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Sugarcane Variety Census: Florida 1999[1]

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This annual variety census of the Florida sugarcane industry for the 1999-2000 harvest season is the latest in a long series. Mill managers and independent growers supplied data for 99.7 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 1,198 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 fallow 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 0.3% of the acreage not reported, 447,255 acres of sugarcane were grown for sugar and seed for the 1999-2000 crop. This figure represents an increase of 5,071 acres compared to the 1997-98 season (Glaz, 1997). This year's sugarcane acreage is the highest in Florida's history.

Of Florida's 1999-2000 sugarcane, 33.9 percent was plant cane and 66.1 percent was ratoon cane. These are similar to the percentages of 34.6 for plant-cane and 65.4 for ratoon-cane reported last year (Glaz, 1998). Of this year's total acres, 33.6 percent were first ratoon, 24.4 percent second ratoon, 6.4 percent third ratoon, and 1.6 percent were fourth ratoon or older. These compared with 1998 percentages of 34.3, 23.5, 6.3, and 1.3, respectively (Glaz, 1998). Distributions of sugarcane have shifted moderately from the plant-cane and first-ratoon crops to the second-ratoon crop during the past three years.

Florida growers reported growing 38 varieties of sugarcane, compared to 40 last year (Glaz, 1998). Eleven 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 Clewiston, Florida, developed the varieties identified by a "CL" prefix. A cooperative program based at

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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.

The most widely grown variety in Florida this year was CP 80-1743 with 17.8 percent of the total cane area (Table 1). This is the first 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 (Table 2). Its combined plant- and ratoon-cane increase this year of 3.4 percent, its plant-cane increase of 3.5 percent, and its ratoon increase of 3.2 percent were the largest percentage increases in these categories (Table 3). The popularity of CP 80-1743 is undoubtedly due to its high cane tonnage yield, high sugar concentration, and good ratooning ability. However, there is concern about the susceptibility of CP 80-1743 to leaf scald and a tendency to suffer sugar losses due to growth cracks.

CP 72-2086, the most widely grown variety in 1994 (Glaz, 1994), maintained its second-place ranking for the fifth consecutive year with 14.6 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 it had its highest percentage usage (Table 2). Although growers remain pleased with its production, suggesting that it is tolerant to the disease, the decrease in acres of CP 72-2086 probably reflects their concerns about its mosaic susceptibility. This decline began in 1997 when the plant cane of CP 72-2086 decreased by 5.4 percent (Glaz, 1997). After an increase of 1.1 percent in plant-cane acreage last year (Glaz, 1998), the plant-cane acreage of CP 72-2086 decreased by 2.6 percent this year (Table 3). Overall, the acreage of CP 72-2086 has declined steadily but slowly since 1996 from 18.0 to 14.6 percent (Table 3).

CP 80-1827 was the number one variety in Florida for four consecutive years. However, this year it declined in percentage area by 4.2 percent (Table 3) and in ranking from first to third place with 14.0 percent of the acreage (Table 1). CP 80-1827 also had larger percentage declines in plant cane (7.1 percent) and ratoon cane (3.1 percent) than any other variety this year (Table 3). Probably the major reasons for its decline are its recent susceptibility to sugarcane rust and its moderately low sugar concentration yields. From 1989, when it comprised 0.4 percent of the acreage, land planted with CP 80-1827 increased steadily until 1996. Its largest increase was from 1993 to 1995 (Table 2). As recently as last year, CP 80-1827 had its highest percentage acreage of 18.2 percent, and more plant-cane acreage than any other variety (Glaz, 1998). Growers are apparently pleased with ratoon crop yields of CP 80-1743 and CP 80-1827 which comprised 23.4 and 24.0 percent, respectively, of the acreage in fourth-ratoon cane or older (Table 1).

After two years in seventh place, and last year in sixth place, CP 78-1628 moved up to fourth place this year (Tables 1 and 2). It appeared last year that the use of CP 78-1628 was peaking because its plant-cane acreage had declined by 0.5 percent (Glaz, 1998). However, this year CP 78-1628 had high percentage increases in plant and ratoon cane (Table 3). CP 78-1628 was the most widely grown variety on sand soils this year (Table 4).

CL 61-620 dropped to fifth place this year after two consecutive years as the fourth-place variety (Tables 1 and 2). Last year, its declining percentages in plant cane and ratoon were the largest of any variety (Glaz, 1998). This year, CL 61-620 had an overall decline in use of 1.4 percent, but its plant-cane acreage increased by 0.1 percent (Table 3). Use of CL 61-620 has declined each year since 1994 when it had 15.0 percent of the acreage (Table 2). 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 this year (Table 1) following three years as the fifth-place variety (Table 2). Growers reduced their use of CP 73-1547 by only 0.2 percent in plant cane this year, but its overall decline was 1.3 percent (Table 3). This decline may continue because CP

73-1547 has recently become susceptible to sugarcane rust. CP 73-1547 is the second most widely grown variety on sand soils (Table 4), falling from first place last year (Glaz, 1998). Even with its rust susceptibility, the United States Sugar Corporation won the 1999 Clewiston Sugar Festival "Sugarcane High Yield Award" with a field of CP 73-1547 on a sand soil.

CP 70-1133 was the seventh most widely grown variety for the second consecutive year (Tables 1 and 2). Use of CP 70-1133 probably will continue declining due to its poor adaptability to mechanical harvesting and mechanical seed-cane cutting on organic soils, and its recent susceptibility to sugarcane rust. Even though CP 70-1133 is apparently declining to a minor commercial status in Florida, it is still used as the reference variety in the cooperative variety selection program at Canal Point (Glaz et al. 1999). CP 70-1133 was the most widely grown variety in Florida from 1982 through 1984 (Glaz and Donovan, 1984) and is grown on 15.7 percent of Florida's sand soils with sugarcane, making it the third most widely grown variety on sand soils (Table 4).

CP 84-1198 finished with 2.9 percent of the total acreage which placed it in eighth place for the second consecutive year (Table 1). A major drawback to expanded commercial use of CP 84-1198 has been its poor adaptability to cutting seed cane mechanically. However, growers are considering such options as mowing young fields of CP 84-1198 or using ratoon fields as seed cane sources. Glaz and Ulloa (1993) reported that there were no differences in yield from using plant-cane, first-ratoon, or second-ratoon sources of seed cane.

This is the first year that CP 88-1762 (Tai, et al., 1997) classified as a principal variety. It made an uncustomarily large acreage increase for a new variety from 0.8 percent last year to 2.0 percent, making it the ninth most popular variety this year (Tables 1 and 2). With its plant-cane increase of 2.2 percent, CP 88-1762 had the second highest percentage increase in plant-cane acreage (Table 3).

CL 69-886 in tenth place, and CP 88-1508 in eleventh place rounded out the list of this year's principal varieties (Table 1). Use of CL 69-886 was similar to last year (Table 3). The plant-cane acreage of CP 88-1508 dropped from 2.9 percent in 1998 to 1.1 percent this year (Table 3). Upon its release, there were high expectations for CP 88-1508. Its erect growth habit appeared promising for mechanical harvesting, and in experiments it had high yields. However, commercial yields have not been consistently high for CP 88-1508 as evidenced by its large drop in percentage plant-cane acreage.

This year, for the first time since 1981, CP 72-1210 was not among the principal varieties of Florida. CP 72-1210 was the most widely used variety in Florida from 1985 through 1991, and it peaked in acreage with 61.0 percent in 1987. (Glaz and Coale, 1992). Disease susceptibility of CP 72-1210 has been a major cause of its yield decline. Three diseases to which it is susceptible are sugarcane rust, ratoon stunting disease, and sugarcane yellow leaf virus.

Of the 29 varieties grouped as "all others," CL 59-1052, CP 57-603, CP 78-2114, CP 84-1714, and CP 89-2376--were grown as ratoon cane only. The absence of plant cane for a variety indicates that its commercial use will soon stop. This year, no growers reported using CP 82-1172 and CP 86-1664.

Growers classified 79.5 percent of their land as having either organic or sand soil. Of these 355,411 acres, 74.5 percent, were reported as organic soils and 25.5 percent were reported as sand soils (Table 4). These percentages differ substantially from the 79.3 percent organic and 20.7 percent sand soils reported last year (Glaz, 1997). However, in 1998, 87.7 percent of the acreage was classified according to organic or sand soil (Glaz, 1998) as opposed to only 79.5 percent this year.

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 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 57.6 percent of the organic soils and only 19.6 percent of the sand soils (Table 4). CP 80-1743, CL 61-620, and CL 69-886 were grown almost exclusively on organic soils. CP 78-1628, CP 73-1547, and CP 70-1133, were each grown on more sand than organic acres; together they comprised 52.9 percent of the sand soils used for sugarcane in Florida.

For the third consecutive year, a complete data set was available on whether growers used the successive or fallow planting system. In the successive planting system, growers plant sugarcane soon after a final-ratoon sugarcane harvest. In the fallow 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. Thus, fallow is used to denote not planted with sugarcane.

Of the 151,334 plant-cane acres, 70,600 (46.7 percent) were fallow planted and 80,739 (53.3 percent) were successively planted (Table 5). These figures are a substantial change from the 61.5 percent fallow and 38.5 percent successive estimates reported in the 1998 census (Glaz, 1998). The sharp decline in fallow planting follows six years of steady increases in fallow planting.

Table 5 shows that growers had variety preferences depending on whether their fields were fallow or successively planted. CP 78-1628, Cl 61-620, CP 70-1133, and CP 84-1198 were planted on substantially more fallow than successive land. The three most widely grown varieties, CP 80-1743, CP 72-2086, and CP 80-1827, along with CL 68-886 were popular varieties for successively planted fields. Growers are generally cautious when comparing yields among varieties to check whether they were planted in mostly the fallow or successive system because fallow fields generally have higher tonnage yields than successive fields (Glaz and Ulloa, 1995).

In 1990, the three most popular varieties accounted for 56.5 percent of Florida's sugarcane (Table 6). After 1990, the percent of the acreage in the top three varieties declined steadily to its lowest level this decade of 40.6 percent in 1993. This year, the three most widely grown varieties accounted for 46.4 percent of Florida's sugarcane, a moderate decrease compared to 48.9 percent last year. This was the ninth consecutive year that Florida's three most widely grown varieties comprised between 40 and 50 percent of the acreage. This was the third 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 sixth consecutive year that CP 80-1827 has been among the top three varieties, and the eighth consecutive year for CP 72-2086.

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Table 1. Percentages of 1999 Florida sugarcane planted to each of 11 varieties that comprise 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 and older
CP 80-1743	17.8	20.8	17.1	13.5	21.1	23.4
CP 72-2086	14.6	14.6	14.9	14.6	15.3	4.7
CP 80-1827	14.0	10.7	16.7	14.6	12.0	24.0
CP 78-1628	7.9	9.0	7.5	8.4	4.0	3.4
CL 61-620	6.2	5.0	4.8	9.3	8.4	4.1
CP 73-1547	5.4	4.5	4.7	7.3	5.4	7.8
CP 70-1133	4.7	3.9	5.2	4.9	6.0	6.6
CP 84-1198	2.9	3.4	2.8	2.9	0.7	0.6
CP 88-1762	2.0	4.0	1.7	0.3	0.0	0.0
CL 69-886	1.8	1.6	1.0	2.1	5.5	3.9
CP 88-1508	1.3	1.1	2.5	0.4	0.3	0.0
Other CLs	11.4	11.4	11.4	12.3	9.3	6.9
Other CPs	1.2	1.6	0.9	1.3	0.8	0.0
All others	8.6	8.4	8.8	8.1	11.2	14.6
Total acres	447,255	151,341	148,572	109,104	28,701	7,331

Table 2. Annual percentages from 1990 through 1999 for each of 11 varieties that comprise at least one percent of Florida's 1999 sugarcane acreage.

Variety	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
CP 80-1743	0.0	0.3	1.2	2.7	5.2	7.1	10.7	12.0	14.4	17.8
CP 72-2086	6.4	10.7	13.6	13.6	15.5	15.5	18.0	17.1	16.3	14.6
CP 80-1827	1.6	3.2	5.7	8.3	13.1	16.1	18.2	17.5	18.2	14.0
CP 78-1628	0.0	0.2	0.4	0.7	1.0	1.9	2.6	5.0	5.9	7.9
CL 61-620	11.2	12.6	14.8	14.8	15.0	13.0	11.1	10.2	7.6	6.2
CP 73-1547	5.0	5.8	5.5	8.7	9.8	8.9	7.8	7.8	6.7	5.4
CP 70-1133	13.5	14.0	13.1	12.2	9.9	7.8	6.4	5.9	4.9	4.7
CP 84-1198	0.0	0.0	0.0	0.0	0.1	0.5	1.0	1.5	2.2	2.9
CP 88-1762	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	2.0
CL 69-886	2.4	2.5	2.5	2.0	2.0	1.9	2.0	2.2	1.9	1.8
CP 88-1508	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2	1.3

Table 3. Percentages of 1998 and 1999 acreage for each of 11 varieties that comprise at least one percent of Florida's 1999 sugarcane acreage.

Variety	Combined plant and ratoon cane			Plant cane only			Ratoon cane only		
	1998	1999	Change	1998	1999	Change	1998	1999	Change
CP 80-1743	14.4	17.8	+3.4	17.3	20.8	+3.5	13.1	16.3	+3.2
CP 72-2086	16.3	14.6	-1.7	17.2	14.6	-2.6	16.5	14.6	-1.9
CP 80-1827	18.2	14.0	-4.2	17.8	10.7	-7.1	18.7	15.6	-3.1

Table 3. Percentages of 1998 and 1999 acreage for each of 11 varieties that comprise at least one percent of Florida's 1999 sugarcane acreage.

Variety	Combined plant and ratoon cane			Plant cane only			Ratoon cane only		
	1998	1999	Change	1998	1999	Change	1998	1999	Change
CP 80-1743	14.4	17.8	+3.4	17.3	20.8	+3.5	13.1	16.3	+3.2
CP 78-1628	5.9	7.9	+2.0	7.1	9.0	+1.9	5.0	7.4	+2.4
CL 61-620	7.6	6.2	-1.4	5.0	5.1	+0.1	9.0	6.8	-2.2
CP 73-1547	6.7	5.4	-1.3	4.7	4.5	-0.2	7.9	5.8	-2.1
CP 70-1133	4.9	4.7	-0.2	4.3	3.9	-0.4	4.9	5.2	+0.3
CP 84-1198	2.2	2.9	+0.7	3.0	3.4	+0.4	1.8	2.6	+0.8
CP 88-1762	0.8	2.0	+1.2	1.8	4.0	+2.2	0.2	1.0	+0.8
CL 69-886	1.9	1.8	-0.1	1.0	1.6	+0.6	2.4	1.9	-0.5
CP 88-1508	1.2	1.3	+0.1	2.9	1.1	-1.8	0.3	1.4	+1.1

Table 4. Actual and percentage acreage grown on organic and sand soils of each of 11 varieties that comprise at least one percent of Florida's 1999 sugarcane.

Variety	Organic soil		Sand Soil	
	Acres	Percent	Acres	Percent
CP 80-1743	64,514	24.3	3,379	3.7
CP 72-2086	36,299	13.7	6,113	6.7
CP 80-1827	31,325	11.8	7,790	8.6
CP 78-1628	10,045	3.8	17,011	18.8
CL 61-620	20,797	7.8	576	0.6
CP 73-1547	5,686	2.1	16,183	17.8
CP 70-1133	3,809	1.4	14,800	16.3
CP 84-1198	5,977	2.3	1,865	2.1
CP 88-1762	6,894	2.6	892	1.0
CL 69-886	7,971	3.0	252	0.3
CP 88-1508	4,392	1.7	1,010	1.1
Other CLs	42,054	15.9	8,104	8.9
Other CPs	3,801	1.4	1,005	1.1
All others	21,400	8.1	11,688	12.9
Total	264,964	100.0	90,669	100.0

Table 5. Actual and percentage acreages in fallow and successive planting systems for each of 11 varieties that comprise at least one percent of Florida's 1999 sugarcane.

Variety	Fallow System		Successive System	
	Acres	Percent	Acres	Percent
CP 80-1743	11,923	16.9	19,634	24.3
CP 72-2086	9,092	12.9	13,054	16.2
CP 80-1827	4,103	5.8	12,165	15.1
CP 78-1628	9,275	13.1	4,406	5.5
CL 61-620	5,439	7.7	2,196	2.7

Table 5. Actual and percentage acreages in fallow and successive planting systems for each of 11 varieties that comprise at least one percent of Florida's 1999 sugarcane.

Variety	Fallow System		Successive System	
	Acres	Percent	Acres	Percent
CP 73-1547	3,544	5.0	3,231	4.0
CP 70-1133	3,458	4.9	2,401	3.0
CP 84-1198	3,549	5.0	1,564	1.9
CP 88-1762	3,448	4.9	2,690	3.3
CL 69-886	781	1.1	1,731	2.1
CP 88-1508	995	1.4	741	0.9
Other CLs	7,012	9.9	10,243	12.7
Other CPs	1,319	1.9	1,084	1.3
All others	6,662	9.4	5,599	6.9
Total	79,600	100.0	80,739	100.0

Table 6. Percentage of the total sugarcane acreage of the three most widely grown varieties in Florida since 1989.

Year	Percent	Variety Rank		
		First	Second	Third
1990	56.5	CP 72-1210	CP 70-1133	CL 61-620
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