

Assessment of Paddy Genotypes under Direct Seeded Condition

S. C. MOHAPATRA AND T. K. DAS

*Krishi Vigyan Kendra, Orissa University of Agriculture & Technology
 Sonepur 767017, India*

Abstract

A field experiments was conducted with 33 paddy genotypes having different cross combination during rainy season of 2006 and 2007. The two years average data indicated that OR-1659-3 yielded highest of 4.9 t/ha followed by OR-1628-7 and *Khandagiri* (4.6 t/ha) and OR-1774-4 (4.2 t/ha) grain under good agronomic practices in rainfed direct seeded condition at medium land situation.

Key words : Paddy, Genotypes, Direct seeded, Rainfed, Grain yield.

More than half of the worlds population subsists wholly or partially on paddy (*Oryza sativa* L.). Direct seeded paddy is now becoming popular as it is a cheaper alternative to transplanting in medium land agro eco situation, as it is more remunerative if the crop is managed properly. One of the major reasons of low productivity of paddy is unavailability of suitable genotypes (1). To boost the production and productivity of paddy a good number of high yield potential genotypes should be introduced in the seed chain. Keeping this in view an experiment was carried out to evaluate some pre released cultivars of paddy under direct seeded rainfed condition.

Methods

The experiments was made at the instructional farm of Krishi Vigyan Kendra (OUAT), Sonepur, Orissa during rainy season of 2006 and 2007. The climate of the zone is sub-tropical. The soil is slightly acidic (pH 6.4), clay loam in texture and having 208, 8.6, and 230 kg/ha available nitrogen, phosphorus and potash, respectively. During the trail year monsoon was quite normal. The experiment was laid out in randomized block design with three replications consisting of 33 genotypes including three widely adopted varieties was taken as check. The treated seed was sown in line during first week of July and after first weeding cum thinning operation optimum plant population was maintained with a spacing of 15 cm × 10 cm. The trail plot was fertilized with FYM (5t/ha) and N : P : K :: 60 : 30 : 30 kg/ha. The nitrogen was splited into the ratio of 25, 50, and 25 at basal, maximum tiller emerging

stage and panicle initiation stage respectively. The need specific plant protection measure was taken to prevent the attack of pest and diseases.

Results and Discussion

Final plant height of all 33 genotypes varied from 70.2 to 107.3 cm. It was observed that short height cultivars yielded more. This might be due to resistant to lodging and ability to divert more photosynthates towards grain filling. The days to 50% flowering in most of the genotypes was around 62 days except few like OR-2094-2, OR-2053-2 and OR-1509-4 were less than 60 days, however no one crossed 65 days.

The grain yield is the expression of yield attributes (1). The cultivars with above 4 t/ha grain yield had more than 12 numbers of tillers per plant whereas varieties with less than 2.5 t/ha grain yield were less than 8 tillers per plant. The result also showed that higher number of filled spikelets per panicle contributes higher grain yield. The genotypes had more than 120 filled spikelets per panicle were yielded above 4 t/ha grain and the varieties produced less than 85 filled spikelets similarly yielded less than 2.5 t/ha.

The highest grain yield (4.9 t/ha) was manifested in the genotype OR-1659-3 with a cross combination of parijat and pathara which had 128.7 filled spikelets per panicle and 13.2 tillers per plant. Out of three local checks *khandagiri* performed best its yield potentially was at par with OR-1628-7 (4.6 t/ha) with 126.8 numbers of filled spikelets per panicle and 12.2 numbers of tillers per plant. A wide range of significant variations were observed in biometric characters, yield at-

Table 1. Biometric characters, yield attributes and grain yield of direct seeded paddy genotypes (average data of 2006 and 2007 rainy season).

Designation	Cross combination	Plant height (cm)	No. of tiller/plant	Days to 50% flowering	No of filled spikelets/panicle	Grain yield (t/ha)	
1	OR 1509-4	OR 924-2-5/OR 1045-1-10	71.3	7.4	59.2	112.5	3.8
2	OR 1603-7	Parijat/IET/10371	73.8	9.6	62.5	108.7	3.7
3	OR 1628-7	Parijat/Annada	89.4	12.5	62.3	124.3	4.6
4	OR 1659-3	Parijat / Pathara	75.3	13.2	62.4	128.7	4.9
5	OR 1734-1	Subhadra / NDR 1006	84.2	9.8	61.5	113.2	3.8
6	OR 1737-4	Nilagiri/NDR 1006	81.1	9.4	62.3	94.3	3.3
7	OR 1752-3	Badami / Tulsi	93.6	9.6	63.2	97.5	3.5
8	OR 1770-1	PNR 555-28/RR 165-11-68	88.5	8.6	64.3	98.7	3.6
9	OR 1774-4	NDR 1006 / CN 776—U6—B1	90.4	14.6	63.2	122.1	4.2
10	OR 1783-3	RP 2423-22 / Pathara	87.3	10.7	64.4	101.9	3.3
11	OR 1797-4	OR 922-2-6-1 / Meher	82.2	11.5	63.3	110.4	3.5
12	OR 1849-1	Parijat / RR 2253 Sankar/ RR-160-10/Subhadra	74.1	13.6	64.2	121.3	4.0
13	OR 1918-2	Rudra / IR 64	89.4	10.3	65.0	93.1	3.2
14	OR 1920-3	NDR 1021 / Lalat	91.5	9.2	63.2	92.6	3.4
15	OR 2015-2	PNR 580-2/OR 1050-5-1	73.4	7.3	62.4	85.0	2.3
16	OR 2042-2-1	OR 922-2-6-1 / PNR 555-5	81.3	8.3	63.5	90.4	3.1
17	OR 2042-2-2	OR 922-2-6-1 / PNR 555-5	90.2	8.4	64.3	93.7	3.3
18	OR 2048-1	BAU 125-1-1 / Tulsi	89.2	7.3	63.4	80.8	2.1
19	OR 2049-3	BAU 146-16-3 / Pathara	82.3	9.4	61.8	81.8	2.0
20	OR 2052-4	Pathara / Tulsi	81.4	8.3	60.2	92.6	3.2
21	OR 2053-2	NDR 1006 / OR 944-1-6	94.1	7.2	57.3	81.2	2.1
22	OR 2069-10	Subhadra / IR 36	80.5	8.4	63.2	97.2	3.6
23	OR 2075-3	Annada / OR 1513-3	81.3	7.3	62.2	91.7	3.3
24	OR 2081-5	Pathara / IR 27069-4-2	83.4	9.2	62.4	93.3	3.4
25	OR 2084-2	NDR 1018 / RR 139-1	83.6	11.1	62.3	95.2	3.7
26	OR 2088-4	RP 2222-10247 / Aditya	86.7	9.4	63.6	94.8	3.5
27	OR 2089-9	RP 2222-10246 / Parijat	74.3	7.4	64.2	85.3	2.4
28	OR 2090-7	RP 2222-10247 / Parijat	70.2	9.2	63.4	90.2	3.2
29	OR 2091-1	KM 6 / CT 6516-18-1-2	89.5	8.3	61.2	90.5	3.3
30	OR 2094-2	KM 30 / RP 2469	107.3	8.2	53.0	81.5	2.1
31	Sidhant	check	82.2	9.2	64.5	94.3	3.1
32	Khandagiri	check	73.1	7.1	62.6	126.8	4.6
33	Jogesh	check	79.3	12.2	63.4	84.2	2.3
	CD (0.05%)		2.14	0.87	0.18	3.15	0.26

tributing characters and also in grain yield of paddy under rainfed direct seeded condition, which corroborate the findings of earlier workers (2, 3).

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