Short Communication

Farmer’s experience with hybrid rice technology: A case study of Khunti district of Jharkhand State of India

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The present study was conducted with an objective to analyze the perceptions and constraints in cultivation of hybrid rice in Khunti district of Jharkhand State of India. The relative importance of the perceptions 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 was hope for better yield from cultivation of hybrid rice by the farmers with a Garrett score of 71.91; the other reasons were hope for new hybrids, suitability of hybrid rice for parboiling and better adaptability. Higher seed cost was the major constraint with a Garrett score of 73.43 followed by poor grain quality, lower pricing ability and lower profitability with a Garrett score of 67.57, 66.57 and 52.71, respectively.

Key words: Hybrid rice, Garrett's ranking technique, cultivation, farmers.

INTRODUCTION

Rice is the staple food crop of India and occupies highest area among all the crops grown in the country. Considering the annual decline of 0.05% in population growth rate, India’s population is projected to be 1.301 and 1.378 billion by 2020 and 2030, respectively (Goyal and Singh, 2002). It is estimated that there will be a demand of 136 and 146 Mt of rice (taken as 50% of total cereals) for the year 2020 and 2030, respectively. 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 46 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 mt was added to Indian food basket through this technology technology (Hari Prasad 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 India in general and Jharkhand in particular, 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

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in Jharkhand in the recent years, hence, the present study was conducted with an objective to analyze the perceptions and constraints in cultivation of hybrid rice in Khunti district of Jharkhand.

MATERIALS AND METHODS

From Khunti district of Jharkhand two villages viz., Sundari and Jariya of Torpa block were selected purposively. From each of these villages, 25 farmers who cultivated both hybrid and high yielding varieties (HYV) rice on their farms were selected. Thus, 50 farmers from two 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

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

The number of farmers willing to continue cultivation of hybrid rice in the next year out of 50 sample farmers in Khunti district of Jharkhand was 43, and 7 farmers opined not to continue hybrid rice cultivation in the next season.

Table 1. Garrett’s ranking for the reasons perceived by the sample farmers to continue hybrid rice cultivation in Khunti district of Jharkhand.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Reasons</th>
<th>Mean scores</th>
<th>Garrett rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hoping for better yield</td>
<td>71.91</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Hoping for new hybrids</td>
<td>66.26</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Higher pricing ability</td>
<td>46.56</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>Higher profitability</td>
<td>39.53</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>Better taste</td>
<td>32</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>Better adaptability</td>
<td>54.40</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Suitable for raw rice</td>
<td>34.56</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>Suitable for parboiling</td>
<td>59.65</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>Better resistance to lodging</td>
<td>42.88</td>
<td>7</td>
</tr>
<tr>
<td>10</td>
<td>Better resistance to pests/diseases</td>
<td>48.12</td>
<td>5</td>
</tr>
</tbody>
</table>

The main reason for continuance of hybrid rice cultivation in the next year is hope of getting better yield from hybrids which ranked first with a Garrett score of 71.91 (Table 1). The other reasons for willingness to continue hybrid rice cultivation in the next year include hoping for new hybrids, suitable for parboiling, better adaptability and better resistance to pests/diseases, higher pricing ability, better resistance to lodging and higher profitability with a Garrett score of 66.26, 59.65, 54.4, 48.12, 46.56, 42.88 and 39.53, respectively. Suitability for raw rice and better taste were the reasons that received least Garrett score of 34.56 and 32, respectively.

Table 2 depicts the constraints in adoption of hybrid rice cultivation in Khunti district of Jharkhand. The main constraints in cultivation of hybrid rice in Khunti district of Jharkhand were higher seed costs, poor grain quality and lower pricing ability with a Garrett score of 73.43, 67.57 and 66.57, respectively. The cost of seed is prohibitive for adoption of hybrid rice adoption.. The private seed companies are marketing seed at Rs 150-200/kg. The seed cost is to be reduced to affordable level (Rs 70/kg) (DAC, Government of India, 2010). The other constraints were lower profitability, poor cooking quality, high management, lower head rice recovery, high pest and disease incidence, high grain shedding and lack of demand with Garrett scores of 52.71, 50.43, 42.86, 41, 38.43, 37.43 and 29.57, respectively.

On a whole, majority of the farmers were willing to continue hybrid rice in the next season. This may be due to the fact that in Jharkhand, most of the farmers are having small holdings of half to one acre and grow rice for household consumption and have distinct preference for hybrid rice.

Chengappa et al. (2003) reported that the availability of subsidy on seed and to a limited extent on fertilizers 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 State of India. 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.

REFERENCES