



Effect of fertilizer on agronomic characters and yield in forty traditional rice cultivars in Sri Lanka

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Traditional rice gene pool in Sri Lanka consists of various biotic and abiotic stress tolerant cultivars. Some of the traditional rice cultivars have been studied in systematic way to understand their ability to withstand drought, salinity and submergence stresses at different growth stages. The selected rice cultivars can be directly introduced in to farmer field or can be utilized as initial breeding materials for the production of rice cultivars with such tolerances. This needs prior understanding on their agronomy, phenotype and their potential yield in farmer field. The yield potential and fertilizer responsiveness of traditional rice cultivars are known to be less than those of modern rice cultivars. With the objectives of understanding agronomic characters, yield potential and fertilizer responsiveness of the traditional rice cultivars, a field experiment was carried out in 2011 Yala season at Faculty of Agriculture, University of Ruhuna. A standard fertilizer recommendation (recommended dose) has been introduced by Department of Agriculture in Sri Lanka for modern rice cultivars. In this study three fertilizer levels; $\frac{1}{2}$ of the recommended dose, recommended dose, two folds of the recommended dose and no fertilizer application was studied at the field condition for forty traditional rice cultivars. Rice cultivars were transplanted according to completely randomized block design with four replicates. Each replicate consisted of three rows of rice plants and data were collected from 20 plants of the middle row. Agronomic characters such as plant height (cm), number of tillers/plant, number of leaves/tiller and yield/plant were evaluated during the study period and bio mass indices were calculated at the end of the experiment. According to statistical analysis there were significant effects of fertilizer on plant height, tiller number and on number of leaves/tiller. According to correlation analysis none of these agronomic characters correlated with yield/plant since these varieties belonged to different age groups. The best fertilizer level for the highest yield must be recommended for individual cultivar. Furthermore, bio mass index of each rice cultivar at different fertilizer level is also a factor to be considered.

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