool district in Andhra Pradesh is one of the driest districts in the state as monsoons evade this area due to its unfortunate location in a rain shadow region. Being far from the East Coast, it does not enjoy the full benefits of North east monsoon and being cut off by the high Western-Ghats, the South west monsoon often bring little rainfall as well. As a result, the district is deprived of both monsoons and frequently subjected to drought. Keeping this in view, the present study was undertaken to identify the constraints faced by the farmers in adaptation to climate variability and suggestions to overcome them.

### MATERIAL AND METHODS

The study was conducted with ex-post-facto research design to assess constraints and suggestions faced by the farmers in adaptation to climate variability in Kurnool district of Andhra Pradesh. Kurnool district was purposively

selected for the study because it is in scarce rainfall zone and very much prone to climate change. One mandal from each of the three revenue divisions of Kurnool district viz., Nandyal, Kurnool and Adoni were selected randomly. Three mandals viz., Banaganapalle mandal from Nandyal revenue division; Orvakallu mandal from Kurnool revenue division and Emmiganuru mandal from Adoni revenue division were randomly selected for the study.

From each of the three selected mandals, two villages were selected for the study viz., Yagantipalle and Yerragudi from Banaganapalle mandal; Ussenapurum and Orvakallu from Orvakallu mandal; Banavasi and Siraladoddi from Emmiganuru mandal. Thus a total of six villages were selected by following random sampling procedure. One hundred and twenty respondents were selected with 20 farmers from each village by following simple random sampling procedure.

### RESULTS AND DISCUSSION

#### Constraints faced by the farmers in adaptation to climate variability

The constraints as expressed by the respondents were tabulated and presented in Table 1.

It is evident from the Table 1 that, price fluctuations in market (95.83%) was the major constraint faced by majority of the farmers.

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Table 1. Constraints faced by the farmers in adaptation to climate variability

S. No.	Constraints	Frequency	Percentage	Rank
1	Price fluctuations in the market	115	95.83	I
2	Lack of varieties suitable for escaping the terminal drought	113	94.16	II
3	High incidence of diseases and pests	110	91.66	III
4	Insufficient training on climate variability coping mechanisms	109	90.83	IV
5	Lack of effective advisory system on changes in climate	108	90.00	V
6	Requirement of money ahead of season for preparedness	105	87.50	VI
7	Frequent interruption in power supply	102	85.00	VII
8	Lack of awareness on pest and disease tolerant varieties	100	83.33	VIII
9	Lack of information pertaining to adaptation options to face the climate variability	98	81.66	IX
10	Higher cost of cultivation using scientific methods	95	79.16	X
11	Absence of suitable rain water harvesting structures	92	76.66	XI
12	Lack of drought mitigating techniques	90	75.00	XII
13	Non availability of credit and subsidy facilities in the locality	88	73.33	XIII
14	Lack of information about weather and climate	82	68.33	XIV
15	Decline in ground water table	82	68.33	XIV
16	Lack of efficient marketing facilities at village level	81	67.50	XV
17	Lack of group action to follow the biological control measures	80	66.66	XVI
18	Adaptation practices requires more labour and time	80	66.66	XVI
19	Lack of proper storage facilities	78	65.00	XVII
20	Repetitive occurrence of extreme weather conditions	78	65.00	XVII

Table 2. Suggestions elicited by the farmers on climate variability

S. No.	Suggestions	Frequency	Percentage	Rank
1.	Fixing of minimum support price by the government	110	91.66	I
2.	Evolving the varieties which can escape the terminal drought in groundnut, red gram and cotton and resistant to pest and diseases	105	87.50	II
3.	Creation of more awareness among farming community on availability of varieties tolerant to pest and diseases.	102	85.00	III
4.	Training to farmers and extension officials on techniques of crop production and adaptation options to address various issues in climate variability	100	83.33	IV
5.	Arrangement for availability of credit and subsidy by the government	98	81.66	V
6.	Contingency plans to minimize the effect of drought should be developed	96	80.00	VI
7.	Weather and climate information should be made available up to farmer's village level	95	79.16	VII
8.	Provision of an effective advisory system and to counsel the farmers on various issues pertaining to the climate variability and measures to overcome.	93	77.50	VIII
9.	Seven hours of continuous and uninterrupted power may be supplied to irrigate of crop for better crop production	90	75.00	IX
10.	Extension officials should consider polambadi programme as a platform to enlighten the farmers on the importance of controlling the pests and diseases	88	73.33	X
11.	The establishment of rainwater harvesting structures at individual farm may enhance the water table in the ground	85	70.83	XI
12.	The officials of department of agriculture should gear up the efforts to disseminate available practices among the farming community which can enhance their capacity to withstand the aberrations in climate	80	66.66	XII
13.	Government should ensure public ware housing facilities in the vicinity of farmers villages	79	65.83	XIII
14.	Contingency plans may be designed with various kinds of models of cropping pattern and cropping system to address repetitive extreme weather conditions	75	62.50	XIV

Other problems expressed by the farmers were in the following rank order, lack of varieties suitable for escaping the terminal drought (94.16%), high incidence of diseases and pests (91.66%), insufficient training on climate variability coping mechanisms (90.83%), lack of effective advisory system on changes in climate (90.00%), requirement of money ahead of season for preparedness (87.50%).

The other problems were frequent interruption in power supply (85.00%), lack of awareness on pest and disease tolerant varieties (83.33%), lack of information pertaining to adaption options to face the climate variability (81.66%), higher cost of cultivation using scientific methods (79.16%), absence of suitable rain water harvesting structures (76.66%), lack of drought mitigating techniques (75.00%), non-availability of credit and subsidy facilities in the locality (73.33%), lack of information about weather and climate (68.33%), decline in ground water table (68.33%), lack of efficient marketing facilities at village level (67.50%), adaptation practices requires more labour and time (66.66%), lack of group action to follow the biological control measures (66.66%), lack of proper storage (65.00%) and repetitive occurrence of extreme weather conditions (65.00%). These results were in conformity with the findings of Kharumnuid (2011) and Archana (2012).

#### **Suggestions elicited by the farmers on climate variability**

The suggestions to overcome the problems in adapting to climate variability encountered by the farmers in cultivation of crops were presented in Table 2.

Majority (91.66%) of the farmers suggested fixing of minimum support price by the government, evolving the varieties which can escape the terminal drought in groundnut, red gram and cotton and resistant to pest and diseases (87.50%), creation of more awareness among the farming community on availability of varieties tolerant to pest and diseases (85.00%), training to farmers and extension officials on techniques of crop production and adaptation options to address various issues in climate variability (83.33%). Arrangement for availability of credit and subsidy by the government (81.66%), contingency plans to minimize the effect of drought should be developed (80.00%), weather and climate information should be made available up to farmer's village level

(79.16%), provision of an effective advisory system and to counsel the farmers on various issues pertaining to the climate variability and measures to overcome (77.50%), seven hours of continuous and uninterrupted power may be supplied to irrigate of crop for better crop production (75.00%), extension officials should consider Polambadi programme as a platform to enlighten the farmers on the importance of controlling the pest and diseases (73.33%), establishment of rainwater harvesting structures at individual farm may enhance the water table in the ground (70.83%), the officials of department of agriculture should gear up the effort to disseminate available practices among the farming community which can enhance their capacity to withstand the aberrations in climate (66.66%), government should ensure public ware housing facilities in the vicinity of farmers villages (65.83%), contingency plans may be designed with various kinds of models of cropping pattern and cropping system to address repetitive extreme weather conditions (62.50%).

#### **CONCLUSION**

Changes in the mean and the variability of climate parameters will have essential influence on agricultural cropping system especially under water limited production such as in the arid and semi-arid regions. Farmers practice different adaptability measures over the period to mitigate the effect of climate change in the farming.

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