

Sucrose Accumulation Maturity Curves for CP 70-1133¹

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Introduction

Sugarcane (*Saccharum* spp.) is harvested during a 5-month period (October to March) in south Florida. “Early maturing” cultivars milled in October or November may not have reached their peak sucrose content, but may have higher sugar per ton (SPT, lbs sucrose/ton of sugarcane biomass) than other cultivars at the onset of milling operations (Miller and James, 1977). Under current industry milling capacities, harvesting the 450,000 acres of Florida sugarcane takes roughly 5 months. Unavoidably, sugarcane plants harvested during the early harvest period have not yet achieved maximum sugar content. Consequently, sugar content for any given cultivar will change over the course of the harvest season, which can impact the profitability of the harvest. Maturity curves of SPT vs. time have been developed for sugarcane cultivars in South Africa (Bond, 1982), Louisiana (Legendre and Fanguy, 1975; Legendre, 1985; Richard, et al., 1981) and Mauritius (Mamet and Galwey, 1999). Although it is known that sucrose accumulation rates vary

between varieties, maturity curves for recently released “CP” sugarcane cultivars (those developed at the USDA-ARS Sugarcane Field Station in Canal Point, FL) have not been reported since 1977 (Rice, 1974; Miller and James, 1977). CP cultivars occupy > 70% of Florida sugarcane acreage, and are also economically important (Tew, 2003) in many countries including Argentina (25% of total acreage), Belize (16%), El Salvador (50%), Guatemala (65%), Honduras (47%), Mexico (15%), Morocco (54%), Nicaragua (75%), Senegal (9%) and Venezuela (9%). Since most sugarcane growers in Florida plant a diverse selection of cultivars, these maturity curves are needed as tools to help growers make informed choices regarding harvest scheduling decisions.

This fact sheet presents the sucrose accumulation maturity curves for different crop ages (plant cane, 1st ratoon, and 2nd ratoon) of CP 70-1133. CP 70-1133 harvest samples were collected at 2-week intervals at 5 locations over 4 harvest seasons in the Everglades Agricultural Area. Biomass and sugar yields were determined on all samples in order to

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generate SPT trends over time. A full comparison of CP 70-1133 SPT trends with 12 other CP cultivars may be found in EDIS publication SS-AGR-221 *Maturity Curves and Harvest Schedule Recommendations for CP Sugarcane Varieties* (<http://edis.ifas.ufl.edu/SC069>).

Cultivar Description

CP 70-1133 is grown on 2.8 % of the EAA sugarcane acreage (Glaz and Gilbert, 2003 <<http://edis.ifas.ufl.edu/SC060>>). This cultivar is slowly being phased out of the industry due to low sugar content and occurrence of smut in some areas. Descriptive information and photographs of CP 70-1133 can be found at <http://edis.ifas.ufl.edu/AG129>.

Maturity Curves

Figure 1 presents the sugar per ton (SPT, lbs sugar/ton sugarcane biomass) for CP 70-1133 from mid-October to mid-March. Separate curves are presented for plant cane, 1st ratoon, 2nd ratoon and the entire data set. Research has shown that older ratoon crops generally have higher SPT values but lower tonnage (Glaz, et al., 1989; MacColl, 1976). Thus, growers should generally expect the SPT of their sugarcane crop to increase with crop age (see Figure 1). The mean SPT of CP 70-1133 increased with crop age from 243 lbs/ton in plant cane to 254 lbs/ton in 1st ratoon and 260 lbs/ton in 2nd ratoon. The overall mean across crop ages ranked 10th out of 13 CP cultivars.

Grower recommendations are based on the entire data set across all crop ages. Early-season predicted SPT for CP 70-1133 at the onset of harvest on Oct. 14 was 207 lbs/ton (ranked 6th out of 13 cultivars), and maximum predicted SPT was 268 lbs/ton on Feb. 2 (ranked 12th out of 13 cultivars). In comparison to other CP cultivars, CP 70-1133 matures quickly and should be harvested within the first 50 days of the harvest season (see <http://edis.ifas.ufl.edu/SC069>).

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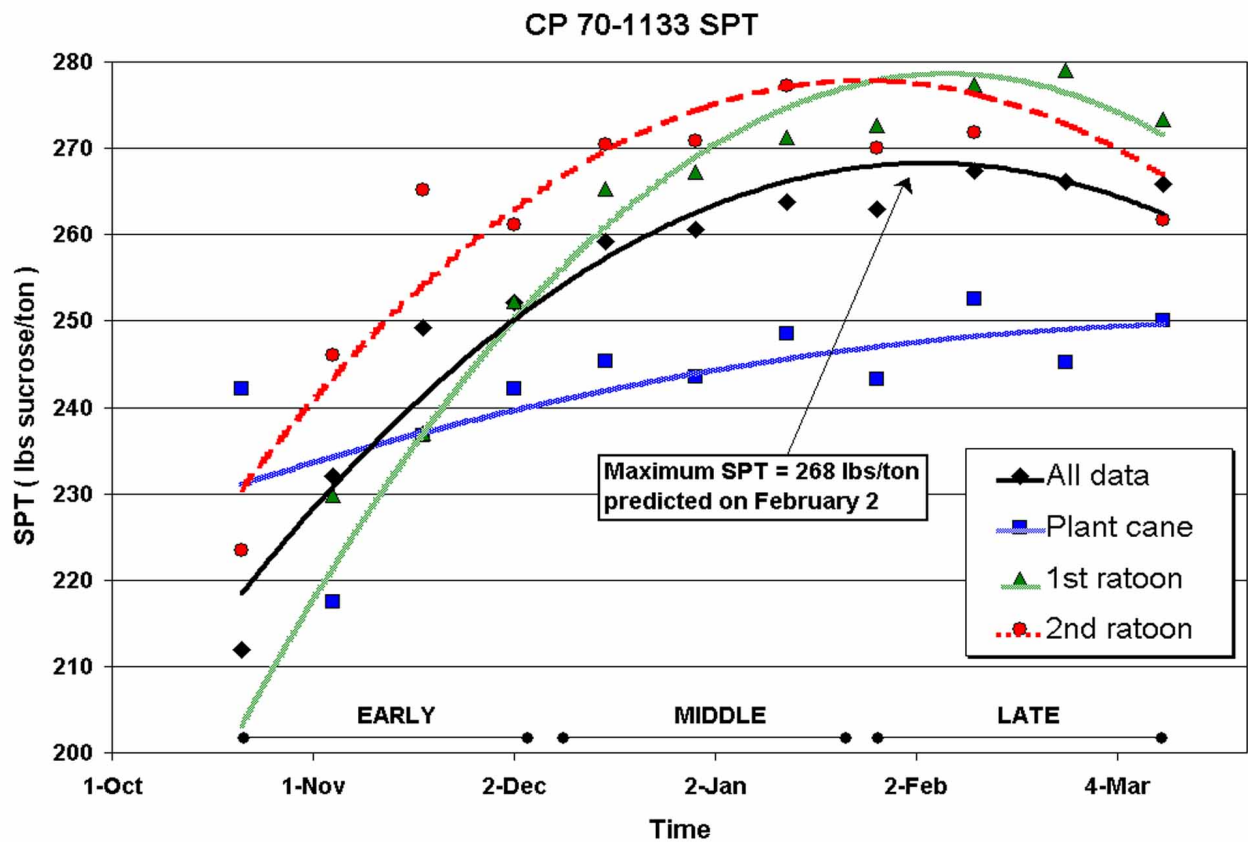


Figure 1. Sucrose Accumulation Maturity Curves for CP 70-1133.