RESEARCH NOTE

Farmer's Perceptions on Hybrid Rice Technology : A Case Study of Jharkhand

Nirmala, B.[1], Vasudev, N.[2] and Suhasini. K.[3]

1. Scientist, Directorate of Rice Research, Hyderabad., 2. Prof. and Head, 3. Professor, Deptt. of Agril. Economics, College of Agriculture, Rajendranagar, ANGRAU, Hyderabad.

Corresponding author e-mail: bnirmaladrr@gmail.com

ABSTRACT

Hybrid rice is one of the most feasible options for increasing rice production to sustain food security. There is a rapid expansion of area under hybrid rice in Jharkhand 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 Ranchi district of Jharkhand. 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 Ranchi district of Jharkhand was hope of getting better yield which ranked first with a Garrett score of 71.49 followed by higher pricing ability, better taste, higher profitability, suitable for parboiling, better resistance to pests and diseases with a Garrett score of 66.56, 62.36, 53.87, 48 and 47.21. The main constraints in adoption of hybrid rice technology were high management, higher seed costs, lower pricing ability, high pests/disease incidence, poor cooking quality and lower profitability with a Garrett score of 71.09, 66.45, 65.82, 62.18, 57.73 and 52.55.

Key words: *Hybrid rice; Sustain food security;Higher pricing ability; Better taste; Higher profitability;*

To sustain the self sufficiency, the production of rice has to be increased by almost 2 million tons every year. This needs to be achieved in the backdrop of declining natural resource base. 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 Jharkhand 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 Ranchi district of Jharkhand.

METHODOLOGY

From Ranchi district of Jharkhand, Kitta and Lota villages of Silli block were selected purposively. From each of these villages 25 farmers who cultivated 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.

Garrett's Ranking Technique

$$\text{Percent position} = \frac{100\ (Rij - 0.05)}{Nij}$$

Where,

Rij is the rank given for ith item by jth individual

Nij is the number of items ranked by the jth 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 42.96 (Table 1.). Out of the total sample farmers 20 percent were young, 64 per cent were middle aged and 16 percent were old. It was found that mostly young and 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 also 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 1 it can be seen that, 36 per cent of the farmers were illiterate, 28 per cent had primary education, 22 per cent possessed secondary education and only 14 per cent of the sample farmers had college level of education

Table 1: Age and education wise distribution of sample respondents in Ranchi district of Jharkhand

Particulars	No.	%
Young (<35 years)	10	20.00
Middle aged (35-50 years)	32	64.00
Old (>50 years)	8	16.00
Mean age (years)		42.96
Illiterate	18	36.00
Primary	14	28.00
Secondary	11	22.00
College	7	14.00
Total	50	100.00

The number of farmers willing to continue hybrid rice cultivation in the next year were 39 and 11 farmers opined that they were planning to discontinue the same in the next year. This may be due to the fact that in Jharkhand, where majority of the farmers are having small holdings of half to one acre and growing rice for household consumption have distinct preference for hybrid rice.

The main reason to continue cultivation of hybrid rice in Ranchi district of Jharkhand was hope of getting better yield which ranked first with a Garrett score of 71.49 followed by better adaptability, hope for getting new hybrids, better resistance to lodging, suitable for parboiling and better resistance to pests and diseases with a Garrett score of 66.56, 62.36, 53.87, 48 and 47.21 (Table 2). The other reasons for willingness to continue hybrid rice include suitability to raw rice, better taste, higher pricing and higher profitability with a Garrett score of 43.08, 37.85, 32.44 and 31.21 respectively.

Table 2: Garrett's ranking technique for the reasons perceived by the sample farmers to continue hybrid rice cultivation in Ranchi district of Jharkhand

Reasons	Mean score	Garrett rank
Hoping for better yield	71.49	I
Hoping for new hybrids	62.36	III
Higher pricing ability	32.44	IX
Higher profitability	31.21	X
Better taste	37.85	VIII
Better adaptability	66.56	II
Suitable for raw rice	43.08	VII
Suitable for parboiling	48.00	V
Better resistance to lodging	53.87	IV
Better resistance to pests/diseases	47.21	VI

It can be observed from Table 3 that the main constraints in adoption of hybrid rice technology in Ranchi district of Jharkhand were higher seed costs, lower pricing ability, lower profitability, poor grain quality and poor cooking quality with a Garrett score of 71.09, 66.45, 65.82, 62.18 and 57.73 respectively. The other constraints in adoption of hybrid rice cultivation were high management, high pest and disease incidence, high grain shedding, lower head rice recovery and lack of demand with a Garrett score of 52.55, 49, 48.82, 35.73 and 28.92 respectively.

Table 3: Garrett's ranking technique for the constraints perceived by the sample farmers in cultivation of hybrid rice in Ranchi district of Jharkhand

Constraints	Mean score	Garrett rank
Higher seed costs	71.09	I
Lower pricing ability	66.45	II
Lower profitability	65.82	III
Higher grain shedding	49.00	VII
Lack of demand	28.91	X
Poor grain quality	62.18	IV
Lower head rice recovery	35.73	IX
High pests/disease incidence	48.82	VIII
Poor cooking quality	57.73	V
High management	52.55	VI

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.

CONCLUSION

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.

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REFERENCES

Chengappa, P.G., Janaiah, A and Srinivasa, G.M.V. 2003. Profitability of hybrid rice cultivation evidence from Karnataka. *Economic and Political Weekly*. **38** (25): 2531-2534.

Hari Prasad.2010. Hybrid rice in India. *DRR Technical Bulletin* 48.pp 4-5.

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