

**EVALUATION OF EFFECTS OF DIFFERENT ORGANIC AMENDMENTS ON GROWTH OF RICE (*ORYZA SATIVA* L.) IN NORTH-WESTERN PROVINCE OF SRI LANKA**

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Improvement of soil health in paddy fields through organic amendments is one of the important practices that farmers could simply manage. There is scarcity of information on field scale differences in growth responses under different organic fertilizer amendments at field level and there is poor awareness among farmers on this. This study was conducted to investigate the growth response of local paddy variety BG- 352 at the field site in Kaudulla at "Maha" season. Soil samples were analyzed for cation exchange capacity, base saturation, pH, organic matter content, electrical conductivity and major and micro nutrients using the standard protocols. Seven fertilizer treatments were tested with four replicates in a randomized block design; *Gliricidia* leaves (T<sub>1</sub>), *Gliricidia* leaves + rice straw (T<sub>2</sub>), rice straw (T<sub>3</sub>), rice straw + 50 g of Urea (T<sub>4</sub>), rice straw + 100 g of Urea (T<sub>5</sub>), recommended rate of chemical fertilizer (T<sub>6</sub>), and control without fertilizer (T<sub>7</sub>). The plot size was 2 m<sup>2</sup>. The recommended rate of chemical fertilizer was applied to all plots except for the control plots (T<sub>7</sub>). The standard cultivation practices were adopted for management of the plots. Height of plant, length of flag leaf and root, width of flag leaves and base of the stem, number of tillers/plant, shoot and root biomass were measured (6 individuals/ treatment) two months after sowing. All data were analyzed for statistical significance using ANOVA at  $p < 0.05$ .

Soil analysis revealed that the soil was deficient in nutrients N, P, K, S, B, and Zn. Mean number of tillers/ individual was significantly higher in all the other treatments than T<sub>7</sub> plots except for T<sub>3</sub>. The height of the plants and length of the flag leaves were significantly longer in all the treatments than T<sub>3</sub> and T<sub>7</sub>. While length of plant roots of T<sub>7</sub> was short (15.1 cm) all the other treatments showed longer root length (> 18 cm). The biomass of the shoot was significantly higher in all the other treatments (> 2.0 g) than T<sub>7</sub> (0.8 g). The root biomass of plants was significantly higher in T<sub>4</sub>, T<sub>5</sub> and T<sub>6</sub> (> 0.6 g) than the T<sub>7</sub> (0.2 g). The maximum shoot biomass, height of plants, length of flag leaves, and number of tillers were recorded under T<sub>5</sub>. Most of the measurements of T<sub>1</sub> showed more or less close values to that of T<sub>5</sub> for most of the parameters, but that of T<sub>3</sub> and T<sub>7</sub> showed significantly low values. Rice cultivation with integrated fertilizer management would be a better practice for net high rice plant growth in nutrient deficient soils of dry zone of Sri Lanka.