

ADOPTION OF CHILLI PRODUCTION TECHNOLOGY AMONG THE FARMERS

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ABSTRACT

The present study was conducted in Udaipur district of Rajasthan. There are ten tehsils in Udaipur district of Rajasthan, out of which four tehsils namely, Gogunda, Jhadol, Girwa and Kherwara were selected on the basis of maximum area under chilli cultivation. From each selected tehsil five villages were selected. From each selected village 6 tribal and 6 non-tribal chilli growers were selected randomly. Thus, in all 240 farmers (120 tribal and 120 non-tribal farmers) were included in the sample of study. The study revealed that 52.08 per cent of farmers had medium level of adoption, whereas, 24.59 and 23.33 per cent of farmers have high and low level of adoption respectively about chilli cultivation technology. It was further noted that the extent of adoption in tribal farmers was 41.66 to 85.57 per cent, while in case of non-tribal farmers the extent of adoption was 45.38 to 93.30 per cent in all the improved chilli cultivation practices.

INTRODUCTION

Chilli is one of the important vegetable spices grown all over the world except in colder parts. It is also known as red pepper or hot pepper and it constitutes an important well-known commercial crop used as a condiment, culinary supplement or as a vegetable. Chilli is virtually an indispensable item in the kitchen. India occupies 7.5 lakh hectares area under chilli cultivation with a production of 11.67 lakh tonnes. The major chilli growing states are Andhra Pradesh, Karnataka, Maharashtra, Orissa, Tamil Nadu, Madhya Pradesh, West Bengal and Rajasthan, and account for more than 80 per cent of total area and production. Andhra Pradesh has been leading both in area and production contributing on an average, 25 per cent of the total area and over 40-50 per cent of the total production. Rajasthan is considered to be the potential area for chilli crop. In Rajasthan chilli is cultivated in 13812 hectares area with production of about 13649 tonnes. The important chilli producing districts are Jodhpur, Alwar, Jaipur, Bhilwara, Tonk, Sawai Madhopur and Udaipur. Chilli is mainly used as culinary supplement to add flavour, colour, vitamin and pungency. Looking to the importance of chilli,

it is essential that farmers of the state should be motivated for decision to adopt recommended cultivation on a large scale. With this consideration, the present study entitled "Adoption of Chilli Production Technology among the Farmers in Udaipur District of Rajasthan" was undertaken.

RESEARCH METHODOLOGY

The present study was conducted in Udaipur district of Rajasthan. There are 10 tehsils in Udaipur district of Rajasthan, out of which four tehsils namely, Gogunda, Jhadol, Girwa and Kherwra have been selected on the basis of maximum area under cultivation of crop for present study and five villages having maximum area under chilli cultivation were selected from each identified tehsil. Thus, in all twenty villages were selected. For selection of respondents 240 farmers (120 tribal and 120 non-tribal farmers) were randomly selected from identified villages for data collection. Data were collected with the help of interview schedule developed for this purpose through face to face contact method. Thereafter data were analyzed, tabulated and inferences were drawn according to the objective of the study.

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RESULTS AND DISCUSSION

Need based and location specific scientifically sound recommendations and their full use of client system is vital for maximization of agricultural production. Still there exists wide gap between the technology available at the research station and its adoption at the farmer's level. One of the reason for this may be strong conviction of farmers towards the traditional practices, which they have been following for the last several years. Keeping this

view in mind, an effort has been made to find out the extent of adoption of improved chilli cultivation practices by the farmers. The results have been presented under the following heads:

Distribution of respondents on the basis of their level of adoption:

To get an overview of adoption level, the respondents were categorized into three groups on the basis of calculated mean and standard deviation of the adoption score obtained by the respondents. The results are presented in Table 1.

Table 1. Distribution of respondents on the basis of their adoption level of improved chilli cultivation technology n=240

S. No.	Level of adoption	Tribal farmers		Non-tribal farmers		Total	
		f	%	f	%	f	%
1.	Low (below 55.91)	38	31.66	21	17.50	59	24.59
2.	Medium (55.92 to 69.89)	66	55.00	59	49.17	125	52.08
3.	High (above 69.89)	16	13.34	40	33.33	56	23.33
	Total	120	100.00	120	100.00	240	100.00

f = Frequency, % = per cent

Data presented in Table 1 depicts that majority (52.08%) of the total respondents were in the medium adoption group, whereas, 24.59 per cent respondents were in low adoption group and remaining 23.33 per cent chilli growers to be observed in the high level of adoption group about chilli cultivation technology.

Further, among the categories of chilli growers it was observed that in high adoption group, 13.34 per cent respondents were found to be from tribal farmers' category and 33.33 per cent respondents from non-tribal farmers' category. In the medium adoption group, 55 per cent respondents belong to tribal farmers' group and 49.17 per cent respondents to non-tribal farmers' group. Whereas, in the low adoption group, 31.66 per cent and only 17.50 per cent respondents were in the tribal and non-tribal farmers' group respectively. From the above results it can be concluded that non-tribal farmers possessed more level of adoption of chilli cultivation technology than tribal farmers. It can be further concluded that more than 80 per cent of respondents from non-tribal categories were to be observed either from medium or high adoption group. Whereas, about 85 per cent tribal farmers adopted chilli cultivation technology from medium

to lower level in the study area.

These findings are similar in line with the findings of Patel (2005) who found that majority (70%) of the chilli growers had medium level of adoption followed by high and low level of adoption with 18 and 12 per cent respectively. Similar findings have been also reported by Venkataramalu et al. (2008).

Extent of adoption of different aspects of chilli cultivation technology by the farmers:

In order to know the extent of adoption of chilli cultivation technology by the respondents, thirteen major practices have been identified. The mean per cent scores were calculated for each practice and then the results about the same have been presented in Table 2.

Data presented in Table 2 indicate that the extent of adoption of high yielding varieties of chilli among non-tribal farmers was recorded 81.25 per cent, while in case of tribal farmers it was 43.75 per cent. Analysis of data clearly shows that majority of the respondents did not adopt high yielding varieties namely NPA-46A, Pusa Jwala, Mathania Long, Pusa Sadabahar and Pant C-2 of chilli in the study area.

Table 2. Extent of adoption of improved chilli cultivation practices among the respondents n=240

S. No.	Practices	Tribal farmers		Non-tribal farmers		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	High yielding varieties	43.75	11	81.25	4	62.50	7
2.	Soil and field preparation	82.50	3	77.50	5	80.03	3
3.	Nursery management	65.65	7	93.30	1	79.47	4
4.	Seed rate and spacing	85.00	2	87.50	3	86.25	2
5.	Seed and soil treatment	47.50	10	50.00	11	48.75	12
6.	Transplanting of seedlings	65.00	8	75.00	6	70.00	5
7.	Method of sowing	85.57	1	88.50	2	87.03	1
8.	Crop rotations and intercropping	67.50	6	47.50	12	57.50	10
9.	Fertilizer application	48.21	9	69.64	7	58.92	9
10.	Water management	78.00	5	52.00	10	65.00	6
11.	Weed management	78.46	4	45.38	13	61.92	8
12.	Plant protection measures	42.85	12	58.50	8	50.64	11
13.	Harvesting, post-harvest technology and marketing	41.66	13	55.00	9	48.33	13

MPS = Mean per cent score, NS = Non-significant

$r_s = 0.25^{NS}$

The extent of adoption of soil and field preparation, it was found that tribal and non-tribal farmers had 82.50 and 77.50 per cent adoption respectively. It was clear that majority of chilli growers were following important operations for soil and field preparation for chilli cultivation. It was found that the extent of adoption of nursery management was 65.65 and 93.30 per cent in tribal and non-tribal farmers respectively. It was observed during the analysis of data that respondents were preparing nursery beds with recommended size and were transplanting the seedlings at appropriate time in the fields.

Further analysis of Table 2 shows that the extent of adoption regarding seed rate and spacing among tribal and non-tribal respondents was 85.00 and 87.50 per cent respectively. It was noted that more than eighty five per cent respondents were adopting recommended seed rate of chilli and maintaining row to row and plant to plant spacing for chilli cultivation. This aspect was ranked second by tribal and third by non-tribal farmers respectively. Regarding adoption of seed and soil treatment, it was found that tribal and non-tribal respondents had 47.50 and 50.00 per cent extent of adoption respectively and ranked tenth by tribal and eleventh by non-tribal farmers. It means that majority of chilli growers had poor adoption regarding use of chemicals for soil borne diseases and insects present

in the soil.

The extent of adoption regarding transplanting of seedlings was 65.00 and 75.00 per cent among tribal and non-tribal chilli growers respectively. It was observed during analysis of data that majority of farmers of both the categories were transplanting 4-5 weeks age of seedlings in June to mid July. The adoption about method of sowing was placed at first by tribal farmers (85.57 MPS) and second by non-tribal farmers (88.50 MPS). The extent of adoption in both the categories of respondents was nearly 85 per cent which means that chilli was sown by nursery raising/transplanting method in the study area by most of the respondents.

Further analysis of table indicates that adoption regarding crop rotations and intercropping measures was 67.50 and 47.50 per cent among tribal and non-tribal chilli growers. The adoption level is more than 45 per cent for both the groups of farmers. Whereas, fertilizer application as per the advice of the experts was not enthusiastic among both tribal and non-tribal respondents. the extent of adoption about this aspect in both the categories of respondents was nearly 60 per cent. This aspect was ranked ninth by tribal and seventh by non-tribal respondents. It was further observed that the extent of adoption about water management was 78.00 and 52.00 per cent among tribal and non-tribal

farmers. The overall adoption level of farmers of both the categories was 65.00 per cent.

The extent of adoption about weed management was 78.46 and 45.38 per cent by tribal and non-tribal farmers respectively. The adoption level of farmers of tribal group was high in weed management and interculture operations. It was found that extent of adoption of plant protection measures in tribal and non-tribal farmers was 42.85 and 58.50 per cent respectively. Only 50.00 per cent of the farmers were using recommended insecticides and pesticides for controlling insect pest of chilli. The adoption level of tribal and non-tribal farmers about harvesting, post-harvest technology and marketing was 41.66 and 55 per cent respectively. The poor adoption about this aspect of chilli among the chilli growers may be due to lack of knowledge and poor socio-economic condition of the farmers in the study area.

From the above discussion, it can be concluded that the extent of adoption in tribal farmers was 41.66 to 85.57 per cent, while in case of non-tribal farmers the extent of adoption was 45.38 to 93.30 per cent in all the improved chilli cultivation practices. Further, it was noted that non-tribal farmers had more extent of adoption than tribal farmers but there still exists a gap in the adoption of improved chilli cultivation technology. To improve the extent of adoption in both the categories of farmers, intensive training programmes should be organized timely and should be location specific for the study area.

Further analysis of Table 2 clearly shows the calculated value of rank order correlation (rs) was 0.25 found to be statistically non-significant at 5

Table 3. Comparison between tribal and non-tribal farmers about adoption of improved chilli cultivation technology

S.No.	Category of respondents	Mean	S.D.	'Z' value
1.	Tribal farmers	56.90	9.72	12.08**
2.	Non-tribal farmers	65.50	4.27	

** Significant at 1 per cent level

Table 3 indicates that 'Z' value was greater than its tabulated value at 1 per cent level of significance. It means there was significant difference between tribal and non-tribal farmers about adoption of chilli cultivation technology.

per cent level of significance. This leads to the conclusion that there was no correlation between the ranks assigned by the tribal and non-tribal farmers with respect to different aspects of chilli cultivation.

The present findings are supported by the findings of Palande et al. (2001) who reported that farmers adopted recommended soil type (100%), ploughing (97.67%), FYM (38.33%), furrow system for plantation (76.66%), control measures for rot disease (13.33%), majority (89.17%) of the farmers followed proper time of harvesting and 48.33 per cent get recommended average yield.

Shrivastava et al. (2002) who reported that 63.33 to 78.34 per cent chilli growers had medium level of adoption regarding S.49 variety of chilli. In case of low level of adoption, number of respondents varied from 15.00 to 25.00 per cent regarding practices like preparation of land, time of raising seedlings, time of transplanting, spacing, farm yard manure, chemical fertilizers, irrigation and plant protection measures. Jaitawat (2008) reported that the extent of adoption was high in irrigation management in fennel cultivation followed by soil and field preparation and time of sowing, whereas, less adoption was observed in plant protection measures, high yielding varieties, soil treatment, seed treatment and harvesting and drying practices.

Comparison between tribal and non-tribal farmers about adoption of chilli cultivation practices:

To find out the variation or similarity in the adoption of chilli cultivation technology between tribal and non-tribal farmers, 'Z' test was applied. The results were presented in Table 3.

Further analysis of table shows that mean score value of non-tribal farmers is more than tribal farmers, which clearly indicates that non-tribal farmers had more adoption level than the tribal farmers about improved chilli cultivation technology. It might be

due to the fact that non-tribal farmers possessed more knowledge, higher socio-economic status, active social participation, more risk bearing ability than tribal farmers.

The findings are in line with the results of Nagar et al. (2008), who reported that there was significant variation among large, small and marginal categories of respondents with regard to adoption of coriander cultivation practices. The results might have appeared due to the reason of high knowledge, active participation, sound economic status, risk bearing capacity, irrigation facilities, scientific orientation and innovative attitude among the large farmers as compared to small and marginal farmers.

CONCLUSION

From the above discussion it could be concluded that 52.08 per cent of the total respondents had medium level of adoption, whereas, 24.59 per cent respondents were reported from the group of low adoption level and 23.33 per cent respondents were in the high adoption level. It was further noted that the extent of adoption in tribal farmers was 41.66 to 85.57 per cent, whereas, in non-tribal farmers extent of adoption was observed to be from 45.38 to 93.30 per cent in all improved practices of chilli cultivation technology. It was

further noted that there was a significant difference in level of adoption between tribal and non-tribal respondents about chilli cultivation technology.

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