Sugarcane Response to Potassium Fertilization on a Mineral Soil. (S08-muchovej132239-Poster)

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Abstract:

A field experiment was conducted from 1997 to 1999 in Hendry County, Florida, to determine the effects of potassium (K) fertilizer on sugarcane yields and on soil and plant characteristics. Soil at the site is a sandy soil, with low organic matter (OM) content and the sugarcane variety was CP70-1133, planted in 1996. Nitrogen (N) and phosphorus (P) were added at 200 and 50 kg ha-1, respectively, to all plots. Nitrogen was applied in four split applications and P was applied in one application. Treatments consisted of three rates of K (168, 250, and 336 kg ha-1), randomized in nine plots, varying from 2 to 2.9 ha in size. Potassium was applied in three split applications for the lower rates and in four applications for the highest rate. Soil samples were taken from 0-15 and from 15-30 cm depths, three times per year and were analyzed for water pH, OM, Mehlich extractable macro and micronutrients. Leaf tissue (TVD) composition was determined on samples collected at least twice per year. Increases in soil K, Zn, and Mn with increasing K rate were verified but only for samples collected in 1999. Samples from the 0-15 cm layer had higher nutrient concentrations than from the 15-30 cm layer. A year x rate interaction was significant for tissue K and values were highest in 1999 for the highest K rate. Sampling time had a greater effect on tissue nutrient concentrations than K rate; for instance, samples taken in October presented decreases in Ca and increases in Na, when compared with June-July samples. Yield (ton sugarcane per ha and ton sucrose per ha) was not affected by K rate and there was no year x rate interaction.

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