

Effects of Harvest Residue Layers on Sugarcane Growth and Yield

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Recently, there is great interest in harvest residue from sugarcane, both to produce energy by burning in boilers and to produce ethanol after hydrolysis of cellulose and lignocellulose. However, agronomic benefits of harvest residue applied to the soil can be very important for the sustainability of productive sugarcane system. This experiment aimed to verify the effects of different levels of harvest residue layers on sugarcane growth and yield. The experiment was established in October 2010, in Araras, SP, Brazil, in the second ratoon of variety RB-84 5210 growing on an Oxisol. Treatments were 0, 25, 50, 75 and 100% (0.4, 8, 12 and 16 t ha⁻¹ on a dry basis) of harvest residue left on the soil surface. Plots were distributed in a randomized block design with four replications. Sugarcane growth was evaluated by biometric parameters, performed at 60, 120, 240 and 300 days after installation. The variables measured were: number of tillers per meter, plant height (m), stem diameter (mm), dry biomass of the stem, leaves and tops (t ha⁻¹). Sugarcane yield was evaluated by weighing all the plot's stalks during the harvest period. Brix, Pol and Fiber were evaluated in the juice extracted from stalks samples, to calculate the total recoverable sugars (TRS). Our results showed differences between treatments in plant height (average 2.30m) close to harvest. The lowest height was found in the highest level of harvest residue. Differences between treatments in number of tillers (approximately 10%) were observed from the beginning of the cycle, with a tendency toward decreasing tiller numbers with greater harvest residues (12-16 t ha⁻¹). Stalk productivity (average 81 t ha⁻¹) and TRS (122 kg ton⁻¹) rarely changed with harvest residue, with a slight decrease (7% for stalk yield and 3% for TRS) at the highest level (16 t ha⁻¹). It should be noted that these were results of one sugarcane cultivation cycle in a specific region and climatic conditions.

Key-words: sustainability; trash; *Saccharum officinarum* L



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