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Overcoming Low Farm Returns Limitations through Cultivation of Improved Rice Variety in the Aspirational District of Chandel

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ABSTRACT

Rice is the most significant *kharif* crop of Chandel district of Manipur State, being cultivated over an area of 23,520 ha. Traditionally, the cultivators in the district grow local varieties of rice viz., *Drum, Thoibi* etc. However; the productivity of rice in the existing scenario is not very remunerative. The major reasons identified by the KVK for low productivity of rice include use of local seed, high incidence of neck blast and non-adoption of modern agricultural practices by the farmers. The low yield of local rice varieties and consequently low economic returns has severely affected the morale of the farmers especially the younger lot. Rice produced by the farmers has mostly been only for personal consumption and there was a very little marketed surplus available in the district. The farmers get 15-20 per cent lesser yield as compared to the farmers of neighbouring districts. Observing the lack of motivation in the rice growers of the district, KVK Chandel popularized RC Maniphou-13. This variety besides is not only resistant to neck blast but also gets harvested within 100 days which helps in saving residual moisture for secondary crop. It thus improves cropping system and farm income. The age-old mono cropping system has been discarded and rapeseed cultivation is taken up. The average productivity of rice increased from 37.33 to 59.66 q/ha giving an increase of 37.42 per cent in grain yield against that of traditional varieties. The additional yield of 22.33 q/ha helped the farmers to gain a net income of Rs. 1,47,810/ha with a B:C of 2.94.

Situation analysis

Rice is the most significant Kharif crop of Lambung village, Chandel, Manipur. About 80% of cultivated land is under paddy cultivation, being cultivated over an area of 23,520 ha. Traditionally since long, the farmers in the district grow local varieties of rice viz., *Drum, Thoibi* etc which are low yielding and of long duration. This often results to low productivity which in turn makes farming having very low economic returns. Rice produced by the tribal farmers of the district has mostly been only for consumption at household level and a very negligible surplus amount is marketed in the district. The farmers get 15-20 percent lesser yield as compared to the farmers of neighbouring districts. Observing the on-going trend and the lack of enthusiasm and motivation in the rice growers of the district, KVK Chandel popularized the rice variety RC Maniphou-13 which has an average duration of 125-130 days. The local farmers have sensed and perceived the importance of cultivating the improved variety for higher returns. A significant number of farmers have been trained by the Krishi Vigyan Kendra (KVK), Chandel on the package of practices and KVK helped them in establishing the demonstration plots.

Plan, implementation and support

KVK Chandel procured certified seeds of RC Maniphou-13 from ICAR, Manipur Centre in the year 2019 and conducted several demonstrative trials. The KVK has standardized and refined the recommended technology for farmers of Chandel district. Through well framed annual action plans, KVK Chandel conducted On-farm trials, Frontline Demonstrations and imparted specialized farmers capacity building programmes to impart skill and knowledge involved in the production of this variety of rice with the apparent objective to prepare the farmers

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Fig 1: Field photographs of the rice variety RC Maniphou-13

of the district to produce yields better in both quality as well as quantity at par with the neighbouring districts. Non-availability of seed on time has always been an important factor in restricting the horizontal expansion of agricultural technology, especially of field crops in the district. Keeping this in mind, under a proper strategy, KVK, Chandel assured timely procurement of seed for kharif season from ICAR, Manipur Centre for distribution to the farmers of the district. To start with, KVK concentrated its activities in the fields of the selected progressive farmers of the district. These sincere farmers who kept themselves abreast of the latest technologies, were purposely selected, for achieving greater impact of proposed intervention in transforming rice farming as remunerative yielding better farm income. Routine training programmes, follow ups, frequent farmers'-scientist interaction, field days, film shows, radio talks and frequent print media coverage were used as extension tools to create a great impact.

Output

KVK Chandel has given a stressed focus on RC Maniphou-13 by continuously mobilising the farmers to enhance the demonstration plots. The area for conducting the demonstrations on RC Maniphou-13 has increased from 3.0 ha in 2019-20 to 12.0 ha in 2022-23. In 2023 alone, 14 farmers were covered under demonstrations. On the concept of "seeing is believing" and by word of mouth now the area as well as farmers cultivating RC Maniphou-13 has expanded in Chandel district. The performance of RC Maniphou-13 in comparison to traditional rice variety over the years is presented in the Table 1.

As can be seen from Table 2, the number of tillers/hill was 12 in the introduced breed as compared to 9 in local varieties. The number of filled grains/panicle (Figure 2) was 78 and 65 in the rice variety RC Maniphou-13 and the local variety respectively. Also, field days on were organized at the harvesting stage of the crop during the last week of November. It was during these field days where participating farmers of the village as well as the neighbouring villages who had not adopted the technology were greatly influenced and motivated. Thus, now not only farmers of the villages where demonstrations were conducted are adopting the RC Maniphou-13, but the farmers of the surrounding villages of

Table 1: Yield attributes of RC Maniphou-13

Yield (q/ha) before intervention	Yield (q/ha) after intervention	% increase	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C Ratio
37.33	59.66	37.42	76000	223810	147810	2.94

Table 2: Parameters recorded for RC Maniphou-13

Parameters	Test weight (g)	No of tillers/hill	No of filled grains/panicle
Beneficiary Farmer	24.42	12	78
Farmer's Practice	24.11	9	65

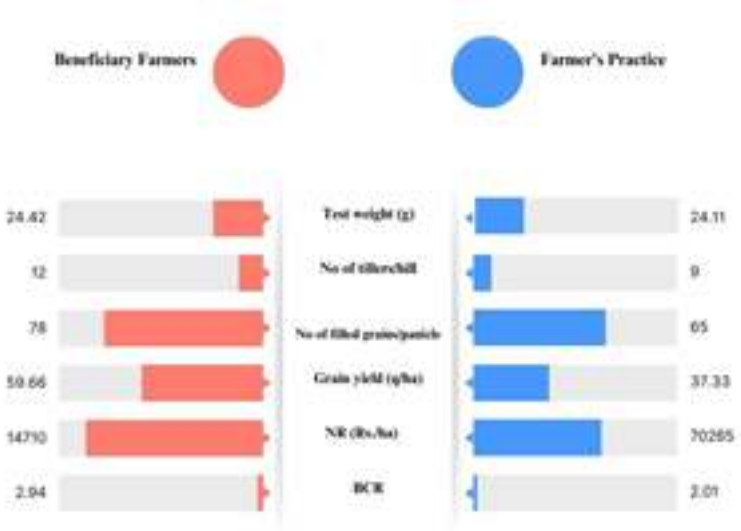

Fig 2: Performance evaluation of paddy RC Maniphou-13

demonstration area have also adopted the technology. A whole new set of farmers have shown interest in the variety which has been proven very suitable for their area.

Outcome and Impact

The area under the demonstration plots on RC Maniphou-13 increased from 3.0 ha in 2019-20 to 12.0 ha in 2022-23. In 2023 alone, 14 farmers were covered under these demonstrations. The efforts of the KVK helped the rice growers of Chandel district to realize more yield per unit area. As is evident from Figure 1, the average productivity of rice increased from 37.33 to 59.66 q/ha. The additional yield of 22.33 q/ha helped the farmers to gain a net income of Rs. 1,47,810/ha with a B:C 2.94. KVK, Chandel has still a long way to go to achieve the goal of making farmers achieve self-sustainability in rice cultivation and to popularize RC Maniphou-13 in every nook and corner of the district. Thus the task of making the intervention has resulted not only in enhancing the cropping intensity, yield and farm income but also increased the farm employment in the villages.