



18th World Congress of Soil Science  
July 9-15, 2006 - Philadelphia, Pennsylvania, USA



Saturday, 15 July 2006  
147-10

### Liming in Green Harvested Sugar Cane Cultivated under Conventional and No-Tillage Systems.

Denizart Bolonhezi<sup>1</sup>, Heitor Cantarella<sup>2</sup>, Fábio L.F. Dias<sup>2</sup>, Osvaldo Gentilin Junior<sup>1</sup>, Antonio L. Cerdeira<sup>3</sup>, Manoel Dornellas<sup>3</sup>, and Miguel A. Mutton<sup>4</sup>. (1) Estação Experimental APTA - Centro Leste, Caixa Postal 271, Ribeirão Preto, 14001-970, Brazil, (2) Instituto Agronômico, Av. Barão de Itapura, 1481, Campinas (SP), 13001-970, Brazil, (3) EMBRAPA - Environment, C.P. 69, Jaguariúna, 13820-000, Brazil, (4) UNESP, Jaboticabal, Brazil

The sugar cane area in Sao Paulo State, Brazil is about 3.6 million of hectares in which the harvest without burning is increasing rapidly. In this harvest system, a great amount of straw (average 15 tons of dry matter per hectare per year) is deposited over soil surface, consequently the control of weeds is enhanced, the evaporation of water is reduced, and soil quality may be improved. Crops rotated with sugarcane may be grown in no-till in order to take advantage of the mulch left by sugarcane. However, as most Brazilian soils are acid there are doubts concerning the efficiency of surface application of lime. A long term experiment was set up in 1998 in Ribeirão Preto, southern Brazil, on a Dark Red Latosol with 32% of soil base saturation, previously grown for five years with sugar cane mechanically harvested, to study the response of sugar cane rotated with soybean to rates of dolomitic limestone. The lime was either surface-applied or incorporated into the soil by plowing and disking. The experimental design was a complete randomized block in a split-plot scheme with four replications. In 1998, lime was applied (0; 1,7; 3,4 and 5,1 t.ha<sup>-1</sup>) before sowing soybeans. Sugarcane was grown for 4 years. In November 2003 lime was reapplied (0; 2; 4 and 6 t.ha<sup>-1</sup>) in the same plots, before the second sowing of soybean. Four months after the first lime application soil samples were collected at depth of 0-0,05; 0,05-0,10; 0,10-0,20; 0,20-0,40 and 0,40-0,60 meter, for chemical and physical analysis. Samples of sugar cane leaves were collected on February, approximately 10 months after the planting, to determine the contents of macro and micronutrients. Yield of stalks and others agronomics and technological characteristics were evaluated on August of 2005. Approximately five years since the first liming, the most pronounced response to surface liming was observed in the layers 0,0-0,05 and 0,05-0,10 meters layers (Table 1). There was no effect in the chemical characteristic below 0,10 meters of depth under no-tillage system. The contents of Mg and Mn was decreased significantly with lime rates. There was no difference between rates and application method on yield of stalks of sugarcane

Table 1. Soil chemicals properties and cane yield in a long term experiment as affected by liming and tillages in green harvest sugar cane. Ribeirão Preto, Brazil. 2005.