

PROFILE OF RESPONDENTS AND THEIR RELATIONSHIP WITH ADOPTION OF TECHNOLOGY INTERVENTIONS OF DIFFERENT FIELD CROPS UNDER NICRA PROJECT

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ABSTRACT

The National Innovations on Climate Resilient Agriculture (NICRA) is a network project of Indian Council of Agricultural Research (ICAR), New Delhi. Under this project, the Technology Demonstration Component was implemented in selected vulnerable districts of the country by organizing location specific interventions in agriculture. This study was undertaken in Ratnagiri district from Konkan region and Aurangabad (*Chattrapati Sambhajinagar*) district from Marathwada region of Maharashtra state to know profile of the respondents and to find the relationship between profile and adoption of technology interventions of different field crops. The study was based on ex-post facto research design and data were collected through interview schedule. Majority of respondents found under middle age group and 46.79 per cent of respondents were educated up to secondary class. In this study area, 50.00 per cent respondents possessed land holding small to semi-medium size and 85.36 per cent respondents belong to medium level of annual income. Further, 63.57 per cent of respondents were reported to have medium mass media exposure. The relationship between profile and adoption of technology revealed that relationship between the personal variables viz. age, education and mass media exposure and adoption was non-significant. Whereas, size of land holding as well as annual income were highly correlated with adoption. Further regarding non-beneficiary respondents, it was seen that, education, annual income and mass media exposure were positive and significantly correlated with adoption.

Key Words : Profile, Relationship, Adoption, Technology, Project

INTRODUCTION

The National Innovations on Climate Resilient Agriculture (NICRA) is a network project of Indian Council of Agricultural Research (ICAR), New Delhi implemented in various districts of the country since 2011. The project was focused to enhance resilience of Indian agriculture to climate change and climatic vulnerability through strategic research and demonstration of technologies. The technology demonstration

component of the project metes out with demonstrating authentic technologies for adaptation of various production system to climatic variability. This project was implemented in hundred districts of the country by way of location specific interventions. These districts were selected based on the drought, cyclone, actual occurrence of floods and droughts etc. criteria besides the strength of KVKs.

The crop demonstration module consists of

introducing drought or flood tolerant varieties, advancement of planting dates of *rabiseason* crops in areas with terminal heat stress, watersaving paddy cultivation methods i.e. plantation techniques, seeding methods, fertilizer management etc., community seedling nurseries under delayed monsoon situation, custom hiring centers for in time operations, location specific inter-cropping systems with elevated sustainable yield index.

So, considering above reality, this investigation was studied to know profile of respondents and to determine the relationship between profile and adoption of technology interventions of different field crops under Technology Demonstration Component of the NICRA project.

MATERIALS AND METHODS

This investigation was supervised in the year 2021-22 in Ratnagiri district from Konkan region and Aurangabad (*Chattrapati Sambhajinagr*) districts from Marathwada region of Maharashtra state. All the ten operational villages of the NICRA Project that are Harale, Parule, Raipatan, Whel and Talawade from Ratangiri district and Shekta, Vajanapur, Gopalwadi, Shankarpur and Shiresaygaon from Aurangabad (*Chattrapati Sambhajinagr*) district were selected. From these villages 140 farmers (14 farmers from every village) were selected as beneficiary. For this study 140 farmers were taken from the nearby 10 villages (14 farmers from every village) as non-beneficiary on random basis for comparison. Thus, a sample size was 280 respondents for the investigation. In this study, ex-post facto design of research was applied. An interview schedule comprised of 10, 7, 12 and 12 items related to improved technology in paddy, horse gram, maize and Bengal gram, respectively was developed.

Score of 2, 1 and 0 were assigned to each item for full adoption, partial adoption and no adoption, respectively. The individual raw scores of the respondents were later converted into standardized scores to get the adoption index with the help of the following formula:

$$\text{Adoption index} = \frac{\text{Obtained adoption score}}{\text{Highest obtainable score}} \times 100$$

The adoption of the respondents was further categorized as 'low', 'medium' and 'high' by using the formula mean $\pm$ standard deviation. The correlation was found between the profile (personal variables) of respondents and adoption by calculating correlation coefficient.

RESULTS AND DISCUSSION

Profile of Respondents

Respondents profile gives an idea of their socio-economic and communicational characteristics at a glance. The respondent's level of knowledge, attitude and adoption are influenced by these characteristics. The data incorporated in Table 1 revealed that, most of respondents belongs to 40 to 59 years of age group. This age group alone constitutes 65.35 per cent of the total sample. Whereas, 20.36 and 14.29 per cent respondents were less than 40 years and more than 59 years of age groups, respectively. This finding is similar to results of Kumari (2014) and Kalyan Babu (2019).

The data depicted in Table 2 revealed that, 46.79 per cent of respondents were educated upto secondary class. In same category Konkan and Marathwada region respondents were 45.00 per cent and 48.57 per cent, respectively. Whereas, 18.92 per cent respondents were educated upto primary class, 13.93 per cent were educated

upto higher secondary class, 11.43 per cent were found educated upto college and 7.50 per cent respondents educated upto pre-primary. Only 1.43 per cent respondents found educated upto post-graduate. The results are somewhat in line with Kalyan Babu (2019).

The data of Table 3 shows that, 37.50 per cent of total respondents were having upto 1 ha land holding (marginal), followed by 27.86 per cent of them having semi-medium size i.e. 2.01 to 4 ha and 22.14 per cent were having 1-2 ha size of land holding (small). However, 12.50 per cent of them were having land holding upto medium size i.e. above 4 hectares. The large land holders were not included in NICRA programme. Identical results were observed by Agrawal *et al.* (2016) and Pise *et al.* (2018).

Figures depicted into Table 4 visualize that, among 240 respondents, 82.50 per cent

respondents were having medium of annual income (Rs. 54,953/- to Rs. 5,46,909/-) from all sources and 13.57 per cent respondents earned family income higher than Rs. 5,46,909/- per annum, while remaining 3.93 per cent of respondents earned family income lower than Rs. 54,953/- per annum from all income sources. The findings are in line with the judgements of Praveen babu *et al.* (2016) and Kalyan Babu (2019).

The evidence presented in Table 5 revealed that out of 240 respondents, 63.57 per cent respondents were reported to have mass media exposure at medium level of, whereas, 17.50 per cent respondents reported to have low level mass media exposure and remaining 18.93 per cent of respondents noticed in higher level of mass media exposure. The present findings are relevant to results reported by Ramalakshmi Devi *et al.* (2013) and Praveenbabu *et al.* (2016).

Relationship Between Personal Variables and Adoption of Technology Interventions by Respondents

Table 6 : Relationship between personal variables and adoption of technology intervention by respondents

Sr. No.	Personal variable	Adoption							
		Konkan region				Marathwada region			
		Beneficiary (n =70)		Non-beneficiary (n =70)		Beneficiary (n =70)		Non-beneficiary (n =70)	
		'r'	't'	'r'	't'	'r'	't'	'r'	't'
1.	Age	0.065	0.53 ^{NS}	-0.412	-3.72 ^{**}	-0.264	2.25 [*]	-0.099	-0.82 ^{NS}
2.	Education	0.122	1.01 ^{NS}	0.319	2.77 ^{**}	0.394	3.53 ^{**}	0.148	1.23 ^{NS}
3.	Size of land holding	0.306	2.65 ^{**}	0.092	0.76 ^{NS}	0.239	2.02 [*]	0.171	1.43 ^{NS}
4.	Annual income	0.326	2.84 ^{**}	0.235	1.99 [*]	0.294	2.53 [*]	0.198	1.66 ^{NS}
5.	Mass media exposure	0.150	1.25 ^{NS}	0.413	3.74 ^{**}	0.287	2.47 [*]	0.260	2.22 [*]

^{**} Significant at 1% level,

^{*} Significant at 5% level,

NS= Non-significant

Data in Table 6 indicates that, in Konkan region age, education and mass media exposure of beneficiary respondents were found non-significantly correlated with adoption. It means that no relationship found among age, education and mass media exposure and adoption of recommended interventions. Whereas, variables land holding size and annual income were found positive and highly correlated with adoption. This implies that as the size of farm and annual income increases, the adoption also increases.

In case of non-beneficiary respondents from Konkan region, age was negative and highly correlated with adoption level of technology intervention. This means that as the age increases, adoption by respondents decreases. The results are similar with finding of Bhatia (2015). Further it was seen that, education, annual income and mass media exposure were positive and significantly correlated with adoption of technology interventions. However, land holding size was found non-significant with adoption with respect to non-beneficiary respondents. Identical results were obtained by Gohil *et al.* (2016).

Table 6 data indicates that, age, education, land size, annual income and mass media exposure of beneficiary respondents were found positive and significantly correlated with adoption of beneficiary from Marathwada region. This reveals that as the level of age, education, size of land, income and mass media exposure increases adoption also increases. Gopala *et al.* (2010) reported similar results.

Further regarding non-beneficiary respondents of Marathwada region, it is revealed that, personal variables age, education, land size and income of respondents found non-significantly correlated with adoption. It means that there

is no relationship between these variables and had no influence on adoption of recommended interventions. However, variable mass media exposure indicated correlation positive and significant with adoption of technology interventions. The outcomes are in line with results of Etwire *et al.* (2013) as well as Sandeep *et al.* (2013).

CONCLUSION

The above study inferred that most of respondents belongs to 40 to 59 years i.e. middle age group. Regarding education, 46.79 per cent were found educated upto secondary class. Further data specify that beneficiary respondents were better educated than non-beneficiary respondents except Marathwada regions higher secondary and college level category. In the study area, 50.00 per cent respondents possessed land holding small to semi-medium size and more than eighty per cent respondents were having medium annual income from all sources. Out of 240 respondents, 63.57 per cent respondents have reported medium level of mass media exposure in which beneficiary respondents had more mass media exposure than non-beneficiary respondents.

In Konkan region, beneficiary respondents' land holding as well as annual income were found positively and highly correlated with the adoption of technology interventions. This implies that as the size of farm and annual income increases, adoption also increases. In case of non-beneficiary respondent's education, annual income and media exposure were positive and significant with adoption. Results indicated that, variables age, education, land holding, annual income and media exposure of beneficiary respondents from Marathwada region had a significantly positive

relationship with adoption of technology interventions. Further regarding non-beneficiary respondents' personal variables age, education, land holding and income were seen non-significantly correlated with adoption. It means that there is no relationship between these variables and had no influence on adoption of recommended interventions.

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Table 1: Distribution of respondents according to their age (n =280)

Sr. No.	Age (years)	Konkan region						Marathwada region					
		Beneficiary			Non-beneficiary			Beneficiary			Non-beneficiary		
		f	%	f	%	f	%	f	%	f	%	f	%
1.	Young (< 40)	11	15.71	12	17.14	23	16.43	18	25.71	16	22.86	34	24.29
2.	Middle age (40 to 59)	49	70.00	42	60.00	91	65.00	39	55.71	53	75.71	92	65.71
3.	Old (> 59)	10	14.29	16	22.86	26	18.57	13	18.58	01	1.43	14	10.00
Total		70	100	70	100	140	100	70	100	70	100	140	100

Mean= 49.50, S.d. = 9.29, f = frequency, % = per cent

Table 2: Distribution of respondents according to their level of education (n =280)

Sr. No.	Education (std)	Konkan region						Marathwada region					
		Beneficiary			Non-beneficiary			Beneficiary			Non-beneficiary		
		f	%	f	%	f	%	f	%	f	%	f	%
1.	Pre-primary (up to 4 th)	1	1.43	14	20.00	15	10.71	4	5.71	2	2.85	6	4.29
2.	Primary (5 th -7 th)	13	18.57	20	28.57	33	23.58	12	17.14	8	11.43	20	14.29
3.	Secondary (8 th -10 th)	39	55.72	24	34.29	63	45.00	38	54.29	30	42.86	68	48.57
4.	Higher secondary (11 th to 12 th)	12	17.14	10	14.28	22	15.71	7	10.00	10	14.29	17	12.14
5.	College (First year to final year)	5	7.14	0	0.00	5	3.58	7	10.00	20	28.57	27	19.28
6.	Post-graduate	0	0.00	2	2.86	2	1.43	2	2.86	0	0.00	2	1.43
Total		70	100	70	100	140	100	70	100	70	100	140	100

f = frequency, % = per cent

Table 3: Distribution of respondents according to their size of land holding (n =280)

Sr.No.	Land holding (ha)	Konkan region						Marathwada region							
		Beneficiary			Non-beneficiary			Beneficiary			Non-beneficiary				
		Total			Total			Total			Total				
		f	%	%	f	%	%	f	%	%	f	%	%		
1.	Marginal (Up to 1.00)	42	60.00	56	80.00	98	70.00	3	4.29	4	5.71	7	5.00	105	37.50
2.	Small (1.01 to 2.00)	19	27.14	10	14.28	29	20.71	19	27.14	14	20.00	33	23.57	62	22.14
3.	Semi-medium (2.01 to 4.00)	5	7.14	4	5.72	9	6.43	25	35.71	44	62.86	69	49.29	78	27.86
4.	Medium (4.01 to 10.00)	4	5.72	0	0.00	4	2.86	23	32.86	8	11.43	31	22.14	35	12.50
Total		70	100	70	100	140	100	70	100	70	100	140	100	280	100

f = frequency, % = per cent

Table 4: Distribution of respondents according to their annual income (n =280)

Sr. No.	Annual income (Rs.)	Konkan region						Marathwada region						Grand Total	
		Beneficiary			Non-beneficiary			Beneficiary			Non-beneficiary				
		f	%	Total	f	%	Total	f	%	Total	f	%	Total		
1.	Low (< 54953)	2	2.86	4	5.71	6	4.29	2	2.86	3	4.28	5	3.57	11	3.93
2.	Medium (54953 to 546909)	66	94.28	65	92.86	131	93.57	43	61.43	57	81.43	100	71.43	231	82.50
3.	High (> 546909)	2	2.86	1	1.43	3	2.14	25	35.71	10	14.29	35	25.00	38	13.57
Total		70	100	70	100	140	100	70	100	70	100	140	100	280	100

Mean = Rs.300931, S.d. = 245978, f = frequency, % = per cent

Table 5: Distribution of respondents according to their mass media exposure (n =280)

Sr. No.	Mass media exposure (score)	Konkan region						Marathwada region					
		Beneficiary			Non- beneficiary			Beneficiary			Non- beneficiary		
		f	%		f	%		f	%		f	%	
1.	Low (<2.48)	4	5.71	23	32.86	27	19.29	2	2.86	20	28.57	22	15.71
2.	Medium (2.48 to 7.78)	36	51.43	43	61.42	79	56.42	49	70.00	50	71.43	99	70.72
3.	High (>7.78)	30	42.86	4	5.72	34	24.29	19	27.14	0	0.00	19	13.57
Total		70	100	70	100	140	100	70	100	70	100	140	100

Mean= 5.13, S.d. = 2.65, f = frequency, % = per cent