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Sugarcane Variety Census: Florida 2000[1]

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This annual variety census of the Florida sugarcane industry for the 2000-2001 harvest season is the latest in a long series. Mill managers and independent growers supplied data for 97.2 percent of Florida's sugarcane acreage. (This estimate was based on information supplied by growers and mill managers, and factoring in that growers who previously supplied variety information for 12,443 acres did not submit information this year.) As a result, the census contains much descriptive and useful information for the Florida sugarcane industry.

The census primarily reflects Florida sugarcane growers' variety preferences. In addition, the census reports comparative use of the successive and regular planting systems. The sugarcane crop is categorized as plant cane, first ratoon, second ratoon, third ratoon, and fourth ratoon and older. Also, the census reports percentages of organic and sand soils and variety preferences for these soils.

Including the estimated 2.8% of the acreage not reported, 438,400 acres of sugarcane were grown for sugar and seed for the 2000-2001 crop. This figure represents a decrease of 8,858 acres compared to the 1999-2000 season (Glaz, 1999). The decline in sugarcane this year caused the Florida industry's acreage to return from a peak last year to a level more similar to that of recent years.

Of Florida's 2000-2001 sugarcane, 28.5 percent was plant cane and 71.5 percent was ratoon cane. This is a substantial change from the percentages of 33.9 for plant-cane and 65.4 for ratoon-cane reported last year (Glaz, 1999) and suggests that much of this year's decline in acreage was due to a reduction in planting. Of this year's total acres, 34.3 percent were first ratoon, 27.8 percent second ratoon, 7.4 percent third ratoon, and 2.0 percent were fourth ratoon or older. These compared with 1999-2000 percentages of 33.6, 24.4, 6.4, and 1.6, respectively (Glaz, 1999). Distributions of sugarcane shifted from the plant-cane crop to the second and older-ratoon crops this year compared to the previous two years.

Florida growers reported growing 35 varieties of sugarcane, compared to 38 last year (Glaz, 1999). Twelve principal varieties each covered at least 1.0 percent of the total cane area (Table 1). All varieties reported in this census came from one of two programs. The United States Sugar Corporation of

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Clewiston, Florida, developed the varieties identified by a "CL" prefix. A cooperative program based at Canal Point, Florida, of the United States Department of Agriculture's Agricultural Research Service, the Florida Sugar Cane League, Inc., and the Institute of Food and Agricultural Sciences of the University of Florida developed the varieties identified by a "CP" prefix. The group labeled as "All others" represented varieties that each made up less than 1.0 percent of the total acreage. "Other CLs" were unspecified varieties that growers reported as CL in origin, and "Other CPs" were unspecified varieties that growers reported as CP in origin.

The most widely-grown variety in Florida this year was CP 80-1743 with 22.1 percent of the total cane area (Table 1). This is the second consecutive year that CP 80-1743 has been the most widely grown variety; it was the third-place variety for the two previous years (Table 2). The percent acreage of CP 80-1743 has risen each year since it was first quantified at 0.3 percent in 1991, but this year's percentage increase of 4.3 is its largest increase (Tables 2 and 3). The popularity of CP 80-1743 is due to its high tonnage yield, and high sugar concentration. Also, growers are apparently pleased with ratoon crop yields of CP 80-1743; it comprised 50.8 percent of the sugarcane in fourth ratoon and older (Table 1). Concerns about CP 80-1743 include its susceptibility to leaf scald, the formation of excessive growth cracks in some fields, and a tendency to suffer sugar losses during the last half of the harvest season.

CP 72-2086, the most widely grown variety in 1994 (Glaz, 1994), maintained its second-place ranking for the sixth consecutive year with 14.2 percent of the total acreage (Tables 1 and 2). Sugarcane mosaic was discovered in several commercial fields of CP 72-2086 in the summer of 1996, the year of its highest percentage (Table 2). Although growers have remained pleased with its production, suggesting that it is tolerant to the disease, the use of CP 72-2086 has declined steadily from 18.0 percent in 1996 to 14.2 percent this year (Table 2). Also, the plant-cane acreage of CP 72-2086 declined by 3.5% (Table 3).

CP 80-1827, the third-place variety this year, was the number one variety in Florida from 1995 through 1998 (Table 2). Last year it declined in area by 4.2 percent and in ranking from first to third place with 14.0 percent of the acreage (Glaz, 1999). This year, CP 80-1827 maintained its third place ranking, but had a further reduction in acreage of 4.1 percent (Table 3). With its percent declines of 5.6 in plant-cane acreage and 4.9 in ratoon acreage, CP 80-1827 had larger declines in these categories than any other variety (Table 3). Probably the major reasons for its decline are its susceptibility to sugarcane rust and its moderately low sugar concentration yields. During its early years of expansion, growers preferred varieties with straight stalks, such as CP 80-1827, for seed cane cutting. Thus, another possible cause for its rapid decline is that some of its expansion may not have been due to high yields. As recently as 1998, CP 80-1827 had its highest percentage acreage of 18.2 percent (almost double its current acreage), and more plant-cane acreage than any other variety (Glaz, 1998).

CP 78-1628 maintained its fourth-place ranking for the second consecutive year (Tables 1 and 2). However, the 3.9 percent increase in plant-cane acres for CP 78-1628 this year was the largest percentage increase in plant-cane acres among all varieties (Table 3). CP 78-1628 was the most widely grown variety on sand soils last year (Glaz, 1999) and this year, although the group of varieties AOther CLs" had a higher percent use on sand than CP 78-1628 this year (Table 4).

After two consecutive years as the fourth-place variety, CL 61-620 completed two consecutive years as the fifth-place variety this year (Tables 1 and 2). Last year, its declining percentages in plant cane and ratoon were the largest of any variety (Glaz, 1999). Use of CL 61-620 has declined each year since 1994 when it had 15.0 percent of the acreage (Table 2). Based on its declines of 1.5 percent in plant-cane acreage and 1.6 percent in ratoon acreage, this moderate decline in acreage will probably continue for CL 61-620 (Table 3). In 1992 and 1993, CL 61-620 was the most widely grown variety in Florida (Glaz, 1994).

CP 73-1547 was the sixth most widely grown variety for the second consecutive year this year (Table 1) following three years as the fifth-place variety (Table 2). Growers reduced their overall and plant-cane acres of CP 73-1547 by 1.3 percent this year (Table 3). This decline may continue because CP 73-1547 is susceptible to sugarcane rust. CP 73-1547 was the second most widely grown variety on sand soils (Table 4).

Last year was the first year that CP 88-1762 classified as a principal variety. It made an uncustomarily large acreage increase for a new variety from 0.8 percent in 1998 to 2.0 percent last year (Glaz, 1999). It jumped from ninth place last year to seventh place this year due to its 2.1 percent increase which resulted in its having 4.1 percent of the total cane area (Tables 2 and 3). Based on its plant-cane increase of 3.1 percent, higher than for any other variety except CP 78-1628 (Table 3), it appears that use of CP 88-1762 will continue to increase.

CP 84-1198 finished with 3.8 percent of the total acreage which placed it in eighth place for the third consecutive year (Table 2). Some growers report that to avoid unacceptable reductions in ratoon yields, CP 84-1198 needs special attention while mechanically harvesting. Similarly, CP 84-1198 is poorly adapted to cutting seed cane mechanically. Its advantages are its high sugar concentration and tonnage yields. Its consistently small expansions each year since 1994 suggest that growers are steadily, but cautiously, expanding CP 84-1198 (Table 2).

After two years as the seventh most widely grown variety, CP 70-1133 dropped to ninth place this year (Tables 1 and 2). Its use also dropped a full percentage point to 3.7 percent. CP 70-1133 is used as the reference variety in the cooperative variety selection program at Canal Point (Glaz et al. 2000). CP 70-1133 was the most widely grown variety in Florida from 1982 through 1984 (Glaz and Donovan, 1984). Last year, CP 70-1133 was grown on 15.7 percent of Florida's sand soils (Glaz, 1999). This year, it dropped to 9.7 percent of the acreage with sand soils, which left it tied for third place with CP 80-1743 (Table 4). This drop in acreage may be due to the rust susceptibility of CP 70-1133.

CP 88-1508 in tenth place, CL 68-886 in eleventh place, and CP 89-2143 in twelfth place rounded out the list of this year's principal varieties (Table 1). The plant-cane acreage of CP 88-1508 dropped from 1.1 percent in 1999 to 0.6 percent this year (Table 3). CP 89-2143, a newly released variety (Glaz et al. 2000), appeared on the census for the first time this year. In experimental results, CP 89-2143 had relatively vigorous growth for a variety with its high sugar concentration.

Of the 23 varieties grouped as "all others," CL 72-321, CP 65-357, CP 70-1527, CP 72-1210, CP 81-1384, CP 85-1382, CP 85-1491, and CP 88-1834 all had no acres as plant cane this year. The absence of plant cane for a variety indicates that its commercial use will soon stop. Three varieties that were released for commercial use in Florida were no longer grown for the first time this year. These varieties are CL 59-1052, CP 78-2114, and CP 81-1238. CL 59-1052 reached 8.8 percent of the acreage in 1984, and CP 78-2114 reached 6.1 percent of the acreage in 1992 and 1993.

Growers classified 99.2 percent of their land as having either organic or sand soil. Of these 422,348 acres, 78.3 percent were reported as organic soils and 21.7 percent were reported as sand soils (Table 4). These percentages differ moderately from the 74.5 percent organic and 25.5 percent sand soils reported last year (Glaz, 1999).

To officially classify these soils as organic or sand, one would determine the percentage organic matter by weight. A soil with at least 20 percent organic matter would be organic and one with less than 20 percent organic matter would be a sand soil. This report relies on individual growers to use their own criteria to classify their soils. Most classifications are probably correct because in Florida, most organic soils used for sugarcane have much more than 20% organic matter and most sand soils used for sugarcane have far less than 20% organic matter. However, sugarcane in Florida is grown on an unknown amount of transitional soils that would require a weighed analysis for proper determination.

Growers had variety preferences according to soil. Four of the five most widely grown varieties, CP 80-1743, CP 72-2086, CP 80-1827, and CL 61-620 comprised 59.8 percent of the organic soils and only 18.9 percent of the sand soils (Table 4). CL 61-620, CP 88-1762, CP 84-1198, and CP 89-2143 were grown mostly on organic soils. CP 73-1547 and CP 70-1133 were each grown on more sand than organic acres; and along with CP 78-1628 and "Other CLs", they comprised 62.8 percent of the sand soils used for sugarcane in Florida. Although CP 80-1743 was grown predominantly on organic soils, its 9.7 percent of the sand soils now requires that it be classified as a major sand variety also.

All plant-cane acres were categorized as of the successive or regular planting system. In the successive planting system, growers plant sugarcane soon after a final-ratoon sugarcane harvest. In the regular system, growers do not plant sugarcane after a final-ratoon harvest until the following planting season. However, this system often does not result in land remaining fallow for long periods because growers may plant at least one other crop, such as sweet corn, rice, or radishes between the sugarcane crops.

Of the 121,220 plant-cane acres, 62,242 (51.3 percent) were regular planted and 58,979 (48.7 percent) were successively planted (Table 5). These figures are a moderate change from the 46.7 percent regular and 53.3 percent successive estimates reported in the 1999 census (Glaz, 1999). In seven of the past eight years, Florida sugarcane growers have increased their regular relative to successive planting ratios of the previous year.

Table 5 shows that growers had variety preferences depending on whether their fields were regular or successive plant cane. Cl 61-620, CP 73-1547, and CP 88-1508 were planted on substantially more regular than successive land. CP 80-1743 was the preferred variety for successively planted fields. Last year, CP 78-1628 and CP 84-1198 were planted in substantially more regular than successive fields (Glaz, 1999). This year, both varieties had similar acreages in each planting system (Table 5). Growers are generally cautious when comparing yields among varieties to check whether they were planted in mostly the regular or successive system because regular plant cane generally yields more tonnage than successively planted fields (Glaz and Ulloa, 1995).

This year, the three most widely grown varieties accounted for 46.2 percent of Florida's sugarcane, nearly the same as the 46.4 percent last year (Table 6). This was the tenth consecutive year that Florida's three most widely grown varieties comprised between 40 and 50 percent of the acreage. This was the fourth consecutive year that CP 80-1743, CP 72-2086, and CP 80-1827 were the three most widely grown sugarcane varieties in Florida. This was the seventh consecutive year that CP 80-1827 has been among the top three varieties, and CP 72-2086 has been among the three most popular varieties in Florida since 1992.

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References

Glaz, B. 1994. Sugarcane variety census: Florida 1993. Sugar y Azucar 89(1):39-43.

Glaz, B. 1997. Sugarcane variety census: Florida 1997. Sugar y Azucar 92(12):18-20, 22, 23, 26-28.

Glaz, B. 1998. Sugarcane variety census: Florida 1998. Sugar y Azucar 93(12):30-34, 36-37.

Glaz, B. 1999. Sugarcane variety census: Florida 1999. Sugar y Azucar 94(12):30-36.

Glaz, B., P.Y.P. Tai, J.C. Comstock, J.D. Miller, J. Follis, and L.Z. Liang. 2000. Evaluation of new Canal Point sugarcane clones: 1998-99 harvest season. U.S. Department of Agriculture, Agricultural Research Service, ARS-151, 28 pp.

Glaz, B. and W.C. Donovan. 1984. Florida's 1984 Sugar Cane Variety Census. Sugar y Azucar 79(12):30-31, 33.

Glaz, B., J.D. Miller, C.W. Deren, P.Y.P. Tai, J.M. Shine, Jr., and J.C. Comstock. 2000. Registration of 'CP 89-2143' sugarcane. Crop Sci. 40:577.

Glaz, B. and M.F. Ulloa. 1995. Fallow and successive planting effects on sugarcane yields in Florida. Journal American Society of Sugar Cane Technologists 15:41-53.

Table 1. Percentage of 2000 Florida sugarcane planted to each of 12 varieties that comprised at least one percent of the total acreage.

Variety	Total cane grown	Plant cane	First-ratoon cane	Second-ratoon cane	Third-ratoon cane	Fourth-ratoon cane
CP 80-1743	22.1	22.3	22.4	19.0	23.9	50.8
CP 72-2086	14.2	11.1	14.8	13.5	6.8	5.5
Other CLs	12.1	11.1	11.4	13.3	15.3	8.3
CP 80-1827	9.9	5.1	10.5	14.7	7.6	10.7
CP 78-1628	9.3	12.9	8.6	7.7	7.3	1.3
CL 61-620	4.7	3.5	4.7	4.5	10.1	2.6
CP 73-1547	4.1	3.0	4.0	4.3	7.9	4.2
CP 88-1762	4.1	7.1	4.0	2.2	0.8	0.0
CP 84-1198	3.8	6.4	3.2	2.9	0.9	0.9
CP 70-1133	3.7	2.5	3.5	4.7	5.0	3.9
Other CPs	1.7	1.6	1.9	1.9	0.7	1.0
CP 88-1508	1.2	0.6	1.2	2.2	0.8	0.0
CL 69-886	1.2	0.0	1.6	1.2	4.1	2.3
CP 89-2143	1.2	2.9	0.8	0.3	0.0	0.0
All others	6.7	9.9	7.4	7.6	8.8	8.5
Total Acres	438,400	124,945	150,371	121,874	32,441	8,769

Table 2. Annual percentages from 1999 through 2000 for each of 12 varieties that comprised at least one percent of Florida's 2000 sugarcane acreage.

Variety	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
CP 80-1743	0.3	1.2	2.7	5.2	7.1	10.7	12.0	14.4	17.8	22.1
CP 72-2086	10.7	13.6	13.6	15.5	15.5	18.0	17.1	16.3	14.6	14.2
CP 80-1827	3.2	5.7	8.3	13.1	16.1	18.2	17.5	18.2	14.0	9.9
CP 78-1628	0.2	0.4	0.7	1.0	1.9	2.6	5.0	5.9	7.9	9.3
CL 61-620	12.6	14.8	14.8	15.0	13.0	11.1	10.2	7.6	6.2	4.7
CP 73-1547	5.8	5.5	8.7	9.8	8.9	7.8	7.8	6.7	5.4	4.1
CP 88-1762	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	2.0	4.1
CP 84-1198	0.0	0.0	0.0	0.1	0.5	1.0	1.5	2.2	2.9	3.8
CP 70-1133	14.0	13.1	12.2	9.9	7.8	6.4	5.9	4.9	4.7	3.7
CP 88-1508	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2	1.3	1.2
CL 69-886	2.5	2.5	2.0	2.0	1.9	2.0	2.2	1.9	1.8	1.2
CP 89-2143	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.2

Table 3. Percentages of 1999 and 2000 acreage for each of 12 varieties that comprised at least one percent of Florida's 2000 sugarcane acreage.

Variety	Combined plant and ratoon cane			Plant cane only			Ratoon cane only		
	1999	2000	Change	1999	2000	Change	1999	2000	Change
CP 80-1743	17.8	22.1	+4.3	20.8	22.3	+1.5	16.3	22.0	+5.7
CP 72-2086	14.6	14.2	-0.4	14.6	11.1	-3.5	14.6	13.2	-1.4

Table 3. Percentages of 1999 and 2000 acreage for each of 12 varieties that comprised at least one percent of Florida's 2000 sugarcane acreage.

Variety	Combined plant and ratoon cane			Plant cane only			Ratoon cane only		
	1999	2000	Change	1999	2000	Change	1999	2000	Change
CP 80-1827	14.0	9.9	-4.1	10.7	5.1	-5.6	15.6	10.7	-4.9
CP 78-1628	7.9	9.3	+1.4	9.0	12.9	+3.9	7.4	7.9	+0.5
CL 61-620	6.2	4.7	-1.5	5.1	3.5	-1.6	6.8	5.2	-1.6
CP 73-1547	5.4	4.1	-1.3	4.5	3.0	-1.5	5.8	4.5	-1.3
CP 88-1762	2.0	4.1	+2.1	4.0	7.1	+3.1	1.0	2.9	+1.9
CP 84-1198	2.9	3.8	+0.9	3.4	6.4	+3.0	2.6	2.8	+0.2
CP 70-1133	4.7	3.7	-1.0	3.9	2.5	-1.4	5.2	4.1	-1.1
CP 88-1508	1.3	0.6	-0.7	1.1	0.6	-0.5	1.4	1.5	+0.1
CL 69-886	1.8	1.2	-0.6	1.6	0.0	-1.6	1.9	1.7	-0.2
CP 89-2143	0.4	1.2	+0.8	0.8	2.9	+2.1	0.1	0.5	+0.4

Table 4. Actual and percentage acreage grown on organic and sand soils of each of 12 varieties that comprised at least one percent of Florida's 2000 sugarcane.

Variety	Organic soil		Sand Soil	
	Acres	Percent	Acres	Percent
CP 80-1743	83,943	25.4	8,890	9.7
CP 72-2086	55,852	16.9	4,463	4.9
Other CLs	31,668	9.6	19,439	21.2
CP 80-1827	38,080	11.5	3,964	4.3
CP 78-1628	20,632	6.2	18,350	20.2
CL 61-620	19,691	6.0	40	0.0
CP 73-1547	6,528	2.0	10,742	11.7
CP 88-1762	16,329	4.9	1,050	1.1
CP 84-1198	14,803	4.5	1,504	1.6
CP 70-1133	6,318	1.9	8,907	9.7
Mixed CPs and CLs	8,929	2.7	1,245	1.4
Other CPs	6,402	1.9	860	0.9
CL 69-886	3,147	1.0	2,055	2.2
CP 88-1508	3,498	1.1	1,788	2.0
CP 89-2143	4,967	1.5	138	0.2
All others	9,887	3.0	8,060	8.8
Total	330,674	100.0	91,674	100.0

Table 5. Actual and percentage acreages in regular and successive planting systems for each of 12 varieties that comprised at least one percent of Florida's 2000 sugarcane.

Variety	Regular System		Successive System	
	Acres	Percent	Acres	Percent
CP 80-1743	9,206	14.8	17,809	30.2
CP 72-2086	10,841	17.4	9,280	15.7
Other CLs	6,933	11.1	6,575	11.1
CP 80-1827	2,841	4.6	3,305	5.6
CP 78-1628	8,386	13.5	7,316	12.3
CL 61-620	3,196	5.1	998	1.7
CP 73-1547	2,734	4.4	926	1.6
CP 88-1762	3,885	6.2	4,775	8.1
CP 84-1198	4,360	7.0	3,456	5.9
CP 70-1133	2,134	3.4	936	1.6
Mixed CPs and CLs	743	1.2	630	1.1
Other CPs	1,363	2.2	613	1.0
CP 88-1508	719	1.2	0	0.0
CL 69-886	17	0.0	35	0.1
CP 89-2143	2,329	3.7	1,208	2.0
All others	2,554	4.1	1,208	2.0
Total	62,242	100.0	58,979	100.0

Table 6. Percentage of the total sugarcane acreage of the three most widely grown varieties in Florida since 1991.

Year	Percent	Variety Rank		
		First	Second	Third
1991	47.1	CP 72-1210	CP 70-1133	CL 61-620
1992	42.1	CL 61-620	CP 72-1210	CP 72-2086
1993	40.6	CL 61-620	CP 72-2086	CP 70-1133
1994	43.6	CP 72-2086	CL 61-620	CP 80-1827
1995	44.6	CP 80-1827	CP 72-2086	CL 61-620
1996	47.3	CP 80-1827	CP 72-2086	CL 61-620
1997	46.6	CP 80-1827	CP 72-2086	CP 80-1743
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