

Sugarcane Variety Census Florida 2007

This annual variety census of the Florida sugarcane industry for the 2007-2008 harvest season is the latest in a series of annual reports. Mill managers and independent growers supplied the data for this report. The official sugarcane acreage in Florida is reported by the USDA-National Agricultural Statistics Service (NASS) and can be found at (http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats/). The total acreage estimated by this variety census is usually similar to the official acreage reported by NASS. The major purposes of this census are to report variety preferences of Florida sugarcane growers, and to categorize their percentage of the crop as plant cane, first ratoon, second ratoon, third ratoon, and fourth ratoon and older. The census also reports, percentages of organic (muck) and sand soil types and planting in fallow versus successive systems with variety preferences.

A total of 381,657 acres of sugarcane were reported for sugar and seed production for the 2007-2008 crop (Table 1). This represents a decrease of 20,066 acres compared with the reported 401,723 acres grown in the 2006-2007 season (Glaz, 2007). Florida's sugarcane acreage

increased from about 300,000 to 425,000 from 1976 through 1987 (Fig. 1). From 1987 through 2001 there were minor fluctuations, but the Florida sugarcane acreage generally was near 450,000. Since 2004, there were approximately 400,000 acres of sugarcane in Florida until this year. These declines in sugarcane acreage in Florida since 2001 resulted from the institution of marketing allotments on the

U.S. sugar industry, the conversion of land from sugarcane production to public water storage as part of the Comprehensive Everglades Restoration Plan, and decisions of growers to convert some land from sugarcane to crops such as sod.

Plant cane represented 33.6% and ratoon cane 66.4% of Florida's 2007-2008 sugarcane crop. This was nearly identical with percentages of 33.4 for plant cane

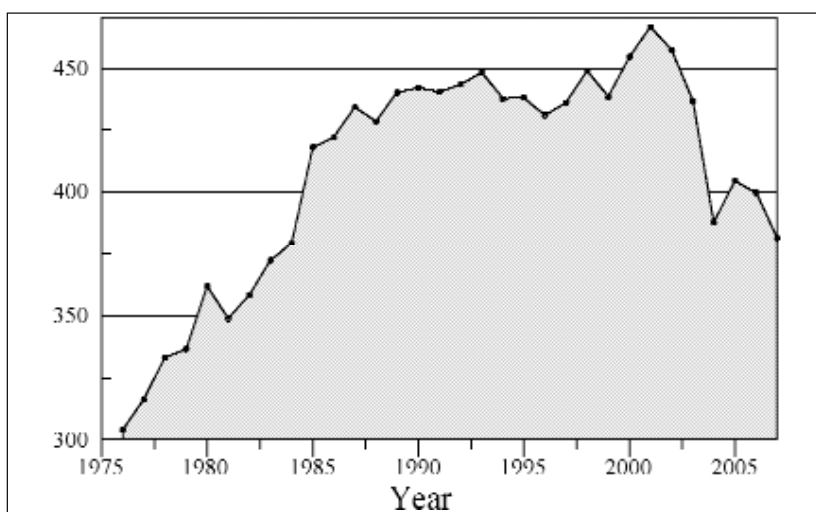


Figure 1. Total sugarcane acreage as reported in annual Florida variety census reports from 1976 through 2007.

Table 1. Percentages of the 2007 Florida sugarcane acreage planted to six varieties that comprised at least one percent of the total acreage.

Variety	Total	Plant cane	First-ratoon cane	Second-ratoon cane	Third-ratoon cane	Fourth-ratoon cane & older
-----Percent-----						
CP 89-2143	29.8	26.2	33.8	32.9	23.6	16.8
CP 88-1762	20.4	21.1	24.0	17.1	15.3	11.5
CP 80-1743	19.9	22.7	11.7	17.3	37.7	51.6
CP 78-1628	12.4	9.7	14.1	15.5	8.9	6.1
CP 84-1198	3.9	4.1	4.5	4.1	1.3	0.1
CP 72-2086	3.5	4.4	2.7	4.0	1.7	0.8
All others	10.1	11.8	11.9	8.1	11.5	13.1
Total acres	381,657	128,140	121,170	92,820	28,073	11,454

and 66.6 for ratoon cane reported last year (Glaz, 2007). The distribution of ratoon cane was 31.7% as first ratoon, 24.3% second ratoon, 7.4% third ratoon, and 3.0% as fourth ratoon or older of the total acreage reported this year. These compared with 2006-2007 percentages of 28.6, 24.4, 10.6, and 3.1, respectively. Changes in percentages of plant-cane through fourth-ratoon acreages during the past 3 years are shown in Fig. 2.

Florida growers reported growing 22 sugarcane varieties this year. Last year, 29 varieties were reported. Six varieties each covered at least 1.0% of the total cane area which is the minimum percentage this report uses to define a "Principal Variety." (Table 1). The group labeled as

"All others" represents varieties that each made up less than 1.0% of the total acreage. All principal varieties reported in this census were developed by a cooperative program based at Canal Point, Florida. These varieties are identified by a "CP" prefix. The United States Department of Agriculture, Agricultural Research Service; the University of Florida, Institute of Food and Agricultural Sciences; and the Florida Sugar Cane League, Inc. participate in this cooperative program at Canal Point. Varieties identified by a "CL" prefix are also grown in Florida. The United States Sugar Corp. of Clewiston, Florida developed these varieties. Current and historical census information for each of the six principal varieties and for several classified as 'all others' is provided in the following sections.

CP 89-2143

The most widely grown variety, for the second consecutive year, was CP 89-2143 (Glaz et al., 2000) with 29.8% of the total acreage (Table 1). Last year, CP 89-2143 was grown on 26.8% of the total Florida sugarcane acreage (Table 2). The increase in use of CP 89-2143 by 3.0% was the largest increase of any principal variety and follows percentage increases in acreage of 5.1 and 6.8 during the previous two years. The acreage increase for CP 89-2143 was due to increases in ratoon acreage; the plant-cane acreage of CP 89-2143 declined by 6.4% compared with last year (Table 3). CP 89-2143 had the largest decline in plant-cane acreage among principal varieties, but it also had the highest percentage of plant-cane acreage (26.2%). During recent planting seasons, growers probably planted more CP 89-2143 than they had planned because its seed cane, compared with several other varieties, was less damaged by hurricanes in 2004 and 2005. Reductions in planting this year may reflect growers' preferences to limit each variety to about 25% of their crop. Last year with 9.6% of the acreage, CP 89-2143 was the fourth most widely grown variety on sand soils (Glaz, 2007). This year, CP 89-2143 is the second most widely grown variety on sand soils with 12.9% of the acreage (Table 4). CP 89-

2143 has excellent cane yields and maintains a high sugar concentration throughout the harvest season (Gilbert et al., 2004). In addition, Shine, Jr. et al. (2002) reported that CP 89-2143 had outstanding freeze tolerance. CP 89-2143 is used as one of three reference varieties in the Canal Point variety development program (Glaz et al., 2007).

CP 88-1762

CP 88-1762 (Tai et al., 1997) was the second-place variety with 20.4% of the total acreage (Table 1). This follows three consecutive year as Florida's third-place variety. This year's increase in acreage by 2.0% was similar to acreage increases for CP 88-1762 since 1998 (Table 2). Combined plant-cane and ratoon acreage

of CP 88-1762 increased by 3.4% this year following three consecutive years of 1.8% acreage increases. CP 88-1762 declined by 3.1% in plant-cane acreage this year. Perhaps part of this decline was because, like CP 89-2143, buds on CP 88-1762 were damaged less by hurricanes than other varieties so growers planted more in recent years than they had planned, while they returned to their previously planned acreages this year. Another possible cause for the plant-cane decline of CP 88-1762 is that some mills are concerned about declines in sugar recovery due to its moderately high fiber content. Last year, CP 88-1762 was grown on 5.2% of the sand soils (Glaz, 2007), and this year its use on sand soils increased moderately to 7.6% (Table 4).

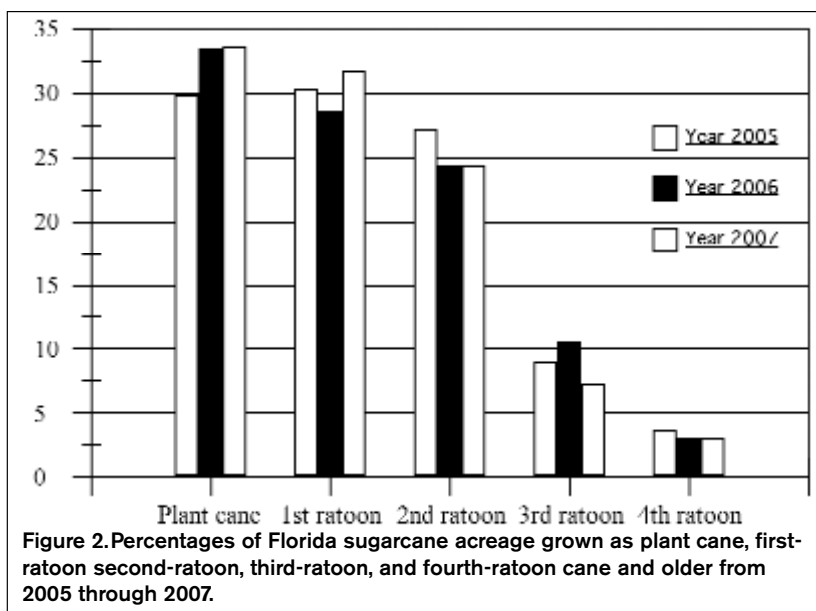


Table 2. Annual percentages from 1998 through 2007 for six varieties that comprised at least one percent of Florida's 2007 sugarcane acreage.

Variety	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	-----Percent-----									
CP 89-2143	0.1	0.4	1.2	3.5	7.4	10.7	14.9	20.0	26.8	29.8
CP 88-1762	0.8	2.0	4.1	6.2	8.6	11.4	13.2	15.0	18.4	20.4
CP 80-1743	14.4	17.8	22.1	25.1	26.5	28.7	33.0	28.6	22.7	19.9
CP 78-1628	5.9	7.9	9.3	11.5	12.7	12.3	11.4	12.7	13.1	12.4
CP 84-1198	2.2	2.9	3.8	4.8	5.1	4.8	4.8	4.4	4.2	3.9
CP 72-2086	16.3	14.6	14.2	13.8	11.3	9.1	8.0	6.3	4.3	3.5

Gilbert et al. (2004) recommended harvesting CP 88-1762 early in the harvest season.

CP 80-1743

CP 80-1743 (Deren et al., 1991) was the most widely grown sugarcane variety in Florida from 1999 to 2005 (Table 2). After finishing in second place last year, CP 80-1743 was the third most widely grown sugarcane cultivar in Florida this year with 19.9% of the total acreage (Table 1). Ratoon acreage of CP 80-1743 dropped by 9.1%, but its plant-cane acreage increased by 9.3% from last year (Table 3). These changes follow plant-cane and ratoon acreage declines of CP 80-1743 last year by 6.3% and 4.8%, respectively. The increase in plant-cane acreage and decline in ratoon-cane acreage were the largest changes in percent acreage among the principal varieties this year. The major reason for these changes is that growers did not plant CP 80-1743 due to damaged buds after the 2004 and 2005 hurricanes. Growers were able to begin returning to desired acreages of CP 80-1743 during the last planting season since there was no major damage to seed cane from storms.

Concerns about CP 80-1743 include its substantial yield losses under high water tables (Glaz et al., 2002), moderate susceptibility to leaf scald, growth cracks, sugar losses during the last half of the harvest season, and rapid juice quality deterioration after severe freezes. Therefore, Florida growers often schedule

harvests of CP 80-1743 for no later than January and prioritize harvesting their remaining fields of CP 80-1743 after severe freezes as recommended by Gilbert et al. (2004). Orange rust was discovered in Florida in June 2007 (Comstock et al., 2008). After maintaining a durable resistance to brown rust, CP 80-1743 was identified as susceptible to orange rust this year. It is still unknown how seriously orange rust will affect yields of CP 80-1743.

CP 80-1743 has remained a popular variety because it has high yields of tonnage and sugar concentration and good ratoon yields as documented by its 51.6% of Florida's sugarcane in fourth ratoon and older (Table 1). With 11.0% of the acreage, CP 80-1743 was the second most widely grown variety on sand soils last year (Glaz, 2007), but dropped moderately to third place this year with 10.6% of the acreage on sand soils (Table 4).

CP 78-1628

CP 78-1628 (Tai et al., 1991) was in fourth place for the fourth consecutive year following two years as the second place variety (Tables 1 and 2). CP 78-1628 comprised 12.4% of the total acreage, a decrease of 0.7% compared with last year and an increase of 0.4% from 2005 to 2006 (Table 2). CP 78-1628 has been the most widely grown variety on sand soils in Florida for the past nine years. However, its use on sand decreased moderately from 40.6% in 2005 (Glaz, 2006) and 41.6% last year (Glaz, 2007) to

38.0% this year (Table 4). Growers with sand soils have been seeking alternatives to CP 78-1628 for several years because it is susceptible to sugarcane brown rust. Gilbert et al. (2004) recommended harvesting CP 78-1628 in the middle portion of the harvest season for optimum sugar yields. CP 78-1628 is used as a reference variety in the CP variety development program (Glaz et al., 2007).

CP 84-1198

Following six consecutive years as the sixth place variety, CP 84-1198 (Glaz, et al., 1994) moved up to fifth place this year with 3.9% of the total acreage (Table 1). Although CP 84-1198 moved up to fifth place, its 3.9% of the total acreage was a decline from last year's 4.2% of the acreage and marked the fifth consecutive year that the percentage acreage of CP 84-1198 has remained constant or declined (Table 2). Growers often report unacceptable reductions in ratoon yields of CP 84-1198 due to uprooting of stools. Also, stalks of CP 84-1198 that are cut mechanically and used for planting often have more damaged buds than other varieties. Advantages of CP 84-1198 are its high sugar concentration and tonnage yields in soils where uprooting is less of a problem. Gilbert et al. (2004) recommended harvesting CP 84-1198 in the middle and late portions of the harvest season. CP 84-1198 was the fourth most widely grown variety on sand soils in Florida with 9.6% of the acreage (Table 4).

Table 3. Percentages of 2006 and 2007 acreages for six varieties that comprised at least one percent of Florida's 2007 sugarcane acreage.

Variety	Combined plant and ratoon cane			Plant cane only			Ratoon cane only		
	2006	2007	Change	2006	2007	Change	2006	2007	Change
	-----Percent-----								
CP 89-2143	26.8	29.8	3.0	32.6	26.2	-6.4	24.1	31.6	7.5
CP 88-1762	15.0	20.4	5.4	24.2	21.1	-3.1	15.6	20.0	4.4
CP 80-1743	28.6	19.9	-8.7	13.4	22.7	9.3	27.5	18.4	-9.1
CP 78-1628	12.7	12.4	-0.3	13.6	9.7	-3.9	12.9	13.7	0.8
CP 84-1198	4.4	3.9	-0.5	4.2	4.1	-0.1	4.2	3.8	-0.4
CP 72-2086	6.3	3.5	-2.8	4.3	4.4	0.1	5.1	3.0	-2.1

CP 72-2086

CP 72-2086 (Miller et al., 1984) was the most widely grown variety in Florida in 1994 (Glaz, 1995), the second-most widely grown variety for the following seven years, and the third most widely grown variety in 2002 (Table 2). This year, with 3.5% of the acreage, CP 72-2086 was in sixth place after four consecutive years in fifth place. Sugarcane

mosaic was discovered in Florida on CP 72-2086 in 1996, the year of its highest percentage acreage (Table 2). CP 72-2086 became susceptible to brown rust this year after years of resistance and later was identified as also being susceptible to orange rust. Gilbert et al. (2004) recommended harvesting CP 72-2086 late in the harvest season. In addition to maintaining high sugar content late in the harvest season, CP 72-2086 maintains its sugar content well after freezes. CP 72-2086 is used as a reference variety in the CP cooperative variety development program (Glaz et al., 2007).

Other Varieties

Among the varieties grouped as "all others," CP 65-357, CP 80-1827, CP 85-1432, and CP 94-1340 had no acres as plant cane for the second consecutive year, and CL 77-797, CP 70-1133, and CP 92-1666 had no acres as plant cane this year. Commercial varieties used previously in Florida and not reported in the census for the first time this year were CL 61-620, CP 72-1210, CP 85-1382, CP 94-1100, and CP 96-1602. CL 61-620 (Holder and Todd, 1981) was Florida's most widely grown variety in 1992 and 1993 (Glaz, 1994) and CP 72-1210 (Miller et al., 1981) was Florida's most widely grown variety from 1985 to 1991 (Glaz and Coale, 1992)

Soil Type

Florida sugarcane growers classified nearly 100% of the reported acreage as either organic (muck) or sand soils; 80.1% of the soils were classified as muck and 19.9% as sand (Table 4). These percentages compare with 79.4% for muck and 20.6% for sand soils reported last year (Glaz, 2007).

Organic soils contain a minimum of 20 to 30% organic matter by weight, depending on the clay content (higher organic matter required as clay content increases). Most organic soils used for sugarcane in Florida have substantially more than 30% organic matter and most sand soils used for sugarcane have far less than 20% organic matter. However, some sugarcane in Florida is grown on soils that

would require a weighed analysis for proper determination. Thus, a small portion of the acreage may not be classified correctly for soil type because most soil types reported in this census were based on visual observations.

Although five of the six principal varieties, CP 89-2143, CP 88-1762, CP 80-1743, CP 78-1628, and CP 84-1198, were grown on at least 5,700 acres of both soil types, growers had variety preferences according to soil (Table 4). CP 84-1198 had the most even distribution of acreage between sand and muck soils among principal varieties. CP 72-2086 was grown almost exclusively on muck soils. CP 89-2143 and CP 88-1762 were used widely on sand soils, but more than 90% of the acreage of each was on muck soils. Although CP 80-1743 had 10.6% of its acreage on sand soils, it decreased from 9,102 acres last year to 8,042 acres on sand soils this year. CP 78-1628 was the most popular variety on sand soils, and was the fourth most widely grown variety on muck soils.

Fallow and Successive Planting

All plant-cane acres were categorized as planted in a "fallow" or "successive" planting system. Growers plant sugarcane in the season following a final-ratoon harvest usually after rotation to one or more crops for a six to nine month period in the "fallow" system. Crops grown in this rotation with sugarcane include sweet corn, rice, snap beans, leafy vegetables,

celery, brassicas, radishes and other specialty vegetables. These same fields are often flooded during the summer before the next sugarcane crop is planted. In the successive planting system, sugarcane is planted several weeks after a final-ratoon sugarcane harvest.

Of the 127,592 plant-cane acres classified by planting system, 59,356 (46.5%) were planted in the fallow system and 68,236 (53.5%) were planted in the successive system (Table 5). Last year, 54.9% of the acreage was planted in the fallow system and 45.1% was planted in the successive system (Glaz, 2007). This shift during recent years from a majority of fallow to a majority of successive planting is the most recent shift among these planting systems that have been indicative of Florida sugarcane since this series began reporting fallow and successive planting in 1996 (Fig. 3).

CP 89-2143, CP 88-1762, and CP 80-1743 were widely planted in both the fallow and successive systems, but acres planted successively were greater for all three than fallow-planted acres (Table 5). CP 78-1628 and CP 84-1198 were similarly divided between both planting systems.

The three most widely grown sugarcane varieties (CP 89-2143, CP 88-1762, and CP 80-1743) accounted for 70.1% of Florida's 2007 sugarcane compared with 67.9% reported last year (Table 6). The 70.1% of the acreage planted to the top three varieties for this year is the highest

Table 4. Actual and percentage acreages grown on muck and sand soils in 2007 of six varieties that comprised at least one percent of Florida's 2007 sugarcane.

Variety	Muck soil		Sand soil	
	Acres	Percent	Acres	Percent
CP 89-2143	104,067	34.1	9,804	12.9
CP 88-1762	72,178	23.7	5,750	7.6
CP 80-1743	68,001	22.3	8,042	10.6
CP 78-1628	18,203	6.0	28,848	38.0
CP 84-1198	7,638	2.5	7,275	9.6
CP 72-2086	12,843	4.2	328	0.4
All others	21,972	7.2	15,876	20.9
Total	304,902	100.0	75,923	100.0

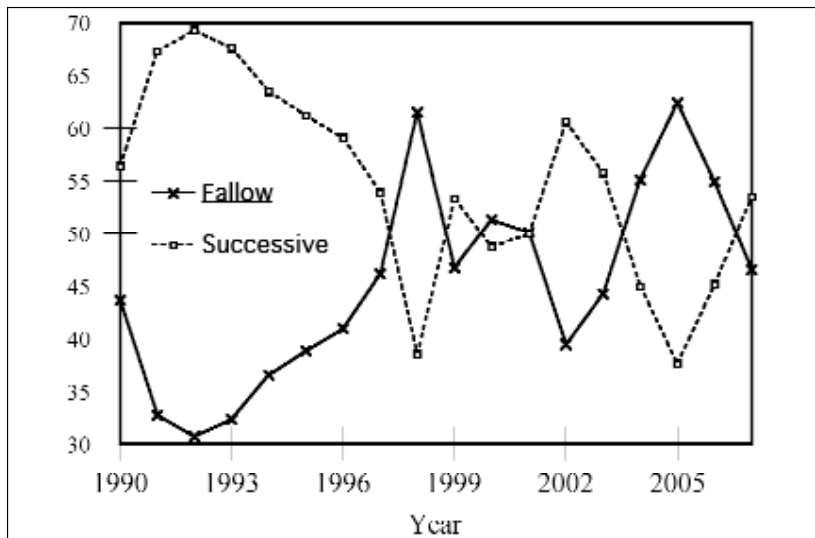


Figure 3. Percentages of Florida sugarcane plant-cane acreage planted in the fallow and successive planting systems from 1990 through 2007.

Table 5. Actual and percentage plant-cane acreages in the 2007 fallow and successive planting systems for six varieties that comprised at least one percent of Florida's 2007 sugarcane.

Variety	Fallow system		Successive system	
	Acres	Percent	Acres	Percent
CP 89-2143	15,216	25.6	18,180	26.6
CP 88-1762	10,769	18.1	16,212	23.8
CP 80-1743	11,798	19.9	17,130	25.1
CP 78-1628	6,174	10.4	6,265	9.2
CP 84-1198	2,857	4.8	2,312	3.4
CP 72-2086	3,785	6.4	1,869	2.7
All others	8,757	14.8	6,268	9.2
Total	59,356	100.0	68,236	100.0

Table 6. Percentage of the total sugarcane acreage of the three most widely grown varieties in Florida since 1998.

Year	Percent	Variety rank		
		First	Second	Third
1998	48.9	CP 80-1827	CP 72-2086	CP 80-1743
1999	46.4	CP 80-1743	CP 72-2086	CP 80-1827
2000	46.2	CP 80-1743	CP 72-2086	CP 80-1827
2001	50.4	CP 80-1743	CP 72-2086	CP 78-1628
2002	50.5	CP 80-1743	CP 78-1628	CP 72-2086
2003	52.4	CP 80-1743	CP 78-1628	CP 88-1762
2004	61.1	CP 80-1743	CP 89-2143	CP 88-1762
2005	63.6	CP 80-1743	CP 89-2143	CP 88-1762
2006	67.9	CP 89-2143	CP 80-1743	CP 88-1762
2007	70.1	CP 89-2143	CP 88-1762	CP 80-1743

percentage of this 10-year reporting period. The percent acreage planted to the top three varieties in Florida has increased each year since 2000. This was the eleventh consecutive year that CP 80-1743 was among the three most widely grown sugarcane varieties in Florida, the fifth consecutive year for CP 88-1762, and the fourth consecutive year for CP 89-2143.

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