

# Optimization of productivity of rice for upliftment of socio-economic condition of poor and marginal women farmers through quality seed production

■ RITU R. SAXENA, SUNIL KUMAR VERMA, P.K. CHANDRAKAR AND RAVI R. SAXENA

## SUMMARY

Rice is important crop and staple food. For enhancing the yield with the help of quality seed, demonstrations were conducted at Hathband village of Raipur and Arasnara, Ghursena and Temri villages of Durg district during *Kharif* 2010 and 2011. A total of 145 women farmers participated in the quality seed production of different varieties of rice. In these demonstrations, foundation, certified seed and TL seeds of rice varieties were distributed to the women farmers of Raipur and Durg districts. By using quality seed, mean yield of rice was recorded 18.13 q/acre which was 36.11% higher than the farmers mean yield (13.7 q/acre) using local seed with an economic advantage of Rs. 4721/acre during *Kharif* 2010 and in 2011 the mean yield was recorded 19.38 q/acre which was 18.45% higher than the farmers mean yield (15.75 q/acre) using local seed with economic advantage of Rs. 3917/acre. Technology gap was of 4.42 q/acre during *Kharif* 2010 and 3.46 q/acre in 2011 which show that the gap reduced subsequently. Yield was increased by using quality seed which helped to farmer for improvement of their livelihood.

**Key Words :** Rice, Quality seed, Front line demonstration, Productivity, Economic advantage

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Seed being the most important determinant of agricultural production potential, on which the efficacy of other agricultural inputs is dependent. Sustained increase in production and productivity is dependent to a large extent on development of new and improved varieties of crops and an efficient system for timely supply of quality seed to farmers. The role of quality seed to enhance the productivity is well established. Farmers of the country, in general and of Chhattisgarh in particular usually use their own produce as a

seed. But, there is still great difference between a scientifically produced seed and seed collected from grain produced in a farm. The pedigree of scientifically produced seed is ensured and has a direct bearing with breeder seed while uncertainty of seed is noticed when collected from farm produce as grain. It is realized and evidenced by experiments that good quality seed of improved varieties contributes 10-15% to higher seed yield. Thus, there was a need of quality seed and is increasing day-by-day to compensate the demand. Thus, to promote the released varieties of rice at farmers field and to enhance the yield by replacing the farmer's seed by providing quality seed, the study was conducted to assess the per cent increase over the farmers yield and to estimate economic advantage.

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## MATERIAL AND METHODS

Field demonstrations were conducted at Hathband village of Raipur and Arasnara, Ghursena and Temri villages of Durg district during *Kharif* 2010 and 2011. A total of 145 women

farmers (65 in 2010 and 80 in *Kharif* 2011) participated in the quality seed production of different varieties of rice. In *Kharif* 2010, 5 q foundation seed of Mahamaya, 15 q foundation seed of MTU 1010 and 10 q certified seed of Karma Mahsuri of rice varieties was distributed to the women farmers of Raipur and Durg districts (Table 1).

During *Kharif* 2011, 10.8 q foundation seed of MTU 1010, 9.6 q foundation seed of Chandrahasni, 1.5 q foundation seed of Samleshwari and 2.1 q TL seed of Karma Mahsuri of rice varieties was distributed to the women farmers of Raipur and Durg districts (Table 1).

The primary data were collected from women farmers participated in seed programme and were analyzed for calculation of percentage increase over local by :

$$\% \text{ increased yield} = \frac{\text{Demonstrated yield} - \text{Farmers yield}}{\text{Farmers yield}} \times 100$$

For calculation of economic advantage over local, price of rice was obtained from mandi.

## RESULTS AND DISCUSSION

The yield of rice obtained over the years under improved

**Table 1 : Detail about farmers and input of rice seed in *Kharif* 2010 and 2011**

Name of village	Variety	Class of seed	<i>Kharif</i> 2010			<i>Kharif</i> 2011		
			Input distribution (kg)	Area (acre)	No. of women	Input distribution (kg)	Area (acre)	No. of women
Hathbandh	MTU1010	Foundation	450	15	11	540	18	18
	Mahamaya	Foundation	150	5	2			
	Karma Mahsuri	Certified	300	10	5	90	3	3
	Chandrahasni	Foundation				480	16	16
	Samleshwari	Foundation				90	3	3
Arasnara	MTU1010	Foundation	450	15	15	540	18	18
	Mahamaya	Foundation	150	5	5			
	Karma Mahsuri	Certified	300	10	10	120	4	4
	Chandrahasni	Foundation				480	16	16
	Samleshwari	Foundation				60	2	2
Temri	MTU1010	Foundation	210	7	4			
	Mahamaya	Foundation	200	7	4			
Ghursena	MTU1010	Foundation	390	13	4			
	Karma Mahsuri	Certified	400	13.5	5			
		Total	3000	100.5	65	2400	80	80

**Table 2 : Detail about location wise mean yield, % increase over local and economic advantage**

Name of village	Variety	Class of seed	<i>Kharif</i> 2010				<i>Kharif</i> 2011			
			Mean yield q/acre	Local variety yield	% increase over local	Economic advantage (Rs./acre)	Mean yield q/acre	Local variety yield	% increase over local	Economic advantage (Rs./acre)
Hathbandh	MTU1010	Foundation	21.50	10	115.00	12075.00	20.12	17	15.32	3369.60
	Mahamaya	Foundation	12.77	10	27.73	2994.55				
	Karma Mahsuri	Certified	16.00	10	60.00	6480.00	18.73	14	25.19	5108.40
	Chandrahasni	Foundation					16.19	14	13.26	2365.20
	Samleshwari	Foundation					20.13	15	25.48	5540.40
Arasnara	MTU1010	Foundation	20.13	17	18.43	3384.00	20.29	17	15.88	3553.20
	Mahamaya	Foundation	21.40	17	25.89	4620.00				
	Karma Mahsuri	Certified	19.80	17	16.47	3024.00	18.00	15	16.54	3240.00
	Chandrahasni	Foundation					22.06	18	18.05	4384.80
	Samleshwari	Foundation					19.50	16	17.89	3780.00
Temri	MTU1010	Foundation	17.75	14	26.78	4050.00				
	Mahamaya	Foundation	18.00	14	28.57	4200.00				
Ghursena	MTU1010	Foundation	16.75	14	19.64	2970.00				
	Karma Mahsuri	Certified	17.17	14	22.62	3420.00				
		Mean	18.13	13.70	36.11	4721.75	19.38	15.75	18.45	3917.70

technology and local practice are presented in Table 2. The rice yield ranged from 16-21.5 q/acre with mean of 18.13 q/acre during *Kharif* 2010 and 16.19-22.06 q/acre with mean of 19.38 q/acre during *Kharif* 2011 by using quality seed which was more than farmers yield ranged from 10-17 q/acre with mean of 13.7 q/acre during *Kharif* 2010 and 14-18 q/acre with mean of 15.75 q/acre during *Kharif* 2011. Yield recorded in Arasnara (Durg) was more than Hathbandh (Raipur) means women of Arasnara adopted new technology more as compared to Hathbandh.

By using quality seed mean yield of rice recorded 18.13 q/acre which was 36.11% higher than recorded by farmers mean yield (13.7 q/acre) using local seed and economic advantage of Rs. 4721/acre during *Kharif* 2010. During *Kharif* 2011 quality seed mean yield of rice recorded 19.38 q/acre which was 18.45% higher than recorded by farmers mean yield (15.75 q/acre) using local seed and economic advantage of Rs. 3917/acre. Yield is increased by using quality seed (Tomar *et al.*, 1999; Singh, 2002; Buah *et al.*, 2011) which help to farmer for improvement of their livelihood. The demonstration produced a significant positive result and provided the researcher an opportunity to demonstrate the productivity potential and economic advantage of the improved seed (Kirar *et al.*, 2006).

Technology gap was 4.42 q/acre during *Kharif* 2010 and 3.46 q/acre during *Kharif* 2011 shows the gap of demonstration

yield over potential yield, but the gap reduced subsequently.

### Conclusion:

Cultivation of rice with quality seed gave more yield and economic advantage as compared to farmer's practices. The yield increased under demonstration over local practices of rice created awareness, changing attitude, skill, knowledge and motivated the other farmers to adopt quality seed.

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