

Effects of establishment method and population density on growth and yield of paddy (*Oryza sativa* L.) var Bg 250

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Abstract

Two separate experiments were carried out at the farm School of Agriculture, Kundasale, to evaluate the (Exp.1) method of establishment and (Exp.2) population density on growth and yield of paddy variety Bg 250 during *yala* 2007. Experimental site come under Agro ecological zone described as Intermediate (IM_{3a}), receiving an annual rainfall 1400 mm and average atmospheric temperature ranging from 22 to 30 °C. In experiment 1, different establishment methods i.e. Broadcasting, Row sowing and Parachute method (seedling broadcasting) were practiced. In the experiment 2, germinated seeds broadcasted at the rate of 50, 100, 150, 200 and 300 kg/ha. Both experiments were designed in Randomized Complete Block design with three replicates. The individual plot sizes were 2.4 x 2.4 meter.

The results of experiment 1 showed that highest yield of 5.6 t/ha was achieved in parachute method and row sowing and broadcasting gave the yield level of 3.6 and 3.2 mt/ha respectively. Parachute method required less seed rate and showed positive correlation with all yield components studied than row sowing and broadcasting. In the experiment ii, the seed rates of 50, 100, 150, 200, 300 kg/ha gave the yield levels of 1.5, 2.6, 2.8, 2.1 and 1.8 mt/ha respectively. The highest yield of 2.8 mt/ha was achieved with the seed rate 150 kg/ha and then continued to reduce the yield level with increasing seed rate. Number of panicles / m² increased continuously with increasing seed rate from 100 to 300 kg /ha. 100 grain weight continuously reduced with increasing seed rate but not significantly varied among treatments at p=0.05. The highest number of grains/panicle was achieved at the seed rate of 100kg/ha and reduced through with increasing seed rate. It was concluded from the study that parachute method was most effect for field establishment and seed rate of 150 kg/ha for broadcasting optimized all yield components to maximize yield of Bg 250.

Keywords: Broadcasting, Correlation, Establishment, Optimize, Parachute, Yield components.