

## Varietal performance of rice [*Oryza sativa* (L.)] cultivars grown under coastal saline soil of Orissa

N. PANDA\*, A. DHAL AND S.P. SANGRAMSINGH

Instructional Farm Unit, Krishi Vigyan Kendra (OUAT), Tirtol, JAGATSINGHPUR (ORISSA) INDIA

### ABSTRACT

A field experiment was conducted during the *kharif* season of 2006-07 and 2007-08 at Instructional farm unit of KVK, Jagatsinghpur, to work out the yield performance of nine rice cultivars viz., Khandagiri, Naveen, Pooja, Gayatri, Swarna, Barshadhan, Pratikshya, Sarala and Chakaakhi. Studies revealed that the yield performance was highest in Gayatri (47.73 q/ha) followed by Pratikshya (46.03 q/ha) and Swarna (45.70 q/ha). There was not much difference in the yield of Pooja (45.63 q/ha) and Sarala (45.65 q/ha). The short duration variety Khandagiri (41.75 q/ha) and Naveen (42.00 q/ha) were at par.

**Key words :** Rice cultivars, Yield, Coastal saline soil.

### INTRODUCTION

Rice [*Oryza sativa* (L.)] is the staple food for more than 70 % of Indian population. The additional yield over presently growing high yielding varieties has proved to be one of the practically feasible options to enhance production and productivity of rice in the country. High yielding variety of rice with the yield potential of 5.0–6.0 t ha<sup>-1</sup> have played a major role in meeting the growing food demand (Dwivedi *et al.*, 2006). As rice is the major cereal crop in the coastal belt of Orissa, there is a need to further enhance the productivity so as to feed the growing population. The present work is to select the best high yielding rice cultivar with reference to the saline belt of Jagatsinghpur district, Orissa, which can provide good marginal profit to the farming community of the state.

### MATERIALS AND METHODS

A field experiment was conducted in the East and South East Coastal plain zone of Orissa at the Instructional farm unit, KVK, Jagatsinghpur during the *kharif* 2006-07 and 2007-08. The experiment was laid out in Randomized Block Design (RBD) with three replications with recommended fertilizer doses of 60 kg N, 30 kg P<sub>2</sub>O<sub>5</sub> and 30 kg K<sub>2</sub>O ha<sup>-1</sup> of the soil. The soil under the experiment was saline in nature (EC<sub>w</sub> = 1.8 dSm<sup>-1</sup>), clay loam in texture having soil pH 7.8, O.C (%) 0.47, available soil N content 214.0 kg/ha, available soil P is 20.7 kg/ha and available soil K is 192 kg/ha. The sources of the fertilizers used were urea, DAP and MOP, respectively. Nitrogen and potassium were applied in splits where as phosphorus was applied as basal dose. Rice cultivars were transplanted at a spacing of 25 x 25 cm and 2-3 seedlings per hill. All the standard methods were taken for the analysis soil and the plants (Jackson, 1973). The

chlorophyll content was measured by SPAD 502 (a hand chlorophyll meter). The protein content of the grain was calculated by analysis the N content and its multiplication by a factor of 5.95. The data were statistically analyzed as per the Panse and Sukhatme (1985).

### RESULTS AND DISCUSSION

Nine rice cultivars grown under coastal saline soil of Jagatsinghpur, Orissa exhibited a significant difference in grain yield (Table 1). The highest grain yield was observed in variety Gayatri (47.73 q/ha) followed by Pratikshya (46.03 q/ha) and Swarna (45.70 q/ha). These varieties are medium duration paddy cultivars. The grain yield of Swarna was at par with Pratikshya, but a good crop stand with better yield attributing characters was found in Pratikshya when compared with Swarna, the variety of same duration. The disease and pest occurrence as observed in the standing crop was the least in Pratikshya than any other variety in the test (Sangramsingh *et al.*, 2007). The yield performance of Khandagiri 41.75 q/ha with good yield parameters. It performed well under semi upland condition, as it is a short duration variety. The yield performance of Barshadhan is 40.63 q/ha revealed optimum performance and acclimatized to deep-water condition particularly to few patches of the Jagatsinghpur district. The performance of Naveen was found well with a grain yield of 42.0 q/ha. The yield performance was at par with Khandagiri. The variety Chakaakhi was having a yield of 44.63 q/ha and that of Sarala the grain yield was 45.65 q/ha, which was at par with Pooja, Swarna and Pratikshya. Similar results were also observed by Dhal *et al.* (2007), Dey *et al.* (2006) and Dwivedi *et al.* (2006). The soil parameters viz. available N, P, K and soil pH and O.C. (%) studied after the harvest of the crop had no significant