

SUGARCANE YIELD IN NO-TILLAGE LONG-TERM EXPERIMENT

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In the Southeast of Brazil, the sugarcane crop is cultivated in almost 7,2 million hectares, which 60% of plantations are concentrated in Sao Paulo State. Nowadays, the majority of fields are harvested without burning (1,92 million hectares), then a great amount of straw (average 15 Mg ha⁻¹) is deposited over the soil surface, consequently the weed control is enhanced, the emission of greenhouse gases is reduced, the soil organic matter may be improved and the soil erosion in no-tillage is reduced up to 15 Mg ha⁻¹ year⁻¹. Despite the benefits of no-tillage, there are many doubts about the productivity. In order to study the interaction of lime rates and soil management, it was installed in 1998 a long-term experiment in an eutrophic Clayed Rhodic Hapludox (Oxisol) located at Experimental Station of Agronomic Institute (Ribeirao Preto city, Brazil). It was adopted a randomized complete block design in a split-plot scheme, with four replications. The main plots were composed by two soil managements (conventional-CT and no-tillage-NT) and the subplots consisted of four dolomitic limestone (0; 2,0; 4,0 and 6 Mg ha⁻¹). The limestone was applied at three times (in 1998, 2003 and 2008), even before planting soybean as a crop rotation, followed by sugarcane crop. The stalk yield in the cane plant (IAC 86-2211) was significantly higher in no-tillage (140,1 Mg ha⁻¹) than conventional (111 Mg ha⁻¹). In the second cycle (from 2003 to 2008, cv. IAC 91-2218) it was observed a linear response to stalk yield (average of four harvests). The regression is represented by equations; $Y_{pd} = 1,95x + 83,4$ ($R^2=0,66$) and $Y_{pc} = 1,35x + 79,2$ ($R^2=0,99$) for no-tillage and conventional, respectively. In conclusion, the stalk yield was not reduced in no-tillage system after planting soybean. It is estimated around 1 million ha⁻¹year⁻¹ sugarcane field to apply no-tillage as a good agricultural practice.

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