

EVALUATION OF EFFECTIVE MICROORGANISMS AND VERMITEA TECHNOLOGY TO REDUCE CHEMICAL FERTILIZER USE ON FODDER CULTIVATION

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Abstract: The study aimed to evaluate the growth and yield performance of premier fodder varieties grown with reduced inorganic fertilizer with effective microorganisms (EM) and Vermi products (VP). The experiment was carried out in a farmer's field at Rambewa, Sri Lanka (8.440° N 80.505° E). The study was a 4 x 4 factorial layout in a Randomized Complete Block Design with three replicates. Selected commercially available EM and farm-made VP were assigned into four levels of combinations; F₁: Vermitea + 50 % Recommended Level of Inorganic Fertilizer (RLIF), F₂: EM + 50% RLIF, F₃: EM + Vermitea + 50% RLIF and F₄: RLIF. Four fodder varieties; Napier (*Pennisetum purpureum x Pennisetum glaucum*) cv Pakchong-1, Red Napier, Fodder Sorghum (*Sorghum bicolor*) var. Sugargraze and Fodder Maize (*Zea mays*) var. Weera were grown under recommended management practices. Growth and yield parameters were recorded at the time of harvesting. There was no significant (P>0.05) interaction between fodder and fertilizer for plant height, leaf numbers, width and length, fresh and dry matter (DM) yields, DM percentage and brix value. Recorded DM yields for Pakchong-1, Red Napier, Maize and Sorghum grown with F₄ were 2923 ± 309, 2167 ± 1046, 10311 ± 1515 and 19122 ± 5286 kg ha⁻¹, respectively. The 50 % reduction of inorganic fertilizer resulted in 1714±324 – 2852±722, 1872±421 – 3826±1184, 8648±1215 – 11962±1774 and 8796±1066 – 13460±1147 kg ha⁻¹ of DM yields from Pakchong-1, Red Napier, Maize and Sorghum, respectively. The study concludes that the reduction of inorganic fertilizer up to 50% does not affect the yield and growth parameters compared with RLIF application in studied fodder varieties. Thus, the usage of EM and VP technology can be recommended to improve ecosystem health in tank cascade systems in dry and intermediate zones of the country.

Keywords: Dry matter yield; Fodder sorghum; Fodder maize; Fresh yield; Napier