

IMPACT OF THE CLEAN AIR ACT ON FLORIDA SUGAR MILLS

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ABSTRACT

This paper presents an overview of the Clean Air Act, and how the State of Florida has been implementing the rules and regulation from this Act since the 70's, requiring special attention and large investments from the industry throughout the years. The impact of the amendments on this law is becoming more and more significant, since the industry must comply with regulations which call for limits on the emissions of air pollutants, which could lead us into the installation of very expensive and advanced equipment we can not afford.

The Title V of the Clean Air Act is requiring construction permits for some facilities, and is also calling for the accounting of not only boiler emissions, but for all emissions including fugitive ones of these facilities. Section 129, now under preparation, intends to consider bagasse boilers as incinerators, requiring Maximum Achievable Control Technology to achieve compliance with the new standards.

A PRELIMINARY STUDY ON THE EFFECT OF SUGARCANE LEAVES AND MUD ON COLOR IN SUGARCANE JUICE

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ABSTRACT

During routine sediment tests conducted on cane juice samples from sugarcane stalks containing varying amounts of leafy cane trash and mud (0, 10, 20, and 30%, alone and in combination, by weight of clean cane stalks of the cultivar, CP 70-321), a wide range in color was noted in the supernatant which did not correlate to the sediment load in the juice. From these observations, a series of experiments was conducted to quantify the effect of leafy cane trash and mud on juice color. Results confirmed the deleterious effect of leafy cane trash, to include sugarcane leaf blades and sheaths but no tops, both desiccated and fresh, on juice color, with an approximate 6-fold increase in color over the range in leafy cane trash studied. The effect of leafy cane trash on color appeared nonlinear: color increased at a greater rate with each incremental increase in the level of cane leafy trash. On the other hand, mud (Mhoon silty clay loam with approximately 33% moisture) alone showed a decolorizing effect, due, undoubtedly, to the ion exchange properties of the soil type. Further, the effect of mud on color appeared linear: a decrease of 1.6% in color for each 1% increase in mud added to the cane sample. Leafy cane trash and mud in combination (equal amounts of both leafy cane trash and mud by weight of cane up to a total of 30% trash) showed the opposing effects of the two components: color increased with an increase in total trash but not as much as with the leafy cane trash alone. The overall effect was nonlinear. In summary, it appears that in these preliminary studies leafy cane trash added significant colorant to cane juice while heavy textured soil, i.e., silty clay loam, helped to decolorize cane juice.

ESTIMATES OF HERITABILITY IN A BACKCROSS POPULATION OF INTERSPECIFIC AND INTERGENERIC HYBRIDS IN SUGARCANE

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ABSTRACT

Saccharum spontaneum, *Erianthus* spp., and *Miscanthus* spp. have been used through interspecific and intergeneric hybridization to transfer their desired characters into cultivated sugarcane. However, genetic information needs to be established so that breeders can effectively use those characters in their breeding programs. The BC₂ populations produced by mating four BC₁ hybrids (one interspecific and three intergeneric) to three commercial cultivars as males were used to determine the relative effect of parents on morphological characters (stalk height, number, diameter and weight) and juice quality (Brix, sucrose content and purity). The results showed that the female effects were significant for all characters examined, but only the measurements of the juice quality showed significant male effect and male x female interaction. Genetic information obtained from this study should assist in establishing backcross and selection strategies for a sugarcane breeding program utilizing basic germplasm.

**BERMUDAGRASS (*Cynodon dactylon*) AND JOHNSONGRASS (*Sorghum halepense*)
CONTROL PROGRAMS IN SUCCESSION-PLANTED
SUGARCANE (*Saccharum* spp. hybrids)**

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ABSTRACT

Sulfometuron applied preemergence (PRE) to succession-planted sugarcane controlled johnsongrass (79 to 93%) and reduced bermudagrass ground cover in the plant-cane crop when compared to metribuzin at standard rates. In three of four experiments, sulfometuron applied PRE after planting and, in the case of the bermudagrass study reapplied the following March, did not adversely affect crop emergence or early-season growth. When followed by a postemergence (POST) asulam application, johnsongrass panicle counts at the end of the plant-cane growing season were reduced 30% more where sulfometuron was applied at-planting compared to metribuzin. When PRE applications of sulfometuron were followed by asulam POST to control johnsongrass, plant-cane stalk counts and gross cane and sugar yields were at least 8% greater than the metribuzin followed by asulam treatment in the 1994-1995 experiment. A similar response was not obtained in the 1993-1994 experiment due to early-season crop injury from sulfometuron. In a separate study, gross cane yields were increased in the 1993-1994 experiment following at planting and spring applications of metribuzin (15%) or sulfometuron (24%) to control bermudagrass when compared to the weedy check. Increases in bermudagrass control following treatment with sulfometuron were not reflected as further increases in sugar yields when compared to the metribuzin treatment. In the 1994-1995 experiment where low bermudagrass infestation levels did not negatively impact the crop, gross cane and sugar yields following treatment with sulfometuron were similar to the weedy check but at least 8% lower than the metribuzin standard. **Nomenclature:** Asulam, methyl[(4-aminophenyl)sulfonyl] carbamate; metribuzin, 4-amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5(4*H*)-one; sulfometuron, 2-[[[(4,6-dimethyl-2-pyrimidinyl)amino]carbonyl]amino]sulfonyl]benzoic acid; bermudagrass, *Cynodon dactylon* (L.) Pers.; johnsongrass, *Sorghum halepense* (L.) Pers.; sugarcane, a complex hybrid of *Saccharum* spp. CP 72-370 and LCP 82-89.

