

ASSOCIATION BETWEEN EXTENT OF UTILIZATION OF CHEMICAL FERTILIZERS AND SELECTED INDEPENDENT VARIABLES IN SPICE CROPS OF RAJASTHAN

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ABSTRACT

The present study was conducted in Bharatpur region of Rajasthan. The Bharatpur region comprises of four districts, viz. Alwar, Bharatpur, Dholpur and Sawai Madhopur. The selected district Sawai Madhopur is comprised of 5 panchayat samities. Out of these 5 panchayat samities, 2 panchayat samities were selected, viz. Sawai Madhopur and Khandar. Three gram panchayats were selected from Sawai Madhopur namely, Isarda, Sherpur, Karmoda, and three from Khandar namely, Bichpuri Gujran, Gandavar and Naypur. A total number of 12 villages were selected for the study purpose. For selection of respondents, 10 farmers were selected as respondents with the help of simple random sampling technique without replacement. Thus, total 120 respondents were selected. Results indicated that there was association between socio-economic status, economic motivation, achievement motivation, sources of information utilization by the farmers and extent of utilization of chemical fertilizers, whereas social participation was non-significantly associated with utilization of chemical fertilizers.

INTRODUCTION

Agriculture is the backbone of Indian economy. It plays an important role in Indian economy. Fertilizer has been considered as one of the most important input for increasing crop production throughout the world. Its role in increasing the agricultural production has increased overtime due to the scarcity of land resource in the country. The continuous use of land leads to loss of the important nutrients present in the soil. Fertilizer replenishes the deficiency of the nutrients to a great extent. Since the land to man ratio is narrowing rapidly, there is almost no scope for horizontal expansion to meet the future demand. It has been observed that the utilization behaviours of fertilizers among farmers is uneven and sometimes there is a great gulf between conviction of farmers

about the fertilizer purchase and their real use in the fields.

It is true that constraints in fertilizer utilization may not be simple. Further, all the fertilizers may not have the same popularity status in the farming community. The utilization behaviour of farmers may also vary from individual to individual depending on their preferences for particular fertilizer brand and their social, psychological and economic factors. Hence, it is high time that extent of utilization of chemical fertilizers must be identified and also association between extent of utilization of chemical fertilizers and selected independent variables in spices crops must be ascertained so that better strategies will be developed for utilization of chemical fertilizers by the farmers. Looking to the above facts the present study was conducted.

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METHODOLOGY

The present study was conducted purposely in Bharatpur region of Rajasthan. Bharatpur region is comprised of 4 districts, viz. Alwar, Bharatpur, Dholpur and Sawai Madhopur. Out of these 4 district, one district Sawai Madhopur was selected with the help of simple random sampling technique for the study purpose. The selected district Sawai Madhopur is comprised of 5 panchayat samities. Out of these 5 panchayat samities, 2 panchayat samities were selected, viz. Sawai Madhopur and Khandar. Both the panchayat samities, Sawai Madhopur and Khandar comprises of 47 and 35 gram panchayats, respectively. The total number of gram panchayats were 82. Three gram panchayats were selected from Sawai Madhopur namely, Isarda, Sherpur, Karmoda, and three from Khandar namely, Bichpuri Gujran, Gandavar and Naypur, with the help of simple random technique without replacement. Thus, the total number of gram panchayats were six. A total number of 12 villages were selected for the study purpose. A list of farmers was prepared from each selected village. A complete list of farming families was prepared from each selected village. By this procedure total 12 lists were prepared from 12 selected villages. From each of the list, 10 farmers were selected as respondents with the help of simple random sampling technique without replacement. Thus, total 120 respondents were selected for the study purpose.

RESULTS AND DISCUSSION

Association between extent of fertilizers utilization and six selected independent variable viz. socio-economic status, economic motivation, social participation, achievement motivation, sources of information utilized and level of aspiration of small, medium and large farmers have been measured with the help of chi-square test. The results were presented in the subsequent tables 1 to 6.

(A) Association between extent of fertilizer utilization per unit area and farmers socio-economic status:

It may be observed from the critical study of the data presented in Table 1 that the computed value of Chi-square was 21.75 which is more than

the tabulated value of Chi-square (at 1 per cent level of probability). Hence, the hypothesis (H_{01}) stated in null form that, "there is no association between the extent of fertilizer utilization per unit area and farmers socio-economic status" was rejected. It means that the socio-economic status exerted its influence on the extent of fertilizer utilization.

Detail analysis of data in Table 1 shows that among the farmers of low socio-economic status 26.47 per cent, 35.29 per cent and 38.24 per cent farmers fell in the category of 'high', 'medium' and 'low' extent of utilization respectively. While the farmers of medium socio-economic status 7.69, 80.00 and 12.31 per cent fell in to the category of "high", "medium" and "low" utilizer, respectively.

Among the farmers of high socio-economic status there were 28.57 per cent, 42.86 per cent and 28.57 per cent who showed "high" "medium" and "low" extent of fertilizer utilization.

It may be interpreted that higher the socio-economic status more the extent of fertilizer utilization. The findings of this study was supported by findings of the Sharma (1982), Lakhera (1985), and Sharma (1994).

(B) Association between extent of fertilizer utilization per unit area and economic motivation of farmers:

It may be noted from the Table 2 that the computed value of Chi-square was 26.7 which is more than the tabulated value of Chi-square (at 1 per cent level of probability). Hence, the hypothesis (H_{02}) stated in null form that, "there is no association between the extent of fertilizer utilization per unit area and farmers economic motivation" was rejected. It indicate that economic motivation of farmers had influence the extent of fertilizer utilization.

It may be also observed in detail analysis of data in Table 2 that among the farmers of low economic motivation 22.73, 27.27 and 50.00 per cent, where as among the farmers of medium economic motivation 9.59, 78.08 and 12.33 per cent and among the farmers of high economic motivation 32.00, 40.00 and 28.00 per cent fell under the category of "High", "Medium" and "Low" extent of fertilizer utilization respectively.

Table 1. Association between extent of fertilizer utilization and farmer socio-economic status

(n=120)

S. No.	Extent of fertilizer utilization	Socio economic status			Total
		Low (1-28) N=34	Medium (29-73) N=65	High (74-115) N=21	
1	Low (Less than 36.44 kg/ha) N=27	13 (48.15) (38.24)	8 (29.63) (12.31)	6 (22.22) (28.57)	27 (22.5)
2	Medium (36.45-82.2 kg/ha) N=73	12 (16.44) (35.29)	52 (71.23) (80.00)	9 (12.33) (42.86)	73 (60.83)
3	High (more than 82.2 kg/ha) N=20	9 (45.00) (26.47)	5 (25.00) (7.69)	6 (30.00) (28.57)	20 (16.67)
Total		34 (28.33)	65 (54.17)	21 (17.5)	120

(Figure in parenthesis indicate percentage)

Chi-square (X^2) = 21.75 (Significant at 0.01 level of probability)**Table 2. Association between extent of fertilizer use and Economic motivation of farmers**

(n=120)

S. No.	Extent of fertilizer utilization	Economic motivation			Total
		Low (9-18) N=22	Medium (19-34) N=73	High (35-45) N=25	
1	Low (Less than 36.44 kg/ha) N=27	11 (40.74) (50.00)	9 (33.33) (12.33)	7 (25.92) (28.00)	27 (22.5)
2	Medium (36.45-82.2 kg/ha) N=73	6 (8.22) (27.27)	57 (78.08) (78.08)	10 (13.70) (40.00)	73 (60.83)
3	High (more than 82.2 kg/ha) N=20	5 (25.00) (22.73)	7 (35.00) (9.59)	8 (40.00) (32.00)	20 (16.67)
Total		22 (18.33)	73 (60.83)	25 (20.83)	120

It was observed that higher economic motivation results in high extent of fertilizer utilization because the economic motivation of farmers may influence them to spending more money for use of fertilizers, hence the farmers of research locality are understand about the impact of fertilizer in getting more production. The findings of the study are in line with findings of Das & Sarkar (1970), Singh and Singh (1970) and the findings are in contradiction with the findings of Bhilegaonkar (1976), and Gogoi and Gogoi (1989)

(C) Association between extent of fertilizer use per unit area and social participation of farmers:

Table 3 indicates that the computed value of Chi-square was 7.04 which is less than the tabulated

value of Chi-square (at both levels of probability). Hence, the hypothesis (H_{03}) stated in null form that, “there is no association between the extent of fertilizer utilization per unit area and farmer’s social participation” was accepted. It means that social participation of farmers did not make any impact on the extent of fertilizer utilization.

It may be noted from the Table 3 that among the farmers of low social participation 19.56, 56.52 and 23.91 percent farmers had high, medium and low level of extent of fertilize utilization respectively, whereas among the farmers of medium social participation 11.11, 72.22 and 16.67 percent and among the farmers of high economic motivation 25.00, 40.00 and 35.00 percent fell under the category of “High” Medium” and “Low” extent of fertilizer

Table 3. Association between extent of fertilizer utilization and Social participation of farmers**(n=120)**

S. No.	Extent of fertilizer utilization	Social participation			Total
		Low (0-0.04) N=46	Medium (0.05-1.60) N=54	High (1.61-3.00) N=20	
1	Low (Less than 36.44 kg/ha) N=27	11(40.74) (23.91)	9(33.33) (16.67)	7(25.92) (35.00)	27 (22.5)
2	Medium (36.45-82.2 kg/ha) N=73	26(35.61) (56.52)	39(53.42) (72.22)	8(10.96) (40.00)	73 (60.83)
3	High (More than 82.2 kg/ha) N=20	9(45.00) (19.56)	6(30.00) (11.11)	5(25.00) (25.00)	20 (16.67)
Total		46(38.33)	54(45.00)	20(16.67)	120

(Figure in parenthesis indicate percentage)

Chi-square (X^2) = 7.04 (Non-significant at both levels of probability)

utilization, respectively.

The findings showed that the association between the extent of fertilizer utilization and social participation of farmers was non-significant. It means, social participation had no impact on the extent of fertilizer use by the different categories of farmers. The results are in contradiction with the findings of Bhilegaonkar (1976), Singh (1979) and Sepat (1984).

(D) Association between extent of fertilizer utilization per unit area and achievement motivation of farmers:

It may be observed from the Table 4 that the

computed value of Chi-square was (26.47) which is more than the tabulated value of Chi-square (at 1 per cent level of probability). Hence, the hypothesis (H_{04}) stated in null form that, "there is no association between the extent of fertilizer utilization per unit area and farmers achievement motivation." was rejected. It shows that achievement motivation of farmers exerted its influence on the extent of fertilizer utilization.

Further details analysis of data in Table 4 indicated that among the farmers with low achievement motivation 26.08, 30.43 and 43.48 per cent fell under the category of "High", "Medium" and "Low" extent of fertilizer utilization. In this way

Table 4. Association between extent of fertilizer utilization and Achievement motivation of farmers**(n=120)**

S. No.	Extent of fertilizer utilization	Achievement motivation			Total
		Low (3-3.15) N=23	Medium (3.16-4.69) N=72	High (4.70-6.00) N=25	
1	Low (Less than 36.44 kg/ha) N=27	10 (37.03) (43.48)	9(33.33) (12.5)	8 (29.63) (32.00)	27 (22.5)
2	Medium (36.45-82.2 kg/ha) N=73	7 (9.59) (30.43)	57 (78.08) (79.17)	9 (12.33) (36.00)	73 (60.83)
3	High (More than 82.2 kg/ha) N=20	6 (30.00) (26.08)	6 (30.00) (8.33)	8 (40.00) (32.00)	20 (16.67)
Total		23(19.17)	72 (60.00)	25 (20.83)	120

(Figure in parenthesis indicate percentage)

Chi-square (X^2) = 26.47 (significant at 0.01 level of probability)

Table 5. Association between extent of fertilizer utilization and level of aspiration of farmers**(n=120)**

S. No.	Extent of fertilizer utilization	Level of aspiration			Total
		Low (1-2.24) N=43	Medium (2.25-5.36) N=57	High (5.37-8.0) N=20	
1	Low (Less than 36.44 kg/ha) N=27	12 (44.44) (27.91)	8 (29.63) (14.03)	7 (25.92) (35.00)	27 (22.5)
2	Medium (36.45-82.2 kg/ha) N=73	23 (31.51) (53.49)	42 (57.53) (73.68)	8 (10.96) (40.00)	73 (60.83)
3	High (More than 82.2 kg/ha) N=20	8 (40.00) (18.60)	7 (35.00) (12.28)	5 (25.00) (25.00)	20 (16.67)
Total		43 (35.83)	57 (47.5)	20 (16.67)	120

(Figure in parenthesis indicate percentage)

Chi-square (X^2) = 8.71 (Non-significant at both levels of probability)

the farmers with medium achievement motivation had 8.33, 79.17 and 12.5 per cent; and high achievement motivation of farmers had 32.00, 36.00 and 32.00 per cent “High”, “Medium” and “Low” extent of fertilizer utilization respectively.

Further details analysis of data in Table 4 indicated that among the farmers with low achievement motivation 26.08, 30.43 and 43.48 per cent fell under the category of “High”, “Medium” and “Low” extent of fertilizer utilization. In this way the farmers with medium achievement motivation had 8.33, 79.17 and 12.5 per cent; and high achievement motivation of farmers had 32.00, 36.00 and 32.00 per cent “High”, “Medium” and “Low” extent of fertilizer utilization respectively.

The findings of the study reported that the farmer’s achievement motivation was significantly related with fertilizer use. So achievement motivation have significant impact on fertilizer utilization of farmers. The findings are in conformity with the findings of Shekhawat (1997) but are in contradiction with the findings of Gupta (1992).

(E) Association between extent of fertilizer utilization per unit area and level of aspiration of farmers:

Table 5 indicate that the computed value of Chi-square was (8.71), which is less than the tabulated value of Chi-square (at both levels of

probability) Hence, the hypothesis (H_{05}) stated in null from that, “there is no association between the extent of fertilizer utilization per unit area and level of aspiration of farmers” was accepted. It means that level of aspiration had no impact on extent of fertilizer utilization of farmers.

According to Table 5 revealed that the farmers with low level of aspiration 18.60, 53.49 and 27.91 per cent fell under the category of “High” “Medium” and “Low” extent of fertilizer utilization. On other hand, the farmers with medium level of aspiration had 12.28, 73.68 and 14.03 per cent and high level of aspiration had 25.00, 40.00, and 35.00 per cent “High”, “Medium” and “Low” extent of fertilizer utilization.

The findings showed that the association between the extent of fertilizer utilization and level of aspiration of farmers was non-significant. It was observed in study that farmers higher aspiration is not necessary to make an impact towards higher fertilizer utilization and production. The results are in conformity with the findings of Nair and Ramchandran (1969), but are in contradiction with the findings of De (1977) and Shekhawat (1997).

(F) Association between extent of fertilizer utilization per unit area and sources of information utilized by farmers:

According to Table 6 the data revealed that the computed value of chi-square was (21.63) which

Table 6. Association between extent of fertilizer utilization and Sources of information utilization by farmers

(n=120)

S. No.	Extent of fertilizer utilization	Source of information utilized			Total
		Low (0-9) N=25	Medium (10-31) N=74	High (32-65) N=21	
1	Low (Less than 36.44 kg/ha) N=27	10 (37.03) (40.00)	9 (33.33) (12.16)	8 (29.62) (38.09)	27 (22.5)
2	Medium (36.45-82.2 kg/ha) N=73	9 (12.33) (36.00)	57 (78.08) (77.02)	7 (9.59) (33.33)	73 (60.83)
3	High (more than 82.2 kg/ha) N=20	6 (30.00) (24.00)	8 (40.00) (10.81)	6 (30.00) (28.57)	20 (16.67)
Total		25 (20.83)	74 (61.67)	21 (17.5)	120

(Figure in parenthesis indicate percentage),

Chi-square (X^2) = 21.63 (Significant at 1% level of significance)

is more than the tabulated value of Chi-square (at 1 per cent level of probability). Hence, the hypothesis (H_{06}) stated in null form that, "There is no association between the extent of fertilizer utilization per unit area and source of information utilized by farmers; was rejected. It means sources of information utilized by farmers affected the extent of fertilizer utilization significantly.

Detail analysis in Table 6 revealed that the farmers with low sources of information utilized 24.00, 36.00 and 40.00 per cent fell under the category of "High", "Medium" and "Low" extent of fertilizer utilization. In this way the farmers with medium sources of information utilized had 10.81, 77.02 and 12.16 per cent; and high sources of information utilized had 28.57, 33.33 and 38.09 per cent "High", "Medium" and "Low" extent of fertilizer utilization.

While discussing with the farmers it was observed that sources of information utilized is necessary to make an impact towards higher production. It was further observed that the farmers sources of information utilized have significant impact on fertilizer use. It was also concluded that higher sources of information utilization results in high extent of fertilizer utilization because sources of information utilized helps in getting more information about benefits of fertilizers. The findings are in conformity with the findings of Sepat (1984) and Chauhan (1995).

CONCLUSION

Socio-economic status of small, medium and large farmers was found significantly associated with the extent of fertilizer utilization. Economic motivation of small medium and large farmers was found significantly associated with the extent of fertilizer utilization. Social- participation of small, medium and large farmers was found non-significantly associated with the extent of fertilizer utilization. Achievement motivation of small, medium and large farmers was found significantly associated with the extent of fertilizer utilization. Sources of information utilized by small, medium and large farmers was found significantly associated with the extent of fertilizer utilization.

Level of aspiration of small, medium and large farmers was found non-significantly associated with the extent of fertilizer utilization. All the sixth independent variables have overall impact on the extent of fertilizer utilization by the small, medium and large farmers.

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