

Impact of Inexpensive Tillage and Seeding Methods on Yield and Nutritional Quality of Fodder and Silage of Sugargraze

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Suggested agronomic practices for cultivating hybrid fodder sorghum (*Sorghum bicolor* cv. Sugargraze) in paddy fields of the low-country dry zone during the *Yala* season in Sri Lanka entail high plant density (45x15 cm²), minimal fertilizer usage (urea – TSP – MOP at 338-47-28 kg/ha), and extended irrigation intervals. This experiment aimed to explore the impact of tillage (Zero, Minimum, Optimum) and seeding (Broadcasting, Row seeding, Planting at identified spacing) methods, alongside suggested practices, on the yield and quality of Sugargraze cultivated in paddy fields of the low-country dry zone during the *Yala* season, and their silage. Sugargraze seeds were sown at the onset of the season. Broadcasting resulted 296,148 plants/ha, while row seeding (45 cm row spacing) and planting at identified spacing (45x15 cm²) resulted 148,074 plants/ha. Sugargraze was harvested at the dough-grain stage, ensiled and silage quality was determined. The dry matter (DM) yield, crude protein (CP), acid detergent fiber (ADF), neutral detergent fiber (NDF), acid detergent lignin (ADL), organic matter digestibility (OMD) and metabolizable energy (ME) of fodder remained unaffected ($P>0.05$) by tillage and seeding methods, resulting computed mean values across the treatments. The DM yield of Sugargraze was 14.31±0.84 MT/ha. The organic matter (OM), CP, NDF, ADF, and ADL percentages of fodder were at 83.30±0.62, 3.28±0.15, 65.93±1.35, 41.78±0.91, and 7.46±0.36, respectively. Despite low CP percentage, the fodder exhibited great OMD, (62.62±1.23%) and ME (9.41±0.19 MJ/kg). Consistency in fodder composition across agronomic practices ($P>0.05$) resulted in steady ($P>0.05$) pH, lactic acid, soluble carbohydrates, OMD, and ME in their silage, measured at 3.21±0.02, 6.45±0.07%, 2.42±0.05%, 48.13±1.20%, and 7.18±0.18 MJ/kg, respectively. Low silage pH indicated great potential for preservation of Sugargraze fodder as silage. The study recommends zero tillage and broadcasting for cultivating fodder sorghum in paddy fields of the low-country dry zone during the *Yala* season for conservation as silage.

Keywords: Composition, Metabolizable energy, Organic matter digestibility, pH.

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