

## Constraints of the farmers in cultivation of hybrid rice

R.K. Raj\*, B.B. Pradhan, S.K. Samantray and T. Badajena

*Department of Extension Education, OUAT, Bhubaneswar-751003, Orissa, India*

### ABSTRACT

*Hybrid rice cultivation is a practically feasible and adaptable technology to enhance rice production and productivity to meet the future demand. A study was undertaken in Balipatna and Baliana blocks of Khurda district as well as Attabira and Barapali blocks of Bargarh districts in Orissa during 2006-07 involving 208 rice growers to find out the constraints in hybrid rice cultivation. It is revealed that unavailability of quality seeds of choiceable variety, poor advisory services particularly training, demonstration and friendly approach, lack of price support for crop inputs, credit facilities, easy disposal of produce with remunerative price, poor attempt to develop consciousness and decision making ability of the farmers as well as developing leaders among the people were the major constraints in hybrid rice cultivation.*

*Key words: Hybrid rice, constraints, cultivation*

Hybrid rice is a practically feasible and adaptable technology for enhancement of production and productivity. India has launched a mission mode programme during 1989 and around 23 hybrid varieties have been released till date. Area under hybrid rice has also increased from 10,000 hectare in 1995 to more than 7, 50,000 hectare in 2005 (Aldas 2005). Janaih (1995) reported that production and distribution of high quality hybrid seed should be an immediate priority by public and private sector with all support from the Government to popularize hybrid rice cultivation on large scale. The State Department of Agriculture, Govt. of Orissa has also taken steps for hybrid rice cultivation throughout the rice growing areas of the state. In spite of all intensive approach, hybrid rice cultivation by the rice growers was not successful. Therefore, attempt was made to assess the constraints of the growers for hybrid rice cultivation in Orissa.

### MATERIAL AND METHODS

The study was undertaken in Khurda and Bargarh districts of Orissa during 2007 considering the potentiality and advancement of farmers in rice cultivation. Rice growers who usually adopt most of the technological recommendations are considered as advanced rice growers. A list of such advanced rice cultivators from 14 villages of Balipatna and Baliana

blocks in Khurda district and 8 villages from Attabira and Barpali blocks of Bargarh district were collected in consultation with Extension functionaries of Agriculture department of the area. Among the list, 10 percent of the advanced farmers were selected randomly covering 104 respondents from each districts with total sample size of 208. Ecological, technological, input supply, extension support, policy consideration and social support as well as post harvesting and marketing were chosen as the variables for analyzing the constraints. Respondents were personally interviewed through a structured schedule pre-tested earlier. Responses were collected on a 3 point continuum and analysed with statistical measures.

### RESULTS AND DISCUSSION

Rice is grown in diversified ecological conditions having erratic rainfall, climatic fluctuation, unfavourable weather condition and natural calamities in Orissa. The respondents stated for adverse climatic conditions, insufficient water and nursery raising as the constraints in hybrid rice cultivation (Table 1) as per the mean score value may not be the real constraints. Availability of water is not the constraints in wet season. Similarly, adverse weather condition may not be a regular phenomenon and the growers can develop competency in nursery raising. It can be stated that the rice growers

do not have any pertinent ecological constraints in hybrid rice cultivation.

Hybrid rice cultivation is definitely more sophisticated than normal rice. It requires timely operation, recommended fertilizer and plant protection measures. Mixed responses were obtained about technological constraints of the respondents in hybrid rice cultivation Table 2. Considering the mean score value, the respondents did not support for weed infestation and more skill required for management. However, timely operation, more disease and pest attack and unavailability of choiceable variety had restricted them to some extent for rice cultivation. Timely operations, disease and pest attacks definitely need

sufficient exposure and skill competency of the growers. But the unavailability of choiceable variety definitely restrict the rice growers for hybrid rice cultivation, which should be given due importance.

Timely availability of quality inputs with reasonable price very often motivate the farmers for adoption of new technology. It is observed from Table 3 that poor quality seeds and nonavailability of seeds in time were the important constraints expressed by the respondents in hybrid rice cultivation. The respondents did not respond much for seed price, availability of other inputs and implements on hire basis as the constraints in hybrid rice cultivation. The study therefore, indicates that the growers have affinity for

**Table 1. Ecological constraints in hybrid rice cultivation**

Constraint	MostImportantF	ImportantF	Not ImportantF	Mean Score*		
				Khurda	Bargarh	Average
Nursery raising	78(37.50)**	75(36.06)	55(26.44)	1.88	2.34	2.11
Proper puddling	65(31.25)	64(30.77)	79(37.98)	1.95	1.91	1.93
Insufficient water	76(36.54)	81(38.94)	51(24.52)	2.31	1.93	2.12
Adverse climatic condition	117(56.25)	84(40.38)	7(03.37)	2.58	2.48	2.53

\*Maximum obtainable score-3; \*\* Figures in parenthesis indicate percentage.

**Table 2. Technological constraints in hybrid rice cultivation**

Constraint	MostImportantF	ImportantF	Not ImportantF	Mean Score*		
				Khurda	Bargarh	Average
No choiceable variety	101(48.56)**	80(38.46)	27(12.98)	2.33	2.38	2.36
More disease & insect pest attack	81(38.94)	92(44.23)	35(16.83)	2.17	2.27	2.22
Severe weed infestation	42(20.19)	80(38.46)	86(41.35)	1.77	1.81	1.79
Timely operation	88(42.31)	98(47.12)	22(10.57)	2.31	2.33	2.32
More skills to manage	52(25.00)	53(25.48)	103(49.52)	1.77	1.74	1.75

\*Maximum obtainable score-3; \*\*Figures in parenthesis indicate percentage.

**Table 3. Constraints in supply of inputs.**

Constraint	MostImportantF	ImportantF	Not ImportantF	Mean Score*		
				Khurda	Bargarh	Average
Poor quality seed	101(48.56)	88(42.31)	19(09.13)	2.38	2.40	2.39
Not available of seeds	100(48.08)	87(41.83)	21(10.09)	2.38	2.32	2.35
Unreasonable seed price	50(28.37)	63(30.29)	86(41.34)	1.65	2.09	1.87
Nonavailability of other inputs	42(20.19)	80(38.46)	86(41.35)	1.77	1.81	1.79
Nonavailability of implements on hire basis	47(22.60)	57(27.40)	104(50.00)	1.58	1.88	1.73

\*Maximum obtainable score-3; \*\*Figures in parenthesis indicate percentage.

hybrid rice. Quality seeds and timely availability has to be ensured for its popularization.

Transfer of technology is another important dimension, which enriches knowledge and skill competency of the growers. Information collected on the advisory support to the rice growers revealed that (Table 4) majority of the respondents stated for insufficient training, inadequate demonstration, lack of friendly approach and improper guidance as the major constraints in hybrid rice cultivation. But the respondents did not have much constraint in exposure visit for confidence development, literature for reference, continuous flow of information and monitoring which might have been arranged by the State Department of Agriculture. But, sufficient training along with demonstration for skill competency, proper guidance and friendly approach for motivation and developing interest are the principal requirements of the rice growers for hybrid rice cultivation.

Hybrid rice cultivation is relatively expensive and involves risk. The growers definitely need govt. support for crop inputs and easy disposal with remunerative price. Constraints of the rice growers towards policy support revealed (Table 5) that no remunerative price, insufficient credit facilities and no price support for crop inputs were the most important constraints as expressed by majority of the respondents. The respondents had also expressed for support for easy disposal of the produce and some kind of incentives to motivate them for hybrid rice cultivation. Since hybrid rice cultivation is completely new, all these aspects may be considered for providing adequate policy support to motivate them for hybrid rice cultivation.

Attempt was also made to know the social constraints of the growers in hybrid rice cultivation. It is observed from Table 6 that no consciousness of the farmers, lack of decision making ability and poor leadership among them were the major social constraints in hybrid rice cultivation. It is therefore, suggested that the extension functionaries have to organize the rice growers, appraise in detail about the advantage of hybrids rice, select key persons and develop their competency for taking leadership so that the cultivation of hybrid rice may be popularized.

Disposal of the produce is the ultimate goal of the farmers in raising crops. It is observed from Table 7 that though mixed response was obtained on harvesting and marketing but poor grain quality, poor taste and low market demand are some of the considerations, which needs further research and development of suitable variety.

Comparative analysis of the constraints revealed (Table 8) that there were constraints in all the aspects in hybrid rice cultivation. The respondents of Khurda district had more of ecological constraints and the constraints were equal in both the districts on other aspects. Julfikar *et al.* (2002) reported that lack of conviction about the economic viability by the administrators, policy makers and researchers, lack of trained women resources, lack of knowledge about seed production and poor performance of introduced hybrids were the constraints in hybrid cultivation. Longping (2004) reported that hybrid rice seeds were expensive and could not be saved from year to year, susceptible to diseases and insect pests as well as lower market value were the reasons for which the farmers did not develop interest to grow hybrid rice.

**Table 4. Constraints in advisory services**

Constraint	Most Important F	Important F	Not Important F	Mean Score*		
				Khurda	Bargarh	Average
Insufficient training	104(50.00)**	86(41.35)	18(8.65)	2.40	2.42	2.41
Inadequate demonstration	88(42.31)	96(46.15)	24(11.54)	2.23	2.38	2.31
No exposure visit	54(25.96)	68(32.69)	86(41.35)	1.88	1.81	1.85
Improper guidance	74(35.58)	83(39.90)	51(24.52)	2.11	2.11	2.11
Inadequate supply of literature	39(18.75)	68(32.69)	101(48.56)	1.67	1.44	1.56
Lack of permanency in information flow	27(12.98)	44(21.15)	137(65.87)	1.44	1.49	1.47
Irregular monitoring	70(33.65)	64(30.77)	74(35.58)	1.98	1.98	1.98
Lack of friendly approach	94(45.19)	70(33.65)	44(21.16)	2.23	2.34	2.29

\*Maximum obtainable score-3; \*\*Figures in parenthesis indicate percentage.

**Table 5. Constraints of the farmers towards policy support**

Constraint	MostImportantF	ImportantF	Not ImportantF	Mean Score*		
				Khurda	Bargarh	Average
No price support for input	109(52.40)**	81(38.94)	18(08.66)	2.38	2.48	2.44
No incentive to motivate	75(36.06)	92(44.23)	41(19.71)	2.17	2.15	2.16
No crop insurance	57(27.41)	69(33.17)	82(39.42)	1.88	1.88	1.88
Insufficient credit facility	110(52.89)	79(37.98)	19(9.13)	2.46	2.40	2.44
Lack of easy disposal of produce	90(43.27)	96(46.15)	22(10.58)	2.31	2.35	2.33
No remunerative sale price	121(58.17)	87(41.83)	-	2.58	2.59	2.58

\*Maximum obtainable score-3; \*\*Figures in parenthesis indicate percentage

**Table 6. Social constraints in hybrid rice cultivation**

Constraint	MostImportantF	ImportantF	Not ImportantF	Mean Score*		
				Khurda	Bargarh	Average
Non-cooperation of neighbouring farmers	44(21.15)**	58(27.89)	106(50.96)	1.77	1.70	1.74
No team spirit	66(31.73)	78(37.50)	64(30.77)	1.88	2.01	1.95
No consciousness of the farmers	108(51.92)	84(40.39)	16(7.69)	2.40	2.44	2.42
Lack of community approach	70(33.65)	88(42.31)	50(24.04)	1.91	2.10	2.01
Lack of decision making ability	100(48.08)	88(42.31)	20(9.61)	2.38	2.40	2.39
Poor leadership among people	100(48.08)	70(33.65)	38(18.27)	2.35	2.30	2.33

\*Maximum obtainable score-3; \*\*Figures in parenthesis indicate percentage

**Table7. Constraints in post harvest and marketing**

Constraint	MostImportantF	ImportantF	Not ImportantF	Mean Score*		
				Khurda	Bargarh	Average
Poor shattering	20(9.62)**	94(45.19)	94(45.19)	1.65	1.64	1.65
Poor recovery	28(13.46)	99(47.60)	81(38.94)	1.77	1.73	1.75
Poor grain quality	46(22.12)	144(69.23)	18(8.65)	2.11	2.13	2.12
Low market demand	42(20.19)	142(68.27)	24(11.54)	2.09	2.09	2.09
Poor taste	58(27.88)	126(60.58)	24(11.54)	2.16	2.16	2.17
No other quality except cooking	34(16.35)	112(53.85)	62(29.80)	1.86	1.86	1.87

\*Maximum obtainable score-3; \*\*Figures in parenthesis indicate percentage

**Table 8. Comparative analysis of the constraints**

Constraint	Mean score		
	Khurda	Bargarh	Average
Ecological	2.36	2.17	2.27
Technological	2.07	2.11	2.09
Input supply	1.95	2.10	2.03
Advisory services	1.99	2.00	2.00
Policy support	2.31	2.31	2.31
Social	2.12	2.16	2.14
Post harvest and marketing	1.95	1.94	1.94

\*Maximum obtainable score-3

The findings of the study revealed that the rice growers of Khurda and Bargarh districts had more or less similar constraints on various aspects of hybrid rice cultivation. Among the constraints, unavailability of quality seeds of choiceable variety, poor advisory services particularly training and demonstration to develop knowledge and skill competency of the farmers with friendly approach of the extension functionaries, lack of price support for inputs and credit facilities, easy disposal of produce with remunerative price, developing consciousness and decision making ability of the farmers as well as developing leadership among the people are important

### Constraints in cultivation of hybrid rice

constraints which need sufficient attention to popularize hybrid rice cultivation

### REFERENCES

- Aldas J 2005. HHRRC forms venture to market hybrid rice, Asia Pacific Biotech News, Vol.4, No1, 2005
- Janaiah A 1995. Economic potential of hybrid rice technology in India, Manual on hybrid rice seed production

### R.K. Raj et al

technology, Directorate of rice Research, Hybrid, 1995.

- Julfiquar AW, Hassain J, Azad M, Anwar AK and Hossain M 2002. Proceedings of the 4<sup>th</sup> international symposium on hybrid rice, 14-17,2002, Vietnam.
- Longping Y 2004. Hybrid rice commercialization programme, Inherently flanged education for development Vol. No.12, 2004