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Adoption of Agricultural Technologies Among Different Categories of Farmers in Kheda District

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INTRODUCTION

Adoption of agricultural technologies varies from farmer to farmer and also from among different categories of farmers viz., big, small, marginal and SC-ST farmers. Adoption refers to both mental acceptance and also covers the use of new agricultural technologies. In the present study adoption is defined as the use of recommended agricultural technology on a continuing basis.

The new strategy of agriculture is characterised by the adoption of high yielding varieties of seeds, chemical fertilizers, pesticides, fungicides, improved agricultural implements, improved irrigation practices and improved dairy practices. Therefore, the present investigation was undertaken to study (1) The extent of adoption of selected agricultural technologies among different categories of farmers, (2) The distribution of respondents according to their overall extent of adoption among different categories of farmers.

METHODOLOGY

The study was conducted in Kheda district of Gujarat state in the year 1993-94. Kheda district is being considered as one of the progressive districts of the state. The irrigation facillities from Mahi canal command area in some talukas of the district have facilitated the adoption of different agricultural technologies. Hence, four talukas namely Petlad, Anand, Borasd and Nadiad were purposively selected for conducting the study.

Stratified random sampling technique was used to select 216 respondents from different categories of farmers. Further it is to state that majority of SC-ST farmers selected for the study had the land holdings less than one hectare of land and they fell in the category of marginal farmers (94.4 per cent) and small farmers (2.6 per cent). None of the SC-ST farmers fell under the category of big farmers and small farmers (2.6 per cent). Therefore the sample of SC-ST farmers were taken as a separate category in this study and the rest of the farmers excepting SC-ST farmers were categorised as big and small and marginal farmers, based on their land holding.

RESULTS AND DISCUSSION

Table 1 revealed that different categories of big, small, marginal and SC-ST farmers differed significantly in their extent of adoption of different agricultural technologies namely extent of use of improved varieties,

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Table 1 : Mean index of extent of adoption of different agricultural technologies among four different categories of farmers. (N=216)

Sr. No.	Technologies	Big farmers	Small farmers	Marginal farmers	SC-ST farmers	F values
1.	Extent of use of improved varieties	100.00	100.00	100.00	100.00	-
2.	Extent of use of fertilizers	68.30	70.35	58.00	42.72	14.33*
3.	Extent of use of pesticides	63.00	52.18	36.00	14.83	5.78*
4.	Extent of use of fungicides	27.90	20.62	20.00	9.00	2.55*
5.	Extent of use of irrigation practices	60.58	61.80	57.00	49.94	1.19
6.	Extent of use of improved dairy practices	79.15	80.92	84.00	68.00	22.30*

* Significant at 0.05 per cent level

chemical fertilizers, pesticides, fungicides, improved agricultural implements, improved irrigation practices and improved dairy practices. The discussion of the table is as follows.

EXTENT OF USE OF IMPROVED VARIETIES

The extent of use of recommended seeds of high yielding varieties for different crops was found to be 100 per cent in all the categories of farmers, thus it can be inferred that extent of use of improved varieties and hybrid varieties of different crops namely, paddy, wheat, tobacco, oilseeds, bajra and vegetable crops was maximum i.e., 100 per cent. Therefore agriculture modernisation and extent of adoption in case of improved variety was 100 per cent in Kheda district. The possible reason for 100 per cent use of high yielding varieties by all categories of farmers is due to the availability of irrigation facilities and high income derived from commercial crops. The efforts of Agricultural University, Department of Agriculture, Extension Agencies and Seed Agencies might have contributed for introduction of High Yielding Varieties in Kheda district. The present findings confirm with the findings of Negi (1971) and Patel (1992).

EXTENT OF USE OF CHEMICAL FERTILIZERS

It was revealed that the index value of extent of use of chemical fertilizers for different crops was highest in case of small and big farmers (70.35 per cent) and (68.30 per cent) respectively, while in case of marginal farmers, the index value of extent of use of fertilizers was more than half (58.00 per cent)

Table 2 : Distribution of respondents according to overall extent of adoption among different categories of farmers. (N=216)

Sr. No.	Particulars	Big farmers		Small farmers		Maginal farmers		SC-ST farmers		Total farmers	
		No	%	No	%	No	%	No	%	No	%
1.	Low (upto 44.32)	9	15.00	8	13.33	8	13.33	10	27.77	35	16.20
2.	Medium (44.33-72.17)	31	51.60	34	56.60	33	55.00	20	55.55	118	54.62
3.	High (72.18& above)	20	33.33	18	30.00	19	31.66	6	16.66	63	29.18
	Total	60	100.00	60	100.00	60	100.00	36	100.00	216	100.00
	Mean	0.6342		0.6282		0.5625		0.4539		0.5825	
	S.D.	0.1200		0.1628		0.0972		0.0925		0.1393	
	F value	19.54*						* Significant at 0.01 per cent level			

whereas in case of SC-ST farmers the index value of extent of use of fertilizers was less than half (42.72 per cent). The probable reason for high index of extent of use of recommended chemical fertilizers by big and small farmers may be due to their better financial position when compared to marginal and SC-ST farmers. Therefore it can be inferred that extent of use of fertilizer is more pronounced in higher strata of the society. The findings get the support from the findings of Ramakrishnappa (1985) and Ingle (1989) and Patel (1992).

EXTENT OF USE OF RECOMMENDED PESTICIDES

It was revealed that the index value of extent of use of recommended pesticides for different crops was found to be 63.00 per cent in case of big farmers and 52.18 per cent in case of small farmers. Whereas in case of marginal and SC-ST farmers the index of use of plant protection measures was lowest i.e., 36.00 per cent and 14.83 per cent respectively. The possible reason for the use of pesticides to aforesaid extent by big, small, marginal and SC-ST farmers may be due to that the pesticides were costly to all categories of farmers specially marginal and SC-ST farmers may not be affording to purchase such costly inputs.

EXTENT OF USE OF RECOMMENDED FUNGICIDES

The findings revealed that the index value of use of recommended fungicides for controlling diseases of different crops was

found to be only 27.90 per cent in case of big farmers, nearly 20.00 per cent in case of small & marginal farmers and only 9.00 per cent in case of SC-ST farmers. Thus it can be concluded that the extent of use of recommended plant protection chemicals was lowest in all categories of farmers. The probable reason for lowest use of recommended dose of fungicides may be because the chemical may be costly, secondly some of the virual and fungal diseases cannot be controlled and thirdly many of the diseases may not have occurred at all. Hence, the present finding confirm the findings of Patel (1971), Malik and Nandal (1973) and Patel (1992).

EXTENT OF USE OF IRRIGATION PRACTICES

It was revealed that the index value of extent of use of improved irrigation facilities was same in almost all the categories of farmers. Thus it can be considered that extent of use of improved irrigation practices was nearly upto 60 per cent in all categories of farmers. The possible reason for this is that all categories of farmers depend on canal irrigation only.

EXTENT OF USE OF IMPROVED DAIRY PRACTICES

The index value of extent of use of improved dairy practices was highest in case of marginal farmers (84.00 per cent) followed by small farmers (80.92 per cent). In case of big farmers and SC-ST farmers the index value of extent of use of improved dairy practices was 79.15 per cent and 68.00 per cent respectively. In general it was found that the index of use of recommended dairy practices was more than 75 per cent in all categories of farmers. The possible reason for high extent of use of dairy practices was because the dairy co-operative movement and activities of operation flood have influenced the farmers of Kheda district. The present finding confirm the finding of Nataraj (1985) and Kulkarni (1990).

DISTRIBUTION OF RESPONDENTS ACCORDING TO OVERALL EXTENT OF ADOPTION AMONG DIFFERENT CATEGORIES OF FARMERS

A closer examination of Table 2, revealed that more than half (51.60 per cent, 56.60 per cent, 55.00 per cent and 55.55 per cent) of big, small, marginal and SC-ST farmers were having medium overall extent of use of different agricultural practices respectively, whereas 33.33 per cent of big farmers, 30.00 percent of small farmers, 31.66 per cent of marginal farmers and 16.66 per cent of SC-ST farmers were having high overall extent of use of different agricultural practices followed by 15.00 per cent of big farmers, 13.33 per cent of small and marginal farmers followed by 27.77 per cent of SC-ST farmers were having low overall extent of use of different agricultural practices.

In general, under pooled categories of farmers, more than half (54.62 per cent) of respondents were having medium level overall extent of use of different agricultural practices whereas 29.16 per cent of the respondents had high level of overall extent of use of different agricultural practices, while 16.20 per cent of respondents were having low level of overall extent of use of different agricultural practices.

The computed F value 19.54 indicated highly significant differences among different categories of farmers with respect to use of overall extent of use of different agricultural practices. The present finding is in confirmity with the finding of Patel (1992).

CONCLUSION

It was found that the different categories of big, small, marginal and SC-ST farmers differed in their extent of adoption of different agricultural technologies namely extent of use of improved varieties, chemical fertilizers, pesticides, fungicides, improved irrigation practices and improved dairy practices.

The positive significant differences among four different categories of farmers were found in case of extent of use of chemical fertilizers, pesticides, fungicides, and improved dairy practices. Whereas, extent of use of improved varieties and improved irrigation practices exhibited non-significant differences among different categories of farmers.

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