# POSSIBILITY OF REPLACING INORGANIC FER TILIZER BY ORGANIC SOURCES IN WETLAND RICE CULTIVATION

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The possibility of replacing inorganic fertilizer by organic sources in wetland rice, evaluated under field conditions during *Yala* season 2012 in the Anuradhapura district of Sri Lanka. The experiment was laid out as a split-plot design, with 3 replicates. The main plots were rice varieties, *Kaluheenati* and BG 352, and subplots were 5 fertilizer/manure combinations viz., $T_0$-control (without fertilizer and organic sources), $T_1$-100% DOA [recommendation of Department of Agriculture (120-40-45 kg of N, $P_2O_5$ and $K_2O$/ha respectively for 3 ½ month varieties)], $T_{2,3}$-50% DOA, T Organic sources alone [4 t/ha rice straw + 6 t/ha gliricidia leaves + 350 Kg Eppawala Rock Phosphate (ERP)/ha + 600 litres/ha Gliricidia leaf extract (applied fortnightly)], $T_4$ INM [50% DOA+ organic manure alone (integrated nutrient management)]. Results revealed that the effects of variety, fertilizer/manure combination and interaction of variety with fertilizer/manure combination on shoot biomass (SB) at 80% heading, filled spikelets/panicle and yield were significant (p=0.05). Significantly higher and statistically similar SB and number of filled spikelets/panicle were observed in INM ($T_4$) and 100% DOA(T). In *Kaluheenati*, the suitable fertilizers/manure combinations for higher yield (6.14 t/ha) were organic manure along (T3). Bg 352 responded positively (8.49 t/ha) to organic manures in combination with inorganic fertilizers (T4), which illustrates the possibility of substituting part of inor ganic fertilizers with or ganic manures saving of 60-20-22.5

kg of N, $P_2O_5$ and $K_2O$ per hectare respectively. Further, organic matter content of soil at harvest was significantly influenced by organic sources and INM resulting higher organic matter content in organic sources alone ($T_{34}$) and INM (T).

***Key words:*** Inorganic fertilizers, Integrated nutrient management, Organic sources, Rice varieties, *Yala* season