

POSTER SESSION

Soil Erosion Research on Alluvial Soils Planted to Sugarcane: Experimental Approach and Preliminary Results

T. S. Kornecki, B. C. Grigg, J. L. Fouss and L. M. Southwick
USDA-ARS, Soil and Water Research Unit
Baton Rouge, LA

Each spring, quarter-drains are installed to carry runoff from sugarcane fields. Each meter length of quarter-drain requires removal of about 0.065 m³ of soil, which is discharged on the ground surface. High intensity storms can cause soil erosion from these drains. The loose soil discharged during their construction is often washed into quarter-drains causing their drainage capacity to diminish by sedimentation. To address the quarter-drain soil erosion problem, a field experiment is being conducted on our research site in St. Gabriel, LA to study the effectiveness of applying polyacrylamide (PAM) to the soil-walls of the drain channel in reducing erosion. PAM has been shown to be effective in controlling soil erosion induced by irrigation water flows in surface channels. In March of 2002, PAM was applied as a spray directly to the soil-walls of the quarter-drains at a rate of 18 kg/ha in a split application with a concentration of 500 ppm. Soil erosion and sedimentation were measured after each storm event to develop a 3-D view of changes in cross-sectional shape of the quarter-drains. Preliminary data show that PAM preserved the original shape of semicircular quarter-drains through four consecutive storms in March and April 2002, totaling 19 cm of rain. Where PAM was not applied, a gradual deterioration of the side-walls of the quarter-drain was visible including at transition points where erosion up to 3.0 cm was recorded. Comparison of quarter-drains with and without PAM showed that the average soil loss was 10 kg/m less for plots treated with PAM, and soil erosion from quarter-drains without PAM was 11% higher. These preliminary results in using PAM to minimize soil erosion are encouraging, however, only results from the early spring storms have been recorded. The experiment is ongoing and more data will be collected during the current sugarcane season.

Laboratory Rearing of the Parasitoid *Cotesia flavipes* on Sugarcane Borer *Diatraea saccharalis*

G. Hannig and D. G. Hall
United States Sugar Corporation
Clewiston, FL

The parasitic wasp *Cotesia flavipes* is being used as a biological control agent of an extremely important pest of sugarcane, the sugarcane borer *Diatraea saccharalis*. *Cotesia* are reared and then released into the field. The sugarcane borer is reared as well as a host in which *Cotesia* are oviposited and develop. This biological control program has been very successful in controlling sugarcane borers in the field. The percent acreage where sugarcane borer problems were solved exclusively with the parasitoid

Cotesia flavipes increased by 32.7 % and 24.9 % in 1999 and 2000, respectively. Acreage scouted where insecticide sprays were recommended went from 12,310 acres in 1998 to 4,041 acres in 1999 to 460 acres in 2000, which is a significant decrease in insecticide use.

Disease Incidence and Yield Comparisons of KLEENTEK® Seedcane to Traditional Sources in Four Commercial Varieties in South Florida.

J. L. Flynn¹, K. Quebedeaux¹, L. Baucum², and R. Waguespack³

¹Certis USA, Baton Rouge, LA

²U.S. Sugar Corp., Clewiston, FL

³Certis USA, Moore Haven, FL

Replicated field plots were planted using seedcane from either Kleentek (KT), a commercially available healthy seedcane based on meristem culture, or progeny of hot water treated material (HT) for varieties CP89-2143, CP 85-1382, CP 80-1827, and CP 70-1133. For the latter two varieties, an on-farm field run (FR) source of seed cane was obtained (no recent heat treatment history). Disease incidence and yield evaluations were performed over a 3-year crop cycle. The FR CP80-1827 had a 100% incidence of RSD. All other sources tested negatively for RSD in plant cane. HT and FR material for all varieties except CP 70-1133 were virtually 100% infected with Sugarcane yellow leaf virus (ScYLV). KT plots tested clean in plant cane. By second ratoon, ScYLV incidence in KT ranged from 10% in CP 70-1133 to 27% in CP80-1827.

Stalk counts were significantly higher for KT compared to HT for CP 89-2143 and CP85-1382 with overall advantages of 18.4% and 35%, respectively. Cane tonnage and sugar per acre yields averaged highest in the KT plots for all varieties. Significant increases in cane tonnage in KT over HT were noted for all varieties except CP 70-1133. Percent sugar yields were lower for the KT vs. HT for CP 85-1382. KT and HT % sugar yields were lower than FR in the CP 80-1827. Significant advantages in sugar per acre were found for KT vs. HT for CP 89-2143 and CP 85-1382 and for KT vs. FR for CP 80-1827. Over the crop cycle, sugar per acre yields of KT were 25.3% and 39.4% higher than HT for CP 89-2143 and CP 85-1382, respectively. For the older varieties (CP 80-1827 and CP 70-1133) KT yielded 18.1% and 20.4% more sugar per acre than HT and FR, respectively.