

Sugarcane Variety Census: Florida 1998¹

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This annual variety census of the Florida sugarcane industry for the 1998-99 harvest season is the latest in a long series. Mill managers and independent growers supplied data for 98.1 percent of Florida's sugarcane area. (This estimate was based on information supplied by growers and mill managers, and factoring in that companies that supplied variety information for 8,057 acres last year 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 1.9% of the acreage not reported, growers reported 436,219 acres of

sugarcane were grown for sugar and seed for the 1998-99 crop. This figure represents an increase of 5,073 acres compared to the 1997-98 season (Glaz, 1997).

Of Florida's 1998-99 sugarcane area, 34.6 percent was plant cane and 65.4 percent was ratoon cane. These percentages are similar to the 35.0 percent plant cane and 65.0 percent ratoon cane percentages reported in 1997 (Glaz, 1997). Of this year's total acres, 34.3 percent were first ratoon, 23.5 percent second ratoon, 6.3 percent third ratoon, and 1.3 percent were fourth ratoon or older. These compared with 1997 percentages of 34.8, 21.9, 6.7, and 1.7, respectively (Glaz, 1997). Distributions of sugarcane among the plant and ratoon crops have remained fairly constant during the past three years.

For the 1998-99 harvest season, Florida growers planned to harvest 40 varieties of sugarcane. As shown in Table 1, 11 principal varieties each covered at least 1.0 percent of the total cane area. The group labeled as "All others" represented varieties that each made up less than 1.0 percent of the total acreage. The United States Sugar Corporation of Clewiston, Florida, developed the varieties identified by a "CL"

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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 most widely-grown variety in Florida this year was CP 80-1827 with 18.2 percent of the total cane area (Table 1). It has remained the number one variety for four consecutive years even though it has become susceptible to sugarcane rust and yields a moderately low sugar concentration. 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). However, the amount of plant-cane acreage with CP 80-1827 declined for the second consecutive year. The decline this year was 1.0 percent, but CP 80-1827 still had more plant-cane than any other variety (Table 3).

CP 72-2086, the most widely grown variety in 1994 (Glaz, 1994), maintained its second-place ranking for the fourth consecutive year (Table 1). With 16.3 percent of the total acreage, this is its first year as the second most widely grown variety that it has trailed CP 80-1827 by more than 0.6 percent. Sugarcane mosaic was discovered in several commercial fields of CP 72-2086 in the summer of 1996. Although growers remain pleased with its production, suggesting that it is tolerant to the disease, the decrease in area of CP 72-2086 relative to CP 80-1827 may reflect their concerns about its mosaic susceptibility. This decline began last year when the plant cane area of CP 72-2086 decreased by 5.4 percent (Glaz, 1997). The increase of 1.1 percent in plant-cane this year for CP 72-2086 suggests that some growers may feel they overreacted to the sugarcane mosaic last year (Table 3).

CP 80-1743 maintained its position as the third-place variety for the second consecutive year (Table 1). The percent acreage of CP 80-1743 has risen each year since it was first reported at 0.3 percent acreage in 1991 (Table 2). Its combined plant- and ratoon-cane increase this year of 2.4 percent and its plant-cane increase of 5.4 percent

were the largest variety increases in these categories (Table 3). Last year, the plant-cane acreage of CP 80-1743 declined by 1.0 percent (Glaz 1997). This decline was probably due to the steadily increasing incidence of leaf-scald in CP 80-1743 during the past several years. Its increased use this year suggests that growers are less concerned about the potential for major yield losses due to the susceptibility of CP 80-1743 to leaf scald and more inclined to take advantage of its high tonnage yield, high sugar concentration, and good ratooning ability. The United States Sugar Corporation won the 1998 Clewiston Sugar Festival "Sugarcane High Yield Award" with a field of CP 80-1743 on warm-muck land.

CL 61-620 maintained its position as the fourth place variety for the second consecutive year (Table 1). However, CL 61-620 declined by 2.9 percent in plant-cane and by 2.4 percent in ratoon acreage. This resulted in an overall decline of 2.6 percent (Table 3). Its declining percentages in plant cane and ratoon were the largest of any variety. 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 has been the fifth-place variety the last three years (Tables 1 and 2). Growers reduced their use of CP 73-1547 by 2.7 percent in plant cane this year (Table 3). This decline may continue because CP 73-1547 has recently become susceptible to sugarcane rust. However, CP 73-1547 is the most widely grown variety on sand soils (Table 5).

After two years in seventh place, CP 78-1628 moved up to sixth place this year (Tables 1 and 2). However, its use may be leveling off. After a 2.4 percent increase last year (Glaz, 1997) and even considering its 0.9 percent increase this year in combined plant and ratoon cane, CP 78-1628 had a 0.5 percent reduction in plant-cane acreage this year (Table 3). CP 78-1628 was the second most widely grown variety on sand soils (Table 5).

CP 70-1133 was this year's seventh most widely grown variety (Table 1). Its consistent declines of about 1 percent in plant-cane and ratoon suggest that CP 70-1133 will decline in rank next year (Table 3).

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 clone in the cooperative variety selection program at Canal Point (Glaz et al. 1997). CP 70-1133 was the most widely grown variety in Florida from 1982 through 1984 (Glaz and Donovan, 1984) and it is still the third most widely grown cultivar on sand soils (Table 5).

CP 84-1198 (with 2.2 percent of the total acreage) edged out CL 69-886 (with 1.9 percent of the total acreage) for eighth place this year (Table 1). Although CP 84-1198 had only a moderate gain of 0.7 percent in overall area this year (Table 3), it rose from eleventh place last year (Glaz, 1997). United States Sugar Corporation and Osceola Farms Company won the Clewiston Sugar Festival "Sugarcane High Yield Awards" last year with fields of CP 84-1198 on cold- muck land and sand land. The 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.

CL 69-886 dropped from eighth place last year (Glaz, 1997) to ninth place this year (Table 1). However, its total drop in percent area was only 0.3 percent (Table 3). This year, CP 72-1210 was the tenth most widely grown variety (Table 1). This is the tenth consecutive year of reduced acreage for CP 72-1210, the leading variety in Florida from 1985 to 1991 (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 yellow leaf syndrome. The final principal variety this year is a new one to the list, CP 88-1508. 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 (Miller et al. 1997). However, commercial yields have not been consistently high for CP 88-1508.

Of the 29 varieties grouped as "all others," five-- CP 82-1592, CP 81-1384, CL 59-1052, CP 74-2005, and CP 82-1172--were grown as ratoon cane only. The absence of plant cane for a variety indicates that its commercial use will soon stop. This year, growers continued their commercial use of all varieties that were used commercially last year.

For the second consecutive year, a complete data set was available on the type of planting system utilized, successive or fallow. In the successive planting system, growers plant sugarcane soon after a final-ratoon sugarcane harvest. In the fallow system, growers do not plant sugarcane from 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 146,987 plant-cane acres, 90,409 (61.5 percent) were fallow planted and 56,578 (38.5 percent) were successively planted (Table 4). Fallow and successive estimates were 46.1 and 53.9 percent, respectively, in the 1997 census (Glaz, 1997). Percentage fallow acreage has now increased for six consecutive years, having doubled from its low point of 30.7 percent in 1992 (Coale and Glaz, 1992). The sharp increase this year in fallow planting marks a major change in grower preferences from successive to fallow planting.

Table 4 shows that growers had variety preferences depending on whether their fields were fallow or successively planted. CP 72-2086, CP 70-1133, and CP 88-1508 were planted on more fallow than successive land. CP 80-1827, CL 61-620, CP 73-1547, and CP 78-1628 were planted on about equal percentages of fallow and successive fields. CP 80-1743 was the most popular variety for successively planted fields. CP 80-1743 and CL 69-886 were the only two varieties planted on more absolute acreage in the successive rather than the fallow system. 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).

Growers classified 87.7 percent of their land as having either organic or sand soil. Of these 376,255 acres, 80.1 percent, were reported as organic soils and 19.9 percent were reported as sand soils (Table 5). These were similar to the percentages reported last year of 79.3 percent organic and 20.7 percent sand soils (Glaz, 1997). To officially classify these soils, one would determine the percentage organic matter by weight. A soil with at least 20 percent organic matter would be organic (also called muck soils in south Florida) 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 accurate 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.

As with fallow and successive planting, growers had variety preferences according to soil. The four most widely grown varieties, CP 80-1827, CP 72-2086, CP 80-1743, and CL 61-620 comprised 62.7 percent of the organic soils and only 21.7 percent of the sand soils. CP 80-1743, CL 61-620, and CL 69-886 were grown almost exclusively on organic soils. CP 73-1547, CP 78-1628, and CP 70-1133, were each grown on more sand than organic acres; together they comprised 55.0 percent of the sand soils used for sugarcane in Florida.

In 1989, the three most popular varieties accounted for 66.5 percent of Florida's sugarcane (Table 6). After 1989, 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 48.9 percent of Florida's sugarcane, a moderate increase compared to 46.6 percent last year. This was the eighth consecutive year that Florida's three most widely grown varieties comprised between 40 and 50 percent of the acreage.

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Table 1. Percentage of the 1998 Florida sugarcane acreage planted to the principal varieties.

Variety	Total cane grown	Plant cane	First-ratoon cane	Second-ratoon cane	Third-ratoon cane	Fourth-ratoon cane
CP 80-1827	18.2	17.8	19.3	17.9	18.2	19.6
CP 72-2086	16.3	16.2	17.2	17.9	9.9	4.8
CP 80-1743	14.4	17.3	11.6	15.4	11.3	22.5
CL 61-620	7.6	5.0	8.0	8.0	18.0	12.3
CP 73-1547	6.7	4.7	7.4	8.9	6.3	8.9
CP 78-1628	5.9	7.1	6.5	3.5	3.2	1.8
CP 70-1133	4.9	4.3	4.8	4.5	4.6	15.1
CP 84-1198	2.2	3.0	2.4	1.4	0.4	0.6
CL 69-886	1.9	1.0	1.8	2.9	4.3	1.1
CP 72-1210	1.2	0.6	1.3	1.4	2.4	1.9
CP 88-1508	1.2	2.9	0.4	0.1	0.0	0.0
All others	19.5	20.1	19.4	18.0	21.5	11.3
Total acres	436,219	150,931	149,622	102,512	27,481	7,414

Table 2. Annual percentage of acreage from 1989 through 1998 for present principal sugarcane varieties in Florida.

Variety	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
CP 80-1827	0.4	1.6	3.2	5.7	8.3	13.1	16.1	18.2	17.5	18.2
CP 72-2086	4.5	6.4	10.7	13.6	13.6	15.5	15.5	18.0	17.1	16.3
CP 80-1743	0.0	0.0	0.3	1.2	2.7	5.2	7.1	10.7	12.0	14.4
CL 61-620	9.8	11.2	12.6	14.8	14.8	15.0	13.0	11.1	10.2	7.6
CP 73-1547	4.2	5.0	5.8	5.5	8.7	9.8	8.9	7.8	7.8	6.7
CP 78-1628	0.0	0.0	0.2	0.4	0.7	1.0	1.9	2.6	5.0	5.9
CP 70-1133	12.3	13.5	14.0	13.1	12.2	9.9	7.8	6.4	5.9	4.9
CP 84-1198	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.0	1.5	2.2
CL 69-886	1.6	2.4	2.5	2.5	2.0	2.0	1.9	2.0	2.2	1.9
CP 72-1210	44.1	31.8	20.5	13.7	9.7	6.1	3.8	2.6	2.1	1.2
CP 88-1508	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2

Table 3. Comparison of percentages of 1997 and 1998 acreages for principal sugarcane varieties.

Variety	Combined plant and ratoon cane			Plant cane only			Ratoon cane only		
	1997	1998	Net change	1997	1998	Net change	1997	1998	Net change
CP 80-1827	17.5	18.2	+0.7	18.8	17.8	-1.0	16.8	18.7	+1.9
CP 72-2086	17.1	16.3	-0.8	16.1	17.2	+1.1	17.5	16.5	-1.0
CP 80-1743	12.0	14.4	+2.4	11.9	17.3	+5.4	12.0	13.1	+1.1
CL 61-620	10.2	7.6	-2.6	8.1	5.0	-2.9	11.4	9.0	-2.4
CP 73-1547	7.8	6.7	-0.9	7.4	4.7	-2.7	8.0	7.9	-0.1

Table 3. Comparison of percentages of 1997 and 1998 acreages for principal sugarcane varieties.

Variety	Combined plant and ratoon cane			Plant cane only			Ratoon cane only		
	1997	1998	Net change	1997	1998	Net change	1997	1998	Net change
CP 78-1628	5.0	5.9	+0.9	7.6	7.1	-0.5	3.5	5.0	+1.5
CP 70-1133	5.9	4.9	-1.0	5.7	4.3	-1.3	6.0	4.9	-1.1
CP 84-1198	1.5	2.2	+0.7	2.1	3.0	+0.9	1.1	1.8	+0.7
CL 69-886	2.2	1.9	-0.3	1.9	1.0	-0.9	2.3	2.4	+0.1
CP 72-1210	2.1	1.2	-0.9	1.7	0.6	-1.1	2.3	1.5	-0.8
CP 88-1508	0.2	1.2	+1.0	0.5	2.9	+2.4	0.1	0.3	+0.2

Table 4. Actual and percentage acreages of each principal variety in fallow and successive planting systems.

Variety	Fallow		Successive	
	Acres	Percent	Acres	Percent
CP 80-1827	15,885	17.6	10,157	17.9
CP 72-2086	16,774	18.6	6,970	12.3
CP 80-1743	11,115	12.3	14,183	25.1
CL 61-620	5,187	5.7	2,151	3.8
CP 73-1547	4,634	5.1	2,297	4.1
CP 78-1628	6,424	7.1	3,969	7.0
CP 70-1133	4,663	5.2	1,603	2.8
CP 84-1198	2,408	2.7	1,966	3.5
CL 69-886	299	0.3	1,225	2.2
CP 72-1210	711	0.8	188	0.3
CP 88-1508	3,638	4.0	573	1.0
All others	18,668	20.6	11,295	20.0
Total	90,409	100.0	56,578	100.0

Table 5. Actual and percentage acreage of each principal variety grown on organic and sand soils.

Variety	Organic Acres	Organic Percentage	Sand Acres	Sand Percentage
CP 80-1827	59,001	19.6	7,217	9.7
CP 72-2086	52,660	17.5	5,748	7.7
CP 80-1743	51,667	17.1	2,435	3.3
CL 61-620	25,821	8.6	815	1.1
CP 73-1547	10,349	3.4	17,221	23.0
CP 78-1628	8,744	2.9	12,301	16.5
CP 70-1133	7,432	2.5	11,555	15.5
CP 84-1198	5,441	1.8	2,067	2.8
CL 69-886	8,151	2.7	131	0.2
CP 72-1210	3,599	1.2	1,151	1.5
CP 88-1508	4,108	1.4	373	0.5
All others	64,558	21.4	13,699	18.3

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

Year	Percent	First	Second	Third
1989	66.5	CP 72-1210	CP 70-1133	CL 61-620
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