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MODEL ABSTRACT

SOIL MOISTURE AND TEMPERATURE IN RELATION TO SUGARCANE CROP MANAGEMENT

Rationale The change of the traditional sugarcane (*Saccharum officinarum* L.) management, which includes burning before harvest, to that of the noburned cane harvest which leaves crop residues on the field, affects soil thermal and hydric regimes.

Objective This study evaluates the intensity of soil temperature and water content changes samples from in the top layer, taking into account the following interrow managements: bare soil; straw much and soil with burned residues.

Methods Soil water content was measured in the 0-15 cm layer, using a surface neutron probe, and soil temperature with digital thermometers installed at the depths of 3, 6 and 9 cm. The experiment was carried out on a Rhodic Kandiudox using the cane variety SP 70-1143.

Results There was a pronounced effect of the soil cover types on temperature and moisture, with an inverse relation between these variables. A "state-space", semi and cross correlation analysis is presented.

Conclusion The straw mulch softens surface soil temperature, reducing it by about 7 ºC and increases volumetric soil water content by 10 %. The moisture increased damaged cane sprouting, probably due to a greater fungi and microorganism incidence.

Note: In the journal, the five parts form a single paragraph of not more than 250 words.