



Constraint Analysis of Hybrid rice Cultivation in Ambedkar Nagar District of Uttar Pradesh

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ABSTRACT

The present study was conducted with an objective to analyse the perceptions and constraints in cultivation of hybrid rice in Ambedkar nagar district of Uttar Pradesh during *kharif* 2010. The relative importance of the perception of the farmers regarding their willingness or otherwise, to continue hybrid rice cultivation in the next season were prioritized by using Garrett's ranking technique. The main reason to continue cultivation of hybrid rice in Ambedkar nagar district of Uttar Pradesh was hope for better yield from cultivation of hybrid rice by the farmers with a Garrett score of 64.88, the other reasons were hope for new hybrids, better adaptability and suitability of hybrid rice for parboiling. Higher seed cost was the major constraint with a Garrett score of 67.87 followed by lower pricing ability, poor cooking quality and high management with a Garrett score of 59.63, 55.75 and 54.75 respectively.

Key words : Constraint analysis, Hybrid rice, Yield.

India so far has witnessed 2 per cent growth in population while the growth in rice production was 3 per cent. Growth rate of rice output during the last two decades has remained well above the population growth rate, which has made the country not only self reliant in food grains but also generated surplus for export. Rice is consumed both in urban and rural areas and its consumption is growing due to high-income elasticity of demand. To meet the growing demand, a rapid increase in paddy production is needed. Among the various options available to increase the rice yields, hybrid rice technology is the most feasible and readily adoptable one as has been amply demonstrated in China. The rigorous efforts of hybrid rice research and development in India since 1990's has resulted in release of forty six hybrids, 29 from public sector and 17 from private sector for commercial cultivation. During the year 2010, hybrid rice was planted in an area of 1.3 m ha and additional rice production of 1.5 to 2.5 m t was added to our food basket through this technology (Hari *et al.*, 2011).

More than 80 % of the total hybrid rice area is in eastern Indian states like Uttar Pradesh, Jharkhand, Bihar, Chhattisgarh, with some little area in states like Madhya Pradesh, Assam, Punjab and Haryana. As rice is a key source of livelihood in eastern India, a considerable increase in yield

through this technology will have a major impact on household food and nutritional security, income generation, besides an economic impact in the region. There is a rapid expansion of area under hybrid rice in eastern Uttar Pradesh in the recent years, hence the present study was conducted with an objective to analyse the perceptions and constraints in cultivation of hybrid rice in Ambedkar nagar district of Uttar Pradesh.

MATERIAL AND METHODS

From Ambedkarnagar district of Uttar Pradesh two villages viz., Hajipur and Mohammedpur of Jalalpur block were selected purposively. From each of these villages 25 farmers who cultivated both hybrid and HYV rice on their farms were selected. Thus 50 farmers from 2 villages were selected to assess the impact of hybrid rice technology. A purposive sampling technique was followed in the selection of the sample farmers in consultation with the local stakeholders from both the public and private sector. Only those farmers who cultivated hybrid rice along with a HYV rice variety were included in the sample. The relative importance of the perception of the farmers regarding their willingness or otherwise, to continue hybrid rice cultivation in the next season were prioritized by using Garrett's ranking technique. The data pertains to *kharif* 2010.

Garrett's Ranking Technique

$$\text{Percent position} = \frac{100 (R_{ij} - 0.50)}{N_{ij}}$$

Where,

R_{ij} is the rank given by i th item by j th individual

N_{ij} is the number of items ranked by the j th individual

The percent position of each rank was converted into scores using Garrett's table. For each constraint, scores of individual respondents were added together and were divided by total number of respondents for whom scores were added. Thus mean score for each constraint was ranked by arranging them in descending order.

RESULTS AND DISCUSSION

Age is one of the important factors that influence decision making of individuals. Age has a bearing on the farmers risk taking attitude and innovativeness in adopting new technologies. The mean age of the sample farmers was 44.54 (Table

1.). Out of the total sample farmers 16 percent were young, 62 per cent were middle aged and 22 percent were old. It was found that mostly middle aged farmers were cultivating hybrid rice along with HYV rice, which could be due to their better awareness about the benefits of yield enhancing technologies such as hybrid rice and also due to enthusiasm to face risks and experiment with a new technology.

The educational status of the farmers plays a vital role in the adoption of any new technology. In the present study, the sample farmers were categorised into four groups with respect to literacy status, viz., illiterate, primary, secondary and college. From the table 2 it can be seen that, 48 per cent of the farmers were illiterate, 38 per cent had primary education, 12 per cent possessed secondary education and only 2 per cent of the sample farmers had college level of education.

Out of 50 sample farmers in Ambedkar nagar district of Uttar Pradesh, 34 sample farmers were willing to continue hybrid rice in the next year and 16 stated that they would discontinue hybrid rice cultivation in the next year. Most important reason for continuing hybrid rice cultivation was hope

Table 1. Age wise distribution of sample respondents in Ambedkar nagar district of Uttar Pradesh (figures in numbers)

S.No.	Particulars	No. of sample farmers
1	Young(<35 years)	8(16)
2	Middle aged(35-50 years)	31(62)
3	Old(>50 years)	11(22)
4	Mean age (years)	44.54

(figures in parentheses indicate percentage to the total numbers)

Table 2. Literacy status of sample farmers in Ambedkar nagar district of Uttar Pradesh (figures in numbers)

S No.	Particulars	No. of sample farmers
1	Illiterate	24(48)
2	Primary	19(38)
3	Secondary	6(12)
4	College	1(2)
5	Total	50(100)

(figures in parentheses indicate percentage to the total numbers)

Table 3. Garrett's ranking technique for the reasons perceived by the sample farmers to continue hybrid rice cultivation in Ambedkar nagar district of Uttar Pradesh

S.No.	Reasons	Mean score	Garrett rank
1	Hoping for better yield	64.88	1
2	Hoping for new hybrids	59.00	2
3	Higher pricing ability	43.79	8
4	Higher profitability	42.94	9
5	Better taste	41.03	10
6	Better adaptability	57.41	3
7	Suitable for raw rice	43.88	7
8	Suitable for parboiling	53.85	4
9	Better resistance to lodging	48.06	5
10	Better resistance to pests/diseases	47.12	6

Table 4. Garrett's ranking technique for the constraints perceived by the sample farmers in cultivation of hybrid rice in Ambedkar nagar district of Uttar Pradesh.

S.No.	Constraints	Mean score	Garrett rank
1	Higher seed costs	67.87	1
2	Lower pricing ability	59.63	2
3	Lower profitability	53.69	5
4	Higher grain shedding	36.88	10
5	Lack of demand	37.63	9
6	Poor grain quality	39.00	8
7	Lower head rice recovery	41.81	7
8	High pests/disease incidence	51.56	6
9	Poor cooking quality	55.75	3
10	High management	54.75	4

for better yield from cultivation of hybrid rice by the farmers with a Garrett score of 64.88, the other reasons being hope for new hybrids, better adaptability, suitability for parboiling and better resistance to lodging with Garrett scores of 59, 57.41 53.85 and 48.06 respectively. Better resistance to pests and diseases, suitable for raw rice, higher pricing ability and higher profitability were also the other reasons for continuing with hybrid rice cultivation with Garrett scores of, 47.12, 43.88, 43.79 and 42.94 respectively (Table 4). Garrett score of 41.03 was the least for taste of hybrid rice.

Higher seed cost was the major constraint with a Garrett score of 67.87 followed by lower pricing

ability, poor cooking quality, high management and lower profitability with a Garrett score of 59.63, 55.75, 54.75 and 53.69 respectively in case of Ambedkar nagar district of Uttar Pradesh, as shown in table 5. High pest incidence, lower head rice recovery and poor grain quality ranked 6th, 7th and 8th with a Garrett score of 51.56, 41.48 and 39 respectively. The other constraints were lack of demand and higher grain shedding with Garrett scores of 37.63 and 36.88 respectively.

Chengappa *et al.*, (2003) reported that the availability of subsidy on seed and to a limited extent on fertilisers and provision of knowledge on the higher yield potential of hybrids acted as motivational

factors for farmers to undertake the cultivation of hybrid rice in Karnataka. Besides, the farmers were of the opinion that the hybrid rice adapts well to varying situations and have resistance to pests and disease attacks, prompting them to go for hybrid cultivation. Further, it was noted that a good number of small farmers took up hybrid rice cultivation since they felt that its higher yield potential would help them get more rice for their own consumption. The non-availability of seed during planting, high cost of seed, lower market price and low consumer preference acted as factors in the discontinuances of cultivation of hybrid rice by farmers.

Conclusions:

Higher cost of seed was found to be a major deterrent for large scale adoption of hybrid rice technology and hence the cost of the hybrid seed should be reduced. This can be done by improving the hybrid seed yields. Hybrid rice fetched low price

in comparison with HYV rice, this is mainly due to the reason that though the quality of hybrid rice has improved over the years, still there is a scope to improve the quality of hybrids on par with the HYV varieties to obtain a price similar to HYV rice. This would enable the hybrid rice farmers to reap the benefits of this technology by getting suitable price for the hybrid rice produce.

LITERATURE CITED

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