



ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2021; SP-10(11): 2613-2617
© 2021 TPI
www.thepharmajournal.com
Received: 01-09-2021
Accepted: 03-10-2021

SS Kharatmal
M. Sc. Agri. Student,
Department of Extension
Education, College of
Agriculture, Latur, Maharashtra,
India

ND Deshmukh
Assistant Professor, Department
of Extension Education, College
of Agriculture, Badnapur Dist.
Jalna, Maharashtra, India

DD Suradkar
Assistant Professor, Department
of Extension Education, College
of Agriculture, Latur,
Maharashtra, India

Impact of project on climate resilient agriculture

SS Kharatmal, ND Deshmukh and DD Suradkar

Abstract

An investigation entitled “Impact of Project on Climate Resilient Agriculture” was carried out in twelve villages of Latur district of Maharashtra state with a study sample of 120 PoCRA beneficiaries. Profile of PoCRA beneficiaries indicated that, most of the PoCRA beneficiaries (62.20%) were from middle age group, nearly one third (32.50%) of them were having secondary school level education. Most of the PoCRA beneficiaries (73.33%) were male and most of them (34.16%) were possessing 1.01 to 2.00 ha. land and belonged to small farmers category, great majority of the beneficiaries (90.83%) had medium yearly income. More than half of the PoCRA beneficiaries (51.66%) received one training, around half of them (49.16%) were engaged in only farming as occupation and 54.16 per cent were belonged to general category. Most of the PoCRA beneficiaries had medium level of mass media exposure (64.16%) and extension contact (69.16%). Most of the PoCRA beneficiaries belonged to medium level of cosmopolitanism (46.66%), economic motivation (76.66%) and risk orientation (59.16%). Socioeconomic position of beneficiaries after participation in PoCRA was improved significantly. Independent variables namely, land holding, annual income, training received and cosmopolitanism established positive and highly significant relationship, while education, occupation, mass media exposure, extension contact, economic motivation and risk orientation established positive and significant relationship with the impact of PoCRA on beneficiaries' socioeconomic situation.

Keywords: impact, PoCRA, Nanaji Deshmukh Krushi Sanjeevani Yojna, climate resilient agriculture

Introduction

Indian agriculture is extremely vulnerable to natural disasters. The Maharashtra State Government (GoM) has launched the “Project on Climate Resilient Agriculture” (PoCRA) later it was renamed as “Nanaji Deshmukh Krishi Sanjivani Yojana project” to protect farmers from natural disasters. The project focus on implementing climate-friendly and adaptable agriculture techniques. The programme is expected to help both small and medium-sized farmers in the state. The state government goal with this project is to identify the areas that are most badly affected by drought and make them drought-free. As a long-term and sustainable step to address the probable implications of climate variability and climate change, the GoM has now taken a progressive decision to establish a drought proofing and climate resilient strategy for the agriculture sector. Given the likelihood of increased rainfall variability and droughts as a result of climate change in the coming years; the GoM has decided Climate Resilient Agricultural Systems as its long-term plan. In India, this is the country's first large scale climate resilient agriculture project.

Objective of this project is to ensure adaptation of the approach proposed for building climate resilience through a long term adaptive management of agricultural, Soil and Water resources. The project development is to enhance climate resilience and profitability of smallholder farming systems in selected districts of Maharashtra. This project would introduce transformational changes in the micro agriculture sector by scaling-up climate smart technologies and practices at farm and micro watershed level that would contribute to drought proofing and management of lands in the states most drought and salinity/sodicity-affected villages. The project would focus on smallholders (farmers up to 2.0 ha of farmland) with particular focus on vulnerable population whose livelihood is impacted by changing climate conditions and climatic uncertainties. Most of the project area is located in Maharashtra's semi-arid agro climatic zones. The vast majority of rural households in the project districts are small and marginal farmers whose livelihood depends for more than 90 per cent on rainfed agriculture. According to the GoM, the world bank will fund 70% of the project cost out of a budget of Rs. 4,000 crores (Rs. 2800 crores), with the remaining 30% (Rs. 1200 crores) will be provided by the state government over a six-year period from 2018-19 to 2023-24.

Corresponding Author
SS Kharatmal
M. Sc. Agri. Student,
Department of Extension
Education, College of
Agriculture, Latur, Maharashtra,
India

In the present investigation efforts were taken to know the Profile of PoCRA beneficiaries, to assess the socio-economic impact of PoCRA on beneficiaries and to delineate the relationship between profile of beneficiaries and socio-economic impact of PoCRA.

Methodology

The present study was conducted in Marathwada region of Maharashtra state. From this region Latur district was purposively selected for research purpose because PoCRA was successfully implemented in Latur district for the period of three years. From Latur district, three tehsils were selected randomly Viz. Latur, Renapur and Chakur. Four villages from each selected tehsils were selected randomly for the selection of beneficiaries. Thus a total of 12 villages were selected for the study. From each selected village, 10 PoCRA beneficiary farmers were selected randomly. In this way, total 120 farmers were considered as respondents for the present study. These selections were done by using a simple random sampling method.

The Quasi experimental research design i.e. one group before after was used for the present study. An investigator collected the data personally from beneficiaries after getting the PoCRA benefits of three years by using the pre tested interview schedule at their home or farms. The collected data was organized, tabulated and analyzed with the help of statistical tools like frequency, percentage, mean, standard deviation, correlation of coefficient (r), paired 't' test and X² test.

Results and Discussion

1. Profile of PoCRA beneficiaries

Data pertaining to the profile of PoCRA beneficiaries in Table 01 shows that, most of the PoCRA beneficiaries were from middle age group (62.20%) followed by 30.00 per cent PoCRA beneficiaries were from old age group and 07.50 per cent of them were from young age group category. Nearly one third of PoCRA beneficiaries (32.50%) were having secondary school level education followed by 24.16 per cent had higher education and 16.66 per cent had education up to primary level, 15.83 per cent PoCRA beneficiaries were educated up to graduation and very few (10.83%) PoCRA beneficiaries were illiterate. As per as gender is concerned, most of the PoCRA beneficiaries (73.33%) were male and 26.66 per cent were female. In respect of land holding, most of the PoCRA beneficiaries (34.16%) were possessing 1.01 to 2.00 ha. land and belonged to small farmers category, while semi-medium and medium category had same beneficiaries (25.83%) and were possessing 2.01 to 4.00 and 4.01 to 10 ha. of land, respectively. Whereas, 13.33 per cent of the beneficiaries belonged to marginal (up to 1.00 ha. land) farmers category and meagre PoCRA beneficiaries (00.83%)

belonged to big land holding category and possessed land above 10 ha.

Great majority of PoCRA beneficiaries (90.83%) had medium (Rs.32,001 to Rs.3,00,000) annual income followed by 09.17 per cent beneficiaries had high (above Rs.3,00,000) annual income and no one (00.00%) PoCRA beneficiary belonged to low annual income category. More than half of the PoCRA beneficiaries (51.66%) received one training and 29.16 per cent undergone through two training programmes, 19.16 per cent PoCRA beneficiaries did not received any training and no one had received three or more than three training programmes. Around half of the PoCRA beneficiaries (49.16%) were engaged in only farming as a occupation and near about one-fourth (25.83%) PoCRA beneficiaries were engaged in farming + livestock, and 15.00 per cent beneficiaries had engaged in the farming + services, farming + Labour occupation followed by 09.19 per cent beneficiaries and very few (00.83%) PoCRA beneficiaries were engaged in the farming + business. Majority of PoCRA beneficiaries (54.16%) were belonged to general / open category and 23.33 per cent PoCRA beneficiaries were from schedule caste and schedule tribe category and 22.50 per cent PoCRA beneficiaries belonged to other backward class. Above findings were supported by Jadhav (2014)^[6], Bhosale (2019)^[4] and Kumbhar (2020)^[7].

In case of communication characteristics of PoCRA beneficiaries, most of them (64.16%) had medium level of exposure to mass media, followed by 22.50 per cent of the beneficiaries had low exposure to mass media and only 13.33 per cent of them had high exposure to mass media. Pertaining to extension contact, majority (69.16%) of them had medium level of extension contact followed by low level of extension contact (20.00%) and only 10.83 per cent beneficiaries had high level of extension contact. Regarding cosmopolitness, most of the PoCRA beneficiaries (46.66%) had medium level of cosmopolitness, followed by 30.00 per cent beneficiaries were belonged to low level of cosmopolitness and 23.33 per cent beneficiaries had high level of cosmopolitness. These findings are in line with the findings of Gaikwad (2020)^[5].

Findings of PoCRA beneficiaries related to psychological characteristics from Table 01 revealed that, majority of PoCRA beneficiaries (76.66%) had a medium level of economic motivation followed by 15.83 per cent of beneficiaries had low level of economic motivation and only 07.50 per cent of beneficiaries had high level of economic motivation. More than half (59.16%) of the PoCRA beneficiaries had medium risk orientation followed by nearly one-fourth (22.00%) of them had high risk orientation and only 08.83 per cent of beneficiaries had low risk orientation. These findings are supported by the Adsul (2016)^[11], Ahire and Kapse (2017)^[12].

Table 1: Profile of the PoCRA beneficiaries

Variables	Category	Frequency	Percentage
Age	Young (up to 34)	09	07.50
	Middle (35-50)	75	62.20
	Old (Above 50)	36	30.00
	Total	120	100.00
Education	Ill Illiterate	13	10.83
	Primary Education (1st to 4th)	20	16.66
	Secondary Education (5th to 10th)	39	32.50
	Higher Education (11th to 12th)	29	24.16
	Graduation	19	15.83
	Total	120	100.00
Gender	Male	88	73.33
	Female	32	26.66
	Total	120	100.00
Land Holding	Marginal (up to 1 ha)	16	13.33
	Small (1.01 – 2.00 ha)	41	34.16
	Medium (2.01 – 4.00 ha)	31	25.83
	Semi-medium (4.01 – 10 ha)	31	25.83
	Big (Above 10 ha)	01	00.83
	Total	120	100.00
Annual Income	Low (Up to Rs.32,000)	00	00.00
	Medium (Rs.32001 to Rs.3,00,000)	109	90.83
	High (above Rs.3,00,000)	11	09.17
	Total	120	100.00
Training Received	No training received	23	19.16
	1 training received	62	51.66
	2 training received	35	29.16
	3 and more training received	00	00.00
	Total	120	100.00
Occupation	Farming+ Labour	11	09.19
	Farming	59	49.16
	Farming+ Livestock	31	25.83
	Farming+ Service	18	15.00
	Farming + Business	01	00.83
	Total	120	100.00
Caste Category	SC/ST	28	23.33
	OBC	27	22.50
	General	65	54.16
	Total	120	100.00
Mass Media Exposure	Low (Up to 6)	27	22.50
	Medium (7 to 12)	77	64.16
	High (Above 12)	16	13.33
	Total	120	100.00
Extension Contact	Low	24	20.00
	Medium	83	69.16
	High	13	10.83
	Total	120	100.00
Cosmopolitnss	Low	36	30.00
	Medium	56	46.66
	High	28	23.33
	Total	120	100.00
Economic Motivation	Low	19	15.83
	Medium	92	76.66
	High	09	07.50
	Total	120	100.00
Risk Orientation	Low	10	08.83
	Medium	71	59.16
	High	22	22.00
	Total	120	100.00

2. Socio-economic impact of PoCRA on beneficiaries

The socio economic impact of PoCRA was obtained by considering nine indicators viz, annual income, family type, family size, education, social status, expenditure on food consumption, health status, social participation and material possession. The data pertaining to all nine indicators were

collected from PoCRA beneficiaries in respect of before and after participation in PoCRA and it was categorized into low, medium and high categories on the basis of mean \pm standard deviation. To assess the indicator wise impact of PoCRA on beneficiaries paired 't' test was employed.

Table 2: Indicator wise impact of PoCRA among beneficiaries

Indicators	Category	Before PoCRA		After PoCRA		Paired 't' test value
		N	%	N	%	
Annual income	Low	04	03.33	00	00.00	03.64**
	Medium	103	95.83	109	90.83	
	High	15	00.83	11	9.16	
	Mean	85,583		1,71,542		
	Enhancement mean				85,959	
	Enhancement %				100.44%	
Family type	Nuclear	72	60.00	72	60.00	00.00
	Joint	48	40.00	48	40.00	
	Mean	1.4		1.4		
	Enhancement mean				00 (00%)	
	Enhancement %				00%	
Family size	Small	36	30.00	33	27.50	00.78*
	Medium	66	55.00	72	60.00	
	Big	18	15.00	11	06.66	
	Mean	4.975		4.991		
	Enhancement mean				0.0166	
	Enhancement %				0.33%	
Education	Illiterates	10	10.83	10	10.83	00.00
	Primary Education	20	16.66	20	16.66	
	Secondary Education	39	32.50	39	32.50	
	Higher Education	29	24.16	29	24.16	
	Graduation	19	15.83	19	15.83	
	Mean	2.35		2.35		
	Enhancement mean				00	
	Enhancement %				00%	
Social status	Low	29	24.16	26	21.66	04.46**
	Medium	70	58.33	74	61.66	
	High	21	17.50	20	16.66	
	Mean	5.825		8.258		
	Enhancement mean				2.433	
	Enhancement %				42.00%	
Expenditure on food consumption	Low	14	11.66	00	00.00	05.79**
	Medium	87	72.50	120	100.00	
	High	19	15.83	0	00.00	
	Mean	6028.33		8853.56		
	Enhancement mean				2825.23	
	Enhancement %				46.00%	
Heath status	Low	41	34.16	54	45.00	02.12**
	Medium	79	65.83	66	55.00	
	High	00	00.00	00	00.00	
	Mean	6.183		2.725		
	Enhancement mean				2.725	
	Enhancement %				44.00%	
Social participation	Low	77	64.16	75	62.50	07.21**
	Medium	40	33.33	38	31.66	
	High	03	02.50	07	05.83	
	Mean	0.3833		0.6333		
	Enhancement mean				0.25	
	Enhancement %				65.21%	
Materiel possession	Low	16	13.33	17	14.16	01.68**
	Medium	90	75.00	103	85.33	
	High	14	11.66	00	00.00	
	Mean	5.4583		8.2583		
	Enhancement mean				2.8	
	Enhancement %				51.29%	

**Significant at 1% level, *Significant at 5% level

The data related to socio economic impact of PoCRA from Table 02 indicated that, there was significant enhancement (t=03.64) in mean annual income of PoCRA beneficiaries 100.44 per cent (Rs.85,959) after participation in PoCRA. There was no significant change (t=00) in family type after participation in PoCRA. There was an average enhancement (t=00.78) of family size (0.016) after participation in PoCRA.

There was no enhancement (t=00) of education after participation in PoCRA. There was significant enhancement (t=4.46) in social status of beneficiaries 42.00 per cent (8.25) after participation in PoCRA. There was significant enhancement (t=5.79) on expenditure on food consumption by 46.00 per cent (Rs. 8853.56) after participation in PoCRA. There was significant enhancement (t=2.12) of mean health

status by 44.00 per cent after participation in PoCRA. There was highly significant enhancement ($t=7.21$) in case of social participation of beneficiaries by 65.21 per cent after participation in PoCRA. There was remarkable enhancement ($t=1.68$) in material possession of beneficiaries by 51.29 per cent after participation in PoCRA.

2.1 Overall Impact

After participating in the PoCRA initiative, the beneficiary's socioeconomic position improved significantly. Before participation in PoCRA 4.16 per cent beneficiaries were observed in low category which reduced to 00.00 per cent after participation in PoCRA. While 80 per cent beneficiaries before participation in PoCRA were belonged to medium impact category increased up to 89.16 per cent after participation in PoCRA.

The data analysed with Chi square test statistical test, revealed that, after involvement in the PoCRA project. There was a significant impact on beneficiaries ($X=0.0003$).

Table 3: Overall Impact

Category	Before PoCRA		After PoCRA		X ² Test
	N	%	N	%	
Low	05	04.16	00	00.00	0.0003
Medium	96	80.00	107	89.17	
High	19	15.33	13	10.83	
Total	120	100.00	120	100.00	

3. Relationship between profile of beneficiaries and socio-economic impact of PoCRA

It is evident from Table 4 that, land holding, annual income, training received and cosmopolitanism have established a positive and highly significant relationship with the impact of PoCRA on beneficiaries' socio-economic condition. Education, occupation, mass media exposure, extension contact, economic motivation and risk orientation had a positive and significant relationship with the impact of PoCRA on beneficiaries' socioeconomic situation. Gender has a negative and non-significant association with the impact of PoCRA on beneficiaries' socio-economic condition. Only age and caste category had a positive but non-significant relationship with the impact of PoCRA on beneficiaries' socioeconomic condition.

Table 4: Correlation coefficient between profile of beneficiaries and socio-economic impact of PoCRA.

Sr. No.	Variable	Correlation Coefficient
1.	Age	0.150 ^{NS}
2.	Education	0.214*
3.	Gender	-0.110 ^{NS}
4.	Land holding	0.448**
5.	Annual income	0.935**
6.	Training received	0.351**
7.	Occupation	0.223*
8.	Caste category	0.132 ^{NS}
9.	Mass media exposure	0.196*
10.	Extension contact	0.222*
11.	Cosmopolitanism	0.284**
12.	Economic motivation	0.196*
13.	Risk orientation	0.201*

**Significant at 1% level,

*Significant at 5% level, NS: Non-Significant.

Conclusion

From the above findings it was concluded that PoCRA had

significant impact on beneficiary's socio economic condition, particularly annual income, social status, expenditure on food consumption, health status, social participation and material possession.

Similar findings were reported by Bhandari (2014) [3] and Jadhav (2014) [6].

References

1. Adsul GB. Socio economic impact of National Horticulture Mission on its beneficiaries in Marathwada region (Doctoral Dissertation). Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani (Maharashtra) 2016.
2. Ahire RD, Kapse PS. Socio-economic impact of National Initiative on climate research agriculture (NICRA) project on its beneficiaries AGRESO 2016-2017 2017.
3. Bhandari SD. Socio-economic impact of Mahatma Gandhi national rural employment guarantee act on the beneficiaries (Master's Thesis). Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani (Maharashtra) 2014.
4. Bhosale GS. Crop Loan Borrowing Behavior of Farmers (Master's Thesis) Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani (Maharashtra) 2019.
5. Gaikwad SR. Awareness of farmers about scheme for doubling of farm income (Master's Thesis) Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani (Maharashtra) 2020.
6. Jadhav SH. Impact of ATMA on socio economic development of farmers in washim district (Master's Thesis) Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola (Maharashtra) 2014.
7. Kumbhar AK. Attitude of Farmers Pradhan Mantri Fasal Bhima Yojna (Master's Thesis) Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani (Maharashtra) 2020.