



ISSN (E): 2277- 7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2021; SP-10(12): 1756-1759  
© 2021 TPI  
[www.thepharmajournal.com](http://www.thepharmajournal.com)  
Received: 11-10-2021  
Accepted: 18-11-2021

**T Archana**  
Agricultural Extension,  
Agricultural College, PJTSAU,  
Nagarkurnool, Telangana, India

**V Sudha Rani**  
Agricultural Extension,  
PJTSAU, Hyderabad,  
Telangana, India

**K Nagasree**  
Transfer of Technology,  
ICAR-CRIDA, Santoshnagar,  
Hyderabad, Telangana, India

**B Srikanth**  
Agricultural Statistics, Indian  
Agricultural Statistics Research  
Institute (IASRI), ICAR,  
New Delhi, India

## Problems and suggestions elicited by the respondents in adoption of technologies for climate resilient agriculture

**T Archana, V Sudha Rani, K Nagasree and B Srikanth**

### Abstract

The present study entitled “Problems and Suggestions elicited by the respondents in adoption of technologies for Climate Resilient Agriculture (CRA)” had been initiated focusing to find out the problems and suggestions of farmers to drought. Ex-post facto research design was adopted in the present investigation. Nalgonda district from the Telangana state and Anantapur district from the Andhra Pradesh state were selected purposively, as they were covered under NICRA, where the CRA technologies introduced. One mandal was purposively selected from each district for the study. Two NICRA adopted villages were selected from each mandal. Thus total four NICRA villages were selected for the study. 30 farmers from each village were selected at random to make a sample of 120 respondents from NICRA adopted villages. Major problem elicited by the NICRA farmers were poor renovation of soil and water conservation measures due to lack of rain fall (check dams, contour bunds, trenches) (93.33%), poor availability of required inputs to all the farmers (95.83%), political interference in NRM (60.00%) and inadequate financial support (88.33%). Major suggestions expressed by the NICRA farmers were, regular de-siltation activity should be done by the government to enhance the water storage capacity (80.83%), use of high yielding varieties in drought conditions (86.67%), organizing more training programmes by the department of agriculture with irrigation department to inculcate spirit for effective resource management (73.33%), increase the financial support from the government (90.00%) and improve the extension activities like training programme (82.50%).

**Keywords:** climate resilient agriculture, problems and suggestions

### Introduction

Resilience is the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions (IPCC, 2012) <sup>[2]</sup>. The Prime Minister's National Action Plan on Climate Change has identified agriculture as one of the eight National Missions. Indian Council of Agricultural Research (ICAR), New Delhi has launched a major network project entitled, National Initiative on Climate Resilient Agriculture (NICRA) during 2010-11, focusing on the process of developing district level contingency plans for all the rural districts of country with Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad as the nodal agency. The project is implemented by Krishi Vigyan Kendra's (KVKs) at district level, regionally coordinated by the Zonal Project Directorates (ZPDs) with overall planning, monitoring and coordination by CRIDA, Hyderabad.

Drought is one of the most frequently occurring national disasters in India. With its increased frequency and expanded coverage in the recent years, about one third of the country is either drought prone or under desert areas. These areas are lagging behind in agriculture and also in overall economic growth. They experience wide year-to-year fluctuations in agricultural production and incomes and have a relatively high incidence of poverty. The poor in these regions are highly vulnerable to a variety of risks due to their low and fluctuating incomes, high indebtedness and low human development. Helping the poor to come out of vulnerability and poverty and integrating the drought prone areas into the mainstream of development is a serious challenge faced by policy makers at present. Suggestions to offset the discrepancies in initial stages of implementation are being sought from farmers. Incorporating critical points from these, some potential suggestion are put forward in this study. Keeping this in view the present investigation entitled as “problems and suggestions elicited by the respondents in adoption of technologies for Climate Resilient Agriculture”.

**Corresponding Author**  
**T Archana**  
Agricultural Extension,  
Agricultural College, PJTSAU,  
Nagarkurnool, Telangana, India

## Methodology

### Sampling Procedure

**Locale of the study:** The States of Telangana and Andhra Pradesh were selected purposively for the study. As the investigator was familiar with the local language, which would help to build up quick rapport and also enable in-depth study combined with personal observation.

**Selection of the District:** Nalgonda district from the Telangana state and Anantapur from the Andhra Pradesh were selected purposively, as they were covered under NICRA where the CRA technologies introduced.

**Selection of mandals:** One mandal was purposively selected from each district for the study.

**Selection of villages:** Two NICRA adopted villages were selected from each mandal. Thus total four NICRA villages were selected the study.

**Selection of respondents:** From each village 30 farmers were selected at random to make a sample of 120 respondents from NICRA adopted villages for the study.

Problems by the respondents were operationally defined as difficulties/constraints faced by respondents in adoption of technologies for CRA. The respondents were asked to express the problems faced by them and elicit suggestions simultaneously.

Suggestions by the respondents were operationally defined as the solutions given by them for overcoming the problems faced by them during the adoption of technologies for CRA. The respondents were requested to give their suggestions against the problem stated by them and were recorded. The results were explained in the form of frequency and percentages.

Each selected respondent was personally contacted and interviewed with the help of interview schedule.

## Discussion

### Problems elicited by the NICRA farmers in adoption of technologies for CRA technologies

The Table 1 illustrated the constraints elicited by the NICRA farmers were grouped under three categories namely Technical constraints, Social and personal and Economic and financial. The constraints under each category were ranked based on frequency and percentage.

It is pointed out from the Table 1 that the major constraints elicited by the NICRA farmers under Technical constraints were lack of Poor renovation of soil and water conservation measures due to lack of rain fall (93.33%) and Poor availability of required inputs to all the farmers (95.83%). The constraints like lack of Political interference in NRM (60.00%) covered under Social and personal; Inadequate financial support (88.33%) covered under Economic and financial constraints.

**Table 1:** Problems elicited by the NICRA farmers in adoption of technologies for CRA technologies

Problems of NICRA farmers				N=120
S. No	Constraints	F	%	Rank
<b>I</b>	<b>Technical constraints (technical complexity, knowledge and skill)</b>			
<b>A</b>	<b>Natural resource management (NRM)</b>			
1	De siltation activity is irregular (reduced water storage capacity due to low rain fall)	92	76.67	III
2	Poor renovation of soil and water conservation structures due to lack of rain fall (check dams, contour bunds, trenches,)	112	93.33	I
3	Poor maintenance of soil and water conservation structures due to lack of support from the institutions	102	85.00	II
4	Major canal water was not allowed for implementation of NRM activities due to excessive political interference	78	65.00	IV
5	Top down approach is followed in designing and implementing the watershed activities	71	59.17	V
6	Lack of farmers participation in deciding the contribution of resources like land, labour and money to implement the NRM activities	16	13.33	VIII
7	Depletion of ground water and drying up of irrigation bore wells due to low rain fall	52	43.33	VI
8	Lack of enthusiasm among the farmers to implement the NRM activities due to inadequate rain fall	24	20.00	VII
<b>B</b>	<b>Crop and livestock</b>			
		<b>F</b>	<b>%</b>	<b>Rank</b>
1	Mechanized intercultivation at the field level was not suitable	94	78.33	IV
2	More crop loss (poor yields) even from drought resistant short duration varieties due to moisture stress	99	82.50	II
3	Silage making in bags was difficult and time taking	84	70.00	V
4	Practice of dead furrows is not suitable at the field level due to lack of heavy rains ( as it occupies more space )	96	80.00	III
5	Cotton stubbles are hard and not decomposing (for crop residue)	64	53.33	VI
6	Poor maintenance of seed at village level (village seed bank)	50	41.67	VIII
7	Poor maintenance of back yard poultry due to risk involved in it	47	39.17	IX
8	Lack of seed treatment	24	20.00	X
9	Dee worming is irregular for sheep and goat	15	12.50	XII
10	Poor usage of organic manure	12	10.00	XIII
11	Using low quality seed	52	43.33	VII
12	Nonuse of soil test based nutrient management	18	15.00	XI
13	Poor availability of required inputs to the farmers	115	95.83	I
<b>II</b>	<b>Social and personal</b>			
1	Lack of confidence among the community members to adopt the new CRA technologies due to fear of failure	22	18.33	VIII
2	Lack of community action for the promotion of CRA technologies	12	10.00	X
3	Lack of support from other social groups (class and caste groups)	55	45.83	III
4	Overriding isolated approach over community spirit	45	37.50	IV
5	Lack of enthusiasm among the community members to work	25	20.83	VII
6	More conflicts and rivalry among the community	38	31.67	VI
7	Group disintegrates easily	42	35.00	V

8	Lack of regular meetings by the community	58	48.33	II
9	Poor participation of weaker sections in community activities	17	14.17	IX
10	Political interference in NRM	72	60.00	I
<b>III</b>	<b>Economic and financial</b>			
1	Inadequate financial support	106	88.33	I
2	High investment cost on farm machinery and land development	51	42.50	IV
3	Lack of assets like land, livestock, farm machinery etc.	12	10.00	VII
4	High investment cost on infrastructure adaptation (water storage structures etc)	85	70.83	II
5	Untimely release of funds to take up NRM activities	18	15.00	VI
6	Low annual income of farmers	79	65.83	III
7	Poor management of finance by the local bodies	45	37.50	V

### Suggestions elicited by the NICRA farmers in adoption of technologies for CRA technologies

The Table 2 illustrated the suggestions elicited by the NICRA farmers were grouped under four categories namely Technical constraints, Social and personal, Economic and financial and situational. The constraints under each category were ranked based on frequency and percentage.

It is pointed out from the Table 2 that the major suggestions elicited by the NICRA farmers under Technical constraints were Regular de siltation activity should be done by the

government to enhance the water storage capacity (80.83%) and Use of high yielding varieties in drought conditions (86.67%); Organizing more training programmes by the department of agriculture with irrigation department to inculcate spirit for effective resource management (73.33%) under social and personal category; Increase the financial support from the government (90.00%) under economic category; Improve the extension activities like training programme, exposure visits etc., for the farmers for adopting the CRA technologies (82.50%) under others category.

**Table 2:** Suggestions elicited by the NICRA farmers in adoption of technologies for CRA technologies

Suggestions by NICRA farmers					N=120
S. No	Suggestions	F	%	Rank	
<b>I</b>	<b>Technical suggestions (technical complexity, knowledge and skill)</b>				
<b>a</b>	<b>Natural resource management (NRM)</b>				
1	Water harvesting structures should be excavated by government in proper place	91	75.83	II	
2	Regular de siltation activity should be done by the government to enhance the water storage capacity	97	80.83	I	
3	Timely renovation of water harvesting structures	64	53.33	V	
4	Proper utilization of labour for crop production purpose under NAREGA and not for the purpose of NRM activities	52	43.33	VI	
5	Monitoring and evaluation by a team of officials and farmers while implementing the NRM activities	68	56.67	IV	
6	Farmers participation in deciding the location of NRM activities and contribution of their resources for NRM	44	36.67	VII	
7	Increase the number of trainings/ exposure visits to the officials and farmers on improving the suitable innovative NRM practices to local level	85	70.83	III	
<b>b</b>	<b>Crop and livestock</b>				
1	Intercropping and mixed cropping	36	30.00	VI	
2	Use of high yielding varieties suitable for drought conditions	104	86.67	I	
3	Seed treatment	55	45.83	IV	
4	Increase the number of trainings to extension officials and farmers on soil test based nutrient management to apply it at field level	42	35.00	V	
5	Need to provide chop cutters to make small stubbles of crop to incorporate them in to the soil for crop residue	76	63.33	III	
6	Need to provide more number of new suitable machines by the government	93	77.50	II	
<b>II</b>	<b>Social and personal</b>				
1	Organizing more training programmes by the Department of Agriculture with Irrigation department to inculcate spirit for effective resource management	88	73.33	I	
2	Organize farmer interactions frequently the farmers of nearby watershed area should be brought together to exchange the successful intervention of NRM activities	61	50.83	III	
3	Officials should motivate the farmers for involving them in participatory mode to improve their problem solving skills	82	68.33	II	
4	The women should be empowered to participate in various NRM activities	27	22.50	V	
5	Organizations like youth clubs, and different other associations should work towards NRM consisting of organizational set up of their own in rural areas	55	45.83	IV	
<b>III</b>	<b>Economic</b>				
1	Strengthening the NRM system by pooling up financial and non-financial resources on community mode by government	57	47.5	V	
2	The government should use the machines (JCB) to take NRM practices and give support to reduce drudgery of the labour	21	17.50	VI	
3	Government and non-government co-ordination mechanism for balanced utilization of funds to carry out CRA at village level	62	51.67	IV	
4	Low cost water harvesting structures should be designed and advised to the farmer	93	77.50	II	
5	Increase the financial support from the government	108	90.00	I	
6	The local bodies should be financially empowered to take up some of the location specific, need based and customized NRM activities	75	62.50	III	
<b>IV</b>	<b>Others/Situational</b>				

1	Improve the extension activities like training programme, exposure visits etc., for the farmers for adopting the CRA technologies	99	82.50	I
2	Recruitment of staff to attend and guide farmers on NRM activities	72	60.00	II
4	The officials should take up more follow up actions after completion of the implementation of NRM activities	42	35.00	IV
5	The local bodies especially groups should support morally, ethically and financially to take up various NRM activities under watershed area.	61	50.83	III

### Conclusion

Major problem elicited by the NICRA farmers were poor renovation of soil and water conservation structures due to lack of rain fall, poor availability of required inputs to all the farmers, political interference in NRM and inadequate financial support. Major suggestions expressed by the NICRA farmers were regular de siltation activity should be done by the government to enhance the water storage capacity, use of high yielding varieties in drought conditions.

### References

1. Anil K, Kushwaha TS, Singh YK, Rai DP. Adoption of watershed technologies by the farmers in Morena district of Madhya Pradesh. Indian Research Journal of Extension Education. 2010;10(2):58-60.
2. Intergovernmental Panel on Climate Change (IPCC). Managing the risks of extreme events and disasters to advance climate change adaptation summary for policymakers, special report of governmental panel on climate change, 2012. Accessed on 14<sup>th</sup> March 2015.
3. Jost C. Climate Resilient Agricultural Module. CCAFS, FAO, currently discussing collaboration with CARE and IFAD, 2012.
4. Raju AK. An analysis of sustainability of agriculture in watershed environment in Mahaboobnagar district of Andhra Pradesh. Ph. D. Thesis. Acharya N.G. Ranga Agricultural University, Hyderabad, India, 2002.