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ACCEPTANCE OF IMPROVED PRACTICES AND THEIR DIFFUSION AMONG WHEAT-GROWERS IN THE PALI DISTRICT OF RAJASTHAN

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The aim of this paper is mainly two-fold, namely, (1) to bring out the extent of diffusion of various improved practices and their combinations in parts of intensive agricultural programme district Pali (Rajasthan) and (2) to discuss the impact of some of the socio-economic factors causing the differences in the rate of diffusion of improved practices in the same area. Some of the findings of this study, it is presumed, will have wider applicability.

I

The study relates to the acceptance of improved practices by farmers and the rate of diffusion of those practices in the Desuri block of the Pali district — an I.A.D.P. district in Rajasthan. The scope of the study is restricted to the wheat-growers and their reactions to the improved practices recommended by package programme agencies. Data have been obtained for a sample of 90 wheat-growing holdings from three villages of Desuri block for the year 1963-64, as a part of a bigger study conducted in this area by the Agro-Economic Research Centre, Vallabh Vidyanagar.

A number of improved practices were introduced in this region through the I.A.D.P. authorities since 1961-1962. Prior to this, cultivation of wheat was carried out by traditional methods. The following major inputs or operations were selected to study the change sought to be brought about by the package plan authorities and the reaction of the farmers with varying social and economic background : (1) Seeds ; (2) Manures and Fertilizers ; (3) Improved implements ; (4) Method of sowing ; (5) Method of weeding and (6) Method of fighting pests and insects.

The old practices followed were : (1) use of ordinary seed, (2) use of only farmyard manures, (3) old-styled wooden implements, (4) broad-casting method of sowing, (5) weeding by hand and (6) traditional and local measures for preventing pests and insects.

Since 1961-62, the following new (improved) practices have been introduced: (1) improved seed, (2) chemical fertilizers, specially nitrogenous and phosphatic, (3) improved implements, e.g., R.A.W. plough, etc. (4) line sowing, (5) weeding by chemicals like 2-4D and (6) insecticides and pesticides, e.g., Agrosan, Zinc phosphate and Aldrine.

One of the main objectives of the intensive agricultural district programme is to induce the cultivators to adopt the above-said practices in 'package' and to assist them by providing proper guidance and materials. However, it has been observed that none of the farmers has adopted the 'package' as a whole. The number of practices adopted and their combinations¹ have varied among different groups of farmers and among different villages (Appendix I).

Table I shows diffusion indices of acceptance and area covered for at least one practice, at least two practices and so on in three selected villages, namely, Mada, Panota and Dadai in the Pali district of Rajasthan.

Diffusion index (D.I.) is defined as :

$$\text{D. I. of Acceptance} = \frac{\text{Number of wheat-growers adopting improved practices}}{\text{Total number of wheat-growers}} \times 100.$$

$$\text{D. I. of Area} = \frac{\text{Area under wheat covered by improved practices}}{\text{Total area under wheat}} \times 100.$$

TABLE I—DIFFUSION INDICES FOR THREE VILLAGES IN PALI DISTRICT, RAJASTHAN

Practices	Mada		Panota		Dadai	
	Acceptance index	Area index	Acceptance index	Area index	Acceptance index	Area index
At least one	59	59	30	26	47	56
At least two	19	20	25	22	34	36
At least three	12	11	5	4	16	19
At least four	3	6	—	—	5	5
At least five	—	—	—	—	—	—
All the six practices	—	—	—	—	—	—

These are $6C_2$ combinations of any two improved practices possible, $6C_3$ of any three and $6C_4$ of any four practices can be adopted. But only 12, 10 and 4 combinations of any two, three or four practices respectively were observed to be adopted. (Appendix I.) Out of the total area of 2,191.95 *bighas* operated by 90 households selected from three villages, 238.90 *bighas* (or 10.80 per cent) were under wheat. Of the area under wheat only 121.00 *bighas* were covered by improved practices adopted on 43 holdings.

1. Combination of any two practices, any three, any four and so on.

The rate of diffusion for both acceptance and area covered was quite high in the two villages Mada and Dadai as compared to village Panota. Moreover, the rate of diffusion, when any two, any three or any four practices are taken in a package, is observed to be high in Dadai village. However, in general diffusion rate becomes lesser and lesser as size of 'package' becomes larger and larger.

II

The main objective of the intensive agricultural district programme would be realised only when the cultivators adopt the recommended practices wholeheartedly in their effective combinations. But whenever a new element of change is introduced in the community, in the initial stages, it has to face the resistance and the varying extent of such resistance will determine the rate of acceptance of new factors of production. One approach to explain the differences in rate of acceptance is in terms of cultural variables. Another approach is to explain the observed differences in the rate of acceptance in terms of profitability. An attempt has been made here to examine the effects of cultural as well as economic variables, such as caste, literacy, holding-size, income and tenurial status² on rate of acceptance. Profitability, as well, explains the differences in rate of acceptance but due to lack of data this approach has not been tried here.

The association of the above mentioned socio-economic factors with acceptance of improved practices³ are tested by χ^2 (chi-square) analysis and the results are given in Tables II and III.

The co-efficient of association is calculated by using Tschuprow's co-efficient.

$$T = \frac{[\chi^2]^{1/2}}{N(s-1)(t-1)}$$

for the sxt contingency table.

TABLE II—VALUES OF χ^2 BETWEEN SOCIO-ECONOMIC FACTORS AND ACCEPTANCE OF IMPROVED PRACTICES BY FARMERS

Variables	χ^2	d.f.	Significance	Degree of association
Caste	2.67	4	Not significant	—
Size of holding	6.72*	2	Significant	0.19
Income	14.19*	5	Significant	0.17
Literacy	4.77*	1	Significant	0.24
Tenurial status	1.94	3	Not significant	—

* Significant at 5 per cent level.

2. The socio-economic factors are grouped as follows :—(1) Operational holding-group: (i) 0-12 *bighas*, (ii) 12-30 *bighas* and (iii) over 30 *bighas*; (2) Income-group (Rs.): 0-300, (ii) 301-600, (iii) 601-900, (iv) 901-1,200, (v) 1,201-1,500 and (vi) over 1,500; (3) Literacy: (i) literate and (ii) illiterate; (4) Caste: (i) higher caste Hindus, (ii) intermediate caste Hindus, (iii) lower caste Hindus, (iv) scheduled castes and (v) backward caste; (5) Tenurial status: (i) owner cultivator, (ii) owner and tenant, (iii) owner-tenant and rent-receiver and (iv) tenant only.

3. Any farmer who has accepted at least one practice is attributed to acceptance group.

TABLE III—VALUE OF X^2 BETWEEN SOCIO-ECONOMIC VARIABLES AND AREA COVERED BY IMPROVED PRACTICES

Variables	X^2	d.f.	Significance	Degree of association
Caste	5.31	4	Not significant	—
Size of holding	27.20*	2	Significant	0.39
Income	37.04*	5	Significant	0.29
Literacy	14.24*	1	Significant	0.40
Tenurial status	6.71	3	Not significant	—

* Significant at 5 per cent level.

From the X^2 analysis it seems that caste and tenurial status have no association with acceptance of improved practices. On the other hand, size of holding, income and literacy have some impact on the acceptance of improved practices by farmers.

The diffusion rate was higher in the case of larger holdings than smaller holdings. Also the villages Mada and Dadai having more of the large holdings are marked with higher rate of diffusion both for acceptance and area covered as compared to village Panota having more of small holdings.

Coming to the impact of income, the diffusion rate was observed to be quite high in the upper income-groups as against that in the lower income-groups. Mada and Dadai villages having 52 and 38 per cent of the farmers in the upper income-group (Rs. 1,200 and more) have nearly double the diffusion rate (both for acceptance and area covered) over that observed in Panota village with only 15 per cent of the farmers in the upper income-group.

Further literacy and perhaps the extent of schooling done by the farmers seems to play an important role in the transition from old practices to new and improved practices. Mada and Dadai villages with 25 and 15 per cent of literate farmers show greater extent of diffusion while Panota village having only 9 per cent of literate farmers lags considerably behind in the acceptance of improved practices. It is to be noted that the degree of association between literacy and acceptance of improved practices is stronger than those of holding-size and income.⁴

CONCLUSION

Summing up, an important conclusion from this study is that when a new element of change is introduced in the farming community it has to face the resistance. Income, size of operational holding and literacy are some of the factors which affect the rate of acceptance of improved practices by farmers. It seems that higher levels of income, better schooling of farmers and larger holding accelerate the rate of acceptance of improved agricultural practices.

4. Similar conclusions were arrived at by another study conducted at the Agro-Economic Research Centre, Vallabh Vidyanagar. See, V. S. Vyas : Factors Determining the Rates of Literacy in Rural Areas.

APPENDIX I

DIFFUSION INDICES FOR INDIVIDUAL PRACTICES AND THEIR COMBINATIONS IN
THREE VILLAGES IN PALI DISTRICT, RAJASTHAN

Improved practices and combinations	Mada		Panota		Dadai	
	Accep- tance	Area covered	Accep- tance	Area covered	Accep- tance	Area covered
1	2	3	4	5	6	7
F	56	58	20	18	28	29
P	22	22	25	23	45	53
W	3	6	—	—	5	6
S	9	11	5	4	5	11
I	—	—	10	8	8	6
L	3	0.6	—	—	11	11
F + P	19	21	15	14	26	26
F + W	3	6	—	—	—	—
F + S	9	11	5	4	5	11
F + I	—	—	5	4	3	3
F + L	3	0.6	—	—	8	7
P + W	3	6	—	—	5	6
P + S	9	11	—	—	5	11
P + I	—	—	10	8	8	7
P + L	3	0.6	—	—	11	11
W + S	3	0.6	—	—	—	—
S + L	—	—	—	—	3	3
I + L	—	—	—	—	5	5
F + P + W	3	6	—	—	—	—
F + P + S	9	11	—	—	5	11
F + P + I	—	—	5	4	5	3
F + P + L	3	0.6	—	—	8	7
P + W + S	3	0.6	—	—	—	—
F + S + L	—	—	—	—	3	3
F + I + L	—	—	—	—	3	1
P + W + S	3	6	—	—	—	—
P + S + L	—	—	—	—	3	3
P + I + L	—	—	—	—	5	5
F + P + S + W	3	6	—	—	—	—
F + P + S + L	—	—	—	—	3	3
F + P + I + L	—	—	—	—	3	1

F = Fertilizer.
 P = Pesticides and Insecticides.
 W = Weedicides.
 S = Improved seed.
 I = Improved implements.
 L = Line sowing.