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CONSTRAINTS IN EVOLVING, SPREADING AND ADOPTING IMPROVED RICE VARIETIES IN KERALA

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Abstract: Out of the nine constraints identified in evolving and spreading improved rice varieties, lack of facilities for evolving specific varieties suited to certain rice pockets of Kerala ranked first as percieved by the research subsystem. Non-filling up of post of scientists, lack of facilities to multiply seeds of improved varieties and for onfarm teaching of farmers were other important constraints in the descending order. Susceptibility to pests and diseases, requirement of heavy dose of fertilizers, poor cooking quality and low straw yield were the most important constraints in spreading and adopting improved rice varieties as perceived by extension, client and input subsystems.

INTRODUCTION

The Kerala Agricultural University (KAU) has evolved and released 14 improved rice varieties from four of its research stations. The spread of high yielding varieties (HYVs) of rice in Kerala is only 25 per cent of the area under rice inspite of efforts to popularise these varieties (Anon., 1988). This could be due to the constraints in the transfer of technology (TOT) process involving these varieties and therefore, a study was undertaken to identify the constraints in evolving, spreading and adopting improved rice varieties released by the KAU as perceived by the research, extension, client and input subsystems.

MATERIALS AND METHODS

The scientists working in the four research stations under the KAU viz., Regional Agricultural Research Station (RARS) Pattambi (Palghat district), Rice Research Stations (RRS) Moncompu and Kayamkulam (Alleppey district), Rice Research Station Vyttila (Ernakulam district) where breeding work in rice is being done, formed the respondents of the research subsystem. The study on the constraints in spreading and adopting the improved rice varieties released by the KAU was conducted among the extension, client and input subsystems. The extension subsystem consisted of the officers of the department of agriculture from the sudivision to village level in the eight subdivisions viz., Mavelikkara, Chengannur, Alleppey (Alleppey district), Alwaye (Ernakulam district), Shoranur, Mannarghat, Chittur and Alathur (Palaghat district). The contact farmers who had tried atleast once and continued to grow the improved rice varieties released by the KAU were selected at random from the 55 agricultural extension units of the eight subdivisions and they formed the client subsystem. The dealers of fertilisers, plant protection chemicals and equipment and representatives of credit institutions in the three districts formed the input subsystem

There were 55 researchers, 134 extension personnel, 110 contact farmers and 32 representatives of input agencies as respondents of the study.

To identify the constraints perceived by the researchers the Delphi technique was used. The constraints thus pooled were sent to the same scientists in different stages and they were requested to rate them on five

point continuum ranging from most relevant to least relevant with scores of 5, 4, 3, 2 and 1 respectively. The relevancy weights secured by each constraint ranged from 0.35 to 0.85. Taking the mid-value as the cutting point, nine constraints which secured relevancy weight of 0.60 and above were finally selected. The respondent scientists were again requested to assign each constraint scores ranging from zero to 100 according the importance as perceived by them. Based on the scores secured by each constraint they were ranked from 1 to 9 by composite ranking method.

To identify the constraints perceived by the extension, client and input subsystems, 30 constraints in spreading and adopting improved rice varieties were listed out on the basis of pilot study. These were sent to 30 extension personnel and 25 input agencies along with the list of 14 improved rice varieties for relevancy rating. The procedure outlined earlier in the case of researchers was followed here also. There were 12, 11 and 13 constraints as perceived by extension, client and input subsystems respectively. From this nine constraints common to the three subsystems were finally selected. These were again sent to 134 extension personnel and 32 input agencies selected at random from the three districts requesting them to assign scores to the constraints, ranging from zero to 100 on the basis of their importance as perceived by them. Similarly, 110 contact farmers who had tried atleast once and continued to grow the improved rice varieties were also contacted in person and their perceived importance of these constraints also recorded. Then the constraints were ranked from 1 to 9 using composite ranking procedure.

RESULTS AND DISCUSSION

The first constraint identified by the researchers (Table 1) was related to lack of facilities suited to certain rice pockets. Therefore, the future of improved rice varieties in Kerala seems to depend upon breeding varieties to suit local conditions.

The constraint ranked as the second points to the administrative lacuna. Many posts of researchers are kept vacant over a prolonged period and this led to inordinate delay in the execution of research programmes due to discontent among researchers.

Regarding lack of facilities to multiply seeds of improved rice varieties it could be stated that Vyttila-3 an improved variety released by the RRS, Vyttila has gained popularity among the fanners. The major constraint expressed by the respondent farmers was non-availability of sufficient quantity of seeds and hence they were forced to stick on to the traditional varieties. Steps need be initiated to find a solution to this problem.

The fourth constraint points to the need for effective research-client subsystems linkage. The possible solution seems to be that the researchers themselves must involve more in the TOT process like National Demonstration, Lab to Land Programme, Village Adoption Programme and similar extension activities.

It could be seen that the constraints ranked as I and II very well conform to the results of the study conducted by Panicker (1981) in Kuttanad and Palghat. Though the improved rice varieties could trigger off a vertical growth in productivity, the threat of pests attack and hike in cost of

Table 1. Constraints in evolving and spreading improved rice varieties as perceived by the KAU research subsystem

Sl.No.	Constraints	Rank
1	Lack of facilites for evolving location specific varieties	I
2	Dearth of scientists due to non-filling up of posts	II
3	Lack of facilities to multiply improved rice varieties	III
4	Lack of facilities for on-farm teaching of scientific management practices and follow up	IV
5	Improved rice varieties performing well in one area may not be performing similarly in other areas	V
6	Rice is cultivated under varied soil and field conditions. Improved varieties suited to such conditions are not available	VI
7	Majority of fanners are not full time rice growers and hence rice cultivation is not taken as a business	VII
8	It is difficult to combine high yielding and other desired characteristics in one and the same variety	VIII
9	Evolving new variety is a laborious and time consuming process	IX

Table 2. Constraints in spreading and adopting improved rice varieties as perceived by the extension, client and input subsystems

Sl. No.	Constraints	Rank
1	Improved rice varieties are found to be more susceptible to pests and diseases	I
2	Improved rice varieties require heavy dose of fertilizers and timely plant protection measures	II
3	Poor cooking quality of improved rice varieties discourages farmers to adopt these varieties	III
4	Straw yield of these varieties is comparatively low	IV
5	Low market value is one of the constraints in the wider adoption of improved rice varieties	V
6	Weed problem is more when improved rice varieties are grown	VI
7	Improved rice varieties are not tolerant to unfavourable soil conditions .	VII
8	Under same management conditions yield of the local varieties is better than improved rice varieties	VIII
9	Want of assured irrigation and drainage facilities stand in the way of adopting improved varieties	IX

inputs pushed up the cost of cultivation and consequently the cost benefit ratio is narrowed down considerably. The feasible remedial measures seem to be reintroduction of pests and disease surveillance and promotion of balanced use of fertilizers and need-based application of pesticides.

Regarding the 3rd constraint viz., poor cooking quality, this arises out of the preference of Keralities for red and coarse grains. In fact, majority of the varieties released by the KAU are red rice. Hence this constraint does not have much relevance to KAU rice varieties, but the respondents would have had in their mind aspects such as taste and keeping quality of cooked rice.

The fourth constraint viz., low straw yield deserved consideration, because in Palghat district, paddy straw has a dual use as a fodder and as a thatching material for houses of low income group. The fact that Jyothi rice variety has maximum coverage (20.60%) could be attributed to its medium tall nature which satisfies the requirements of both straw yield and grain quality in comparison to the dwarf red rice varieties like Bharathi, Sabari, Pavizham etc.

The results of the study bring into focus one important point. Any improved variety should satisfy consumer requirements. Endorsing the view of researchers that it is difficult to combine all the desirable characteristics in one and the same variety, the future of improved varieties seems to depend upon evolving a research programme of breeding varieties to suit local conditions.

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