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Relative Effectiveness of Extension Methods at the Adoption Stage of Plant Protection Practices for Rice Crop*

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ABSTRACT

Individual contact, indirect influence, use of radio and use of literature contributed to the adoption of the three plant protection practices. Individual contact and indirect influence ranked higher than the other two for all the 3 plant protection practices, the other two methods turned out to be of very little importance. For seed treatment, individual contact was significantly superior to indirect influence but for dusting and spraying both methods were on par with regard to their effectiveness.

INTRODUCTION

A proper and careful selection of extension methods based on their effectiveness is necessary to bring about the desired change among the farmers. A perusal of the literature available on the subject indicates, that the information available in our country on this aspect is meagre (Bhaskaram and Mahajan, 1968, Bhosale, 1960, Lakhmanna and Satyanarayana, 1967, Rao and Raheja, 1959, and Tripathi and Pandey, 1967). Hence, the present investigation was taken up. The main objective of this investigation was to study the effectiveness of various extension methods at the adoption stage of plant protection practices for rice crop.

MATRIALS AND METHODS

Evaluatory type of research design was followed for this study. The selected respondents were personally contacted by the authors and information obtained with the help of a pretested, structured schedule. Thondamuthur Panchayat Union in Coimbatore district was selected purposively because it is one of the major rice growing areas, as the study was with reference to rice crop. Out of 18 villages in this block 6 villages were selected at random so as to cover one third of the area. The total number of rice cultivators in all the 6 villages was 353. From this, 120 respondents were selected on the basis of probability proportion to size. Thus, over all sampling

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TABLE 1. Influence of extension methods on the adoption of seed treatment, dusting and spraying

Extension methods	Total number of farmers contacted	Seed treatment			Dusting			Spraying		
		Adopter	Non-Adopter	Effectiveness percentage	Adopter	Non-Adopter	Effectiveness percentage	Adopter	Non-Adopter	Effectiveness percentage
Individual contact	115	42	73	36.52	55	60	47.83	50	65	43.48
Indirect influence	120	12	108	10.00	49	71	40.83	57	63	47.50
Use of Radio	109	5	104	4.58	6	103	5.50	5	104	4.59
Use of literature	114	2	112	1.75	1	113	0.88	1	113	0.88
Total	458	61	397		111	347		113	345	
		Chi-square 77.72 Significant at 1% level			Chi-square 107.23 Significant at 1% level			Chi-square 94.22 Significant at 1% level		

was in effect a two stage simple random sampling. Individual contact, indirect influence, use of radio, use of literature, group discussion, demonstrations, exhibitions, use of visual materials, that were generally used as extension methods were selected.

Adoption refers to a particular plant protection practice by the farmer either partly or fully. For each practice the number of farmers contacted by the various extension methods was recorded and this number was separated into those who adopted the practice and those who did not. From this table the significance of the methods for each practice was calculated by chi-square test of significance. Once the significance was granted the effectiveness parameter for each method was calculated from the formula

$$\text{Effectiveness percentage} = \frac{\text{Number of farmers adopted}}{\text{Number of farmers contacted by the method}} \times 100$$

The significance of variation of the effectiveness percentage among the several methods was studied for each practice by calculating 't' values.

RESULTS AND DISCUSSION

Among the 120 respondents only 61 have adopted the practice, seed treatment, 111 have adopted dusting and 113 have adopted spraying for rice crop. All of them have adopted the plant protection practices due to the influence of individual contact, indirect influence, use of radio and use of literature. The other five extension methods, group meetings, demonstrations, visual materials, exhibitions, and film shows have recorded nil influence.

Since the calculated Chi-square values for all the three plant protection practices are highly significant at $p = 0.01$ level, the above four extension methods significantly influenced the adoption of seed treatment, dusting and spraying. In the case of seed treatment individual contact was more effective (36.52 per cent) followed by indirect influence (10.00 per cent), use of radio (4.58 per cent) and use of literature (1.75 per cent). For dusting also individual contact was more effective (47.83 per cent) followed by indirect influence (40.83 per cent), use of radio (5.50 per cent) and use of literature (0.88 per cent). But in the case of spraying indirect influence was more effective (47.50 per cent) followed by individual contact (43.48 per cent) use of radio (4.59 per cent) and use of literature (0.88 per cent).

In the case of seed treatment individual contact ranked first. Indirect influence and use of radio were on par, use of radio and use of literature were on par. For dusting, individual contact and indirect influence were on par. Individual contact and indirect influence were superior to use of radio and use of literature. Use of radio was superior to use of literature. In the case of spraying indirect influence and individual contact were on par, but superior to the use of radio and use of literature. Use of radio and use of literature were on par (Table 2).

TABLE 2. Significance between the variations in the effectiveness percentage of seed treatment, dusting and spraying.

Comparision between the methods	Seed treatment	Dusting 't' Value	Spraying 't' Value
Individual contact Vs Indirect influence	5+>2.58**	1.07<1.96	0.6+<1.96
Individual contact Vs Radio	6+>2.58**	8+>2.58**	8+>2.58**
Individual contact Vs Literature	6+>2.58**	9+>2.58**	9+>2.58**
Indirect influence Vs Radio	1.5+<1.96	7+>2.58**	7+>2.58**
Indirect influence Vs Literature	2+>1.96*	8+>2.58**	9+>2.58**
Radio Vs Literature	1.4+<1.96	2.6+>2.58**	1.6 <1.96

** Significant at 1.0 per cent level

* Significant at 5.0 per cent level

The foregoing results clearly bring out the fact that individual contact was the most powerful method in the matter of adoption of seed treatment. In the case of dusting though individual contact registered higher effectiveness percentage (47.83 per cent) than indirect influence (40.83 per cent) statistically it was on par with indirect influence. In the case of spraying both individual contact and indirect influence were on par. Individual contact is a calculated effort to communicate a thought and motivate the subject for sustained action. Any obstacle in the way of attainment of the predetermined end is carefully attempted to be removed and rapport between the communicator and the subject is the essence of this method. Because of these special attributes individual contact has registered the maximum effectiveness. Indirect influence also registered a high rate of effectiveness and it was on par with individual contact in the case of dusting and spraying. The same arguments given for the superiority of the individual contact hold good for indirect influence also since it is also a form of individual contact but in an informal way.

Regarding the other two methods eventhough they were statistically on par, the trend was radio leading literature. The figures presented in Table 3 lend support while attempting to explain the little or nil effectiveness

TABLE 3. Year in which the plant protection practices for rice crop was first taken up by the respondents

First Year of taking up the plant protection practice	Seed treatment		Dusting		Spraying	
	Number of farmers	Percentage	Number of farmers	Percentage	Number of farmers	Percentage
Earlier than 1966	37	60 5	71	64.0	73	64.6
1966—67	15	24.5	26	23.4	15	22.1
1967—68	7	11.5	10	9.0	12	10.6
1968—69	2	3.5	4	3.6	3	2.7

recorded by the other extension methods for the adoption of plant protection practices.

More than 60 per cent of the farmers adopted the plant protection practices some five years prior to the period of investigation. The tempo of extension methods *viz.*, radio, literature, visual materials, film shows, exhibitions in agricultural extension has been on the increase only during the recent past. It was thus possible that these methods recorded negligible or nil effectiveness since the farmers took up the adoption of plant protection practices for the rice crop even prior to the large scale use of these methods.

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