

## Impact of High Yielding Varieties of Rice on Small Farmers

By

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### ABSTRACT

Adequate, timely and liberal credit facilities may be made available to the small farmers. Field demonstrations will help to convince the small farmers about merits of the high yielding varieties of rice. The fine grain varieties like IR 20, Co 34 and Co 35 may be popularised so as to suit farmers' consumption preferences.

### INTRODUCTION

A multi-disciplinary research on the process of diffusion of new agro-technology especially among small farmers, will shed sufficient light on the problems and possibilities of implementing nationwide development programmes like high yielding varieties programme. Evaluation studies are very essential to find out the impact of various development programmes. Hence an evaluation study on the impact of high yielding varieties of rice on small farmers was conducted during 1971-72. The three folded objectives of the study includes the impact of high yielding varieties programme in terms of awareness, knowledge and adoption; the influence of personal and situational factors on the impact and the identification of problems and difficulties encountered in the cultiva-

tion of high yielding rice varieties by small farmers.

### MATERIALS AND METHODS

Salem district was selected for the study purposively due the fact that the marginal farmers and Agricultural labours scheme had been implemented in that locality. In Salem district, Mohanoor Block was selected because of higher percentage of coverage of high yielding varieties programme. Out of 28 villages in the block only 14 had large area under rice and four villages were selected from the list at random. The mean area for the selected villages was 1.85 standard acres. Only those holdings falling within this mean were considered as small farms. The names of farmers growing rice were arranged in the order found in "adangal" and 25 farmers were selected at random in

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each village, The respondents were contacted and data collected with a pretested questionnaire.

## RESULTS AND DISCUSSION

**Awareness of H.Y.V.P:** It was observed that 86 per cent of small farmers were aware of the high yielding varieties programme (H.Y.V.P.). Out

Table 1. Awareness of the H. Y. V. P.

Year	Awareness	
	No.	Percentage
1970-71	7	8
1969-70	11	13
1968-69	10	12
Even before	58	67
	86	100

of 86 respondents 58 (67 per cent) were aware of the programme even before the year 1968-69 (Table 1).

**Awareness, knowledge and adoption:** The awareness of IR 8 and ADT 27 rice varieties was more than the other high yielding varieties of rice like IR 20 Co 34 and Co 35. Most of the farmers were aware of the package of practices in general. However 31 per cent of the respondents were aware of the fertilizer schedule. The majority of the farmers had knowledge about the age of seedlings (75 per cent) seed treatment (56 per cent) and plant protection (63 per cent). The knowledge of seed rate and spacing were

Table 2. Awareness, knowledge and adoption of package of practice

Package of practices	Awareness		Knowledge (n=86)		Adoption	
	No.	Percentage	No.	Percentage	No.	Percentage
Seed rate	59	68	37	43	14	16
Seed treatment	59	68	49	56	16	18
Age of seedling	86	100	65	75	20	23
Spacing	72	83	42	46	22	25
Fertilizer schedule	27	31	11	12	5	5
Plant protection	82	95	55	63	17	19

comparatively poor being 43 and 46 per cent respectively. Only 12 per cent of the respondents had knowledge of the fertilizer schedule. The extent of adoption by the respondents worked out to 25 per cent for spacing, 23 per cent for age of seedlings, and 19 per cent for plant protection. Only 16 and 18 per cent of the respondents adopted seed rate and seed treatment. The minimum adopters were in the case of fertilizer schedule which was adopted only by 5 per cent of the respondents (Table 2).

**Age Vs awareness:** The data on age-wise awareness of H. Y. V. P. for rice revealed that all the young respondents were aware of this programme for rice while the awareness of the middle aged and the old was to the extent of 90 and 62 per cent respectively (Table 3).



Table 3. Age Vs Awareness of high yielding varieties programme of rice.

Age group	Total respondents	Aware of HYVP of rice	Percentage	Chi-square value
Young	18	18	100	
Middle	61	55	90	13.92**
Old	21	13	62	

**Education and income Vs knowledge and adoption:** There existed a significant positive association between education and aware-

ness and adoption of package of practices. (Table 4). The awareness of the H. Y. V. P. for rice was not influenced by the income levels of the respondents. There was, however, a significant association between income and knowledge of almost all the practices. But, in the case of age of seedling and plant protection schedule, there was no association. The adoption of package of practices was not influenced by income (Table 5).

**Farm size Vs adoption:** The significant influence of size of holding on awareness, knowledge of package

Table 4. Education Vs Knowledge and adoption of package of practices

Education levels	Knowledge	Percentage	Chi-square value	Adoption	Percentage	Chi-square value
<b>Seed rate</b>						
a) Illiterate	3	20		0	—	
b) Primary education	19	41	6.06*	7	15	5.48
c) Secondary education	15	60		7	28	
<b>Seed treatment</b>						
a) Illiterate	3	20		0	—	
b) Primary education	26	56	13.76*	8	17	6.43*
c) Secondary education	20	80		8	32	
<b>Age of seedling</b>						
a) Illiterate	10	67		0	—	
b) Primary education	34	73	6.23*	11	23	5.88
c) Secondary education	21	84		9	36	
<b>Spacing</b>						
a) Illiterate	4	26		0	—	
b) Primary education	24	52	3.63	12	26	7.89*
c) Secondary education	14	56		10	40	
<b>Fertilizer schedule</b>						
a) Illiterate	—	—		—	—	
b) Primary education	2	4	17.18**	1	2	6.77*
c) Secondary education	9	36		4	20	
<b>Plant protection schedule</b>						
a) Illiterate	3	20		0	—	
b) Primary education	35	76	15.63**	8	17	8.00*
c) Secondary education	17	68		9	36	



Table 5. Income Vs Knowledge and adoption of package of practices (n=86)

Income levels	Know- ledge	Per- cent age	Chi- square value	Adop- tion	Per- cent age	Chi- square value
<b>Seed rate</b>						
a) Low income	5	21		1	4	
b) Medium income	23	48	6.00*	10	21	3.33
c) High income	9	56		3	18	
<b>Seed treatment</b>						
a) Low income	6	26		4	17	
b) Medium income	31	65	12.59**	8	17	0.53
c) High income	12	75		4	25	
<b>Age of seedling</b>						
a) Low income	15	65		2	8	
b) Medium income	37	78	1.84	13	27	3.80
c) High income	13	81		5	31	
<b>Spacing</b>						
a) Low income	5	21		3	13	
b) Medium income	27	57	9.32*	13	27	3.20
c) High income	10	62		6	37	
<b>Fertilizer schedule</b>						
a) Low income	1	4		1	4	
b) Medium income	5	10	5.99*	2	4	1.60
c) High income	5	31		2	12	
<b>Plant protection schedule</b>						
a) Low income	10	43		2	8	
b) Medium income	34	72	5.74	12	25	2.85
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c) High income	11	68		3	18	



Table 6. Farm size Vs Knowledge and adoption of package of practices.

Practice and size of holding	Know-ledge	Per-cent age	Chi-square value	Adop-tion	Per-cent age	Chi-square value
Seed rate						
a) Small	5	25	11.91**	1	5	3.02
b) Medium	17	36		8	17	
c) Large	15	75		5	25	
Seed treatment						
a) Small	5	25	16.59**	1	5	4.15
b) Medium	35	76		9	19	
c) Large	9	45		6	30	
Age of seedling						
a) Small	11	55	5.96	1	5	12.11**
b) Medium	39	85		9	19	
c) Large	15	75		10	50	
Spacing						
a) Small	5	25	6.09*	1	5	6.81*
b) Medium	25	54		13	28	
c) Large	12	60		8	40	
Fertilizer schedule						
a) Small	0	—	4.10	0	—	10.08**
b) Medium	7	14		1	2	
c) Large	4	20		4	20	
Plant protection schedule						
a) Small	7	35	11.33**	0	—	7.97*
b) Medium	31	67		10	21	
c) Large	17	85		7	35	



of practices excluding age of seedling and fertilizer schedule and adoption of package of practices excluding seed rate and seed treatment (Table 6).

**Limiting factors in adoption :**  
The high cost of cultivation was the

Table 7. Reasons for non-adoption of high yielding varieties of rice.

Reason for non-adoption	Score value	Per-cent age
High cost of cultivation	247	24
Soil not suitable due to saline, alkaline	212	21
More incidence of pests and diseases	129	13
Not good for consumption	128	13
Not convinced about merits	115	12
Crop lodges due to over growth	78	8
Consume much labour and time	31	3
Lack of sufficient irrigation facility	21	2
Not aware of High yielding variety programme	14	1
Chemicals costly	11	1
Fertilizer not available in time	8	1
Chemicals poisonous to the cattle and human being	7	1

main limiting factor in the adoption of high yielding varieties of rice by small farmers. The next impediment to the adoption was incidence of pests and diseases and soil injury due to alkalinity and salinity. There was also a feeling that the high yielding varieties of rice were not good for consumption. Many farmers were not convinced about the merits of the high yielding varieties of rice due to misconsumption in awareness and their adoption (Table 7).

#### ACKNOWLEDGEMENT

The senior author is thankful to Tamil Nadu Agricultural University, Coimbatore for the permission accorded to publish the above work which formed part of the dissertation submitted for the award of M. Sc. (Ag.) degree.