

AN OVERVIEW OF 2003 ACTIVITIES IN THE LSU AGCENTER
SUGARCANE VARIETY DEVELOPMENT PROGRAM

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The primary objective of the LSU AgCenter Sugarcane Variety Development Program is to contribute to the profitability of the Louisiana sugarcane industry by developing improved sugarcane varieties.

Sugarcane variety development in the LSU AgCenter is carried out by a team of scientists (Table 1). The LSU AgCenter sugarcane breeding team and the United States Department of Agriculture (USDA) sugarcane breeding team work independently yet cooperatively to produce “L” and “HoCP or Ho” varieties, respectively. The best varieties from the two programs are brought together for evaluation at the nursery, infield, and outfield test locations. Outfield testing is conducted by personnel of the LSU AgCenter, the USDA, and the American Sugar Cane League. Seed increase is carried out by the American Sugar Cane League and begins when varieties are introduced to the outfield testing stage. The cooperative efforts of sugarcane breeding are done in accordance with the provisions of the “Three-way Agreement of 1978.” After yield data for one crop cycle (plant cane, first stubble, and second stubble) are collected in the outfield testing stage, those varieties that show promise are released for commercial production.

Table 1. Members of the LSU AgCenter Sugarcane Variety Development Team in 2003.

Team Member	Budgetary Unit	Responsibility
Kenneth Gravois	St. Gabriel Research Station	Program Leader
Keith Bischoff	St. Gabriel Research Station	Selection
Collins Kimbeng	Agronomy & Environmental Mgmt.	Molecular Breeding
Gene Reagan	Entomology	Insect Resistance
Jeff Hoy	Plant Pathology & Crop Physiology	Disease Resistance
Jim Griffin	Agronomy & Environmental Mgmt.	Herbicide Tolerance
Sonny Viator	Iberia Research Station	Variety Testing
Terry Bacon	St. Gabriel Research Station	Variety Testing
Gert Hawkins	St. Gabriel Research Station	Sucrose Laboratory
Chris LaBorde	St. Gabriel Research Station	Photoperiod and Crossing
Al Orgeron	St. Gabriel Research Station	Outfield Variety Testing
Todd Robert	St. Gabriel Research Station	Variety Testing
Joel Hebert	St. Gabriel Research Station	Farm Manager

A total of 73,160 seedlings from 192 crosses from the 2002 crossing series were planted in the field in the spring of 2003. A total of 66,011 seedlings survived transplanting. In addition, 6,164 seedlings were planted in a cross appraisal trial. The majority of the seedlings were from crosses of commercial varieties and elite experimental varieties. Selection will be carried out in 2004 when the seedlings are in the first stubble crop.

Photoperiod treatments to induce flowering began on May 31 and continued until September 10. Flowering in 2003 was excellent, with 409 crosses being made. Germination tests were conducted in December and January. Seed production for 2003 was more than adequate based on germination test results, with 485,313 true seed produced during 2003.

In the fall of 2003, individual selection was practiced on 46,325 first stubble seedlings that represented the 2001 crossing series. Family selection (top 78% in 2003) was utilized based on information from the cross appraisal study. Of the 46,325 clones, 2,902 were selected and planted to establish the first-line trials.

Established procedures were used to advance superior clones of the 2000 crossing series from first-line trials to second-line trials (699 clones) and of the 1999 crossing series from second-line trials to increase trials (152 clones). After preliminary ratings for cane yield and plant type in August, clones with acceptable ratings were further evaluated for lodging, borer damage, presence of disease, presence of pith/tube, and Brix/sugar per ton.

The best 35 experimental varieties from the 1998 crossing series were assigned permanent variety designations in the fall of 2003. Newly assigned varieties were entered in replicated nursery trials at three locations (St. Gabriel Research Station, USDA Ardoyne Farm, and Iberia Research Station). “L”, “HoCP, or Ho” varieties of the 2003 and 2002 series were exchanged in the fall of 2003 to plant cooperative infield and off-station nursery tests the following year.

Experimental varieties were replanted in infield and off-station nursery tests (14 varieties of the 2002 series), introduced to the outfield tests (three varieties of the 2001 series), and planted in outfield tests (one variety of the 1997 series; one variety of the 1998 series; two varieties of the 1999 series; one variety of the 2000 series). Breeding personnel assisted Dr. Jeff Hoy and Dr. Gene Reagan in entering experimental varieties in the sugarcane smut and sugarcane borer resistance trials, respectively.

The decision regarding the further testing and seed increase of candidate varieties was determined at the Variety Advancement Committee meeting. The 2003 meeting was held on August 13, 2003, at the American Sugar Cane League office in Thibodaux.

The distribution of “L” and “LCP” experimental clones through stages of testing in 2003 is presented in Table 2. The practice of planting nursery and infield trials at multiple locations allows efficient identification of superior varieties in each assignment series.

Table 2. Number of “L” varieties by assignment series at the most advanced stage of testing in 2003.

Series	Stage of Testing	Number of experimental varieties
L 1997	Outfield - Replanted and harvested as plant cane, first stubble, and second stubble	1
L 1998	Outfield – Replanted and harvested as plant cane and first stubble Off-station nurseries – 3 rd stubble harvested	1
L 1999	Outfield – Replanted and harvested as plant cane On-station nurseries – 3 rd stubble harvested Off-station nurseries – 2 nd stubble harvested	2
L 2000	Outfield – Planted On-station nurseries - 2 nd stubble harvested Off-station nurseries – 1 st stubble harvested.	1
L 2001	Outfield – Introduced On-station nurseries 1 st stubble harvested Off-station nurseries plant cane harvested	3
L 2002	On-station nurseries plant cane harvested Off-station nurseries planted.	15
L 2003	Assignment - On-station nurseries planted	35

Progress in the LSU AgCenter Sugarcane Variety Development Program would not be possible without the financial support of state funds from the LSU AgCenter and the Louisiana sugar industry through the American Sugar Cane League.

Rainfall for 2003 at the St. Gabriel Research Station is reported in Table 3. Total rainfall for the year was 49.32 inches, which was 87% of normal annual rainfall. January was an extremely dry month, which helped mitigate the poor harvesting conditions following Tropical Storm Isidore and Hurricane Lily and a wet harvest season. February, March, and early April were wet, which delayed spring field operations. Little rain fell in the remainder of April and May, which allowed for cultivation of rutted fields and good conditions for fertilization. Unlike 2002, the big weather story of the year was nearly ideal harvesting conditions with an erect crop for most of the 2003 harvest.

In 2003, rust continued to be seen in high levels in LCP85-384 throughout the growing season. Pith and leaf scald in experimental varieties were low compared to other years, likely due to more than adequate rainfall during the growing season.

Table 3. 2003 rainfall reported by date at the St. Gabriel Research Station, St. Gabriel, Louisiana.

DATE	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
1									0.18			
2						0.67		0.12	0.09			
3		0.04	0.20			0.19	0.03	0.30				
4							0.03		0.29			
5				0.29		0.04	0.80	0.32				
6		0.54	1.69	0.02		0.11	0.09					
7				2.72		0.33	0.05	0.58				
8				2.20								
9		0.24	0.20							0.19		0.10
10							0.04			2.73		
11	0.02					0.64	0.94		0.17	0.02		
12	0.03					0.29		1.33	0.52			
13			0.67					0.02	1.27			0.76
14						0.79						
15		1.62				0.18						
16			0.32		0.04	0.02		0.71			0.04	
17						0.63	0.92				0.02	
18			0.48								1.36	
19						0.07	0.76					
20		0.40		0.02	0.18			0.05				
21		1.76		0.04		0.03		0.12	0.67			
22				0.12			0.81		0.82			
23							0.26				0.52	0.48
24								0.13			0.13	
25		0.31		0.03		0.17				0.24		
26	0.34	0.35	0.06			0.04		0.50				
27						0.33			0.43		3.70	
28								0.06				
29	0.36		0.05			0.05						1.55
30	0.05					1.69		1.14				
31							0.76	0.51				
Totals	0.80	5.26	3.67	5.44	0.22	6.27	5.49	5.89	4.44	3.18	5.77	2.89
% Normal	15	103	78	127	5	107	102	135	102	81	134	56
2003 TOTAL: 49.32 inches (87% Normal)												

Data provide by the Louisiana Agrilclimatic Information Service and Dr. Richard Bengtson.

2003 PHOTOPERIOD AND CROSSING IN THE LSU AGCENTER SUGARCANE VARIETY DEVELOPMENT PROGRAM

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Photoperiod induction and crossing are the first stages in the LSU AgCenter's Sugarcane Variety Development Program. For subsequent stages to be successful, success must first be achieved at crossing. The objective of crossing is to produce not only a large number of seed, but viable "true" seed/fuzz from the most desirable crosses. This seed will then be advanced to the seedling stage of the Sugarcane Variety Development Program.

Cuttings of potential parent varieties used for the 2003 crossing season were planted in the fall of 2002. After establishing the plants from the cuttings, the plants were fertilized biweekly with a 200 ppm solution of Peter's 20-20-20. In late January 2003, the cuttings were then transferred to can culture. In April, the cans were moved from the greenhouse to the photoperiod rail carts. Soluble fertilizer applications were continued on a biweekly basis. Fertilization was discontinued in early- to mid-May to condition the plants for floral induction. Three additional applications of dry granular fertilizer (8-24-24, one Tbs/can) were applied to the cans during July, August, and September. A reduced nitrogen ratio makes a higher C:N ratio, which is more desirable for the ease of flowering.

Natural lighting and eight light-tight chambers (six traditional photoperiod bays and two temporary photoperiod bays) were used to improve photoperiod treatments. To prevent overwhelming the crossing facilities, two flowering peaks were planned for September 23 and October 8 although these two flowering peaks can be advanced or delayed because of certain climatic factors. Records of varietal flowering, past photoperiod response, and pollen production were used to determine the most appropriate photoperiod treatment for each variety. The first photoperiod treatments began on May 30. All photoperiod treatments (time from artificial sunrise to natural sunset) were initiated with a minimum of 34 consecutive days of 12 ½ hours of constant day length. After the initial constant photoperiod days, day length was shortened by one minute per day. Treatments differed by the number of days with constant day length and the date on which the decline of photoperiod was initiated. All photoperiod treatments were discontinued on September 10, 2003.

Photoperiod treatments require pulling the carts out of the photoperiod bays at the appropriate time each morning to receive full sunlight. On certain days when the weather was severe, the carts were pushed back into the photoperiod chambers to protect the parental varieties from wind damage. While in the photoperiod chambers, artificial lighting was used. In addition to artificial lighting, the doors were partially opened to allow natural light to enter the chambers.

Flowering percentage of total stalks was average on the photoperiod carts in 2003 (Table 1-2). Total flowering percentage for the eight bays was 51% which was comprised from 1918 stalks. Total stalk number was exceedingly high due to a research project that caused the crossing greenhouse to be converted into two temporary photoperiod bays (7 & 8). The

conversion of the crossing greenhouse consisted of Dura Skrim 8 (two sheets of high strength polyethylene film laminated together with a third layer of molten polyethylene) material draped over cables (creating a box-type enclosure) that were connected to the interior of the crossing greenhouse. This created an additional 90 regular-sized (10 gallon) pots and 72 one-half gallon pots that were subjected to photoperiod treatments. The varieties for the research project consisted of proven parents such as HoCP 85-845, LCP 85-384, and LCP 86-454. For the research project, these three varieties were used predominantly in polycrosses due to their pollen quantity abundance in order to quantify seed production. This resulted in a higher than usual number of polycrosses made in 2003 (Table 3). These varieties were used for both research and seed production purposes. In 2003 as in previous years, seedlings were produced from hybridization techniques that used sugarcane yield components, insect resistance, and disease resistance as some of the criteria to determine which crossing combinations were most ideal.

The flowering season in 2003 began during the second week of September as expected. Crossing began on September 12 and ended on November 21, 2003. The end date is later than usual but can be explained by an addition of the number of total stalks that were subjected to a regulated photoperiod treatment. A total of 972 tassels of 127 varieties was used to produce 409 total crosses yielding 485,310 viable seed with 225,332 seed produced from biparental crosses (Table 3). Germination rate is one of two components that measures the success of this stage in the crossing program. The other component is photoperiod induction. Close attention was made once again in maintaining high relative humidity within the crossing greenhouse. The normal flowering had the majority of crosses being made according to the two flowering peaks that were planned; 78% of the crosses were made by October 15, 2003. High temperatures in mid-September made poor seed set. It has been shown that temperatures in excess of 100° F have an adverse effect on pollen viability. This may be the cause for early-season problems, and is supported by the fact that seed set quickly improved with lower temperatures beginning late September and throughout the remainder of the crossing season.

Table 1. Summary of the 2003 photoperiod treatments for the LSU AgCenter's sugarcane variety development program.

Bay	Cart	Treatment Start Date	Days of Constant Photoperiod	Date Photoperiod Decline Started	Days of Declining Photoperiod		Mean Flowering Date	Total Stalks	Percent Flowered
					Peak 1	Peak 2			
1	A	16-Jun	44	30-Jul	72	87	292±14	90	82
1	B	16-Jun	44	30-Jul	72	87	291±11	89	73
1	C	16-Jun	44	30-Jul	72	87	292±13	83	70
2	A	16-Jun	34	20-Jul	72	87	291±15	102	55
2	B	16-Jun	34	21-Jul	72	87	283±13	86	45
2	C	16-Jun	34	22-Jul	72	87	288±17	79	54
3	A	30-May	37	6-Jul	87	102	277±19	85	49
3	B	30-May	37	6-Jul	87	102	274±10	97	42
3	C	30-May	37	6-Jul	87	102	276±15	77	60
4	A	30-May	37	6-Jul	87	102	273±12	94	57
4	B	30-May	37	6-Jul	87	102	275±14	95	40
4	C	30-May	37	6-Jul	87	102	278±14	86	31
5	A	4-Jun	36	10-Jul	82	97	284±15	89	26
5	B	4-Jun	36	10-Jul	82	97	301±19	86	17
5	C	4-Jun	36	10-Jul	82	97	281±6	76	25
6	A	30-May	41	10-Jul	82	97	287±14	84	37
6	B	30-May	41	10-Jul	82	97	284±17	78	40
6	C	30-May	41	10-Jul	82	97	286±14	79	53
7	A	4-Jun	36	10-Jul	82	97	286±10	72	0.13†
7	B	4-Jun	36	10-Jul	82	97	274±7	91	91
7	C	4-Jun	36	10-Jul	82	97	268±10	71	38
8	A	4-Jun	36	10-Jul	82	97	278±14	85	58
8	B	4-Jun	36	10-Jul	82	97	278±14	66	59
8	C	4-Jun	36	10-Jul	82	97	270±19	49	59

† Bay Cart 7 A contained ½ gallon pots for the breeding stock instead of the normal 10 gallon pots.

Table 2. Summary of can, variety, and flower information on bays 1-8 subjected to photoperiod treatments.

Varieties used in crossing	Cans with stalks	Cans with tassels	Total stalks	Total tassels	Mean stalks per can	Mean tassels per can†	Mean pollen rating‡	Mean days to flower§
-----Number-----								
127	412	292	1918	972	4.7±1.6	3.33±1.63	4.4±1.7	87±14.5

† Based upon cans with tassels.

‡ Rating of 1 to 4 being male and 5 to 9 being female.

§ Days from decline date to flowering.

Table 3. Summary of 2003 crossing and seed production.

Type of Cross	Crosses	Sum of Seed Production	Mean Seed Production Per Cross	Mean Seed Production Per Female Tassel	Mean Germination Per Gram Seed
-----Number-----					
Biparental	287	225,332	1087±1314	1087±1314	144±140
Polycross	89	242,439	822±1136	822±1136	106±132
Self	33	17,539	531±1018	531±1018	86±155
Total	409	485,310	985±1265	985±1265	131±141

Table 4. Varietal flowering summary in 2003 in the photoperiod bays.

Variety	Days of Constant Photoperiod	First Flower Date	Mean Days to Flower	Pollen Rating	Total Stalk Number	Total Flowers	Percent Flowering Stalks
CP65-357	42±1	279	85±4	6±1	6	3	50
CP73-351	36.5	286	101±3	4±1	10	4	40
CP77-310	36	286	95	5	1	1	100
CP79-348	39±1	300	90±1	6	9	2	22
CP83-644	37	309	118	5	20	1	5
HO01-564	36	279	90±2	7	4	4	100
HO89-889	37	286	95	7	7	1	14
HO91-572	40±2	272	83±7	5±1	8	8	100
HO95-988	37	267	91±2	6	43	15	35
HOC P00-905	36	269	98±5	6	15	10	67
HOC P00-927	36±1	316	105	7	9	1	11
HOC P00-930	39±2	279	77±4	5	10	9	90
HOC P00-933	41±1	265	80±3	5±1	16	12	75
HOC P00-939	37	.	.	.	6	.	.
HOC P00-942	37±2	302	107±4	6	6	6	100
HOC P00-950	39±1	267	94±3	7	27	18	67
HOC P01-500	37	.	.	.	5	.	.
HOC P01-506	37	274	94±4	3±1	5	5	100
HOC P01-517	44	314	103	3	5	1	20
HOC P01-520	36	265	78±2	3±1	6	6	100
HOC P01-523	39±1	276	83±2	5	14	12	86
HOC P01-525	36	272	86±2	5±1	5	4	80
HOC P01-527	36	.	.	.	6	.	.
HOC P01-528	34	272	75±1	4±1	5	5	100
HOC P01-529	34	286	90±5	4±1	3	3	100
HOC P01-531	37	307	120	6	8	1	13
HOC P01-532	34	.	.	.	5	.	.
HOC P01-534	34	.	.	.	4	.	.
HOC P01-535	37	.	.	.	1	.	.
HOC P01-541	34	286	85	7	4	1	25
HOC P01-543	44	286	77±2	3	4	4	100
HOC P01-544	36	283	98±3	6±1	3	3	100
HOC P01-551	37	.	.	.	8	.	.
HOC P01-553	36	286	100±5	4±1	8	3	38
HOC P01-558	37	261	77±1	5±1	9	8	89
HOC P01-561	37	272	92±5	4±1	9	4	44
HOC P85-845	36	270	94±1	3	132	70	53
HOC P88-739	36	279	90±2	7	15	2	13
HOC P89-831	37	272	87±2	5±1	4	2	50
HOC P89-846	39±2	283	90±7	6	10	9	90
HOC P91-552	41±1	261	73±1	4	17	16	94
HOC P91-555	37	.	.	.	27	.	.
HOC P91-572	39±5	.	.	.	2	.	.
HOC P92-618	37	269	85±2	4	14	6	43
HOC P92-624	40±1	255	77±2	7	34	30	88

Table 4. Continued.

Variety	Days of Constant Photoperiod	First Flower Date	Mean Days to Flower	Pollen Rating	Total Stalk Number	Total Flowers	Percent Flowering Stalks
HOCP92-648	38±1	267	83±3	7	18	10	56
HOCP93-746	42±1	272	61	7	12	3	25
HOCP93-749	37	295	104	5	3	2	67
HOCP93-754	37	302	122±11	6±1	8	2	25
HOCP94-806	37	294	107	3	8	1	13
HOCP95-951	37	255	77±5	4±1	7	3	43
HOCP96-509	36	316	129	5	21	1	5
HOCP96-540	36	265	86±1	3	147	112	76
HOCP96-561	37	267	92±2	4	16	13	81
HOCP97-606	38±1	279	108±4	5	20	11	55
HOCP97-609	36	265	80±1	4	22	12	55
HOCP97-645	37	267	83±2	6±1	7	3	43
HOCP98-741	37	255	78±6	5	6	4	67
HOCP98-781	39±2	269	79±6	4±1	10	6	60
HOCP99-825	37	259	77±2	5	10	10	100
HOCP99-866	39±1	279	69	4	17	6	35
L00-264	34	.	.	.	4	.	.
L00-266	36	324	123	3	20	1	5
L01-281	35±1	269	82	4	8	1	13
L01-283	37	281	106±9	6	8	5	63
L01-292	36	.	.	.	5	.	.
L01-296	37	.	.	.	8	.	.
L01-299	39±1	272	83±4	5±1	16	10	63
L02-233	34	307	112±4	7	4	4	100
L02-316	37	272	82±1	4	7	4	57
L02-319	36	279	88	6	5	1	20
L02-320	37	279	94±4	5±1	6	6	100
L02-322	37	279	107±9	6	8	3	38
L02-323	37	295	122±8	6±1	4	3	75
L02-324	36	.	.	.	3	.	.
L02-325	36	324	133	3	7	2	29
L02-326	36	.	.	.	5	.	.
L02-328	37	279	99±4	5	14	7	50
L02-333	36	276	97±6	6±1	9	5	56
L02-336	37	276	96±3	6±1	6	3	50
L02-338	37	.	.	.	5	.	.
L02-341	37	269	88±2	5±1	6	6	100
L02-342	37	.	.	.	8	.	.
L02-348	37	267	81	6	6	5	83
L02-351	37	267	93±5	4±1	5	5	100
L02-353	36	.	.	.	6	.	.
L02-354	34	267	68±1	7	7	6	86

Table 4. Continued.

Variety	Days of Constant Photoperiod	First Flower Date	Mean Days to Flower	Pollen Rating	Total Stalk Number	Total Flowers	Percent Flowering Stalks
L02-359	34	.	.	.	2	.	.
L91-255	38±1	300	102±5	6	20	6	30
L91-281	44	286	79±3	4±1	6	6	100
L92-312	37	.	.	.	8	.	.
L92-321	37	.	.	.	6	.	.
L94-424	37	302	111	5	4	1	25
L94-426	36	265	90±7	5	26	7	27
L94-428	37	261	85±5	4	20	7	35
L94-432	37	279	101±11	4	12	4	33
L94-433	37	279	102±8	5±1	10	6	60
L96-040	36±1	269	84±3	6	10	6	60
L96-092	37	300	117±3	5±1	25	5	20
L97-128	38±1	261	80±1	6	51	39	76
L97-137	37	279	100±8	4±1	31	3	10
L98-197	40±2	283	88±5	4±1	11	7	64
L98-207	37±1	265	78±2	3	26	14	54
L98-209	36	267	92±3	5	32	14	44
L99-226	37	265	89±2	4	41	27	66
L99-233	39±1	259	76±3	3	16	13	81
LCP02-337	37	274	95±6	3±1	6	6	100
LCP02-343	36	.	.	.	5	.	.
LCP02-344	34	290	92±3	7	5	2	40
LCP02-345	37	286	103±5	5±1	5	3	60
LCP81-010	39±1	259	77±3	5	24	14	58
LCP82-089	37	286	107±8	6	16	2	13
LCP83-137	37	.	.	.	6	.	.
LCP85-384	37	261	85±1	3	235	127	54
LCP86-454	36	253	71±2	3	91	33	36
N-27	44	295	91±5	7	3	3	100
TUCCP77-042	36	276	101±2	6	25	15	60
US01-039	41±1	269	71±3	7	10	6	60
US01-040	41±2	259	73±3	5±1	5	5	100
US02-095	44	309	107±3	6	6	5	83
US02-096	44	286	75	5	3	3	100
US02-098	44	314	103	3	4	1	25
US02-099	44	.	.	.	1	.	.
US79-010	37	265	84±4	7	6	5	83
US96-002	37	265	78	7	5	2	40
US99-002	44	279	68	5±1	6	6	100
US99-004	44	274	76±8	4±1	3	3	100

Table 5. Crosses and seed made in 2003 sorted by cross number.

Cross	Female	Male	Seed	Cross	Female	Male	Seed
XL03-001	HOCP92-624	03P1	2385	XL03-054	HOCP97-645	HOCP96-561	0
XL03-002	HOCP98-741	03P1	75	XL03-055	L98-209	HOCP96-561	53
XL03-003	HOCP95-951	03P1	329	XL03-056	HOCP96-561	HOCP96-561	18
XL03-004	LCP86-454	03P1	176	XL03-057	L98-209	HOCP01-558	0
XL03-005	HOCP92-624	US01-040	101	XL03-058	HOCP00-950	HOCP01-558	58
XL03-006	HOCP99-825	US01-040	36	XL03-059	L02-348	HOCP01-558	80
XL03-007	US01-040	US01-040	29	XL03-060	L02-351	HOCP01-558	0
XL03-008	LCP81-010	L99-233	0	XL03-061	HOCP01-558	HOCP01-558	11
XL03-009	HOCP99-825	L99-233	0	XL03-062	HOCP01-520	03P8	56
XL03-010	HOCP92-624	L99-233	23	XL03-063	HOCP96-540	03P8	477
XL03-011	L99-233	L99-233	49	XL03-064	HOCP99-825	03P8	40
XL03-012	HOCP92-624	03P2	1676	XL03-065	HOCP91-552	03P8	108
XL03-013	LCP86-454	03P2	74	XL03-066	LCP85-384	03P8	2428
XL03-014	HOCP92-624	L94-428	12	XL03-067	LCP86-454	03P8	968
XL03-015	LCP81-010	L94-428	49	XL03-068	L02-348	HOCP96-540	105
XL03-016	L97-128	L94-428	0	XL03-069	L02-354	HOCP96-540	79
XL03-017	HOCP01-558	03P3	0	XL03-070	HOCP92-624	LCP85-384	240
XL03-018	HOCP91-552	03P3	17	XL03-071	US79-010	LCP85-384	8
XL03-019	HOCP98-741	03P3	67	XL03-072	HOCP92-618	LCP85-384	188
XL03-020	HOCP99-825	03P3	43	XL03-073	L94-426	LCP85-384	275
XL03-021	HOCP01-558	03P4	17	XL03-074	L96-040	LCP85-384	10
XL03-022	HOCP98-741	03P4	18	XL03-075	HO95-988	LCP85-384	39
XL03-023	LCP85-384	03P4	163	XL03-076	L99-226	LCP85-384	18
XL03-024	LCP86-454	03P4	569	XL03-077	L02-341	LCP85-384	137
XL03-025	L97-128	L99-226	26	XL03-078	HOCP92-618	L99-233	90
XL03-026	HOCP00-933	L99-226	101	XL03-079	L94-426	L99-233	0
XL03-027	HOCP00-933	HOCP95-951	102	XL03-080	L94-428	L99-233	0
XL03-028	HOCP01-558	HOCP95-951	11	XL03-081	L99-233	L99-233	10
XL03-029	US79-010	HOCP95-951	0	XL03-082	HOCP92-618	HOCP96-561	260
XL03-030	L94-426	L98-207	0	XL03-083	HO95-988	HOCP96-561	59
XL03-031	L97-128	L98-207	7	XL03-084	HOCP97-645	HOCP96-561	0
XL03-032	US96-002	L98-207	83	XL03-085	L94-428	HOCP96-540	387
XL03-033	HOCP01-558	LCP85-384	0	XL03-086	L99-226	HOCP96-540	843
XL03-034	US79-010	LCP85-384	0	XL03-087	L02-341	HOCP96-540	279
XL03-035	US96-002	LCP85-384	112	XL03-088	L02-348	HOCP96-540	0
XL03-036	HOCP01-520	03P5	0	XL03-089	US01-039	HOCP96-540	375
XL03-037	HOCP96-540	03P5	30	XL03-090	HOCP99-825	HOCP96-540	0
XL03-038	HOCP97-609	03P5	0	XL03-091	HOCP00-905	HOCP97-609	509
XL03-039	HOCP99-825	03P5	0	XL03-092	L02-354	HOCP97-609	17
XL03-040	L94-428	03P5	0	XL03-093	HOCP00-950	HOCP01-520	70
XL03-041	HOCP96-540	03P6	271	XL03-094	HOCP01-520	HOCP01-520	0
XL03-042	LCP85-384	03P6	899	XL03-095	HOCP96-540	03P9	9037
XL03-043	LCP86-454	03P6	0	XL03-097	L01-281	03P9	881
XL03-044	HOCP96-540	03P7	348	XL03-098	HOCP99-825	03P9	0
XL03-045	LCP86-454	03P7	488	XL03-099	HOCP98-781	03P9	431
XL03-046	LCP85-384	03P7	468	XL03-100	HOCP00-905	03P9	96
XL03-047	HO95-988	LCP85-384	59	XL03-101	LCP85-384	03P10	5526
XL03-048	HOCP92-648	LCP85-384	1118	XL03-102	L99-226	03P10	806
XL03-049	HOCP97-609	LCP85-384	58	XL03-103	LCP86-454	03P10	185
XL03-050	HO95-988	L98-207	196	XL03-104	HOCP96-540	03P10	4283
XL03-051	L94-426	L98-207	19	XL03-105	LCP86-454	03P11	1988
XL03-052	L02-354	L98-207	67	XL03-106	LCP85-384	03P11	2330
XL03-053	HOCP97-609	HOCP96-561	127	XL03-107	HOCP96-540	03P11	4500

Cross	Female	Male	Seed	Cross	Female	Male	Seed
XL03-108	HOCP93-746	L98-207	0	XL03-163	HOCP01-525	HOCP01-506	2792
XL03-109	L94-428	L98-207	293	XL03-164	L97-128	HOCP01-506	68
XL03-110	LCP81-010	L98-207	389	XL03-165	HOCP85-845	HOCP01-506	1976
XL03-111	HOCP01-528	L98-207	762	XL03-166	HOCP89-831	LCP85-384	834
XL03-112	L97-128	L98-207	282	XL03-167	L97-128	LCP85-384	330
XL03-113	L98-207	L98-207	0	XL03-168	HOCP85-845	LCP85-384	1300
XL03-114	LCP81-010	L02-316	85	XL03-170	HOCP01-528	HOCP01-528	0
XL03-115	L98-209	L02-316	35	XL03-171	HOCP01-523	HOCP01-523	0
XL03-116	L97-128	L02-316	61	XL03-172	HOCP92-624	HOCP00-905	1610
XL03-117	L02-316	L02-316	8	XL03-172.5	HOCP01-558	HOCP00-905	1048
XL03-118	HOCP91-552	L99-226	770	XL03-173	L96-040	HOCP00-905	424
XL03-119	L99-226	L99-226	53	XL03-174	LCP81-010	L98-207	2980
XL03-120	HOCP96-540	L99-226	2706	XL03-175	HOCP99-825	L98-207	68
XL03-121	HOCP00-933	03P12	2326	XL03-176	L97-128	L98-207	384
XL03-122	HOCP01-525	03P12	256	XL03-177	HOCP85-845	L98-207	1242
XL03-123	HOCP01-561	03P12	2092	XL03-178	TUCCP77-042	L02-336	0
XL03-124	HOCP89-831	03P12	477	XL03-179	L02-333	L02-336	0
XL03-125	HOCP96-540	03P12	8798	XL03-180	L97-128	L02-336	79
XL03-126	HOCP93-746	LCP85-384	1798	XL03-181	L02-336	L02-336	0
XL03-127	HOCP95-951	LCP85-384	210	XL03-182	L02-333	L02-341	86
XL03-128	HOCP96-540	LCP85-384	4231	XL03-183	HOCP96-561	L02-341	613
XL03-129	HOCP93-746	HOCP85-845	680	XL03-184	HOCP85-845	L98-209	1543
XL03-130	L97-128	HOCP85-845	107	XL03-185	L97-128	L98-209	368
XL03-131	HOCP92-648	L99-233	1593	XL03-186	CP65-357	LCP85-384	2123
XL03-132	HO95-988	L99-233	593	XL03-187	HOCP88-739	LCP85-384	1225
XL03-133	US79-010	L99-233	0	XL03-188	HOCP92-624	LCP85-384	4378
XL03-134	L01-299	L99-233	122	XL03-189	HOCP92-648	LCP85-384	297
XL03-135	HOCP00-905	HOCP92-618	269	XL03-190	LCP81-010	LCP85-384	4713
XL03-136	L02-354	HOCP92-618	9	XL03-191	HO01-564	LCP85-384	1128
XL03-137	HO91-572	HOCP92-618	23	XL03-192	HOCP01-523	LCP85-384	3195
XL03-138	HOCP92-618	HOCP92-618	77	XL03-193	HOCP01-525	LCP85-384	3369
XL03-139	L99-226	03P13	1279	XL03-194	L01-299	LCP85-384	1054
XL03-140	HOCP96-540	03P13	2200	XL03-195	L02-351	LCP85-384	2163
XL03-141	LCP85-384	03P13	6282	XL03-196	L02-320	HOCP85-845	1377
XL03-142	HOCP97-609	03P13	606	XL03-197	L02-322	HOCP85-845	1426
XL03-143	HOCP01-561	03P13	511	XL03-198	HOCP92-624	HOCP91-552	3945
XL03-144	L02-351	03P13	135	XL03-199	L94-426	HOCP91-552	835
XL03-145	HOCP97-645	LCP85-384	182	XL03-200	HOCP00-930	HOCP91-552	2769
XL03-146	L94-426	LCP85-384	183	XL03-201	HOCP00-950	HOCP91-552	1575
XL03-147	HOCP01-561	LCP85-384	262	XL03-202	L02-328	HOCP91-552	3705
XL03-148	HOCP96-540	LCP85-384	5453	XL03-203	L02-341	HOCP91-552	1385
XL03-149	US99-004	LCP85-384	0	XL03-204	LCP81-010	L98-207	4320
XL03-150	L01-299	LCP85-384	802	XL03-205	L98-209	L98-207	1845
XL03-151	HOCP00-950	HOCP01-506	1017	XL03-206	HOCP98-781	L98-207	1187
XL03-152	HOCP96-540	HOCP01-506	3532	XL03-207	HOCP00-905	L94-432	795
XL03-153	HOCP01-561	L02-316	0	XL03-208	L96-040	L94-432	1414
XL03-154	L01-299	L02-316	38	XL03-209	L97-137	L94-432	2698
XL03-155	HOCP96-540	L02-316	4848	XL03-210	HOCP97-606	HOCP96-540	1585
XL03-156	L02-316	L02-316	45	XL03-211	HOCP97-609	HOCP96-540	3591
XL03-157	HOCP96-540	HOCP96-540	1907	XL03-212	L02-319	HOCP96-540	1053
XL03-158	HOCP85-845	03P14	9110	XL03-213	L02-320	HOCP96-540	2285
XL03-159	LCP85-384	03P14	6289	XL03-214	L02-333	HOCP96-540	1101
XL03-160	HOCP96-540	03P14	5152	XL03-215	LCP02-337	HOCP96-540	1961
XL03-161	LCP02-337	03P14	447	XL03-216	TUCCP77-042	HOCP96-540	45
XL03-162	LCP86-454	03P14	109	XL03-217	L02-320	L99-226	898

Cross	Female	Male	Seed	Cross	Female	Male	Seed
XL03-218	L02-328	L99-226	2526	XL03-273	HOC92-624	LCP85-384	1285
XL03-219	L96-040	L99-226	1216	XL03-274	LCP82-089	LCP85-384	4524
XL03-220	LCP02-337	L99-226	2291	XL03-275	HOC90-905	LCP85-384	855
XL03-221	HOC91-523	HO91-572	2320	XL03-276	HOC91-523	LCP85-384	1185
XL03-222	L94-433	HO91-572	4065	XL03-277	L97-128	LCP85-384	236
XL03-223	L97-128	HO91-572	298	XL03-278	US01-039	LCP85-384	1118
XL03-224	LCP81-010	HO91-572	3753	XL03-279	US02-096	LCP85-384	1293
XL03-225	TUCCP77-042	HO91-572	15	XL03-280	US79-010	LCP85-384	34
XL03-226	US01-039	HO91-572	770	XL03-281	US99-004	LCP85-384	1101
XL03-227	US01-040	HO91-572	1270	XL03-282	HOC92-624	L91-281	1815
XL03-228	HO01-564	03P15	381	XL03-283	HOC90-905	L91-281	597
XL03-229	HOC91-528	03P15	293	XL03-284	L02-336	L91-281	260
XL03-230	HOC97-609	03P15	346	XL03-285	L97-128	L91-281	92
XL03-231	L97-128	03P15	451	XL03-286	HOC92-624	HOC96-540	1912
XL03-232	LCP81-010	03P15	3943	XL03-287	CP73-351	HOC96-540	936
XL03-233	LCP86-454	03P16	3125	XL03-288	HOC90-950	HOC96-540	2338
XL03-234	LCP85-384	03P16	1510	XL03-289	HOC91-541	HOC96-540	743
XL03-235	HOC85-845	03P16	6693	XL03-290	L97-128	HOC96-540	269
XL03-236	HOC91-552	03P16	2669	XL03-291	LCP02-345	HOC96-540	1214
XL03-237	HOC92-624	L02-320	2176	XL03-292	HO89-889	L98-209	376
XL03-238	LCP81-010	L02-320	1558	XL03-293	HOC92-624	L98-209	1805
XL03-239	HOC98-741	L02-320	845	XL03-294	HOC92-648	L98-209	1200
XL03-240	L02-320	L02-320	307	XL03-294.5	L97-128	L98-209	57
XL03-241	HOC92-624	LCP85-384	3233	XL03-295	HO01-564	L99-226	700
XL03-242	L94-432	LCP85-384	3180	XL03-296	HO95-988	L99-226	201
XL03-243	LCP81-010	LCP85-384	3466	XL03-297	L99-226	L99-226	513
XL03-244	L94-433	LCP85-384	1586	XL03-298	HOC90-950	HOC91-552	603
XL03-245	L96-040	LCP85-384	957	XL03-299	L01-283	HOC91-552	1362
XL03-246	US01-039	LCP85-384	760	XL03-300	L02-328	HOC91-552	2146
XL03-247	US99-002	LCP85-384	902	XL03-301	L02-336	HOC91-552	414
XL03-248	HOC92-624	HOC91-552	2922	XL03-302	L97-128	HOC91-552	754
XL03-249	L94-432	HOC91-552	4117	XL03-303	CP77-310	HOC91-552	1284
XL03-250	LCP81-010	HOC91-552	3177	XL03-304	L98-207	HOC91-553	2945
XL03-251	L02-341	HOC91-552	1002	XL03-305	US02-096	HOC91-553	4637
XL03-252	L98-209	HOC91-552	556	XL03-306	HOC91-553	HOC91-553	2622
XL03-253	L97-128	HOC91-552	316	XL03-307	HOC89-846	L98-209	1562
XL03-254	L97-128	L02-333	38	XL03-308	HOC92-648	L98-209	1660
XL03-255	HOC92-618	L02-333	415	XL03-309	HOC97-606	L98-209	1092
XL03-256	L01-283	L02-333	219	XL03-310	HOC96-540	L98-209	2262
XL03-257	HOC88-739	LCP85-384	419	XL03-311	L98-209	L98-209	373
XL03-258	HOC92-648	LCP85-384	1773	XL03-312	HOC89-846	LCP85-384	2506
XL03-259	HOC90-905	LCP85-384	507	XL03-313	HOC92-648	LCP85-384	1680
XL03-260	L01-283	LCP85-384	708	XL03-314	L02-328	L99-233	1644
XL03-261	HOC89-846	HOC96-540	2106	XL03-315	L99-233	L99-233	6
XL03-262	HOC90-930	HOC96-540	2310	XL03-316	HOC85-845	03P18	14633
XL03-263	L97-128	L98-197	357	XL03-317	LCP02-337	03P18	837
XL03-264	HOC91-544	L98-197	475	XL03-318	HOC96-540	03P18	1990
XL03-265	L98-207	L98-197	422	XL03-319	CP65-357	LCP85-384	4731
XL03-266	L99-226	L98-197	1752	XL03-320	HOC85-845	LCP85-384	3487
XL03-267	L98-197	L98-197	1184	XL03-321	HOC89-846	HOC96-540	2863
XL03-268	HOC85-845	03P17	999	XL03-322	HOC92-648	HOC96-540	4069
XL03-269	LCP85-384	03P17	195	XL03-323	HOC96-561	HOC96-540	2619
XL03-270	HOC89-846	HOC85-845	1181	XL03-324	L98-209	HOC96-540	2267
XL03-271	L97-128	HOC85-845	343	XL03-325	LCP02-344	HOC96-540	816
XL03-272	US02-096	HOC85-845	639	XL03-326	L98-197	L98-197	2965

Cross	Female	Male	Seed	Cross	Female	Male	Seed
XL03-327	LCP81-010	L98-197	8534	XL03-370	L96-092	L96-092	401
XL03-328	TUCCP77-042	L98-197	242	XL03-371	LCP85-384	03P21	2395
XL03-329	L97-128	L98-197	351	XL03-372	HOC85-845	03P21	7584
XL03-330	L02-328	L02-328	4406	XL03-373	CP83-644	HOC97-606	1093
XL03-331	TUCCP77-042	L02-328	277	XL03-374	HOC01-523	HOC97-606	1059
XL03-332	HOC85-845	L02-328	2990	XL03-375	TUCCP77-042	HOC97-606	120
XL03-333	HOC89-846	L02-328	5720	XL03-376	HOC97-606	HOC97-606	41
XL03-334	HOC92-624	HOC85-845	368	XL03-377	HOC85-845	03P22	4454
XL03-335	HOC00-950	HOC01-506	1260	XL03-378	LCP85-384	03P22	233
XL03-336	HOC01-506	HOC01-506	371	XL03-379	N27	03P22	916
XL03-337	HO95-988	03P19	299	XL03-380	US02-095	HO91-572	112
XL03-338	HOC96-540	03P19	4785	XL03-381	L98-197	HO91-572	0
XL03-339	HOC96-561	03P19	1407	XL03-382	L02-328	HO91-572	700
XL03-340	CP65-357	HO95-988	465	XL03-383	HOC00-905	HOC00-930	561
XL03-341	HOC89-846	HO95-988	421	XL03-384	HOC00-942	HOC00-930	2618
XL03-342	N-27	HO95-988	4474	XL03-385	HOC97-606	HOC00-930	0
XL03-343	HOC92-624	L02-323	566	XL03-386	HOC00-930	HOC00-930	130
XL03-344	LCP02-344	L02-323	49	XL03-387	HOC92-624	L96-092	866
XL03-345	TUCCP77-042	L02-323	66	XL03-388	L99-233	L96-092	662
XL03-346	L02-323	L02-323	62	XL03-389	L96-092	L96-092	195
XL03-347	HOC93-749	L98-209	245	XL03-390	LCP85-384	LCP85-384	24
XL03-349	HOC93-749	L99-226	1935	XL03-391	L91-255	LCP85-384	1379
XL03-350	L97-128	L99-226	568	XL03-392	HOC98-781	LCP85-384	772
XL03-351	LCP02-345	L99-226	1135	XL03-393	HO95-988	LCP85-384	573
XL03-352	CP77-407	L99-226	216	XL03-395	LCP86-454	03P23	930
XL03-353	LCP85-384	03P20	1679	XL03-396	LCP85-384	03P23	848
XL03-354	HOC85-845	03P20	349	XL03-397	HOC85-845	03P23	416
XL03-355	LCP86-454	03P20	245	XL03-398	HOC85-845	LCP85-384	297
XL03-356	HOC01-531	HOC96-540	798	XL03-400	US02-095	LCP85-384	144
XL03-357	L02-322	HOC96-540	441	XL03-401	HOC00-942	LCP85-384	0
XL03-358	HOC00-905	HOC96-540	808	XL03-402	HOC89-846	HOC96-540	420
XL03-359	L91-255	HOC96-540	1773	XL03-403	HOC97-606	HOC96-540	127
XL03-360	L02-322	L99-226	618	XL03-404	HOC93-754	L98-197	10
XL03-361	HOC00-950	L99-226	277	XL03-405	L98-197	L98-197	1100
XL03-362	HOC97-606	L99-226	455	XL03-406	L91-255	L00-266	3413
XL03-363	HO95-988	L99-226	666	XL03-407	HOC00-942	L00-266	752
XL03-364	HOC92-624	L99-226	539	XL03-408	HOC00-950	L00-266	742
XL03-365	HOC00-946	LCP85-384	296	XL03-409	L00-266	L00-266	110
XL03-366	HOC92-624	LCP85-384	518	XL03-410	L94-433	L94-433	522
XL03-367	L01-299	LCP85-384	204	XL03-411	L94-432	03P24	1716
XL03-368	L97-137	L96-092	694	XL03-412	LCP85-384	03P24	595
XL03-369	L02-233	L96-092	648				

SELECTIONS, ADVANCEMENTS, AND ASSIGNMENTS OF THE LSU AGCENTER'S SUGARCANE VARIETY DEVELOPMENT PROGRAM FOR 2003

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SUMMARY

In the selection phase of the LSU AgCenter's Sugarcane Variety Development Program, superior clones are advanced through the single stool, first line, second line, and increase stages of the breeding program. In the first stubble crop of the second-line trials, those clones with acceptable breeding or commercial value are assigned a permanent variety number. A total of 73,160 seedlings from 192 crosses was planted in the field in the spring of 2003. The majority of these seedlings are progeny of crosses among commercial and elite experimental varieties. In the fall of 2003, family selection was practiced on the 46,325 (top 78%) stubble seedlings surviving the winter. This selection resulted in the planting of 2,902 eight-foot first-line trial plots. At the same time, superior clones were also selected and advanced through subsequent stages (699 to second line trials, 152 to the increase stage). Assignment of permanent AL03" numbers were given to the 35 best clones of the 1998 crossing series.

PROCEDURES

In the selection stage of the LSU AgCenter's Sugarcane Variety Development Program, single stools are established from seed generated in the crossing stage. After evaluating and selecting the families for cane yield potential in the cross appraisal studies, clones with desirable phenotypes are selected and advanced through single stool, first line, second line, and increase stages. In the first stubble crop of the second-line trials, clones judged to have breeding or commercial value are assigned a permanent variety number and advanced to the nursery stage of testing.

RESULTS AND DISCUSSION

A total of 73,160 seedlings from 192 crosses of the 2002 crossing series was planted to the field in the spring of 2003 (Table 1). Many of these seedlings were progeny of crosses among commercial and superior experimental varieties. In the fall of 2003, individual selection was practiced on the 46,325 (top 78%) stubble single stools of the 2001 crossing series that survived the winter. The 2,902 clones selected and advanced from the single stools were planted in 8-foot first-line trial plots. Dates of planting and harvesting of all plots in the selection phase of the program can be found in Table 2.

Over 4,000 first-line trial plots of the 2000 crossing series were rated for cane yield and pest resistance in August of 2003 (Table 3). After screening for cane yield rating, acceptable clones were further evaluated for pest resistance (diseases and borer injury) stalk quality, and brix (Table 3). This second stage of advancement was concluded with the planting of 700 clones in single row 16-foot second-line trials plots.

Stalk counts were made on the 394 first stubble first-line trial plots of the 1999 crossing series in August 2003. Based on these counts and sucrose lab data collected in 2002, 152 clones were planted in two single row 16-foot plots representing the increase stage of the program (Table 4). One replication was planted in light soil and the other in heavy soil. These clones will be candidates for assignment in 2004. Of the 331 candidates from the first stubble crop of the second-line trials, the best 35 clones from the 1998 crossing series were assigned permanent AL03" numbers (Table 5). These newly assigned AL03" varieties were then planted in replicated nursery trials at three on station locations (St. Gabriel Research Station, Iberia Research Station, USDA Ardoyne Farm).

The advancement summary of clones from crosses made in 1998 through 2001 is shown in Table 6. Crosses are sorted by female parent in ascending order, with the percentile ranking given for each cross in each stage of the program. The results of the 2001 crossing series cross appraisal in 2003 are presented in Table 7.

Table 1. Summary of selections, advancements and assignments made during 2002 by the Louisiana, "L," Sugarcane Variety Development Program's personnel.

Crossing series	Crosses		Plants surviving transplanting	Over-wintered plants	Advanced to			
	Progeny test	Selection program			1st line	2nd line	Increase	On-station Nurseries (L02 Assignments)
					----- number of clones -----			
X98	125	193	64467	54794	3012	759	331	35
X99		312	74263	46783	3371	0*	152	
X00	76	211	98371	75973	4158	699		
X01	218	247	93019	46325	2902			
X02	200	192	72061					

* These plots were not planted because of extremely wet conditions in 2002.

Table 2. Dates of seedling and line trials planted or harvested in 2003.

Crossing Series	Test	Crop	Date Planted	Date Harvested
X02	Seedlings	Planted	4/4 – 4/15/03	
X02	Progeny Test	Planted	4/14/03	
X01	Seedlings	First Stubble	4/16 -4/24/02	
X01	Progeny Test	First Stubble	4/24/02	
X01	First Line Trials	Planted	9/11 – 9/17/03	
X00	First Line Trials	Plant Cane	9/5 – 9/12/02	
X99	First Line Trials	First Stubble	9/14 - 9/17/01	11/6 – 11/7/03
X99	Second Line Trials	Planted	10/1/03	
X98	Second Line Trials	First Stubble	9/26/01	10/6/03
X97	Second Line Trials	Second Stubble	9/20/00	10/20/03
X99	Light Soil Increase	Planted	10/2/03	
X98	Light Soil Increase	Plant Cane	10/17/02	12/1/03
X97	Light Soil Increase	First Stubble	10/2/01	11/11/03
X96	Light Soil Increase	Second Stubble	9/26/00	10/13/03
X99	Heavy Soil Increase	Planted	10/2/03	
X97	Heavy Soil Increase	First Stubble	10/2/01	11/3/03
X96	Heavy Soil Increase	Second Stubble	9/26/00	10/13/03

Table 3. Numbers of experimental clones dropped for identified faults in the 2000 crossing series first-line trials.

Trait	Fault	
	Frequency	Percent
	----- 4158 clones enter first round of evaluation -----	
Initial Selection (Rating)	2642	63.5
	----- 1516 clones enter second round of evaluation -----	
Rust	3	0.1
Borers	63	1.5
Lodged	400	9.6
Pith / Tube	42	1.0
Short	16	0.4
Diameter	20	0.5
Smut	8	0.2
Other	39	0.9
	----- 3233 clones dropped -----	
	----- 925 clones enter third round of evaluation -----	
Brix	225	5.4
Clones advanced	699	16.8

Table 4. Number of experimental clones dropped for identified faults in the 1999 crossing series of the first stubble first-line trials prior to advancement to the increase stage.

Trait	Fault	
	Frequency	Percent
	----- 394 clones enter first round of evaluation -----	
Stalk count <41 per plot	186	47.2
Lodged	49	12.4
Pith / Tube	4	1.0
Diameter	1	0.3
Smut	1	0.3
Borers	1	0.3
Other	1	0.3
	----- 242 clones dropped -----	
Clones advanced to Increase stage	152	38.6

Table 5. Mean yield data of 2003 “L” assignments from first stubble second-line trial plots.

Variety	Female	Male	Sugar	Cane	Sugar Per	Stalk	Stalk
			Per Acre	Yield	Ton	Weight	Number
			Lbs/A	Tons/A	Lbs/Ton	Lbs	Stalks/A
LCP85-384	CP77-310	CP77-407	7341	42.8	171	1.8	47493
HOCP85-845	CP72-370	CP77-403	6036	34.9	167	1.99	34788
HOCP91-555	CP83-644	LCP82-094	6705	38.4	175	1.96	39779
L2003-362	L96-040	L96-044	7573	41.0	185	1.85	44468
L2003-363	CP83-644	LCP81-010	6651	35.7	186	1.81	39476
L2003-364	L96-060	LCP82-089	8641	47.1	183	1.96	48098
L2003-365	CP83-644	LCP82-089	8237	49.2	168	2.36	41745
L2003-366	HOCP92-624	LCP85-384	7054	38.9	181	2.17	35846
L2003-367	US93-016	L96-045	7487	36.5	205	1.9	38569
L2003-368	LCP85-384	L96-045	6648	36.5	182	1.37	53543
L2003-369	CP83-644	HOCP92-624	10446	58.7	178	2.33	50366
L2003-371	CP83-644	LCP82-089	9057	54.4	166	2.02	53996
L2003-372	CP83-644	LCP81-010	8409	41.0	205	1.99	41291
L2003-373	CP83-644	L95-477	7325	39.5	186	1.71	46283
L2003-374	CP83-644	L95-477	10203	54.0	189	2.17	49913
L2003-375	CP83-644	L95-477	9348	49.9	187	2.12	47190
L2003-376	CP83-644	L95-477	8166	45.0	181	1.74	51728
L2003-377	CP83-644	L95-477	8568	54.3	158	2.63	41291
L2003-378	LCP81-010	L97-149	7853	44.6	176	1.68	53089
L2003-379	MISC	HOCP92-624	6906	36.6	188	2.13	34485
L2003-380	HOCP92-624	LCP85-384	6435	37.5	172	1.64	45829
L2003-381	CP83-644	L95-477	7835	38.4	204	1.86	41291
L2003-382	CP83-644	L95-477	7726	40.6	190	2.3	35393
L2003-385	CP83-644	L95-477	6697	39.9	168	2.05	39023
L2003-386	LCP85-384	LCP82-089	7673	36.4	211	1.79	40838
L2003-387	HOCP92-624	LCP85-384	9397	55.2	170	2.28	48551
L2003-388	HOCP92-648	L97-133	7775	43.4	179	2.28	38115
L2003-389	LCP85-384	LCP82-089	6933	30.0	231	1.79	33578
L2003-390	LCP81-010	HOCP96-550	9847	58.7	168	2.02	58080
L2003-391	MISC	CP78-317	8434	46.3	182	2.43	38115
L2003-392	CP83-644	HOCP85-845	6638	34.1	195	1.65	41291
L2003-393	CP83-644	L95-477	7930	47.9	166	2.27	42199
L2003-394	HO96-566	HOCP92-624	8870	49.4	179	2.4	41291
L2003-395	HO95-988	L89-113	7611	37.9	201	2.35	32216
L2003-396	HOCP92-624	L96-045	8695	47.0	185	2.25	41745
L2003-397	HOCP92-624	L96-045	7102	40.1	177	1.82	44014
L2003-398	L91-255	LCP85-384	7666	41.6	184	1.31	63525
L2003-399	LCP85-384	LCP82-089	7809	35.7	219	1.68	42653

Table 6. Advancement summary of crosses in the 1998 through 2001.

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
<u>1998 Crossing Series</u>										
CP65-357	98P1	234	20	76	0	14	0	22	0	43
CP78-357	HOCP92-624	448	43	84	11	80	5	85	0	43
CP78-357	HOCP96-561	351	24	64	7	71	3	77	0	43
CP79-318	98P3	85	9	86	3	92	0	22	0	43
CP79-318	HOCP85-845	461	7	25	1	30	1	47	0	43
CP79-318	HOCP89-846	207	14	64	1	41	0	22	0	43
CP79-318	HOCP94-836	351	5	24	0	14	0	22	0	43
CP79-318	HOCP95-947	79	0	11	0	14	0	22	0	43
CP79-318	L95-495	593	44	68	2	34	2	50	0	43
CP79-318	LCP82-089	187	16	77	1	43	1	63	0	43
CP79-318	LCP82-089	242	36	96	9	93	2	73	0	43
CP79-318	LCP85-384	251	34	95	16	98	9	98	0	43
CP79-348	US96-006	657	25	41	2	33	0	22	0	43
CP82-550	L96-045	62	0	11	0	14	0	22	0	43
CP83-644	CP79-318	211	9	44	1	40	0	22	0	43
CP83-644	HO94-856	231	0	11	0	14	0	22	0	43
CP83-644	HOCP85-845	964	27	32	3	34	3	49	1	87
CP83-644	HOCP92-624	245	29	90	9	93	4	92	1	94
CP83-644	HOCP95-947	237	0	11	0	14	0	22	0	43
CP83-644	HOCP96-538	246	29	90	5	72	2	69	0	43
CP83-644	L89-113	93	0	11	0	14	0	22	0	43
CP83-644	L95-477	1616	107	62	49	90	26	92	9	98
CP83-644	L95-495	540	0	11	0	14	0	22	0	43
CP83-644	L96-044	225	0	11	0	14	0	22	0	43
CP83-644	LCP81-010	1306	51	42	18	63	6	60	2	88
CP83-644	LCP81-010	232	7	34	2	48	1	58	0	43
CP83-644	LCP82-089	1328	80	56	34	82	20	90	2	88
CP83-644	US80-004	101	8	72	0	14	0	22	0	43
CP85-803	L89-113	221	21	83	9	96	2	80	0	43
HO95-985	HOCP85-845	250	28	88	5	71	1	52	0	43
HO95-985	HOCP85-845	397	7	26	2	42	2	63	0	43
HO95-985	L96-040	227	37	98	6	85	0	22	0	43
HO95-985	LCP81-010	452	9	28	3	44	2	60	0	43
HO95-985	LCP81-010	340	21	57	3	49	1	49	0	43
HO95-985	LCP82-089	238	12	48	3	58	0	22	0	43
HO95-985	LCP85-384	106	12	88	7	98	2	95	0	43
HO95-988	HOCP85-845	250	6	30	1	36	0	22	0	43
HO95-988	L89-113	230	17	68	6	83	4	93	1	97
HO95-988	L94-426	105	14	94	4	95	2	95	0	43
HO95-988	L95-495	109	7	59	1	52	0	22	0	43
HO96-566	HOCP92-624	240	22	82	4	65	2	74	1	95
HO96-566	HOCP96-538	394	48	92	5	58	4	84	0	43
HOCP92-618	LCP81-010	689	0	11	0	14	0	22	0	43
HOCP92-624	HO96-565	91	3	36	0	14	0	22	0	43
HOCP92-624	HOCP85-845	249	20	73	10	95	3	87	0	43
HOCP92-624	HOCP85-845	944	71	69	22	78	8	76	0	43

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
HOCP92-624	HOCP96-509	103	10	85	3	86	0	22	0	43
HOCP92-624	L89-113	427	32	69	10	79	3	68	0	43
HOCP92-624	L96-040	241	35	96	9	94	7	98	0	43
HOCP92-624	L96-045	643	22	38	7	55	6	82	2	92
HOCP92-624	L96-045	240	19	72	1	38	1	55	0	43
HOCP92-624	L97-121	220	17	71	3	62	0	22	0	43
HOCP92-624	LCP85-384	344	24	65	10	86	8	96	2	99
HOCP92-624	LCP85-384	1146	69	56	30	84	7	66	1	86
HOCP92-648	L96-040	234	15	59	5	76	1	58	0	43
HOCP92-648	L97-121	1179	16	24	2	29	1	46	0	43
HOCP92-648	L97-133	242	16	62	1	38	1	55	1	95
HOCP92-648	LCP81-010	564	29	49	3	43	2	51	0	43
HOCP92-648	LCP82-089	92	7	70	2	76	1	85	0	43
HOCP92-654	98P3	621	0	11	0	14	0	22	0	43
HOCP92-654	HOCP85-845	473	0	11	0	14	0	22	0	43
HOCP92-654	L94-426	1215	0	11	0	14	0	22	0	43
HOCP92-654	L96-083	480	0	11	0	14	0	22	0	43
HOCP94-836	HOCP95-998	1135	0	11	0	14	0	22	0	43
HOCP96-500	L89-113	543	20	39	11	72	2	52	0	43
HOCP96-500	LCP81-010	497	17	38	2	36	0	22	0	43
HOCP96-500	LCP81-010	470	30	59	8	66	3	67	0	43
HOCP96-500	LCP85-384	901	47	50	12	61	6	68	0	43
HOCP96-515	HO96-565	227	14	57	4	68	1	59	0	43
HOCP96-519	HOCP95-998	591	42	66	15	82	7	87	0	43
HOCP96-519	HOCP96-538	333	9	31	1	33	0	22	0	43
HOCP96-522	HOCP95-947	236	9	41	1	38	1	56	0	43
HOCP96-522	LCP82-089	508	24	46	8	65	3	65	0	43
HOCP96-538	CP78-317	226	0	11	0	14	0	22	0	43
HOCP96-538	HOCP85-845	455	0	11	0	14	0	22	0	43
HOCP96-538	HOCP92-624	233	0	11	0	14	0	22	0	43
HOCP96-538	LCP82-089	1074	45	44	20	69	9	74	0	43
HOCP96-546	HOCP85-845	395	19	47	1	31	0	22	0	43
HOCP96-546	L96-044	665	0	11	0	14	0	22	0	43
HOCP96-561	L96-045	85	0	11	0	14	0	22	0	43
L89-113	LCP82-089	713	27	41	10	63	6	75	0	43
L89-163	HOCP94-836	111	6	51	0	14	0	22	0	43
L89-163	HOCP95-947	430	60	95	13	89	4	81	0	43
L89-163	LCP81-010	1296	14	23	2	28	1	45	0	43
L91-255	HOCP96-561	650	0	11	0	14	0	22	0	43
L91-255	L89-113	384	0	11	0	14	0	22	0	43
L91-255	LCP85-384	533	35	62	9	66	6	86	1	90
L94-428	LCP86-454	234	0	11	0	14	0	22	0	43
L95-461	HO94-856	500	52	85	15	88	3	65	0	43
L95-461	HOCP92-624	244	8	36	3	57	0	22	0	43
L95-461	HOCP94-836	247	7	32	1	36	1	53	0	43
L95-495	CP78-2114	93	5	51	0	14	0	22	0	43
L95-495	HO96-565	220	13	55	2	51	0	22	0	43

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
L95-495	HOCP85-845	374	0	11	0	14	0	22	0	43
L95-495	HOCP96-500	224	0	11	0	14	0	22	0	43
L95-495	L89-113	414	45	87	13	90	4	82	0	43
L95-495	L96-045	196	0	11	0	14	0	22	0	43
L95-495	L96-083	77	10	93	1	61	0	22	0	43
L96-040	L96-044	694	58	75	12	67	7	84	1	87
L96-040	L97-149	229	0	11	0	14	0	22	0	43
L96-040	LCP82-089	567	67	90	17	88	9	91	0	43
L96-040	US96-006	245	22	81	5	73	2	70	0	43
L96-045	HOCP85-845	108	8	68	2	69	1	80	0	43
L96-060	HOCP95-998	227	0	11	0	14	0	22	0	43
L96-060	L95-495	349	6	26	1	32	0	22	0	43
L96-060	LCP82-089	344	14	43	3	49	3	78	1	91
L96-072	HOCP85-845	234	12	49	2	47	0	22	0	43
L96-072	HOCP89-846	100	0	11	0	14	0	22	0	43
L96-072	LCP82-089	392	32	74	13	91	5	88	0	43
L96-078	HOCP95-947	107	9	75	1	53	0	22	0	43
L97-104	L97-146	444	29	60	4	50	1	48	0	43
L97-104	LCP82-089	241	21	79	6	81	3	88	0	43
L97-113	L96-044	97	3	34	2	74	0	22	0	43
L97-113	LCP81-010	244	1	23	0	14	0	22	0	43
L97-121	HOCP92-624	101	17	98	7	99	4	99	0	43
L97-121	HOCP96-561	882	40	45	8	51	5	64	0	43
L97-121	LCP81-010	237	26	87	5	75	2	76	0	43
L97-128	HOCP95-998	235	8	38	0	14	0	22	0	43
L97-128	LCP81-010	899	17	27	6	45	2	47	0	43
L97-146	LCP85-384	219	18	74	9	96	3	90	0	43
L97-149	LCP81-010	225	0	11	0	14	0	22	0	43
LCP81-010	HOCP96-550	235	8	38	3	59	1	57	1	96
LCP81-010	L95-495	225	5	29	0	14	0	22	0	43
LCP81-010	L97-149	343	24	65	6	68	3	79	1	92
LCP81-010	LCP82-089	1194	4	22	2	29	1	46	0	43
LCP82-089	HOCP96-527	427	0	11	0	14	0	22	0	43
LCP82-089	L89-113	746	0	11	0	14	0	22	0	43
LCP82-089	LCP86-454	166	0	11	0	14	0	22	0	43
LCP85-384	CP78-2114	314	23	66	6	70	2	66	0	43
LCP85-384	L96-045	221	28	92	6	85	4	94	1	98
LCP85-384	LCP82-089	1223	192	97	28	77	10	71	2	89
LCP85-384	LCP82-089	237	40	99	7	87	5	96	1	96
LCP85-384	LCP86-454	211	7	36	2	53	1	61	0	43
LCP86-429	L94-428	753	16	28	2	31	0	22	0	43
LCP87-492	CP78-2114	203	26	93	7	92	2	83	0	43
MISC	98P2	231	13	52	3	61	2	77	0	43
MISC	CP78-317	245	21	77	2	46	1	53	1	94
MISC	HOCP85-845	600	35	54	14	78	8	89	0	43
MISC	HOCP92-624	404	35	79	10	80	7	93	1	90
MISC	HOCP96-500	219	19	79	2	51	0	22	0	43

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
MISC	L89-113	486	25	49	5	54	4	72	0	43
MISC	L89-163	251	23	82	1	36	0	22	0	43
MISC	L94-426	243	23	83	11	97	6	97	0	43
MISC	L95-495	198	8	42	3	64	0	22	0	43
MISC	L96-044	229	13	53	5	77	2	79	0	43
MISC	L96-045	243	29	91	5	74	1	54	0	43
MISC	L97-146	241	14	54	2	46	2	73	0	43
MISC	LCP81-010	101	9	80	0	14	0	22	0	43
MISC	LCP85-384	243	16	62	3	57	2	72	0	43
MISC	LCP86-454	214	5	30	1	40	1	61	0	43
US77-017	HOC85-845	235	7	34	3	59	1	57	0	43
US77-017	HOC92-624	247	20	73	3	56	0	22	0	43
US93-015	CP78-2114	228	0	11	0	14	0	22	0	43
US93-015	L96-044	252	0	11	0	14	0	22	0	43
US93-016	CP78-2114	203	12	55	1	42	1	62	0	43
US93-016	L95-495	583	28	47	5	48	2	50	0	43
US93-016	L96-045	247	11	45	3	56	2	69	1	93
US93-016	LCP86-454	38	1	31	1	84	0	22	0	43
US96-006	CP78-2114	234	0	11	0	14	0	22	0	43
US96-006	L97-121	241	0	11	0	14	0	22	0	43
US96-006	L97-155	102	0	11	0	14	0	22	0	43
US96-006	US96-006	206	18	79	1	42	0	22	0	43

1999 Crossing Series

CP65-357	L95-482	407	16	50	.	.	1	71	.	.
CP65-357	LCP85-384	94	20	99	.	.	3	99	.	.
CP65-357	LCP85-384	190	24	95	.	.	3	97	.	.
CP70-321	LCP82-089	176	3	31	.	.	0	33	.	.
CP72-370	HO95-988	469	24	62	.	.	0	33	.	.
CP77-405	HOC92-618	185	0	12	.	.	0	33	.	.
CP77-405	HOC95-931	178	0	12	.	.	0	33	.	.
CP77-405	HOC97-621	393	17	56	.	.	0	33	.	.
CP77-405	L90-191	197	0	12	.	.	0	33	.	.
CP77-405	L94-426	207	1	25	.	.	0	33	.	.
CP77-405	L94-428	377	0	12	.	.	0	33	.	.
CP77-405	L94-428	354	0	12	.	.	0	33	.	.
CP77-405	L96-040	377	0	12	.	.	0	33	.	.
CP77-405	LCP85-384	176	0	12	.	.	0	33	.	.
CP77-405	US90-018	182	0	12	.	.	0	33	.	.
CP78-357	HOC92-618	207	23	92	.	.	0	33	.	.
CP78-357	L94-432	1106	75	73	.	.	4	79	.	.
CP78-357	L96-030	214	21	90	.	.	1	82	.	.
CP78-357	US90-018	188	6	41	.	.	0	33	.	.
CP79-318	HO95-988	375	0	12	.	.	0	33	.	.
CP79-318	HOC94-806	232	2	26	.	.	0	33	.	.
CP79-318	HOC95-931	162	0	12	.	.	0	33	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
CP79-318	L97-137	544	20	47	.	.	0	33	.	.
CP79-318	LCP81-010	214	0	12	.	.	0	33	.	.
CP79-318	LCP85-384	698	32	58	.	.	2	75	.	.
CP79-318	LCP85-384	407	17	55	.	.	0	33	.	.
CP79-318	LCP85-384	161	28	98	.	.	1	89	.	.
CP79-348	HOCP92-618	211	0	12	.	.	0	33	.	.
CP79-348	L94-426	1079	18	31	.	.	1	66	.	.
CP82-550	LCP81-010	84	3	45	.	.	0	33	.	.
CP83-644	HOCP97-621	93	2	35	.	.	0	33	.	.
CP83-644	L91-255	194	14	75	.	.	0	33	.	.
CP83-644	L91-255	399	27	73	.	.	0	33	.	.
CP83-644	L96-030	64	12	98	.	.	0	33	.	.
CP83-644	L96-040	140	11	80	.	.	1	91	.	.
CP83-644	L96-063	435	33	77	.	.	3	90	.	.
CP83-644	L98-207	141	7	60	.	.	0	33	.	.
CP83-644	LCP81-010	384	16	55	.	.	0	33	.	.
CP83-644	LCP82-089	347	23	71	.	.	0	33	.	.
CP83-644	LCP85-384	398	0	12	.	.	0	33	.	.
CP88-702	HOCP92-618	179	6	43	.	.	2	94	.	.
CP88-702	L94-428	243	7	39	.	.	0	33	.	.
CP88-702	LCP86-454	86	2	36	.	.	0	33	.	.
CP89-879	HOCP92-618	213	9	55	.	.	1	83	.	.
CP89-879	L91-255	347	24	74	.	.	0	33	.	.
CP89-879	L94-426	212	6	38	.	.	1	83	.	.
CP89-879	L94-428	413	51	94	.	.	3	91	.	.
CP89-879	L94-428	148	0	12	.	.	0	33	.	.
CP89-879	L96-030	221	18	81	.	.	1	81	.	.
CP89-879	LCP81-010	237	12	62	.	.	0	33	.	.
CP89-879	LCP81-010	210	4	32	.	.	0	33	.	.
HO89-889	LCP85-384	730	42	67	.	.	1	67	.	.
HO95-985	CP77-405	232	18	79	.	.	0	33	.	.
HO95-985	HOCP85-845	163	9	65	.	.	1	89	.	.
HO95-985	HOCP95-931	190	3	31	.	.	0	33	.	.
HO95-985	L91-255	376	29	78	.	.	1	72	.	.
HO95-985	L94-426	200	15	76	.	.	0	33	.	.
HO95-985	L94-428	190	10	63	.	.	0	33	.	.
HO95-985	L98-209	236	12	62	.	.	2	91	.	.
HO95-985	LCP85-384	168	27	97	.	.	2	95	.	.
HO95-988	LCP82-089	181	0	12	.	.	0	33	.	.
HO96-565	HOCP92-618	206	14	73	.	.	1	86	.	.
HO96-565	LCP85-384	152	21	96	.	.	1	89	.	.
HOCP85-845	99P3	194	0	12	.	.	0	33	.	.
HOCP85-845	L97-137	209	18	83	.	.	0	33	.	.
HOCP89-846	L94-428	374	20	63	.	.	1	73	.	.
HOCP92-618	LCP85-384	218	9	53	.	.	0	33	.	.
HOCP92-624	99P4	170	7	53	.	.	0	33	.	.
HOCP92-624	HO89-889	431	53	94	.	.	6	96	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
HOCP92-624	HOCP85-845	238	15	69	.	.	0	33	.	.
HOCP92-624	HOCP92-618	83	3	45	.	.	0	33	.	.
HOCP92-624	HOCP95-931	206	0	12	.	.	0	33	.	.
HOCP92-624	L75-056	453	0	12	.	.	0	33	.	.
HOCP92-624	L91-255	366	35	89	.	.	2	87	.	.
HOCP92-624	L94-426	185	12	70	.	.	0	33	.	.
HOCP92-624	L94-428	168	9	64	.	.	0	33	.	.
HOCP92-624	L95-482	433	16	47	.	.	1	70	.	.
HOCP92-624	L97-137	407	23	66	.	.	0	33	.	.
HOCP92-624	LCP81-010	789	17	35	.	.	1	67	.	.
HOCP92-624	LCP85-384	86	7	81	.	.	2	98	.	.
HOCP92-624	LCP86-454	634	48	77	.	.	0	33	.	.
HOCP92-648	HOCP95-931	233	37	97	.	.	1	80	.	.
HOCP92-648	HOCP96-509	362	0	12	.	.	0	33	.	.
HOCP92-648	L91-255	204	7	43	.	.	0	33	.	.
HOCP92-648	L96-063	359	27	76	.	.	0	33	.	.
HOCP92-648	LCP85-384	625	64	91	.	.	9	97	.	.
HOCP92-648	LCP85-384	627	29	58	.	.	2	78	.	.
HOCP92-648	US90-018	219	9	53	.	.	2	92	.	.
HOCP94-806	HOCP85-845	453	34	76	.	.	1	69	.	.
HOCP94-806	HOCP92-618	389	34	84	.	.	1	71	.	.
HOCP94-806	HOCP97-621	91	1	27	.	.	0	33	.	.
HOCP94-806	HOCP97-621	420	36	83	.	.	4	93	.	.
HOCP95-931	L75-056	638	35	65	.	.	3	83	.	.
HOCP96-509	HO89-889	170	7	53	.	.	0	33	.	.
HOCP96-509	HOCP92-618	227	5	35	.	.	0	33	.	.
HOCP96-509	L75-056	460	56	93	.	.	5	94	.	.
HOCP96-509	L94-428	204	8	50	.	.	0	33	.	.
HOCP96-509	L94-432	352	10	38	.	.	1	75	.	.
HOCP96-509	L95-482	151	14	87	.	.	1	90	.	.
HOCP96-509	L97-117	523	44	82	.	.	1	68	.	.
HOCP96-509	LCP85-384	351	7	33	.	.	0	33	.	.
HOCP96-518	LCP85-384	306	0	12	.	.	0	33	.	.
HOCP96-519	L94-428	213	1	25	.	.	0	33	.	.
HOCP96-519	LCP86-454	239	0	12	.	.	0	33	.	.
HOCP96-522	HO95-988	392	19	59	.	.	0	33	.	.
HOCP96-522	HOCP92-618	83	0	12	.	.	0	33	.	.
HOCP96-522	L91-255	76	7	86	.	.	1	96	.	.
HOCP96-522	L95-482	332	5	30	.	.	1	77	.	.
HOCP96-522	L96-026	215	0	12	.	.	0	33	.	.
HOCP96-522	L98-209	155	9	67	.	.	0	33	.	.
HOCP96-522	LCP82-089	325	14	56	.	.	1	78	.	.
HOCP96-522	LCP85-384	219	21	89	.	.	0	33	.	.
HOCP96-522	LCP85-384	1031	71	74	.	.	0	33	.	.
HOCP96-522	US96-001	203	32	97	.	.	0	33	.	.
HOCP96-525	L94-428	394	0	12	.	.	0	33	.	.
HOCP96-525	L94-432	344	0	12	.	.	0	33	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
HOCP96-525	LCP85-384	460	0	12	.	.	0	33	.	.
HOCP97-609	HOCP85-845	224	19	82	.	.	4	97	.	.
HOCP97-609	HOCP97-621	431	40	87	.	.	0	33	.	.
HOCP97-609	L94-426	140	0	12	.	.	0	33	.	.
HOCP97-609	LCP86-454	211	15	75	.	.	1	84	.	.
HOCP97-620	LCP81-030	355	28	80	.	.	0	33	.	.
HOCP97-621	HOCP85-845	389	0	12	.	.	0	33	.	.
HOCP97-621	LCP85-384	1086	40	47	.	.	2	67	.	.
HOCP97-641	HOCP94-806	234	11	58	.	.	0	33	.	.
HOCP97-646	L75-056	361	7	32	.	.	1	74	.	.
HOCP97-646	L95-482	170	2	28	.	.	0	33	.	.
HOCP97-670	L94-432	229	13	66	.	.	0	33	.	.
HOCP97-670	L94-432	173	19	91	.	.	1	88	.	.
HOCP97-697	L94-426	194	7	45	.	.	0	33	.	.
L75-056	L98-207	243	19	79	.	.	0	33	.	.
L89-113	HO95-988	388	26	72	.	.	4	94	.	.
L89-113	HOCP85-845	178	6	43	.	.	0	33	.	.
L89-113	HOCP92-618	435	17	50	.	.	1	69	.	.
L89-113	L91-255	399	0	12	.	.	0	33	.	.
L89-113	L94-428	462	0	12	.	.	0	33	.	.
L89-113	L94-428	423	17	51	.	.	0	33	.	.
L89-113	L94-432	366	0	12	.	.	0	33	.	.
L89-113	LCP82-089	197	4	33	.	.	0	33	.	.
L90-191	HOCP94-806	85	3	44	.	.	2	98	.	.
L90-191	LCP82-089	222	0	12	.	.	0	33	.	.
L91-255	HO89-889	375	6	31	.	.	0	33	.	.
L91-255	HOCP95-931	167	5	40	.	.	0	33	.	.
L91-255	L94-428	195	3	30	.	.	0	33	.	.
L91-255	LCP82-089	413	0	12	.	.	0	33	.	.
L91-255	LCP82-089	359	28	79	.	.	1	74	.	.
L91-255	LCP85-384	646	79	93	.	.	6	93	.	.
L91-255	US90-018	207	5	37	.	.	0	33	.	.
L94-426	HOCP85-845	175	5	39	.	.	0	33	.	.
L94-426	LCP82-089	224	3	28	.	.	0	33	.	.
L94-426	LCP85-384	225	17	77	.	.	1	81	.	.
L94-428	LCP86-454	150	0	12	.	.	0	33	.	.
L94-432	CP78-357	326	28	83	.	.	1	77	.	.
L94-432	HO95-988	176	0	12	.	.	0	33	.	.
L94-432	HOCP85-845	183	7	48	.	.	1	87	.	.
L94-432	HOCP92-618	407	0	12	.	.	0	33	.	.
L94-432	HOCP97-621	323	14	56	.	.	1	78	.	.
L94-432	HOCP97-670	221	0	12	.	.	0	33	.	.
L94-432	L91-255	203	8	50	.	.	0	33	.	.
L94-432	L98-209	342	23	72	.	.	1	76	.	.
L94-432	LCP85-384	690	64	87	.	.	6	92	.	.
L94-432	US93-015	189	7	47	.	.	0	33	.	.
L95-482	LCP82-089	542	13	37	.	.	0	33	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
L96-026	CP83-644	158	0	12	.	.	0	33	.	.
L96-026	HO95-988	504	33	70	.	.	1	68	.	.
L96-026	HOCP85-845	198	0	12	.	.	0	33	.	.
L96-026	HOCP85-845	302	12	51	.	.	1	79	.	.
L96-026	HOCP97-670	421	28	72	.	.	2	84	.	.
L96-026	L91-255	340	11	41	.	.	0	33	.	.
L96-026	LCP81-010	237	0	12	.	.	0	33	.	.
L96-026	LCP82-089	190	0	12	.	.	0	33	.	.
L96-030	HO95-988	193	18	87	.	.	0	33	.	.
L96-030	HOCP96-525	208	9	56	.	.	0	33	.	.
L96-040	HOCP95-931	404	0	12	.	.	0	33	.	.
L96-040	L94-426	206	7	43	.	.	1	86	.	.
L96-092	HOCP96-525	160	0	12	.	.	0	33	.	.
L97-113	HOCP85-845	167	24	96	.	.	2	95	.	.
L97-113	L91-255	188	0	12	.	.	0	33	.	.
L97-113	LCP81-010	205	16	79	.	.	1	86	.	.
L97-113	US96-005	425	5	28	.	.	0	33	.	.
L97-117	L94-432	197	0	12	.	.	0	33	.	.
L97-121	L94-428	231	3	28	.	.	1	81	.	.
L97-121	L94-432	158	18	92	.	.	0	33	.	.
L97-121	US90-018	227	9	51	.	.	0	33	.	.
L97-128	HO95-988	420	37	85	.	.	1	70	.	.
L97-128	L91-255	473	0	12	.	.	0	33	.	.
L97-128	LCP85-384	859	0	12	.	.	0	33	.	.
L97-137	US96-001	194	6	41	.	.	0	33	.	.
L97-142	HO95-988	390	0	12	.	.	0	33	.	.
L97-142	HO95-988	215	0	12	.	.	0	33	.	.
L97-142	LCP82-089	195	0	12	.	.	0	33	.	.
L97-143	L94-428	166	6	45	.	.	0	33	.	.
L97-147	L94-432	165	15	85	.	.	0	33	.	.
L98-191	HOCP97-621	87	10	93	.	.	0	33	.	.
L98-207	HOCP85-845	200	6	40	.	.	0	33	.	.
L98-207	HOCP92-618	329	17	63	.	.	0	33	.	.
L98-207	L94-428	372	0	12	.	.	0	33	.	.
L98-207	L94-432	816	41	60	.	.	2	70	.	.
L98-207	LCP81-010	379	24	69	.	.	1	72	.	.
LCP81-010	HOCP95-931	208	0	12	.	.	0	33	.	.
LCP81-010	HOCP97-621	402	8	33	.	.	0	33	.	.
LCP81-010	L91-255	417	24	67	.	.	2	85	.	.
LCP81-010	L94-432	1029	0	12	.	.	0	33	.	.
LCP81-010	LCP81-030	208	0	12	.	.	0	33	.	.
LCP81-010	LCP85-384	1113	110	91	.	.	0	33	.	.
LCP81-010	LCP85-384	1564	64	53	.	.	1	66	.	.
LCP81-030	L94-432	112	0	12	.	.	0	33	.	.
LCP82-089	HOCP97-621	182	11	68	.	.	0	33	.	.
LCP85-384	99P3	387	37	89	.	.	1	72	.	.
LCP86-454	99P4	238	7	39	.	.	0	33	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
LCP86-454	HO95-988	599	13	35	.	.	0	33	.	.
LCP86-454	L96-040	146	0	12	.	.	0	33	.	.
LCP86-454	LCP85-384	207	19	86	.	.	1	85	.	.
LCP86-454	LCP85-384	1098	103	88	.	.	4	80	.	.
LHO83-153	LCP82-089	192	10	63	.	.	0	33	.	.
LHO83-153	LCP85-384	189	18	89	.	.	0	33	.	.
TUCCP77-042	LCP85-384	6	6	99	.	.	6	99	.	.
US79-010	HOCP85-845	348	20	66	.	.	1	75	.	.
US79-010	HOCP92-618	219	14	70	.	.	0	33	.	.
US79-010	L94-426	206	0	12	.	.	0	33	.	.
US79-010	LCP85-384	186	9	59	.	.	0	33	.	.
US79-010	LCP86-454	439	56	95	.	.	2	82	.	.
US80-004	HOCP92-618	71	1	29	.	.	0	33	.	.
US80-004	L94-428	188	7	47	.	.	0	33	.	.
US90-018	HOCP85-845	409	2	25	.	.	0	33	.	.
US90-018	L94-428	364	13	45	.	.	1	73	.	.
US90-018	L94-428	515	12	36	.	.	0	33	.	.
US90-021	LCP81-010	179	11	68	.	.	1	88	.	.
US90-021	LCP81-030	206	0	12	.	.	0	33	.	.
US93-016	L94-426	192	9	58	.	.	0	33	.	.
US93-016	L94-428	267	0	12	.	.	0	33	.	.
US93-016	L94-428	205	10	60	.	.	0	33	.	.
US93-016	LCP85-384	101	2	33	.	.	0	33	.	.
US93-016	LCP85-384	181	2	27	.	.	0	33	.	.
US96-001	US90-018	340	30	85	.	.	1	76	.	.
US96-005	L94-428	379	15	51	.	.	0	33	.	.
<u>2000 Crossing Series</u>										
CP65-357	L91-255	429	30	79	2	55	.	.	.	.
CP65-357	LCP85-384	984	40	53	6	58	.	.	.	.
CP77-405	L96-040	249	8	42	1	38	.	.	.	.
CP77-405	L98-197	242	16	77	3	80	.	.	.	.
CP77-405	L98-209	483	7	18	1	31	.	.	.	.
CP77-405	LCP85-384	940	20	29	3	35	.	.	.	.
CP78-317	L98-209	496	14	37	2	38	.	.	.	.
CP78-317	L99-229	245	22	91	3	77	.	.	.	.
CP78-317	LCP85-384	493	21	55	1	29	.	.	.	.
CP79-318	HOCP92-618	251	8	42	0	13	.	.	.	.
CP79-318	L96-040	243	16	77	0	13	.	.	.	.
CP79-318	L98-207	254	10	50	1	37	.	.	.	.
CP79-318	L98-209	249	5	27	3	75	.	.	.	.
CP79-318	L99-233	962	18	25	5	56	.	.	.	.
CP79-318	LCP85-384	727	9	18	0	13	.	.	.	.
CP83-644	HOCP97-609	251	10	51	4	89	.	.	.	.
CP89-846	LCP85-384	249	12	61	4	90	.	.	.	.
HO91-572	L94-428	250	2	16	0	13	.	.	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
HO91-572	LCP85-384	688	41	72	4	57	.	.	.	.
HO91-572	LCP87-492	244	0	6	0	13	.	.	.	.
HO95-988	HOC85-845	241	11	59	1	41	.	.	.	.
HO95-988	HOC96-561	249	5	27	0	13	.	.	.	.
HO95-988	L90-191	227	14	74	1	51	.	.	.	.
HO95-988	L94-433	426	27	75	9	93	.	.	.	.
HO95-988	L96-040	480	0	6	0	13	.	.	.	.
HO95-988	L98-207	733	31	54	4	56	.	.	.	.
HO95-988	L98-209	247	6	31	1	38	.	.	.	.
HO95-988	LCP85-384	1047	77	82	9	70	.	.	.	.
HOC85-845	HOC92-624	241	15	74	5	92	.	.	.	.
HOC85-845	HOC96-540	507	21	53	1	29	.	.	.	.
HOC85-845	L89-113	254	1	14	0	13	.	.	.	.
HOC85-845	L91-255	220	5	30	0	13	.	.	.	.
HOC85-845	L98-209	470	0	6	0	13	.	.	.	.
HOC85-845	LCP85-384	2348	129	68	11	55	.	.	.	.
HOC91-522	US80-004	194	14	81	2	73	.	.	.	.
HOC91-552	L90-191	182	3	21	0	13	.	.	.	.
HOC91-552	L91-255	476	34	80	5	74	.	.	.	.
HOC91-552	L94-432	211	9	55	1	55	.	.	.	.
HOC91-552	L99-233	912	26	39	3	36	.	.	.	.
HOC92-618	HOC96-540	697	63	91	9	82	.	.	.	.
HOC92-618	L99-233	245	3	18	0	13	.	.	.	.
HOC92-624	HOC85-845	477	16	45	2	45	.	.	.	.
HOC92-624	HOC92-618	251	17	79	2	64	.	.	.	.
HOC92-624	HOC96-522	241	9	47	3	80	.	.	.	.
HOC92-624	HOC96-540	977	82	88	10	73	.	.	.	.
HOC92-624	HOC96-561	473	2	14	0	13	.	.	.	.
HOC92-624	HOC97-601	249	11	56	2	64	.	.	.	.
HOC92-624	HOC97-609	498	46	92	16	96	.	.	.	.
HOC92-624	HOC97-621	486	14	39	3	59	.	.	.	.
HOC92-624	L89-113	735	44	72	5	61	.	.	.	.
HOC92-624	L91-255	1185	106	90	26	94	.	.	.	.
HOC92-624	L91-281	239	29	98	2	67	.	.	.	.
HOC92-624	L98-197	483	40	87	7	85	.	.	.	.
HOC92-624	L98-209	236	8	45	2	69	.	.	.	.
HOC92-624	L99-226	239	8	43	2	67	.	.	.	.
HOC92-624	LCP85-384	2371	110	59	20	67	.	.	.	.
HOC92-624	LCP85-384	715	32	57	3	45	.	.	.	.
HOC92-624	LCP86-454	665	26	50	4	57	.	.	.	.
HOC92-624	US80-004	252	7	37	1	38	.	.	.	.
HOC92-648	HOC85-845	243	6	33	4	90	.	.	.	.
HOC92-648	HOC92-624	228	8	46	3	84	.	.	.	.
HOC92-648	L91-281	246	23	92	3	77	.	.	.	.
HOC92-648	L93-363	238	7	39	2	67	.	.	.	.
HOC92-648	L96-040	230	15	76	2	71	.	.	.	.
HOC92-648	L98-209	238	2	16	0	13	.	.	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
HOCP92-648	LCP85-384	700	34	62	5	62	.	.	.	.
HOCP94-867	L99-226	227	36	99	3	84	.	.	.	.
HOCP95-950	LCP85-384	482	10	29	2	41	.	.	.	.
HOCP95-951	HOCP96-540	247	0	6	0	13	.	.	.	.
HOCP95-951	LCP85-384	732	24	43	5	61	.	.	.	.
HOCP96-522	CP78-317	501	20	51	1	29	.	.	.	.
HOCP96-522	HOCP96-561	453	38	88	6	84	.	.	.	.
HOCP96-522	L91-255	498	28	70	3	57	.	.	.	.
HOCP96-522	L94-432	223	9	51	2	72	.	.	.	.
HOCP96-522	LCP85-384	973	78	86	8	64	.	.	.	.
HOCP96-522	LCP85-384	615	0	6	0	13	.	.	.	.
HOCP96-540	HOCP85-845	222	10	57	0	13	.	.	.	.
HOCP96-540	HOCP91-552	232	26	95	6	95	.	.	.	.
HOCP96-540	HOCP92-624	245	0	6	0	13	.	.	.	.
HOCP96-540	L91-281	398	0	6	0	13	.	.	.	.
HOCP96-540	L92-312	248	0	6	0	13	.	.	.	.
HOCP96-540	L94-433	243	0	6	0	13	.	.	.	.
HOCP96-540	L99-229	219	0	6	0	13	.	.	.	.
HOCP96-540	US96-001	216	0	6	0	13	.	.	.	.
HOCP96-561	HOCP92-624	244	21	89	9	97	.	.	.	.
HOCP96-561	L99-229	251	19	84	4	89	.	.	.	.
HOCP96-561	L99-233	776	26	45	6	63	.	.	.	.
HOCP97-601	HOCP92-618	245	11	57	3	77	.	.	.	.
HOCP97-606	LCP85-384	486	9	25	2	41	.	.	.	.
HOCP97-609	HOCP85-845	229	6	34	3	83	.	.	.	.
HOCP97-609	HOCP92-624	469	0	6	0	13	.	.	.	.
HOCP97-609	HOCP97-621	215	13	72	1	55	.	.	.	.
HOCP97-609	L91-255	483	19	50	4	65	.	.	.	.
HOCP97-609	LCP81-010	235	1	14	0	13	.	.	.	.
HOCP97-609	LCP85-384	227	9	51	1	51	.	.	.	.
HOCP97-621	HOCP96-540	249	0	6	0	13	.	.	.	.
HOCP97-621	LCP85-384	946	26	36	7	62	.	.	.	.
HOCP97-645	L98-197	234	12	65	5	94	.	.	.	.
HOCP97-645	L99-226	469	37	85	1	31	.	.	.	.
HOCP98-743	L98-209	675	0	6	0	13	.	.	.	.
HOCP98-743	L99-226	236	0	6	0	13	.	.	.	.
HOCP98-776	HOCP97-621	240	16	78	1	45	.	.	.	.
HOCP98-776	L91-281	250	4	21	0	13	.	.	.	.
HOCP98-776	LCP81-010	711	15	29	2	34	.	.	.	.
L89-113	L96-040	230	32	99	13	99	.	.	.	.
L89-113	LCP85-384	482	32	77	10	92	.	.	.	.
L90-191	LCP85-384	239	18	83	2	67	.	.	.	.
L90-191	US96-001	236	0	6	0	13	.	.	.	.
L91-255	HOCP85-845	481	12	33	1	31	.	.	.	.
L91-255	L96-040	447	0	6	0	13	.	.	.	.
L91-255	LCP85-384	710	36	65	2	34	.	.	.	.
L91-281	L91-255	242	18	82	1	41	.	.	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
L91-281	L96-040	247	4	21	0	13	.	.	.	.
L91-281	L98-197	476	17	47	3	60	.	.	.	.
L91-281	L98-209	461	35	84	5	75	.	.	.	.
L91-281	L99-237	238	23	93	5	92	.	.	.	.
L91-281	LCP85-384	1205	60	63	5	41	.	.	.	.
L93-363	HOC92-618	239	0	6	0	13	.	.	.	.
L93-363	L96-040	477	24	63	4	67	.	.	.	.
L93-363	LCP85-384	243	7	39	3	78	.	.	.	.
L93-399	HOC85-845	489	24	62	6	78	.	.	.	.
L93-399	HOC91-552	237	12	65	3	81	.	.	.	.
L93-399	L99-226	233	6	34	1	49	.	.	.	.
L94-426	L96-040	248	7	37	3	76	.	.	.	.
L94-426	L98-209	249	11	56	0	13	.	.	.	.
L94-426	L99-224	234	13	70	1	49	.	.	.	.
L94-426	L99-233	234	9	48	0	13	.	.	.	.
L94-426	LCP85-384	947	25	34	3	35	.	.	.	.
L94-426	LCP86-454	237	19	86	5	93	.	.	.	.
L94-428	HOC97-601	472	16	45	2	45	.	.	.	.
L94-428	L91-281	241	32	98	10	98	.	.	.	.
L94-428	L94-433	234	18	85	1	49	.	.	.	.
L94-428	L99-226	226	12	67	1	51	.	.	.	.
L94-428	LCP81-010	675	16	31	0	13	.	.	.	.
L94-428	LCP85-384	712	39	68	1	28	.	.	.	.
L94-432	HOC85-845	244	5	27	1	41	.	.	.	.
L96-040	HOC98-776	471	0	6	0	13	.	.	.	.
L96-040	LCP81-010	242	15	74	3	80	.	.	.	.
L96-040	LCP85-384	1193	36	41	4	37	.	.	.	.
L97-128	HOC85-845	237	2	16	0	13	.	.	.	.
L97-128	HOC92-618	237	15	75	0	13	.	.	.	.
L97-128	L91-281	993	119	97	13	83	.	.	.	.
L97-128	L93-363	479	52	94	18	98	.	.	.	.
L97-128	L99-229	471	53	96	6	81	.	.	.	.
L97-128	L99-233	199	22	95	3	87	.	.	.	.
L97-128	LCP81-010	699	33	60	3	49	.	.	.	.
L97-128	LCP87-492	468	40	89	4	69	.	.	.	.
L97-128	US80-004	236	12	65	0	13	.	.	.	.
L97-128	US96-001	476	32	78	3	60	.	.	.	.
L98-158	L99-233	225	11	62	1	51	.	.	.	.
L98-197	HOC96-522	204	0	6	0	13	.	.	.	.
L98-197	US99-002	225	0	6	0	13	.	.	.	.
L98-198	HOC97-621	445	26	71	5	75	.	.	.	.
L98-198	US79-010	474	35	82	2	45	.	.	.	.
L98-207	CP79-318	702	11	21	2	34	.	.	.	.
L98-207	L92-312	250	25	93	4	89	.	.	.	.
L98-209	L94-428	238	0	6	0	13	.	.	.	.
L98-209	L99-233	476	9	25	3	60	.	.	.	.
L98-209	LCP85-384	461	0	6	0	13	.	.	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
L99-224	L99-226	240	14	71	2	65	.	.	.	.
L99-224	L99-233	234	8	45	2	69	.	.	.	.
L99-226	HOC96-522	231	23	93	2	71	.	.	.	.
L99-226	L99-233	711	14	27	3	45	.	.	.	.
L99-226	LCP85-384	688	0	6	0	13	.	.	.	.
L99-229	LCP81-010	240	11	59	1	45	.	.	.	.
L99-229	LCP85-384	474	19	51	7	87	.	.	.	.
L99-233	LCP85-384	838	52	74	25	95	.	.	.	.
LCP81-010	CP78-317	458	1	13	0	13	.	.	.	.
LCP81-010	HOC85-845	439	8	24	1	33	.	.	.	.
LCP81-010	HOC96-561	186	7	48	0	13	.	.	.	.
LCP81-010	HOC97-609	475	11	30	7	86	.	.	.	.
LCP81-010	HOC97-621	229	4	23	1	51	.	.	.	.
LCP81-010	L92-312	243	13	67	3	78	.	.	.	.
LCP81-010	L94-428	239	13	67	1	45	.	.	.	.
LCP81-010	L96-040	239	6	33	0	13	.	.	.	.
LCP81-010	L98-207	705	12	23	1	28	.	.	.	.
LCP81-010	L99-233	817	13	21	1	27	.	.	.	.
LCP81-010	LCP85-384	1687	122	81	26	88	.	.	.	.
LCP81-010	US96-001	236	7	41	0	13	.	.	.	.
LCP81-010	US99-002	221	11	63	0	13	.	.	.	.
LCP81-030	HOC85-845	249	7	37	1	38	.	.	.	.
LCP85-384	CP79-318	243	0	6	0	13	.	.	.	.
LCP85-384	HOC92-624	236	0	6	0	13	.	.	.	.
LCP85-384	HOC96-540	720	53	82	22	96	.	.	.	.
LCP85-384	L93-363	224	18	86	2	72	.	.	.	.
LCP85-384	L94-433	712	21	39	3	45	.	.	.	.
LCP85-384	L99-226	757	0	6	0	13	.	.	.	.
LCP85-384	LCP86-454	943	18	25	1	27	.	.	.	.
LCP86-454	L99-226	710	26	47	5	62	.	.	.	.
LCP86-454	L99-234	252	6	31	0	13	.	.	.	.
LCP86-454	LCP85-384	1861	157	88	27	85	.	.	.	.
LCP87-492	HOC97-609	241	29	97	12	99	.	.	.	.
LCP87-492	L89-113	219	6	36	0	13	.	.	.	.
LCP87-492	L91-281	487	25	65	5	73	.	.	.	.
LCP87-492	L94-432	224	0	6	0	13	.	.	.	.
LCP87-492	L98-209	481	8	23	1	31	.	.	.	.
LCP87-492	L99-233	446	41	92	16	97	.	.	.	.
TUCCP77-042	LCP85-384	716	82	96	12	91	.	.	.	.
US79-010	HOC96-540	237	13	68	3	81	.	.	.	.
US79-010	L98-209	236	13	68	1	45	.	.	.	.
US79-010	LCP85-384	700	19	36	3	49	.	.	.	.
US79-010	LCP87-492	246	4	21	1	41	.	.	.	.
US80-004	LCP85-384	664	7	17	3	53	.	.	.	.
US92-010	L91-281	201	9	57	3	87	.	.	.	.
US96-001	LCP85-384	948	15	21	2	31	.	.	.	.
US96-002	L94-432	221	3	18	1	53	.	.	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
US96-002	LCP85-384	468	19	53	1	31	.	.	.	.
<u>2001 Crossing Series</u>										
CP65-357	L92-312	240	10	61	.	.	.	.	.	.
CP77-405	L98-207	187	0	21	.	.	.	.	.	.
CP77-405	LCP85-384	394	0	21	.	.	.	.	.	.
CP78-317	HOCP91-552	191	0	21	.	.	.	.	.	.
CP79-318	L98-209	229	0	21	.	.	.	.	.	.
CP79-318	L98-209	225	0	21	.	.	.	.	.	.
CP83-644	HOCP96-540	430	15	57	.	.	.	.	.	.
CP83-644	HOCP96-561	210	7	55	.	.	.	.	.	.
CP83-644	HOCP97-621	218	0	21	.	.	.	.	.	.
CP83-644	HOCP98-778	212	0	21	.	.	.	.	.	.
CP83-644	L98-209	402	24	78	.	.	.	.	.	.
CP83-644	L99-226	398	0	21	.	.	.	.	.	.
CP83-644	L99-238	175	0	21	.	.	.	.	.	.
CP89-846	HOCP97-621	229	0	21	.	.	.	.	.	.
CP89-846	L98-209	385	0	21	.	.	.	.	.	.
HO89-889	HOCP85-845	219	11	68	.	.	.	.	.	.
HO89-889	HOCP96-561	69	0	21	.	.	.	.	.	.
HO89-889	L99-233	235	0	21	.	.	.	.	.	.
HO95-988	HOCP96-540	930	45	65	.	.	.	.	.	.
HO95-988	HOCP96-561	237	12	69	.	.	.	.	.	.
HO95-988	HOCP97-609	419	17	60	.	.	.	.	.	.
HO95-988	L89-113	452	19	61	.	.	.	.	.	.
HO95-988	L98-207	625	65	95	.	.	.	.	.	.
HO95-988	L99-226	464	0	21	.	.	.	.	.	.
HO95-988	L99-238	197	11	75	.	.	.	.	.	.
HO95-988	LCP85-384	432	49	96	.	.	.	.	.	.
HO95-988	TUCCP77-042	424	9	47	.	.	.	.	.	.
HOCP85-845	HO95-988	197	10	69	.	.	.	.	.	.
HOCP85-845	HOCP96-540	955	31	53	.	.	.	.	.	.
HOCP85-845	HOCP97-609	228	12	72	.	.	.	.	.	.
HOCP85-845	L96-092	215	0	21	.	.	.	.	.	.
HOCP85-845	L98-207	1325	41	52	.	.	.	.	.	.
HOCP85-845	L99-233	208	11	72	.	.	.	.	.	.
HOCP85-845	LCP85-384	656	39	77	.	.	.	.	.	.
HOCP88-739	LCP85-384	208	15	85	.	.	.	.	.	.
HOCP89-846	HOCP98-741	167	17	94	.	.	.	.	.	.
HOCP89-846	LCP85-384	203	2	44	.	.	.	.	.	.
HOCP89-846	LCP85-384	178	4	48	.	.	.	.	.	.
HOCP89-846	LCP85-384	198	7	57	.	.	.	.	.	.
HOCP89-846	TUCCP77-042	201	15	86	.	.	.	.	.	.
HOCP90-941	L97-137	226	7	52	.	.	.	.	.	.
HOCP90-941	LCP85-384	223	0	21	.	.	.	.	.	.
HOCP91-552	01P1	456	15	55	.	.	.	.	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
HOCP91-552	HOCP96-540	543	12	48	.	.	.	.	.	.
HOCP91-552	HOCP97-609	90	0	21	.	.	.	.	.	.
HOCP91-555	HOCP00-955	200	0	21	.	.	.	.	.	.
HOCP91-555	HOCP96-509	210	10	65	.	.	.	.	.	.
HOCP91-555	HOCP96-540	198	0	21	.	.	.	.	.	.
HOCP91-555	HOCP96-540	723	22	50	.	.	.	.	.	.
HOCP91-555	HOCP98-776	149	9	78	.	.	.	.	.	.
HOCP91-555	L99-226	429	38	91	.	.	.	.	.	.
HOCP91-555	LCP85-384	203	0	21	.	.	.	.	.	.
HOCP91-555	LCP86-454	195	0	21	.	.	.	.	.	.
HOCP92-618	HOCP96-540	709	32	63	.	.	.	.	.	.
HOCP92-618	LCP85-384	429	0	21	.	.	.	.	.	.
HOCP92-618	TUCCP77-042	430	0	21	.	.	.	.	.	.
HOCP92-624	HOCP00-961	232	19	88	.	.	.	.	.	.
HOCP92-624	HOCP91-552	219	0	21	.	.	.	.	.	.
HOCP92-624	HOCP96-540	242	12	68	.	.	.	.	.	.
HOCP92-624	HOCP96-561	373	24	81	.	.	.	.	.	.
HOCP92-624	L00-257	442	21	65	.	.	.	.	.	.
HOCP92-624	L89-113	231	14	79	.	.	.	.	.	.
HOCP92-624	L94-426	181	0	21	.	.	.	.	.	.
HOCP92-624	L94-428	218	4	46	.	.	.	.	.	.
HOCP92-624	L98-207	560	18	53	.	.	.	.	.	.
HOCP92-624	L98-209	468	35	86	.	.	.	.	.	.
HOCP92-624	L99-226	232	0	21	.	.	.	.	.	.
HOCP92-624	L99-233	401	37	92	.	.	.	.	.	.
HOCP92-624	LCP85-384	144	12	89	.	.	.	.	.	.
HOCP92-648	HOCP96-540	369	18	66	.	.	.	.	.	.
HOCP92-648	HOCP96-561	210	12	76	.	.	.	.	.	.
HOCP92-648	HOCP97-609	222	0	21	.	.	.	.	.	.
HOCP92-648	HOCP97-621	196	0	21	.	.	.	.	.	.
HOCP92-648	L99-226	345	0	21	.	.	.	.	.	.
HOCP92-648	L99-226	175	6	56	.	.	.	.	.	.
HOCP92-648	L99-234	238	0	21	.	.	.	.	.	.
HOCP92-648	LCP85-384	455	60	98	.	.	.	.	.	.
HOCP92-648	LCP85-384	198	20	94	.	.	.	.	.	.
HOCP94-806	HOCP97-621	72	0	21	.	.	.	.	.	.
HOCP94-806	L99-226	245	0	21	.	.	.	.	.	.
HOCP94-806	L99-233	236	14	77	.	.	.	.	.	.
HOCP95-951	CP79-348	420	54	98	.	.	.	.	.	.
HOCP95-951	HOCP96-540	422	22	70	.	.	.	.	.	.
HOCP95-951	HOCP96-540	232	10	62	.	.	.	.	.	.
HOCP95-951	L97-137	465	33	84	.	.	.	.	.	.
HOCP95-951	LCP82-089	450	28	79	.	.	.	.	.	.
HOCP96-509	HOCP96-561	368	25	82	.	.	.	.	.	.
HOCP96-509	L92-312	243	0	21	.	.	.	.	.	.
HOCP96-509	L99-226	226	0	21	.	.	.	.	.	.
HOCP96-509	LCP85-384	184	17	92	.	.	.	.	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
HOCP96-522	HOCP89-846	225	12	72	.	.	.	.	.	.
HOCP96-522	HOCP96-561	184	6	55	.	.	.	.	.	.
HOCP96-522	L91-255	207	11	72	.	.	.	.	.	.
HOCP96-522	L98-209	410	20	66	.	.	.	.	.	.
HOCP96-522	LCP85-384	203	7	56	.	.	.	.	.	.
HOCP96-540	HOCP89-846	623	0	21	.	.	.	.	.	.
HOCP96-540	HOCP96-561	237	0	21	.	.	.	.	.	.
HOCP96-540	L89-113	190	0	21	.	.	.	.	.	.
HOCP96-540	L91-255	371	0	21	.	.	.	.	.	.
HOCP96-540	L99-226	449	0	21	.	.	.	.	.	.
HOCP96-540	LCP85-384	392	0	21	.	.	.	.	.	.
HOCP96-561	HOCP85-845	452	14	52	.	.	.	.	.	.
HOCP97-606	L96-092	237	7	50	.	.	.	.	.	.
HOCP97-609	HO91-572	207	0	21	.	.	.	.	.	.
HOCP97-609	HOCP97-621	167	0	21	.	.	.	.	.	.
HOCP97-609	HOCP98-741	231	0	21	.	.	.	.	.	.
HOCP97-609	L89-113	250	0	21	.	.	.	.	.	.
HOCP97-609	L99-226	417	0	21	.	.	.	.	.	.
HOCP97-609	L99-233	142	4	50	.	.	.	.	.	.
HOCP97-609	LCP82-089	448	31	82	.	.	.	.	.	.
HOCP97-621	L98-207	452	0	21	.	.	.	.	.	.
HOCP98-741	HOCP92-618	236	0	21	.	.	.	.	.	.
HOCP98-741	L94-432	239	0	21	.	.	.	.	.	.
HOCP98-741	LCP85-384	413	43	95	.	.	.	.	.	.
HOCP98-776	CP79-348	210	2	44	.	.	.	.	.	.
HOCP98-776	HOCP96-540	177	0	21	.	.	.	.	.	.
HOCP98-776	L91-255	203	9	63	.	.	.	.	.	.
HOCP98-776	L99-226	236	0	21	.	.	.	.	.	.
HOCP98-776	L99-233	218	6	50	.	.	.	.	.	.
HOCP98-778	CP79-318	219	0	21	.	.	.	.	.	.
HOCP98-778	HOCP97-621	93	0	21	.	.	.	.	.	.
HOCP98-781	HOCP96-540	442	38	90	.	.	.	.	.	.
HOCP99-825	L91-281	217	0	21	.	.	.	.	.	.
HOCP99-833	L98-209	180	13	85	.	.	.	.	.	.
L00-249	L94-432	236	0	21	.	.	.	.	.	.
L00-254	HOCP97-609	430	0	21	.	.	.	.	.	.
L00-254	L98-209	244	0	21	.	.	.	.	.	.
L00-254	LCP85-384	416	0	21	.	.	.	.	.	.
L00-260	HOCP97-621	232	0	21	.	.	.	.	.	.
L00-260	L99-233	400	0	21	.	.	.	.	.	.
L00-264	L94-432	145	0	21	.	.	.	.	.	.
L00-264	LCP85-384	226	7	52	.	.	.	.	.	.
L00-264	LCP85-384	202	7	57	.	.	.	.	.	.
L00-268	HOCP96-540	971	63	81	.	.	.	.	.	.
L00-271	HOCP96-540	194	11	76	.	.	.	.	.	.
L91-255	HOCP96-509	141	0	21	.	.	.	.	.	.
L91-255	L98-207	427	0	21	.	.	.	.	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
L91-255	LCP85-384	386	18	64	.	.	.	.	.	.
L91-281	HOCP96-561	442	53	97	.	.	.	.	.	.
L91-281	L97-137	246	12	66	.	.	.	.	.	.
L91-281	L99-234	218	12	74	.	.	.	.	.	.
L91-281	LCP85-384	226	0	21	.	.	.	.	.	.
L93-386	HOCP96-540	363	0	21	.	.	.	.	.	.
L93-391	L98-209	215	0	21	.	.	.	.	.	.
L93-391	L99-226	206	0	21	.	.	.	.	.	.
L93-391	LCP85-384	97	0	21	.	.	.	.	.	.
L93-399	HOCP85-845	176	0	21	.	.	.	.	.	.
L93-399	HOCP85-845	326	12	58	.	.	.	.	.	.
L93-399	LCP85-384	171	0	21	.	.	.	.	.	.
L94-426	HOCP97-621	174	0	21	.	.	.	.	.	.
L94-426	L99-233	185	7	59	.	.	.	.	.	.
L94-426	LCP85-384	224	11	66	.	.	.	.	.	.
L94-426	LCP85-384	184	22	97	.	.	.	.	.	.
L94-426	LHO92-314	234	0	21	.	.	.	.	.	.
L94-428	HOCP96-540	354	32	91	.	.	.	.	.	.
L94-428	MISC	178	8	63	.	.	.	.	.	.
L94-432	HOCP96-540	209	36	99	.	.	.	.	.	.
L94-432	L89-113	208	0	21	.	.	.	.	.	.
L94-432	L91-281	195	0	21	.	.	.	.	.	.
L94-432	L98-207	337	0	21	.	.	.	.	.	.
L94-432	LCP85-384	194	0	21	.	.	.	.	.	.
L94-432	TUCCP77-042	383	13	56	.	.	.	.	.	.
L96-040	HOCP92-618	228	22	93	.	.	.	.	.	.
L96-040	HOCP96-540	227	13	76	.	.	.	.	.	.
L96-040	L99-233	211	0	21	.	.	.	.	.	.
L96-040	L99-233	393	26	82	.	.	.	.	.	.
L97-128	HOCP85-845	224	14	80	.	.	.	.	.	.
L97-128	L91-281	174	15	90	.	.	.	.	.	.
L97-128	L99-233	228	25	96	.	.	.	.	.	.
L97-128	LCP82-089	416	29	83	.	.	.	.	.	.
L97-128	LHO92-314	205	0	21	.	.	.	.	.	.
L97-128	TUCCP77-042	191	32	99	.	.	.	.	.	.
L97-137	HOCP94-806	219	13	77	.	.	.	.	.	.
L97-137	L94-428	406	20	66	.	.	.	.	.	.
L98-197	HOCP00-961	227	0	21	.	.	.	.	.	.
L98-207	01P5	473	2	43	.	.	.	.	.	.
L98-207	CP79-318	388	0	21	.	.	.	.	.	.
L98-207	HOCP85-845	736	45	79	.	.	.	.	.	.
L98-209	01P4	416	38	92	.	.	.	.	.	.
L98-209	HOCP97-621	474	17	58	.	.	.	.	.	.
L98-209	HOCP98-741	205	0	21	.	.	.	.	.	.
L98-209	L92-312	182	0	21	.	.	.	.	.	.
L98-209	LHO92-314	457	18	59	.	.	.	.	.	.
L98-209	TUCCP77-042	427	24	75	.	.	.	.	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
L99-214	HOCP97-621	235	0	21	.	.	.	.	.	.
L99-214	L99-233	207	17	88	.	.	.	.	.	.
L99-221	HOCP96-540	433	0	21	.	.	.	.	.	.
L99-226	01P4	676	12	46	.	.	.	.	.	.
L99-226	HOCP92-618	436	0	21	.	.	.	.	.	.
L99-226	HOCP96-540	757	0	21	.	.	.	.	.	.
L99-226	L89-113	204	0	21	.	.	.	.	.	.
L99-226	L99-233	754	5	43	.	.	.	.	.	.
L99-226	LCP82-089	464	19	60	.	.	.	.	.	.
L99-226	LCP85-384	843	42	68	.	.	.	.	.	.
L99-226	TUCCP77-042	621	11	46	.	.	.	.	.	.
L99-231	HOCP85-845	195	3	45	.	.	.	.	.	.
L99-231	HOCP97-621	194	0	21	.	.	.	.	.	.
L99-231	L92-312	147	0	21	.	.	.	.	.	.
L99-233	HOCP97-621	173	0	21	.	.	.	.	.	.
L99-233	L94-428	205	16	87	.	.	.	.	.	.
L99-234	HOCP96-540	216	0	21	.	.	.	.	.	.
L99-234	L98-207	365	0	21	.	.	.	.	.	.
L99-238	L94-432	220	0	21	.	.	.	.	.	.
LCP81-010	L89-113	208	0	21	.	.	.	.	.	.
LCP81-010	L91-281	209	11	72	.	.	.	.	.	.
LCP81-010	L92-312	143	0	21	.	.	.	.	.	.
LCP81-010	L92-312	124	0	21	.	.	.	.	.	.
LCP81-010	L94-428	460	6	45	.	.	.	.	.	.
LCP81-010	L98-207	617	39	80	.	.	.	.	.	.
LCP81-010	L98-207	1095	35	53	.	.	.	.	.	.
LCP81-010	L98-209	605	24	60	.	.	.	.	.	.
LCP81-010	L99-233	898	28	52	.	.	.	.	.	.
LCP81-010	LCP82-089	384	0	21	.	.	.	.	.	.
LCP81-010	LCP85-384	844	85	94	.	.	.	.	.	.
LCP81-010	LCP85-384	937	17	46	.	.	.	.	.	.
LCP82-089	LCP85-384	381	20	70	.	.	.	.	.	.
LCP83-137	HOCP96-561	404	34	89	.	.	.	.	.	.
LCP85-313	HOCP96-509	342	24	83	.	.	.	.	.	.
LCP85-313	HOCP97-609	415	29	83	.	.	.	.	.	.
LCP85-384	01P4	597	0	21	.	.	.	.	.	.
LCP85-384	HOCP89-846	240	19	87	.	.	.	.	.	.
LCP85-384	HOCP92-618	230	0	21	.	.	.	.	.	.
LCP85-384	HOCP97-621	471	53	96	.	.	.	.	.	.
LCP85-384	L91-281	378	0	21	.	.	.	.	.	.
LCP85-384	L99-233	609	13	47	.	.	.	.	.	.
LCP86-454	L99-233	591	32	74	.	.	.	.	.	.
LCP86-454	LCP85-384	636	45	84	.	.	.	.	.	.
LCP86-454	LCP85-384	1475	64	62	.	.	.	.	.	.
LCP86-454	TUCCP77-042	335	0	21	.	.	.	.	.	.
LHO83-153	L99-233	180	14	87	.	.	.	.	.	.
LHO83-153	LCP85-384	213	5	49	.	.	.	.	.	.

Table 6. Continued

Female	Male	Survive	1 st Line		2 nd Line		Increase		Assignment	
			No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l	No.	Rank Pcnt'l
LHO92-314	L99-226	207	0	21	.	.	.	.	.	.
LHO92-314	LCP85-384	229	0	21	.	.	.	.	.	.
L00-273	LCP82-089	198	0	21	.	.	.	.	.	.
TUCCP77-042	L98-209	162	14	90	.	.	.	.	.	.
TUCCP77-042	L99-238	232	12	70	.	.	.	.	.	.
TUCCP77-042	LCP85-384	476	25	72	.	.	.	.	.	.
US96-002	LCP85-384	229	22	93	.	.	.	.	.	.

Table 7. Plant weight and rank summary statistics from the 2001 crossing series first stubble cross appraisal test at the St. Gabriel Research Station in 2003.

Female	Male	Plant Weight		Female	Male	Plant Weight	
		Kg/Plant	Pcnt'l			Kg/Plant	Pcnt'l
HOC89-846	HOC98-741	11.73	98	HOC85-845	LCP85-384	7.58	66
L99-226	01P4	10.40	97	HOC92-648	HOC96-561	7.49	65
L99-231	HOC91-552	9.68	96	HOC99-825	L92-312	7.48	64
L99-221	HOC96-540	9.66	95	L99-234	L99-233	7.44	63
L99-226	L89-113	9.42	93	HOC85-845	L99-233	7.43	62
L00-254	HOC97-609	9.36	92	HOC95-951	L97-137	7.42	61
L96-040	L89-113	9.27	91	L00-260	L99-233	7.35	60
LCP81-010	LCP82-089	9.05	90	HOC96-522	HOC89-846	7.35	59
L99-226	L99-233	9.04	89	L93-386	HOC96-540	7.33	58
LCP81-010	LCP85-384	8.82	88	HOC92-624	L00-257	7.32	57
US99-004	L98-209	8.96	88	L91-281	L97-137	7.31	56
L94-426	TUCCP77-042	8.80	87	HOC92-624	HOC98-741	7.28	55
LCP81-010	L98-207	8.73	86	LCP81-010	L91-281	7.12	54
LHO83-153	HOC96-561	8.67	85	HOC85-845	L98-207	7.08	53
LCP83-137	HOC96-561	8.54	84	CP83-644	L98-209	7.08	52
HOC94-806	L99-233	8.54	83	L97-137	L99-234	7.03	51
L99-226	LCP85-384	8.52	82	L00-249	L94-428	6.99	50
LCP81-010	L94-428	8.46	81	L91-255	LCP85-384	6.96	49
L99-221	HOC96-540	8.36	80	L92-321	L99-226	6.95	48
L96-040	L99-233	8.25	79	L00-273	HOC96-540	6.94	47
LCP81-010	L92-312	8.22	78	LCP86-454	TUCCP77-042	6.86	46
L89-113	L98-209	8.19	77	HOC97-609	L99-226	6.80	45
HOC96-522	L98-209	8.20	77	L00-271	LCP85-384	6.75	44
LCP81-010	L99-233	8.17	76	L94-432	L98-207	6.77	44
HOC92-624	L99-233	8.14	75	HO89-889	HOC85-845	6.72	43
L99-214	L99-233	8.13	74	L94-426	L98-207	6.72	42
HO95-988	L94-428	8.13	73	HOC91-555	L99-226	6.72	41
HOC89-846	TUCCP77-042	8.09	72	HOC97-606	L94-428	6.70	40
HO95-988	L99-238	8.02	71	L99-226	TUCCP77-042	6.66	39
HOC98-776	L91-281	7.94	70	LOO-273	LCP82-089	6.63	38
LCP85-313	LCP85-384	7.90	69	LHO92-314	L99-226	6.63	37
L96-040	L99-233	7.77	68	L00-264	L94-428	6.62	36
L94-426	LHO92-314	7.69	67	HOC96-540	L91-255	6.61	35
HOC92-624	L99-226	7.55	66	L93-391	L98-209	6.60	34

Female	Male	Plant Weight		Female	Male	Plant Weight	
		Kg/Plant	Pcnt'l			Kg/Plant	Pcnt'l
HOCP95-951	LCP82-089	6.59	33	LHO83-153	LCP85-384	5.63	17
HOCP97-609	HOCP98-741	6.52	33	HOCP92-624	L98-207	5.59	16
LHO92-314	L98-209	6.47	32	HOCP92-648	L99-234	5.53	15
HOCP99-825	L91-281	6.38	31	L99-233	L94-428	5.52	14
HOCP96-509	L99-226	6.30	30	L99-234	L98-207	5.52	13
L00-264	LCP85-384	6.27	29	L98-209	01P4	5.50	12
L97-128	L94-426	6.26	28	HOCP98-781	LCP85-384	5.27	11
HOCP92-618	HOCP96-540	6.20	27	L99-226	LCP82-089	5.44	11
HOCP98-741	LCP85-384	6.07	26	HOCP99-833	L98-209	5.19	10
CP77-405	L98-207	6.03	25	HOCP98-781	L99-226	5.06	9
LCP85-384	HOCP89-846	6.02	24	HO95-988	L99-226	5.02	8
HOCP98-776	HOCP00-961	5.98	23	HOCP98-778	CP79-318	4.99	7
HOCP92-648	L99-226	5.96	22	L93-399	L98-209	4.98	6
HOCP92-648	LCP85-384	5.88	21	L94-426	L99-226	4.76	5
HOCP92-618	TUCCP77-042	5.75	20	L91-281	L99-234	4.69	4
LCP85-384	01P4	5.68	19	HOCP97-621	L98-207	4.37	3
L00-254	LCP85-384	5.67	18	L00-259	LCP85-384	4.12	2
				L99-234	HOCP96-540	3.94	1
				L96-040	HOCP92-618	3.70	0

2003 LOUISIANA SUGARCANE VARIETY DEVELOPMENT PROGRAM NURSERY AND INFIELD VARIETY TRIALS

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Five years after the initial hybridization of parents, clones that have met or exceeded criteria for desired characteristics at previous selection stages are assigned permanent numbers by each of the Louisiana Sugarcane Variety Development Programs. The LSU AgCenter program assigns variety designations of “L,” and the USDA program assigns variety designations of “Ho” and “HoCP.” These varieties are planted in replicated nursery and infield tests at locations across the southern Louisiana sugarcane-growing areas.

One objective of the nursery and infield stages is to identify and select varieties that will perform well across the range of environments a commercial variety will encounter in Louisiana. Nursery tests are initially planted at three on-station locations (USDA-ARS - Ardoyne Farm, Iberia Research Station, and St. Gabriel Research Station) during the year of assignment, and four to five additional and different off-station locations are planted the year after assignment. The three off-station nurseries Newton Cane, Inc. (Bunkie), D & N Farm (Cecelia), and Landry Farms (Paincourtville), along with the two infield trial locations at Blackberry Farms (Vacherie) and Sugarland Acres, Inc. (Youngsville) were planted with both the LSU and USDA varieties. The locations, soil types, dates of planting and dates of harvest are listed in Table 1.

The on-station nursery trials were planted in single-row (6-foot centers), 16-foot-long plots with 4-foot alleys. The off-station nurseries were planted in single-row, 20-foot plots with 5-foot alleys. The infield tests were planted in two-row, 25-foot plots with 5-foot alleys. The experimental design for both nursery and infield tests was a randomized complete block with two replications per location. Three commercial check varieties, LCP85-384, HoCP91-555, and, HoCP85-845, were planted in tests for comparison. In 2003, HoCP96-540 replaced HoCP85-845 as a check.

A combine harvester/weigh wagon system was used to cut and weigh plots for the infield tests. This system worked extremely well, with the immediate benefit of the amount of labor required for the collection of the data being reduced. The accuracy of data collection was improved because of the absence of internal sugarcane jams in the combine harvester (soldier harvesters frequently jam), the absence of errors in toppler height adjustment between plots, and the minimization of errors in terms of sugarcane missed and not weighed. The infield variety trials are also important for screening experimental varieties for suitability to mechanical combine harvesting.

Millable stalk counts for both nursery and infield tests were made in late July and August. During the harvest season, 10-stalk samples were harvested by hand and stripped of leaves for the nursery tests. A 15-stalk sample was taken for the infield tests and sent to the USDA Ardoyne Farm and analyzed using the pre-breaker press. Samples from the nursery tests were weighed and milled at the sucrose laboratory in St. Gabriel to obtain a juice sample for analysis. Brix and pol readings were used to estimate theoretical recoverable sugar per ton as estimated by the Winter-Carp formula as reported by Gravois and Milligan (1992). Cane yield for the nursery tests were estimated as the product of stalk weight and stalk number. Cane yield for the infield tests were determined from the plot weights and reduce 14% to account for extraneous trash. Sugar per acre was calculated as the product of sugar per ton and cane yield.

The 2003 sugarcane crop experienced good growing conditions, although the year began with rutted fields caused by the difficult 2002 harvest. January was dry, but excessive rain fell in February and March, making early season cultivation and herbicide application difficult. April and May were much drier and enabled growers to cultivate fields properly. The planting season had adequate rainfall, which allowed for good planting conditions. Unlike the 2002 harvest, the 2003 harvest was ideal. Dry conditions, an erect crop, and excellent cane maturity provided growers with excellent harvesting conditions. Cane tonnage was lower than anticipated, but sucrose recovery at the factories was the second highest on record for Louisiana. All experimental locations were harvested before the first freeze. Recommended cultural practices were followed at all test locations.

LCP85-384 has been the leading variety in Louisiana since 1998. Approximately, 88% of Louisiana's harvested sugarcane acreage was in LCP85-384 for 2003. For comparison, LC85-384 is highlighted in the tables. To adjust for missing data, the statistical analysis calculated least square means (SAS 9 Proc Mixed). Mean separation used least square means probability differences where $P=0.05$. Varieties that are significantly higher or lower than LCP85-384 are denoted by a plus (+) or minus (-), respectively, next to the value for each trait.

References:

Gravois, K.A. and S.B. Milligan. 1992. Genetic relationships between fiber and sugarcane yield components. *Crop Sci.* 32: 62-66.

Table 1. 2003 Location, soil texture, and planting and harvest dates for the nursery and infield tests.

Series	Location†	Stage	Soil Texture	Planting Date	Harvest Date 2003	Varieties	
						No. Planted	No. Harvested
1998	Blackberry Farms	Infield	Commerce silt loam	08/24/99	10/08	65	4
1998	Ulysee Gonsoulin & Sons, Inc.	Nursery	Patout silt loam	08/13/99	09/29	44	4
1998	D & N Farm	Nursery	Baldwin silty clay	08/20/99	09/29	13	4
1998	Landry Farms	Nursery	Commerce silt loam	08/17/99	09/29	44	4
1999	Ardoyne Farm -U.S.D.A	Nursery	Commerce silt loam	10/20/99	10/17	34	2
1999	Iberia Research Station	Nursery	Baldwin silty clay	10/19/99	10/23	34	2
1999	Blackberry Farms	Infield	Commerce silt loam	08/17/00	10/08	39	2
1999	Newton Cane, Inc.	Nursery	Moreland silt loam	08/24/00	10/23	39	2
1999	D & N Farm	Nursery	Baldwin silty clay	08/18/00	10/07	16	2
1999	Sugarland Acres, Inc.	Infield	Coteau silt loam	08/23/00	10/27	39	2
1999	Landry Farms	Nursery	Commerce silt loam	08/21/00	10/01	39	2
2000	Ardoyne Farm-U.S.D.A	Nursery	Commerce silt loam	10/12/00	10/17	33	1
2000	Iberia Research Station	Nursery	Baldwin silty clay	10/13/00	10/23	33	1
2000	St. Gabriel Research Station	Nursery	Sharkey clay	10/12/00	10/14	33	1
2000	Blackberry Farms	Infield	Commerce silt loam	08/21/01	12/03	48	5
2000	Newton Cane, Inc.	Nursery	Moreland silt loam	08/24/01	10/23	48	4
2000	Sugarland Acres, Inc.	Infield	Coteau silt loam	08/22/01	10/28	47	5
2000	Landry Farms	Nursery	Commerce silt loam	09/18/01	10/01	48	4
2001	Ardoyne Farm-U.S.D.A	Nursery	Commerce silt loam	10/18/01	11/04	37	3
2001	Iberia Research Station	Nursery	Baldwin silty clay	10/22/01	11/17	37	3
2001	St. Gabriel Research Station	Nursery	Sharkey clay	10/09/01	11/04	37	3
2001	Blackberry Farms	Infield	Commerce silt loam	08/27/02	12/03	38	15
2001	Newton Cane, Inc.	Nursery	Moreland silt loam	08/21/02	10/29	38	15
2001	D & N Farm	Nursery	Baldwin silty clay	08/22/02	11/04	12	15
2001	Sugarland Acres, Inc.	Infield	Coteau silt loam	08/09/02	11/20	38	15
2001	Landry Farms	Nursery	Commerce silt loam	08/29/02	11/19	38	15
2002	St. Gabriel Research Station	Nursery	Sharkey clay	11/01/02	11/25	38	14
2002	Newton Cane, Inc.	Nursery	Moreland silt loam	08/15/03		41	
2002	Sugarland Acres, Inc.	Infield	Coteau silt loam	08/19/03		41	
2002	Blackberry Farms	Infield	Commerce silt loam	08/20/03		41	
2002	Landry Farms	Nursery	Commerce silt loam	08/21/03		41	
2002	D & N Farm	Nursery	Baldwin silty clay	08/26/03		14	
2003	St. Gabriel Research Station	Nursery	Sharkey clay	10/09/03		35	
2003	Ardoyne Farm-U.S.D.A	Nursery	Commerce silt loam	10/16/03		35	
2003	Iberia Research Station	Nursery	Baldwin silty clay	10/21/03		35	

† Ardoyne-U.S.D.A. Ardoyne Farm (Chachoula), Blackberry Farms (Vacherie), Ulysee Gonsoulin & Sons, Inc. (New Iberia), Iberia Research Station (Jeanerette), Newton Cane, Inc. (Bunkie), St. Gabriel Research Station (St. Gabriel), D & N Farm (Cecelia), Sugarland Acres Inc. (Youngsville), Landry Farms (Paincourtville).

Table 2. 2003 Infield third-stubble means of the 1998 “L” assignment series in light soil at Blackberry Farms, Vacherie, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)	Fiber (%)
CP70-321	6584	24.9	262	1.67	30976	11.7
TucCP77-042	9025	34.5	260	1.73	40195	14.0 +
LCP85-384	7528	25.6	294	1.52	33846	12.2
HoCP85-845	9344	34.3	274	1.62	42552	12.7
HoCP96-540	10804	36.7 +	294	1.51	48779	12.5
L97-128	9922	34.3	289	1.69	41035	12.1
L98-209	7872	26.7	294	1.57	34317	12.6

Table 3. 2003 Nursery third-stubble means of the 1998 “L” assignment series in light soil at Ulysee Gonsoulin & Sons, Inc., New Iberia, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	6427	31.2 -	208	2.04 +	30492 -
TucCP77-042	5550	28.1 -	199	1.54	36300 -
LCP85-384	7125	41.3	173	1.53	53906
HoCP85-845	6618	34.9	190	1.89 +	36663 -
L98-209	9819	47.8	204	1.89 +	50457

Table 4. 2003 Nursery third-stubble means of the 1998 “L” assignment series in heavy soil at D & N Farm, Cecilia, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	3437 -	14.3 -	241	1.39	20510 -
LCP85-384	8907	35.9	248	1.42	50639
HoCP85-845	6304 -	30.4 -	207 -	1.45	39386 -
L98-209	8467	34.2	247	1.47	46827

Table 5. 2003 Nursery third-stubble means of the 1998 “L” assignment series in light soil at Landry Farms, Paincourtville, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	5901 -	24.9	237	1.70	29403 -
TucCP77-042	8844	46.2	192 -	1.86	49731
LCP85-384	8809	37.7	233	1.42	53543
HoCP85-845	6330 -	30.5	208	1.69	36119 -
L98-209	6673 -	32.9	205 -	1.66	39386 -

Table 6. 2003 Infield second-stubble means of the 1999 “HoCP” and “L” assignment series in light soil at Blackberry Farms, Vacherie, LA.

Variety	Sugar per Acre	Cane Yield	Sugar Per Ton	Stalk Weight	Stalk Number	Fiber
	(lbs/A)	(tons/A)	(lbs/ton)	(lbs)	(stalks/A)	(%)
CP70-321	4947 -	22.8 -	217	1.84	24826 -	11.7
LCP85-384	7234	33.6	216	1.63	41392	14.0
HoCP85-845	8038	33.3	242 +	1.64	40654	12.3
L99-226	9359 +	36.0	259 +	2.12 +	33964 -	12.8
L99-233	7670	35.7	215	1.63	43833	13.8

Table 7. 2003 Nursery second-stubble means of the 1999 “L” assignment series in light soil at Newton Cane, Inc., Bunkie, LA.

Variety	Sugar per Acre	Cane Yield	Sugar Per Ton	Stalk Weight	Stalk Number
	(lbs/A)	(tons/A)	(lbs/ton)	(lbs)	(stalks/A)
CP70-321	10719	44.3	242	2.28	38841 -
LCP85-384	15374	68.5	224	2.02	66611
HoCP85-845	9286	41.4	224	2.10	39930 -
L99-226	21733	84.6	255 +	3.30 +	51183 -
L99-233	16548	70.7	234	2.17	64977

Table 8. 2003 Nursery second-stubble means of the 1999 “L” assignment series in heavy soil at D & N Farm, Cecilia, LA.

Variety	Sugar per Acre	Cane Yield	Sugar Per Ton	Stalk Weight	Stalk Number
	(lbs/A)	(tons/A)	(lbs/ton)	(lbs)	(stalks/A)
CP70-321	4986	22.6	220	1.92	23777
LCP85-384	5459	26.4	206	1.76	30674
HoCP85-845	5588	25.8	216	1.59	32489
L99-226	9567 +	44.7 +	214	2.12	42471
L99-233	7445	37.8 +	196	1.51	50276 +

Table 9. 2003 Infield second-stubble means of the 1999 “HoCP” and “L” assignment series in light soil at Sugarland Acres, Inc., Youngsville, LA.

Variety	Sugar per Acre	Cane Yield	Sugar Per Ton	Stalk Weight	Stalk Number	Fiber
	(lbs/A)	(tons/A)	(lbs/ton)	(lbs)	(stalks/A)	(%)
CP70-321	9532	42.0	227	2.05	41683	11.5
LCP85-384	10948	43.2	257	1.71	50471	12.1
HoCP85-845	9605	37.8	255	1.88	40267	13.4
L99-226	11220	40.0	280	2.34	37575	12.9
L99-233	7378	32.4	228	1.58	40578	12.9

Table 10. 2003 Nursery second-stubble means of the 1999 “L” assignment series in heavy soil at Landry Farms, Paincourtville, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	5591	21.2 -	263	1.78	23958 -
LCP85-384	10235	39.5	259	1.56	50820
HoCP85-845	9630	41.4	233	1.70	48824
L99-226	12078	43.7	276	2.14 +	40475
L99-233	11400	48.7	234	1.61	60984

Table 11. 2003 Nursery third-stubble means of the 1999 “L” assignment series in light soil at U.S.D.A-Ardoyne Farm, Chacahoula, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	5944	25.5	234	1.97 +	25864
LCP85-384	7820	31.8	245	1.48	44014
HoCP85-845	8396	33.6	250	1.72	39023
L99-226	13754 +	53.1	259	2.42 +	44241
L99-233	9283	37.3	247	1.61	46283

Table 12. 2003 Nursery third-stubble means of the 1999 “L” assignment series in heavy soil at Iberia Research Station, Jeanerette, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	7288	33.6	216	2.29 +	29494
LCP85-384	8942	37.8	235	1.63	45375
HoCP85-845	8039	36.0	223	1.75	41064
L99-226	13737	53.7	258	2.22 +	48324
L99-233	9106	38.8	234	1.75	44694

Table 13. 2003 Infield first-stubble means of the 2000 “HoCP” and “L” assignment series in light soil at Blackberry Farms, Vacherie, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)	Fiber (%)
LCP85-384	11764	43.1	273	1.84	47564	11.2
HoCP85-845	11382	41.8	274	1.86	44757	12.1
HoCP91-555	12731	45.5	280	1.68	54368	12.0
L00-266	12545	47.7	263	1.70	56238	12.4 +
HoCP00-927	12999	47.2	275	1.61	59050	11.5
HoCP00-930	12184	43.6	279	2.21	39683	12.5 +
HoCP00-950	13755	44.8	307 +	1.94	45742	12.1

Table 14. 2003 Nursery first-stubble means of the 2000 “HoCP” and “L” assignment series in light soil at Newton Cane, Inc., Bunkie, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
LCP85-384	11249	47.8	237	1.91	49913
HoCP85-845	10410	43.5	240	2.21	39749 -
HoCP91-555	10908	42.7	256	1.80	47553
L00-266	15193 +	65.0 +	234	2.16	60621 +
HoCP00-927	9107	38.6	236	1.80	43016
HoCP00-930	10642	42.9	247	2.09	41201
HoCP00-950	12226	47.7	256	2.11	45375

Table 15. 2003 Infield first-stubble means of the 2000 “HoCP” and “L” assignment series in light soil at Sugarland Acres, Inc., Youngsville, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)	Fiber (%)
LCP85-384	8490	34.7	246	1.94	35331	11.7
HoCP85-845	7393	28.6	260	1.81	31543	12.8
HoCP91-555	7027	24.7	285 +	1.62	32082	12.6
L00-266	9202	34.8	264	1.79	38835	13.1
HoCP00-927	9813	36.6	268	1.99	37028	11.5
HoCP00-930	8852	32.9	270	1.93	33952	11.2
HoCP00-950	8458	32.2	261	1.88	34757	11.0
HoCP00-960	7567	29.4	265	1.95	29341	11.9

Table 16. 2003 Nursery first-stubble means of the 2000 “HoCP” and “L” assignment series in heavy soil at Landry Farms, Paincourtville, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
LCP85-384	7940	29.9	266	1.29	46646
HoCP85-845	6443	30.0	214 -	1.56	38297
HoCP91-555	9560	37.5	254	1.42	52817
L00-266	10066	40.6 +	248	1.68 +	48279
HoCP00-927	8747	33.4	261	1.32	51002
HoCP00-930	8417	31.1	270	1.52	41382
HoCP00-950	12394 +	44.1 +	281	1.80 +	49187

Table 17. 2003 Nursery second-stubble means of the 2000 “L” assignment series in light soil at U.S.D.A-Ardoyne Farm, Chacahoula, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	7379 -	31.4	235	1.89	33351 -
LCP85-384	10240	42.3	242	1.66	51047
HoCP85-845	8664	37.8	230	1.75	42879
L00-266	7861	34.3	230	1.55	44014

Table 18. 2003 Nursery second-stubble means of the 2000 “L” assignment series in heavy soil at Iberia Research Station, Jeanerette, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	7839 -	33.1 -	237	1.94	34258 -
LCP85-384	12169	48.2	252	1.81	53543
HoCP85-845	8901 -	37.4 -	238	1.88	39930 -
L00-266	11309	46.8	242	1.48	63979

Table 19. 2003 Nursery second-stubble means of the 2000 “L” assignment series in light soil at Sugar Research Station, St. Gabriel, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	9396	40.4	233	1.81	44694
LCP85-384	10156	46.6	217	1.68	55584
HoCP85-845	5981 -	34.6 -	173	1.85	37661 -
L00-266	7575	43.5	174	1.70	51728

Table 20. 2003 Infield plant cane means of the 2001 “HoCP” and “L” assignment series in light soil at Blackberry Farms, Vacherie, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)	Fiber (%)
LCP85-384	10936	40.4	269	1.79	45573	11.5
HoCP85-845	14233 +	52.6 +	271	2.58 +	40808	12.3
HoCP91-555	12227	44.3	276	1.96	45406	13.7 +
L01-283	13919 +	48.7 +	287	2.21	44110	11.8
L01-292	13052	46.6	280	2.62 +	35693	13.4 +
L01-299	12930	47.8	270	2.69 +	35824	12.5
HoCP01-517	14429 +	48.4 +	299 +	2.60 +	37308	12.1
HoCP01-520	10966	47.3	232 -	2.52 +	39093	13.4 +
HoCP01-523	14776 +	55.0 +	269	2.52 +	44101	12.1
HoCP01-529	12751	47.4	269	2.74 +	34619	10.4
HoCP01-534	12747	42.8	298 +	2.30	37160	10.2 -
HoCP01-541	13749 +	51.2 +	268	2.15	48510	12.3
HoCP01-544	13166	48.8 +	270	2.65 +	36847	12.4
HoCP01-551	12182	44.0	277	2.55 +	34539	13.7 +
HoCP01-553	13820 +	51.3 +	269	3.62 +	28765 -	13.6 +
HoCP01-558	14800 +	51.7 +	285	2.04	50888	11.2
HoCP01-561	11322	40.5	279	2.69 +	30078 -	10.9
HoCP01-564	14532 +	51.0 +	285	2.07	50314	10.8

Table 21. 2003 Nursery plant cane means of the 2001 “HoCP” and “L” assignment series in heavy soil at Newton Cane, Inc., Bunkie, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
LCP85-384	10871	44.2	246	2.30	38478
HoCP85-845	7398 -	33.1 -	224	2.19	30311 -
HoCP91-555	9634	37.3	258	2.29	32670
L01-283	13905 +	55.9 +	248	2.58	43560
L01-292	12506	47.5	262	2.54	37389
L01-299	11362	44.6	255	2.70 +	33215
HoCP01-517	9454	40.3	234	2.53	32307
HoCP01-520	9586	46.1	208 -	1.98	46464 +
HoCP01-523	12096	48.7	249	2.90 +	33578
HoCP01-529	11366	45.5	250	2.66	34304
HoCP01-534	11944	39.0	306 +	2.17	36119
HoCP01-541	10082	43.6	231	1.77 -	49550 +
HoCP01-544	11225	45.1	249	2.77 +	32670
HoCP01-551	10770	41.3	262	2.52	32670
HoCP01-553	12858	51.4	249	3.16 +	32670
HoCP01-558	10957	47.7	230	1.92 -	49731 +
HoCP01-561	13923 +	51.1	273	2.94 +	34848
HoCP01-564	11916	40.5	294 +	2.33	34848

Table 22. 2003 Nursery plant cane means of the 2001 “L” assignment series in heavy soil at D & N Farm, Cecilia, LA.

Variety	Sugar per Acre	Cane Yield	Sugar Per Ton	Stalk Weight	Stalk Number
	(lbs/A)	(tons/A)	(lbs/ton)	(lbs)	(stalks/A)
LCP85-384	12509	44.1	283	2.06	43379
HoCP85-845	6041 -	23.4 -	258 -	1.83	25592 -
HoCP91-555	8797 -	31.8 -	277	1.96	32489 -
L01-283	11303	39.1	289	2.30	34485 -
L01-292	11034	36.3 -	303 +	2.37	30674 -
L01-299	11960	40.0	299 +	2.34	34304 -

Table 23. 2003 Infield plant cane means of the 2001 “HoCP” and “L” assignment series in light soil at Sugarland Acres, Inc., Youngsville, LA.

Variety	Sugar per Acre	Cane Yield	Sugar Per Ton	Stalk Weight	Stalk Number	Fiber
	(lbs/A)	(tons/A)	(lbs/ton)	(lbs)	(stalks/A)	(%)
LCP85-384	9440	34.6	273	2.15	32603	11.3
HoCP85-845	11385 +	40.6 +	280	2.47	32888	13.0 +
HoCP91-555	10019	32.8	306 +	2.44	27433	12.5
L01-283	12242 +	41.5 +	295	2.65	31503	10.9
L01-292	11500 +	37.9	304 +	2.33	32698	11.8
L01-299	11837 +	43.2 +	274	2.82 +	30846	12.9 +
HoCP01-517	10932	43.1 +	255	3.11 +	27745	10.2
HoCP01-520	9320	35.6	261	1.86	38415	11.4
HoCP01-523	10756	37.2	289	2.34	32053	12.3
HoCP01-529	10051	36.1	280	2.65	27179	10.1
HoCP01-534	8701	28.3 -	307 +	2.22	25536 -	9.9 -
HoCP01-541	10729	39.2	274	1.70	46297 +	12.8 +
HoCP01-544	11244 +	36.8	306 +	2.69 +	27433	12.5
HoCP01-551	10478	34.9	300	2.79 +	25083 -	13.5 +
HoCP01-553	10609	37.3	284	3.28 +	22884 -	12.1
HoCP01-558	9773	35.4	276	1.97	35975	10.4
HoCP01-561	13285 +	43.2 +	307 +	2.65	32743	10.8
HoCP01-564	10689	33.9	315 +	2.41	28160	11.3

Table 24. 2003 Nursery plant cane means of the 2001 “HoCP” and “L” assignment series in light soil at Landry Farms, Paincourtville, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
LCP85-384	14770	57.8	257	2.13	54269
HoCP85-845	10062 -	43.6	231	2.77 +	31581 -
HoCP91-555	16532	63.6	260	2.16	58988
L01-283	18414	72.3 +	256	2.55 +	56628
L01-292	15542	60.3	258	2.57 +	47009
L01-299	11811	52.7	221	2.15	48279
HoCP01-517	16579	65.3	254	3.06 +	42834
HoCP01-520	10859	55.1	196 -	2.15	50639
HoCP01-523	11824	46.9	253	2.36	39749 -
HoCP01-529	10968	50.8	216 -	2.98 +	34122 -
HoCP01-534	13499	53.7	251	2.35	46101
HoCP01-541	15660	58.8	266	1.93	61166
HoCP01-544	17631	65.9	267	2.74 +	48098
HoCP01-551	13148	50.9	258	2.60 +	39204 -
HoCP01-553	15649	65.7	237	3.06 +	43016
HoCP01-558	12237	51.3	239	2.04	51183
HoCP01-561	12143	53.7	226	2.66 +	40475 -
HoCP01-564	13003	50.4	258	2.06	49187

Table 25. 2003 Nursery first-stubble means of the 2001 “L” assignment series in light soil at U.S.D.A-Ardoyne Farm, Chacahoula, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
LCP85-384	16416	60.1	273	1.98	60803
HoCP85-845	11232 -	43.5 -	258 -	2.08	41745 -
HoCP91-555	13915	50.3	277	1.99	50593
L01-283	17114	61.7	277	2.36 +	52408
L01-292	14543	52.6	277	2.59 +	40611 -
L01-299	16525	59.8	277	2.48 +	48551

Table 26. 2003 Nursery first-stubble means of the 2001 “L” assignment series in heavy soil at Iberia Research Station, Jeanerette, LA.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
LCP85-384	13350	52.2	255	2.05	51047
HoCP85-845	8667	34.3	253	2.03	33804
HoCP91-555	12822	46.6	275	1.97	47417
L01-283	11599	44.7	260	2.08	43106
L01-292	11090	42.0	263	2.48	34485
L01-299	14962	56.9	260	2.29	50366

Table 27. 2003 Nursery first-stubble means of the 2001 “L” assignment series in heavy soil at Sugar Research Station, St. Gabriel, LA.

Variety	Sugar per Acre	Cane Yield	Sugar Per Ton	Stalk Weight	Stalk Number
	(lbs/A)	(tons/A)	(lbs/ton)	(lbs)	(stalks/A)
LCP85-384	11460	50.7	226	2.01	50593
HoCP85-845	9863	49.0	200 -	2.67 +	36754 -
HoCP91-555	9014	43.2	209	1.95	44241
L01-283	9812	46.1	213	2.54 +	36527 -
L01-292	9454	41.1	230	2.74 +	29948 -
L01-299	13305	60.0	222	2.44 +	49232

Table 28. 2003 Infield plant cane means of the 2002 “L” assignment series in light soil at Sugar Research Station, St. Gabriel, LA.

Variety	Sugar per Acre	Cane Yield	Sugar Per Ton	Stalk Weight	Stalk Number	Fiber
	(lbs/A)	(tons/A)	(lbs/ton)	(lbs)	(stalks/A)	(%)
LCP85-384	7424	31.7	235	1.88	33578	12.1
HoCP85-845	8524	36.2	235	2.37	30628	12.9
HoCP91-555	9464	40.1	237	2.34	34485	12.8
L02-316	9058	36.1	251	2.07	34939	14.8 +
L02-320	10726	45.9	233	2.08	44241 +	11.1
L02-322	8289	33.1	250	2.24	29494	13.2
L02-323	7320	29.4	247	2.26	26091	9.6 -
L02-324	12414 +	51.1 +	243	2.61 +	39249	14.5 +
L02-325	9405	39.5	239	2.44	31989	14.2 +
L02-326	8159	35.1	232	2.25	31309	12.5
L02-333	12559 +	50.8 +	248	2.67 +	38115	13.5
L02-336	6477	27.4	236	2.11	25864	12.4
L02-341	6413	26.1	246	1.89	27679	12.9
L02-342	12178 +	49.2 +	248	2.72 +	37208	11.0
L02-343	8562	35.3	234	2.30	30628	11.9
L02-353	13234 +	49.6 +	264	2.43	40384	12.1
L02-354	7771	38.4	202	2.03	37888	9.7 -

Table 29. 2003 Nursery third-stubble means of the 1998 “L” assignment series across locations.

Variety	Sugar per Acre	Cane Yield	Sugar Per Ton	Stalk Weight	Stalk Number	Fiber
	(lbs/A)	(tons/A)	(lbs/ton)	(lbs)	(stalks/A)	(%)
CP70-321	6304	27.0	236	1.80 +	30290 -	11.7
TucCP77-042	7806	36.3	217	1.71	42075	14.0
LCP85-384	7821	34.9	234	1.49	47098	12.2
HoCP85-845	7431	33.2	224	1.73	38445	12.7
HoCP96-540	10690	38.3	248	1.53	49193	12.5
L97-128	9808	35.9	242	1.71	41450	12.1
L98-209	8121	35.8	235	1.71	41386	12.6

Table 30. 2003 Infield and Nursery second-stubble means of the 1999 “HoCP” and “L” assignment series across locations.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)	Fiber (%)
CP70-321	7697	32.6	237	1.99	32327 -	11.6
LCP85-384	10948	46.2	239	1.73	52323	13.0
HoCP85-845	9140	38.5	238	1.83	42419	12.8
L99-226	13598	51.1	268 +	2.47 +	40799 -	12.8
L99-233	10749	46.9	228	1.75	52593	13.3

Table 31. 2003 Nursery third-stubble means of the 1999 “L” assignment series across locations.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	6616	29.6	225	2.13 +	27679
LCP85-384	8381	34.8	240	1.55	44694
HoCP85-845	8218	34.8	237	1.73	40043
L99-226	13746 +	53.4 +	258	2.32 +	46283
L99-233	9195	38.0	241	1.68	45488

Table 32. 2003 Infield and Nursery first-stubble means of the 2000 “HoCP” and “L” assignment series across locations.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)	Fiber (%)
LCP85-384	9861	38.9	255	1.74	44863	11.5
HoCP85-845	8907	36.0	247	1.86	38586 -	12.4
HoCP91-555	10056	37.6	269	1.63	46705	12.3
L00-266	11751 +	47.0 +	252	1.83	50993	12.8 +
HoCP00-927	10167	39.0	260	1.68	47524	11.5
HoCP00-930	10024	37.6	267	1.94	39054	11.8
HoCP00-950	11708 +	42.2	276 +	1.93	43765	11.5

Table 33. 2003 Nursery second-stubble means of the 2000 “L” assignment series across locations.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	8205	35.0 -	235	1.88	37434 -
LCP85-384	10855	45.7	237	1.71	53391
HoCP85-845	7849 -	36.6 -	214	1.82	40157 -
L00-266	8915	41.6	215	1.57	53240

Table 34. 2003 Infield and Nursery plant cane means of the 2001 “HoCP” and “L” assignment series across locations.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)	Fiber (%)
LCP85-384	11504	44.3	261	2.09	42731	11.7
HoCP85-845	10769	42.5	251	2.50 +	33897 -	13.9 +
HoCP91-555	12103	44.5	275	2.21	41124	12.2
L01-283	14620 +	54.6 +	271	2.50 +	43950	11.0
L01-292	13150	48.1	276	2.51 +	38197	12.6
L01-299	11985	47.1	255	2.59 +	37041	12.7
HoCP01-517	12849	49.3	260	2.82 +	35049 -	9.5 -
HoCP01-520	10183	46.0	224 -	2.13	43653	11.6
HoCP01-523	12363	47.0	265	2.53 +	37370	12.1
HoCP01-529	11284	44.9	254	2.76 +	32556 -	10.2
HoCP01-534	11723	41.0	291 +	2.26	36229 -	10.0
HoCP01-541	12555	48.2	260	1.89	51381 +	12.0
HoCP01-544	13316	49.1	273	2.71 +	36262 -	12.8
HoCP01-551	11645	42.8	274	2.61 +	32874 -	13.8 +
HoCP01-553	13234	51.5	260	3.28 +	31834 -	12.3
HoCP01-558	11942	46.5	258	1.99	46944	11.1
HoCP01-561	12668	47.1	271	2.73 +	34536 -	11.6
HoCP01-564	12535	43.9	288 +	2.21	40627	11.7

Table 35. 2003 Nursery first-stubble means of the 2001 “L” assignment series across locations.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar Per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
LCP85-384	13742	54.3	252	2.01	54148
HoCP85-845	9921 -	42.2 -	237 -	2.26	37434 -
HoCP91-555	11917	46.7	254	1.97	47417
L01-283	12842	50.9	250	2.33 +	44014 -
L01-292	11696	45.2 -	257	2.60 +	35014 -
L01-299	14931	58.9	253	2.40 +	49383

2003 LOUISIANA “HoCP” NURSERY & INFIELD VARIETY TRIALS

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The first replicated tests in the USDA sugarcane breeding program are called nurseries. These tests are typically planted in the fifth year after crossing. Experimental varieties that exceed or equal yields of commercial varieties in the plant cane and first stubble second line trials are assigned permanent “HoCP” or “Ho” numbers. Because a major objective of the sugarcane breeding program is to select varieties that give consistent yields across a range of environmental conditions, nursery yield trials are normally planted in several different regions of the Louisiana sugarcane industry.

USDA nursery tests are customarily planted the year of assignment at Ardoyne Farm near Chacahoula, Iberia Research Station in Jeanerette, and St. Gabriel Research Station in St. Gabriel. Plots in these two-replication tests are one row wide (6 feet) and 16 feet long with a 4-foot alley between plots. At least three commercial varieties (CP 70-321, HoCP 85-845, LCP 85-384, HoCP 91-555, and/or HoCP 96-540) are included in each replication as controls. Varieties from the USDA program advanced for further testing in the year following assignment are combined with varieties from the LSU AgCenter program and replanted in two nurseries on commercial farms. Plot length in these two-replication nursery tests have been increased to 20 feet, with a 4-foot alley between plots. In addition to these nurseries, two infield tests are also planted on commercial farms the year following assignment. These infield tests also include varieties from the USDA and LSU program.

Infield variety tests were usually replanted at Ardoyne Farm two years after assignment. Varieties in this test are introduced to outfield locations and primary stations this same year. Because of a lack of seed, these infield tests have not been replanted in the last two years. Infield tests at Ardoyne Farm were planted in plots three rows wide by 16 feet long, compared to the two rows wide by 24-foot-long plots used in off-station infield tests. Because all infield tests are now harvested with a combine harvester, the two row plot size will be utilized in future infield tests planted at Ardoyne Farm. Infield tests are planted in a randomized complete block design with two replications and include at least three commercial varieties (CP 70-321, HoCP 85-845, LCP 85-384, HoCP 91-555, and/or HoCP 96-540) for use as checks.

Nursery plots are rated for stand (population) and vigor in both the spring (May) and summer (August). Stalk counts representing mature millable stalks are made in July or August. A 10-stalk sample is hand-cut from each plot during the harvest season. Samples from USDA nurseries are taken to the Juice and Milling Quality Laboratory at Ardoyne Farm, where they are weighed and processed for sucrose analysis. Combined nurseries are taken to the Juice Laboratory at either Ardoyne Farm or St. Gabriel. Brix and pol are then used to estimate the yield of theoretical recoverable sugar (TRS) per ton of cane. Results from these analyses, along with mature millable stalk counts and mean stalk weight, are used to calculate yield of sugar per

acre, yield of cane per acre, and number of stalks per acre. Varieties with adequate yields (both tonnage and sugar per ton) and disease and insect resistance are advanced for further testing.

Varieties from the 2000 through the 2002 HoCP & Ho series were harvested from “HoCP” nursery trials in 2003. Because of excessive rainfall and poor field conditions, the 2002 HoCP & Ho assignment series were planted only at one location in 2002. Varieties from the 2002 HoCP & Ho series were combined with varieties from the 2002 LSU AgCenter series and replanted on four commercial farms (two nursery trials and two infield trials). Test locations, planting dates, and harvest dates of “HoCP” series nursery tests can be found in Table 1.

Two infield tests at Ardoyne Farm were harvested mechanically with a combine harvester. Two samples (10 stalks for sucrose analysis and five stalks for fiber analysis) were hand-cut from each plot just prior to harvesting and sent to the sucrose lab at Ardoyne Farm for processing. Plots were weighed with a tractor-pulled hydraulic weigh wagon. Plot weights and sucrose analysis were used to estimate sugar per acre, tons of cane per acre, sugar per ton of cane, mean stalk weight, and number of stalks per acre. An estimate of fiber percentage was also obtained. Planting and harvest dates of these two tests can be found in Table 1.

Statistical analyses were conducted for each test and for each series using PROC MIXED procedures in SAS (version 8.02). For purposes of comparison, LCP 85-384 is highlighted in each table. Yield estimates that are significantly higher or lower ($P=0.05$) than estimates for LCP 85-384 are noted with a “+” or “-” respectively. Results from trials harvested in 2003, along with combined analyses where applicable, can be found in Tables 2 to 12.

Table 1. 2003 Planting and harvest dates of “HoCP” infield and nursery tests.

Series	Location ^{2/}	Soil Texture ^{3/}	Test type	Planting Date	Harvest Dates		
					2001	2002	2003
1998	AFH	Sc	Infield	10/2/00	11/15	11/26	10/8
1999	AFH	Sc	Infield	9/27/01		11/26	10/8
2000	AFL	Csl	Nursery	10/27/00	11/21	10/31	11/10
2000	IRS	Bsc	Nursery	10/31/00	11/26	11/01	11/12
2000	STG	Csl	Nursery	10/30/00	12/07	12/13	10/24
2001	AFL	Csl	Nursery	10/18/01		12/06	11/10
2001	IRS	Bsc	Nursery	10/23/01		12/11	11/12
2001	STG	Csl	Nursery	10/19/01		12/13	10/24
2002	AFL	Csl	Nursery	11/8/02			11/24
2003	AFL	Csl	Nursery	10/20/03			
2003	IRS	Bsc	Nursery	10/21/03			
2003	STG	Csl	Nursery	10/17/03			

^{2/} AFH = Ardoyne Farm heavy soil, AFL = Ardoyne Farm Light soil in Chacahoula, IRS = Iberia Research Station in Jeanerette, STG = St. Gabriel Research Station in St. Gabriel.

^{3/} Bsc = Baldwin silty clay, Csl = Commerce silt loam, Sc = Sharkey clay

Table 2. Means of the 1998 HoCP and L series second-stubble infield variety test on heavy soil at Ardoyne Farm in 2003.

Variety	Sugar/ acre (lbs.)	Tons/ acre (tons)	Sugar/ ton (lbs.)	Weight/ stalk (lbs.)	Stalks/ acre (no.)	Fiber (%)
CP 70-321	5802	25.4	227	1.99 +	25286 -	11.8
LCP 85-384	7419	32.3	229	1.31	49341	11.6
HoCP 85-845	7060	30.0	235	1.77	34400	12.5 +
TucCP 77-042	6493	29.8	219	1.51	40498	13.9 +
L 98-209	8012	35.4	227	1.77	39973	11.0

Table 3. Means of the 1999 Ho series first-stubble infield variety test on heavy soil at Ardoyne Farm in 2003.

Variety	Sugar/ acre (lbs.)	Tons/ acre (tons)	Sugar/ ton (lbs.)	Weight/ stalk (lbs.)	Stalks/ acre (no.)	Fiber (%)
LCP 85-384	10030	39.7	253	1.51	54105	13.5
HoCP 85-845	7759	32.3	240	1.73	37772	14.8
HoCP 91-555	8067	34.0	235	1.40	48694	13.5
L 99-226	10380	42.0	248	1.89	44323	13.4
L 99-233	8136	34.8	234	1.81	38508	14.9

Table 4. Means of the 2000 HoCP and Ho series second-stubble nursery variety trial on a Commerce silt loam soil at Ardoyne Farm in Chacahoula, LA, in 2003.

Variety	Sugar/ acre (lbs.)	Tons/ acre (tons)	Sugar/ ton (lbs.)	Weight/ stalk (lbs.)	Stalks/ acre (no.)
HoCP 70-321	9356	33.4	279	2.14 +	30855 -
LCP 85-384	14211	52.1	274	1.61	63979
HoCP 85-845	11504	41.2	278	1.95	41972 -
HoCP 00-927	10514	40.3	261	1.59	50593
HoCP 00-930	10609	39.7	268	1.79	44468 -
HoCP 00-950	15073	50.1	299	2.03	49005

Table 5. Means of the 2000 HoCP and Ho series second-stubble nursery variety trial on a Baldwin silty clay soil at Iberia Research Station in 2003.

Variety	Sugar/ acre (lbs.)	Tons/ acre (tons)	Sugar/ ton (lbs.)	Weight/ stalk (lbs.)	Stalks/ acre (no.)
HoCP 70-321	13953	50.8	275	2.22 +	45829 -
LCP 85-384	12712	50.4	252	1.58	63979
HoCP 85-845	10248	40.6	252	1.89	42879 -
HoCP 00-927	14654	57.9	253	1.95	59441
HoCP 00-930	11189	39.8	281 +	1.78	44694 -
HoCP 00-950	11032	40.8	271	1.56	52408 -

Table 6. Means of the 2000 HoCP and Ho series second-stubble nursery variety trial on a Commerce silt loam soil at St. Gabriel Research Station in St. Gabriel, LA, in 2003.

Variety	Sugar/ acre (lbs.)	Tons/ acre (tons)	Sugar/ ton (lbs.)	Weight/ stalk (lbs.)	Stalks/ acre (no.)
HoCP 70-321	11583	48.8	237	2.40	40611 -
LCP 85-384	11808	53.9	217	1.83	58534
HoCP 85-845	7565	35.3 -	212	1.82	38796 -
HoCP 00-927	10352	47.7	217	1.99	48098 -
HoCP 00-930	11461	49.1	233	1.90	51728
HoCP 00-950	11143	43.6	255 +	1.75	50593

Table 7. Combined means of the 2000 HoCP and Ho series second-stubble nursery variety trials in 2003.

Variety	Sugar/ acre (lbs.)	Tons/ acre (tons)	Sugar/ ton (lbs.)	Weight/ stalk (lbs.)	Stalks/ acre (no.)
HoCP 70-321	11631	44.3	264 +	2.25 +	39098 -
LCP 85-384	12910	52.1	248	1.67	62164
HoCP 85-845	9772	39.0	247	1.88	41216 -
HoCP 00-927	11840	48.6	244	1.84	52711 -
HoCP 00-930	11087	42.9	261	1.82	46963 -
HoCP 00-950	12416	44.8	275 +	1.78	50669 -

Table 8. Means of the 2001 HoCP and Ho series first-stubble nursery variety trial on a Commerce silt loam soil at Ardoyne Farm in Chacahoula, LA, in 2003.

Variety	Sugar/ acre (lbs.)	Tons/ acre (tons)	Sugar/ ton (lbs.)	Weight/ stalk (lbs.)	Stalks/ acre (no.)
LCP 85-384	11881	41.3	288	1.66	50366
HoCP 85-845	12926	47.2	274	2.19 +	43106
HoCP 91-555	13100	45.5	288	1.74	52408
HoCP 01-517	13863	46.8	296	2.61 +	35846 -
HoCP 01-520	11041	42.8	258 -	1.64	52181
HoCP 01-523	13907	51.4	269 -	2.20 +	46736
HoCP 01-529	13886	51.1	272	2.18 +	46963
HoCP 01-534	12856	42.2	305	2.07 +	40838 -
HoCP 01-541	11116	41.7	267 -	1.51	55358
HoCP 01-544	12107	43.4	279	2.19 +	39703 -
HoCP 01-551	12539	42.5	295	2.11 +	40384 -
HoCP 01-553	14243	53.4 +	267 -	2.91 +	36754 -
HoCP 01-558	12008	44.2	272	1.66	53543
HoCP 01-561	13689	49.5	277	2.37 +	41745 -
Ho 01-564	14294	49.6	290	2.17 +	45375

Table 9. Means of the 2001 HoCP and Ho series first-stubble nursery variety trial on a Baldwin silty clay soil at Iberia Research Station in 2003.

Variety	Sugar/ acre (lbs.)	Tons/ acre (tons)	Sugar/ ton (lbs.)	Weight/ stalk (lbs.)	Stalks/ acre (no.)
LCP 85-384	10638	40.2	264	2.26	35619
HoCP 85-845	8782	35.1	250	2.02	34939
HoCP 91-555	11439	42.6	268	1.81	47417
HoCP 01-517	12939	49.2	260	3.04 +	32443
HoCP 01-520	12354	50.5	244	1.89	53769 +
HoCP 01-523	12163	45.3	269	2.33	38569
HoCP 01-529	9276	38.2	243	2.41	31763
HoCP 01-534	10243	34.9	290	2.15	32443
HoCP 01-541	12827	53.3	241	1.72	62164 +
HoCP 01-544	10344	41.6	249	2.63	31763
HoCP 01-551	11448	42.2	268	2.19	38569
HoCP 01-553	12486	49.2	254	2.91 +	33804
HoCP 01-558	8590	35.6	242	1.98	36754
HoCP 01-561	9799	36.6	267	2.48	29721
Ho 01-564	10383	38.6	269	1.92	40157

Table 10. Means of the 2001 HoCP and Ho series first-stubble nursery variety trial on a Commerce silt loam soil at St. Gabriel Research Station in St. Gabriel, LA, in 2003.

Variety	Sugar/ acre (lbs.)	Tons/ acre (tons)	Sugar/ ton (lbs.)	Weight/ stalk (lbs.)	Stalks/ acre (no.)
LCP 85-384	10950	44.8	244	1.85	48324
HoCP 85-845	9620	41.5	232	2.05	40384
HoCP 91-555	11556	43.7	265 +	1.90	46283
HoCP 01-517	12578	44.8	280 +	3.04 +	29494 -
HoCP 01-520	13640	62.4 +	219 -	2.21	56946
HoCP 01-523	11819	48.8	242	2.00	49005
HoCP 01-529	11646	49.9	233	2.28	43787
HoCP 01-534	9125	32.0 -	286 +	1.71	37661 -
HoCP 01-541	11046	46.4	238	1.71	54677
HoCP 01-544	12230	49.5	246	2.47 +	40157
HoCP 01-551	12793	49.4	259	2.17	45602
HoCP 01-553	12347	52.1	237	2.97 +	34939 -
HoCP 01-558	11995	46.5	258	1.97	47417
HoCP 01-561	12460	50.7	245	2.52 +	40384
Ho 01-564	13530	52.4	258	2.19	47871

Table 11. Combined means of the 2001 HoCP and Ho series first-stubble nursery variety trials in 2003.

Variety	Sugar/ acre (lbs.)	Tons/ acre (tons)	Sugar/ ton (lbs.)	Weight/ stalk (lbs.)	Stalks/ acre (no.)
LCP 85-384	11157	42.1	266	1.92	44770
HoCP 85-845	10443	41.3	252 -	2.09	39476
HoCP 91-555	12031	43.9	274	1.82	48703
HoCP 01-517	13127	46.9	279	2.89 +	32594 -
HoCP 01-520	12345	51.9 +	241 -	1.91	54299 +
HoCP 01-523	12630	48.5	260	2.18	44770
HoCP 01-529	11603	46.4	249 -	2.29 +	40838
HoCP 01-534	10741	36.3	293 +	1.97	36981 -
HoCP 01-541	11663	47.1	249 -	1.64 -	57399 +
HoCP 01-544	11561	44.8	258	2.43 +	37208 -
HoCP 01-551	12260	44.7	274	2.15	41518
HoCP 01-553	13025	51.6 +	252	2.93 +	35166 -
HoCP 01-558	10864	42.1	257	1.87	45904
HoCP 01-561	11983	45.6	263	2.45 +	37283 -
HoCP 01-564	12735	46.8	272	2.09	44468

Table 12. Means of the 2002 HoCP and Ho series plant-cane nursery variety trial on a Commerce silt loam soil at Ardoyne Farm in Chacahoula, LA, in 2003.

Variety	Sugar/ acre (lbs.)	Tons/ acre (tons)	Sugar/ ton (lbs.)	Weight/ stalk (lbs.)	Stalks/ acre (no.)
LCP 85-384	9284	34.2	271	2.22	30855
HoCP 85-845	8066	30.0	269	2.49	24276
HoCP 91-555	12596	44.6	281	2.33	38342
HoCP 02-600	11644	39.2	297 +	2.13	36754
HoCP 02-601	8111	30.8	263	1.94	31763
HoCP 02-603	7113	29.3	243 -	1.96	29721
HoCP 02-610	9918	37.8	264	2.64	28586
HoCP 02-612	11887	41.9	283	2.71	31309
HoCP 02-615	8497	30.4	280	1.86	32670
HoCP 02-618	12175	47.0	259	2.07	45602 +
HoCP 02-620	11490	41.5	278	2.14	39476
HoCP 02-621	10787	37.2	290	2.20	33804
HoCP 02-622	10008	40.9	244 -	2.20	37434
HoCP 02-623	11099	38.3	290	2.02	38569
HoCP 02-624	9613	39.1	246 -	2.04	38569
HoCP 02-625	9005	32.2	279	2.03	32216
HoCP 02-626	13805	48.0	287	2.65	36754
HoCP 02-629	11034	41.4	267	2.00	41518 +
HoCP 02-631	10556	38.9	272	2.60	29948
HoCP 02-632	11174	40.0	279	2.20	36527
HoCP 02-634	11841	44.8	264	2.28	39476
HoCP 02-636	11408	44.1	259	2.43	36527
HoCP 02-637	9077	38.7	235 -	2.01	38342
HoCP 02-639	12463	44.5	280	2.37	37661
HoCP 02-640	12670	43.3	293 +	2.20	39476
HoCP 02-642	12034	43.3	276	2.53	33578
HoCP 02-646	11333	44.4	256	3.17 +	28133
HoCP 02-648	12182	45.8	266	2.78	32897
HoCP 02-652	9069	35.3	255	2.40	29267
Ho 02-653	11115	42.5	260	2.64	32216

2003 LOUISIANA SUGARCANE VARIETY DEVELOPMENT PROGRAM
OUTFIELD VARIETY TRIALS¹

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The outfield variety trials are the final stage of testing experimental varieties for their potential commercial production in Louisiana. Results from these trials are used in both variety advancement and crossing decisions. The outfield variety trials are cooperatively conducted at 10 commercial locations throughout the Louisiana Sugarcane Belt by the LSU AgCenter, the USDA-ARS, and the American Sugar Cane League.

To be considered for release, an experimental variety must equal or exceed the performance of commercial varieties with regard to yield and havestability across locations, crops, and years. Accurate varietal evaluation requires overall yield performance information in addition to performance under adverse harvest conditions. The objective of this report is to provide overall and specific location yield data by crop for the 2003 outfield tests. Also included are multi-year yield analyses for appropriate test varieties.

The experimental design used at each outfield location was a randomized complete block design with three replications per location. To reflect industry practices, all locations were harvested with a combine harvester. Second- and third-stubble plots were three rows wide (6-foot rows) and 32 feet long with 5-foot alleys between plots, with the exception of Glenwood and Alma. Plant cane, first stubble and all Glenwood and Alma test plots harvested were two rows wide and 50 feet long with 5-foot alleys between plots. All tests planted in 2003 had two-row plots that were 50 feet long with 5-foot alleys. Test plots harvested by the combine were weighed with an electronic weigh wagon with load cells mounted on each axle and hitch. A 15-stalk, whole-stalk sample, not stripped of leaves, was taken from each plot and sent to the USDA-ARS sucrose lab. Samples were hand cut for all tests. The samples were weighed, milled, and the juice analyzed for Brix and pol. Pounds of theoretical recoverable sugar per ton of cane are reported.

Cane yield for each plot was estimated by plot weight, less 14% to adjust for leaf-trash weight and 10% for harvester efficiency. Stalk number was calculated by dividing adjusted cane yield by stalk weight. Adjustments made to cane yield resulted in lower estimated stalk numbers than those achieved by growers.

¹Data were obtained through a cooperative effort of personnel from the LSU AgCenter, USDA-ARS, Sugarcane Research Unit, and the American Sugar Cane League in accordance to the provisions of the "Three-way Agreement of 1978." The testing program would not be possible without the full cooperation of the growers at each outfield location.

Interpreting one year of yield data can be misleading because varieties may differ in relative performance from year to year. Across location means can likewise be misleading since a variety, experimental or commercial, may not perform consistently at all locations. Multi-year and multi-location testing attempts to solve these problems by averaging the inconsistent performances.

LCP85-384 has been the leading variety in Louisiana since 1998, with about 88% of the sugarcane acreage in 2003 grown to this variety. For comparison, LCP85-384 is highlighted in the tables. To adjust for missing data, the analysis calculated least square means (SAS 8.01 Proc Mixed). Mean separation used least square mean probability differences ($P=0.05$). Varieties that are significantly higher or lower than LCP85-384 are denoted by a plus (+) or minus (-), respectively, next to the value for each trait.

Fifteen experimental varieties were introduced to the outfield locations for seed increase in 2003 (Table 1). Nine experimental and three commercial varieties were planted at nine outfield locations. Allains was not planted in 2003 because introductions were not planted in 2002 because of extremely wet conditions. Introductions were planted at Allains in 2003. Twenty-eight tests were harvested in 2003 including eight plant cane, eight first-stubble, eight second-stubble, and two third-stubble crops (Table 2).

Variety yields are reported by crop and trait with overall means and individual location data in the same table (Table 3-22) and in summary tables by crop (Tables 23-26). Tables 27-33 provide combined analysis of plant cane, first-, second-, and third-stubble crops averaged over several years to aid in the evaluation of commercial and experimental varieties.

Ho95-988 is eligible for release in 2004. The new variety is a product of the basic breeding program from the USDA-ARS in Houma, whose goal is to broaden the genetic base of sugarcane in Louisiana. Ho95-988 was dropped in 2000 because of smut. However, data collection for breeding purposes was agreed to. After reviewing the 2001 data, all three organizations agreed to reinstate the variety into the active breeding program. The variety was replanted at the secondary stations in 2003. Ho95-988 is an early maturing sugarcane variety that has maintained equal and sometimes higher yield potential than LCP85-384. Smut data indicate the variety is moderately susceptible. The variety has better erectness than LCP85-384

L97-128 is also eligible for release in 2004. The variety begins maturing very early in the harvest season and maintains high levels of recoverable sugar throughout the growing season. L97-128 has a very good erect growth habit, making it well suited to combine harvesting. L97-128 has a larger stalk diameter and a lower population than LCP85-384. Its smut rating is moderately susceptible. The parents of L97-128 are LCP81-10 X LCP85-384.

L98-209, L99-226, and L99-233 performed well in outfield testing in 2003. L98-209 is eligible for release in 2005, with L99-226 and L99-233 eligible for release in 2006.

Table 1. 2003 Commercial and experimental varieties planted in the outfield.

Commercial Varieties	Experimental Varieties		Experimental Varieties Introduced to the Outfield		
LCP85-384	L97-128	L00-268	L01-283	HOCP01-523	HOCP01-551
HOCP91-555	L98-209	HOCP00-927	L01-292	HOCP01-529	HOCP01-553
HOCP96-540	L99-226	HOCP00-930	L01-299	HOCP01-534	HOCP01-558
	L99-233	HOCP00-950	HOCP01-517	HOCP01-541	HOCP01-561
	L00-266		HOCP01-520	HOCP01-544	HO01-564

Table 2. Harvest and planting dates for all outfield locations harvested in 2003.

Location	Parish	2003 Date Planted	Plant cane		First-stubble		Second-stubble		Third-stubble	
			2003 Harvest Date	2002 Plant Date	2003 Harvest Date	2001 Plant Date	2003 Harvest Date	2000 Plant Date	2003 Harvest Date	1999 Plant Date
Allain	St. Mary	09/12*	--	---	11/06	09/19	11/06	09/27	--	9/14
Alma	Pointe Coupee	09/11	11/03	09/04	11/03	09/14	10/23	08/30	--	---
Bon Secour	St. James	09/05	12/03	09/03	12/03	09/08	11/05	08/24	11/05	09/13
Georgia	Lafourche	09/18	12/16	09/21	12/16	09/15	12/16	09/19	--	8/24
Glenwood	Assumption	08/27	11/10	08/29	10/27	09/25	10/27	08/23	--	8/26
Lanaux	St. John	09/03	11/19	09/11	11/18	09/05	10/09	09/06	--	9/15
Levert-St.John	St. Martin	08/26	11/17	09/11	10/29	09/19	10/29	09/01	--	8/18
Magnolia	Terrebonne	10/09	10/28	08/16	10/28	10/04	10/28	10/04	--	8/23
R. Hebert	Iberia	09/12	12/09	09/18	12/12	09/27	11/07	09/05	11/07	08/25
A. Landry	Iberville	09/17	--	--	--	--	--	--	--	---

* Introductions only.

** No test harvested at this location.

--- No test planted.

Table 3. Plant cane sugar per acre for four commercial and four experimental varieties at eight outfield locations in 2003.

Variety	Heavy		Light						Mean
	Magnolia	Alma	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John	
	(lbs/A)								
LCP85-384	6513	5264	8661	7870	9899	8434	7982	7636	7782
HOCP85-845	6235	4828	8599	6743	10432	8244	7859	6443 -	7423
HOCP91-555	7185	6012	7969	6965	10387	7856	7261	7649	7660
HOCP96-540	6734	6658	9831	7738	9572	8756	8761	9700 +	8469 +
L97-128	6424	7124 +	8579	7535	11082	10046	8132	8299	8402
L98-209	7621 +	6476	8578	7003	9624	7420	8736	9104 +	8070
L99-226	9193 +	7032 +	9362	7940	10374	10955 +	8980	9400 +	9154 +
L99-233	7101	6755	9352	8436	9865	9665	7510	8552	8405

Table 4. Plant cane yield for four commercial and four experimental varieties at eight outfield locations in 2003.

Variety	Heavy		Light						Mean
	Magnolia	Alma	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John	
	(tons/A)								
LCP85-384	24.3	20.3	32.6	27.5	36.5	30.9	29.7	26.1	28.5
HOCP85-845	24.1	19.6	35.7	26.1	41.4	34.2	35.6	24.7	30.2
HOCP91-555	25.0	21.7	29.8	24.3	36.5	29.8	27.4	26.2	27.6
HOCP96-540	27.6 +	23.3	35.2	28.7	36.9	33.2	33.2	32.5 +	31.3 +
L97-128	23.2	25.2	31.9	25.4	41.6	37.2	33.4	29.6	30.9
L98-209	27.5 +	22.7	30.8	24.7	34.9	27.1	32.6	29.3	28.7
L99-226	33.4 +	26.6 +	33.1	26.8	33.8	35.3	32.4	29.5	31.4 +
L99-233	26.3	24.7	37.1	29.6	38.0	36.5	29.8	31.9 +	31.7 +

Table 5. Plant cane sugar per ton for four commercial and four experimental varieties at eight outfield locations in 2003.

Variety	Heavy		Light						Mean
	Magnolia	Alma	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John	
	(lbs/ton)								
LCP85-384	268	260	265	286	271	273	269	293	273
HOCP85-845	260	246	241	258 -	252	240	223 -	261 -	248 -
HOCP91-555	287 +	277	267	286	285	265	265	292	278
HOCP96-540	245 -	287 +	279	269	258	264	263	298	271
L97-128	278	284 +	268	297	266	270	244	281	274
L98-209	277	287 +	279	283	276	273	267	311 +	282
L99-226	276	264	283	296	307 +	311 +	277	319 +	292 +
L99-233	270	274	254	285	260	265	256	268 -	267

Table 6. Plant cane stalk weight for four commercial and four experimental varieties at eight outfield locations in 2003.

Variety	Heavy		Light						Mean
	Magnolia	Alma	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John	
	(lbs)								
LCP85-384	1.93	2.25	2.02	2.41	2.14	2.25	2.57	1.77	2.17
HOCP85-845	2.25	2.09	2.19	2.25	2.34	2.28	2.87	1.80	2.26
HOCP91-555	1.91	2.52	2.13	2.05	1.99	2.49	2.25	1.50	2.11
HOCP96-540	2.84 +	2.68 +	2.90 +	2.62	2.77 +	2.38	3.52 +	2.07	2.72 +
L97-128	2.16	2.56	2.55 +	2.20	2.64 +	2.50	3.15 +	2.01	2.47 +
L98-209	2.39 +	2.50	2.70 +	2.79	2.57	2.83	3.44 +	2.11	2.67 +
L99-226	2.96 +	2.82 +	3.30 +	2.96 +	3.06 +	3.10 +	3.60 +	1.63	2.93 +
L99-233	2.05	2.20	1.87	2.26	1.94	2.07	2.33	1.40	2.01

Table 7. Plant cane stalk number for four commercial and four experimental varieties at eight outfield locations in 2003.

Variety	Heavy		Light						Mean
	Magnolia	Alma	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John	
	(stalks/A)								
LCP85-384	25783	18044	32550	23038	35460	27586	23116	32536	27264
HOCP85-845	21511	18838	33099	23402	35445	30239	24959	27792	26911
HOCP91-555	26515	17374	27904	23923	36870	23877	24169	35320	26994
HOCP96-540	19429 -	17370	24476	22135	26723 -	28702	19096	37540	24434
L97-128	21594	19948	25081	23457	31782	30063	21259	29370	25319
L98-209	23172	18199	22892 -	17775	27508 -	19174 -	19232	28106	22007 -
L99-226	22530	18890	20240 -	18327	22132 -	23588	18105 -	38931	22843 -
L99-233	26143	22780	40479	26203	39206	35191	25706	49613	33165 +

Table 8. First-stubble sugar per acre for four commercial and three experimental varieties at nine outfield locations in 2003.

Variety	Heavy		Light						Mean	
	Allains	Magnolia	Alma	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert		St. John
	(lbs/A)									
TucCP77-042	6033	6750	8332	8979	7833	7433	10756 +	9079	7540	8082
LCP85-384	6157	6988	8209	8450	8397	7729	8626	8847	7881	7920
HOCP85-845	5436	7598	7395	7052 -	7478	6764	9122	8061	7801	7412
HOCP91-555	6236	7051	6727	8333	6608	6357	9204	6469 -	7432	7157 -
HOCP96-540	6698	7164	7941	8480	7584	5329 -	8221	8456	7227	7455
L97-128	6299	6672	10319 +	8222	7493	7226	10095	7506 -	8033	7985
L98-209	7506 +	7867	9513	8285	8132	7781	8411	8440	8349	8254

Table 9. First-stubble yield for four commercial and three experimental varieties at nine outfield locations in 2003.

Variety	Heavy		Light							Mean
	Allains	Magnolia	Alma	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John	
	(tons/A)									
TucCP77-042	26.0	26.8	32.9	35.9 +	30.6	32.4	41.4 +	35.0 +	32.0	32.6 +
LCP85-384	25.7	25.8	29.5	31.0	28.6	30.6	29.4	29.3	28.6	28.7
HOCP85-845	22.1	28.1	27.2 -	30.0	26.5	26.3 -	34.8	29.8	31.4	28.5
HOCP91-555	22.5	25.9	22.9 -	30.3	22.5 -	24.6 -	32.1	22.5 -	26.6	25.5 -
HOCP96-540	26.8	26.1	28.1 -	30.8	26.7	21.3 -	30.0	29.2	26.9	27.3
L97-128	22.4	23.3	33.8	30.2	25.0 -	24.9 -	34.9	25.0 -	30.5	27.8
L98-209	28.1	28.5	31.5	29.8	26.8	28.6	28.5	28.2	29.7	28.9

Table 10. First-stubble sugar per ton for four commercial and three experimental varieties at nine outfield locations in 2003.

Variety	Heavy		Light							Mean
	Allains	Magnolia	Alma	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John	
	(lbs/ton)									
TucCP77-042	233	252 -	253	250 -	256 -	229 -	260 -	260 -	235 -	248 -
LCP85-384	240	272	279	273	294	252	293	302	276	276
HOCP85-845	246	271	271	235 -	283	258	262 -	271 -	250 -	261 -
HOCP91-555	277 +	272	294	275	294	259	288	287	279	281
HOCP96-540	250	274	283	275	284	249	273	290	269	272
L97-128	281 +	286	305	272	300	290 +	290	301	264	288 +
L98-209	28.1	28.5	31.5	29.8	26.8	28.6	28.5	28.2	29.7	28.9

Table 11. First-stubble stalk weight for four commercial and three experimental varieties at nine outfield locations in 2003.

Variety	Heavy		Light								Mean
	Allains	Magnolia	Alma	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John		
	(lbs)										
TucCP77-042	2.08	2.16 +	2.62 +	2.38 +	2.50 +	1.99	2.56	2.40	2.05 +	2.30 +	
LCP85-384	1.96	1.66	1.96	1.66	1.80	1.86	2.37	2.22	1.53	1.89	
HOCP85-845	1.90	1.83	2.30	2.32 +	2.04	1.76	2.10	2.46	1.77	2.05 +	
HOCP91-555	1.57 -	2.07 +	2.44 +	1.92	2.03	1.68	2.04 -	2.05	1.45	1.92	
HOCP96-540	2.20	1.98	2.50 +	2.26 +	2.19 +	1.95	2.48	2.63 +	1.74	2.21 +	
L97-128	2.09	1.92	2.48 +	2.33 +	2.16 +	1.96	2.47	2.40	2.09 +	2.21 +	
L98-209	2.03	2.01	2.41 +	2.09 +	2.21 +	2.03	2.24	2.27	1.53	2.09 +	

Table 12. First-stubble stalk number for four commercial and three experimental varieties at nine outfield locations in 2003.

Variety	Heavy		Light								Mean
	Allains	Magnolia	Alma	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John		
	(stalks/A)										
TucCP77-042	25061	24901	25451	30273 -	24610 -	33670	32671 +	29433	31747	28646	
LCP85-384	26163	32859	30920	37821	31797	33437	25352	26236	37541	31347	
HOCP85-845	23798	31385	23789	25846 -	26109	30319	33467 +	24327	35583	28292 -	
HOCP91-555	28769	25084	18922	31641 -	22204 -	29273	31423 +	21910 -	37877	27456 -	
HOCP96-540	24586	27101	22521	27292 -	24598 -	22104 -	24231	22251 -	30666	25039 -	
L97-128	21439	24534	27342	25916 -	23039 -	25520 -	28244	20785 -	29276	25122 -	
L98-209	28168	28373	26410	28856 -	24423 -	28039	25457	24964	40167	28318 -	

Table 13. Second-stubble sugar per acre for five commercial varieties and one experimental variety at eight outfield locations in 2003.

Variety	Heavy		Light						Mean
	Allains	Magnolia	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John	
	(lbs/A)								
CP70-321	5293 -	2638 -	5371 -	5043 -	5152 -	3282 -	7761	6594	5142 -
LCP85-384	7753	3435	7744	6813	6751	4445	6927	6516	6298
HOCP85-845	5445 -	4201	6833	6286	6499	4085	6835	6448	5829
HOCP91-555	6662	4675 +	7402	6631	6759	5416 +	7685	6915	6518
HOCP96-540	6695	3456	8338	6049	4741 -	4829	8429	8148 +	6335
L97-128	7078	3664	6835	7639	7220	5177 +	8284	8247 +	6768

Table 14. Second-stubble yield for five commercial varieties and one experimental variety at eight outfield locations in 2003.

Variety	Heavy		Light						Mean
	Allains	Magnolia	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John	
	(tons/A)								
CP70-321	21.1 -	9.1	22.4 -	19.6	22.5 -	14.4 -	29.2	24.5	20.4 -
LCP85-384	29.9	11.6	29.6	23.0	26.8	20.9	25.7	24.8	24.0
HOCP85-845	21.7 -	15.5	29.7	22.7	27.8	19.4	28.8	26.6	24.0
HOCP91-555	23.4 -	16.0	28.0	22.5	25.2	22.6	28.5	24.4	23.8
HOCP96-540	26.0	12.0	33.3 +	21.2	19.4 -	23.6 +	30.9	29.6	24.5
L97-128	23.9 -	11.8	28.6	24.5	27.7	19.8	29.3	30.0	24.5

Table 15. Second-stubble sugar per ton for five commercial varieties and one experimental variety at eight outfield locations in 2003.

Variety	Heavy		Light						Mean
	Allains	Magnolia	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John	
	(lbs/ton)								
CP70-321	251	292	240	258 -	229	229	265	270	254
LCP85-384	259	296	262	296	252	213	269	262	264
HOCP85-845	251	271	230	278 -	234	211	236 -	243	244 -
HOCP91-555	285 +	293	264	295	268	241	270	284	275 +
HOCP96-540	257	291	250	286	244	205	273	275	260
L97-128	296 +	311	238	312	261	262 +	284	274	280 +

Table 16. Second-stubble stalk weight for five commercial varieties and one experimental variety at eight outfield locations in 2003.

Variety	Heavy		Light						Mean
	Allains	Magnolia	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John	
	(lbs)								
CP70-321	1.63	1.68 +	2.11 +	1.73	1.74	1.79	2.13	2.15 +	1.87 +
LCP85-384	1.52	1.21	1.78	1.57	1.59	1.75	1.78	1.55	1.59
HOCP85-845	1.60	1.81 +	2.11 +	1.70	1.81	1.93	2.17	2.02	1.89 +
HOCP91-555	1.55	1.46	1.79	1.47	1.53	1.89	1.78	1.58	1.63
HOCP96-540	1.91	1.54 +	2.31 +	1.77	1.81	1.99	1.83	1.75	1.86 +
L97-128	1.57	1.87 +	2.23 +	1.87 +	1.82 +	2.06	2.11	1.76	1.91 +

Table 17. Second-stubble stalk number for five commercial varieties and one experimental variety at eight outfield locations in 2003.

Variety	Heavy		Light						Mean
	Allains	Magnolia	Bon Secour	Georgia	Glenwood	Lanaux	R.Hebert	St. John	
	(stalks/A)								
CP70-321	26133 -	10842 -	21332 -	22877	25772 -	16027 -	27744	22838 -	21696 -
LCP85-384	40177	19227	33218	28962	33689	23811	29071	33574	30216
HOCP85-845	27158 -	17324	28534 -	26808	30755	20319	26600	26641	25518 -
HOCP91-555	30665 -	22110	31251	30604	33078	24198	33094	31237	29530
HOCP96-540	27172 -	15352	28875 -	24376	21688 -	24152	33990	34955	26320 -
L97-128	30437 -	12712 -	25647 -	26202	30542	19201 -	27876	35936	26069 -

Table 18. Third-stubble sugar per acre for five commercial varieties and one experimental variety at two outfield locations in 2003.

Variety	Light		Mean
	Bon Secour	R.Hebert	
	(lbs/A)		
CP70-321	4641 -	7211	5926 -
LCP85-384	6648	8486	7567
HOCP85-845	6041	7314	6678
HOCP91-555	5919	7791	6855
HO95-988	6329	8579	7454
HOCP96-540	6463	9149	7806

Table 19. Third-stubble yield for five commercial varieties and one experimental variety at two outfield locations in 2003.

Variety	Light		Mean
	Bon Secour	R.Hebert	
	(tons/A)		
CP70-321	19.4 -	27.7	23.5 -
LCP85-384	27.3	32.5	29.9
HOCP85-845	25.8	27.6	26.7
HOCP91-555	23.4	28.2	25.8
HO95-988	24.6	30.5	27.6
HOCP96-540	28.4	32.4	30.4

Table 20. Third-stubble sugar per ton for five commercial varieties and one experimental variety at two outfield locations in 2003.

Variety	Light		Mean
	Bon Secour	R.Hebert	
	(lbs/ton)		
CP70-321	239	261	250
LCP85-384	244	262	253
HOCP85-845	234	266	250
HOCP91-555	252	277	264
HO95-988	257	281 +	269
HOCP96-540	228	283 +	255

Table 21. Third-stubble stalk weight for five commercial varieties and one experimental variety at two outfield locations in 2003.

Variety	Light		Mean
	Bon Secour	R.Hebert	
	(lbs)		
CP70-321	1.99 +	2.01 +	2.00 +
LCP85-384	1.55	1.31	1.43
HOCP85-845	1.67	1.65	1.66
HOCP91-555	1.74	1.62	1.68
HO95-988	1.75	1.85 +	1.80 +
HOCP96-540	1.99 +	2.13 +	2.06 +

Table 22. Third-stubble stalk number for five commercial varieties and one experimental variety at two outfield locations in 2003.

Variety	Light		Mean
	Bon Secour	R.Hebert	
	(stalks/A)		
CP70-321	19440 -	27591 -	23516 -
LCP85-384	35444	55178	45311
HOCP85-845	31529	33365 -	32447 -
HOCP91-555	27749 -	35501	31625 -
HO95-988	28154 -	33767 -	30961 -
HOCP96-540	29104	30419 -	29762 -

Table 23. 2003 plant cane means from eight outfield locations: Alma, Bon Secour, Georgia, Glenwood, Lanoux, Magnolia, R. Hebert, and St. John farms.

Variety	Sugar per Acre	Cane Yield	Sugar per Ton	Stalk Weight	Stalk Number
	(lbs/A)	(tons/A)	(lbs/ton)	(lbs)	(stalks/A)
LCP85-384	7782	28.5	273	2.17	27264
HOCP85-845	7423	30.2	248 -	2.26	26911
HOCP91-555	7660	27.6	278	2.11	26994
HOCP96-540	8469 +	31.3 +	271	2.72 +	24434
L97-128	8402	30.9	274	2.47 +	25319
L98-209	8070	28.7	282	2.67 +	22007 -
L99-226	9154 +	31.4 +	292 +	2.93 +	22843 -
L99-233	8405	31.7 +	267	2.01	33165 +

Table 24. 2003 first stubble means from nine outfield locations: Allain, Alma, Bon Secour, Georgia, Glenwood, Lanoux, Magnolia, R. Hebert, and St. John farms.

Variety	Sugar per Acre	Cane Yield	Sugar per Ton	Stalk Weight	Stalk Number
	(lbs/A)	(tons/A)	(lbs/ton)	(lbs)	(stalks/A)
TucCP77-042	8082	32.6 +	248 -	2.30 +	28646
LCP85-384	7920	28.7	276	1.89	31347
HOCP85-845	7412	28.5	261 -	2.05 +	28292 -
HOCP91-555	7157 -	25.5 -	281	1.93	27297 -
HOCP96-540	7455	27.3	272	2.21 +	25039 -
L97-128	7985	27.8	288 +	2.21 +	25122 -

L98-209	8254	28.9	286 +	2.09 +	28318 -
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Table 25. 2003 second-stubble means from eight outfield locations: Allain, Bon Secour, Georgia, Glenwood, Lanoux, Magnolia, R. Hebert, and St. John farms.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	5142 -	20.3 -	254	1.87 +	21696 -
LCP85-384	6298	24.0	264	1.59	30216
HOCP85-845	5829	24.0	244 -	1.89 +	25518 -
HOCP91-555	6518	23.8	275 +	1.63	29530
HOCP96-540	6335	24.5	260	1.86 +	26320 -
L97-128	6768	24.4	280 +	1.91 +	26069 -

Table 26. 2003 third-stubble means from two outfield locations: Bon Secour and R. Hebert farms.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	5926 -	23.5 -	250	2.00 +	23516 -
LCP85-384	7567	29.9	253	1.43	45311
HOCP85-845	6678	26.7	250	1.66	32447 -
HOCP91-555	6855	25.8	264	1.68	31625 -
HOCP96-540	7806	30.4	255	2.06 +	29762 -
HO95-988	7454	27.6	269	1.80 +	30961 -

Table 27. Combined plant cane means across outfield locations from 2000 to 2003.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
LCP85-384	7810	29.7	263	2.13	28360
HOCP85-845	7239 -	29.6	245 -	2.42 +	24532 -
HOCP91-555	7820	29.9	262	2.17	28002
HOCP96-540	8945 +	33.9 +	263	2.69 +	25724 -

Table 28. Combined plant cane means across outfield locations from 2001 to 2003.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
LCP85-384	7714	29.4	262	2.16	27743
HOCP85-845	7241 -	29.3	248 -	2.38 +	24769 -
HOCP91-555	7647	29.0	264	2.17	27314
HOCP96-540	8730 +	32.9 +	265	2.70 +	24948 -
L97-128	8643 +	32.3 +	267	2.67 +	24410 -

Table 29. Combined plant cane means across outfield locations from 2002 to 2003.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
LCP85-384	7664	29.3	262	2.17	27642
HOCP85-845	7287	29.6	248 -	2.33 +	25737
HOCP91-555	7613	28.7	266	2.19	26974
HOCP96-540	8503 +	32.1 +	265	2.71 +	24473 -
L97-128	8249 +	31.3 +	263	2.57 +	24572 -
L98-209	8041	29.8	271 +	2.52 +	24214 -

Table 30. Combined first-stubble means across outfield locations from 2001 to 2003.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
LCP85-384	7680	28.4	271	1.81	31998
HOCP85-845	6932 -	26.7 -	260 -	2.05 +	26458 -
HOCP91-555	7243 -	26.2 -	276 +	1.81	29603 -
HOCP96-540	7987	30.1 +	266	2.21 +	27631 -

Table 31. Combined first-stubble means across outfield locations from 2002 to 2003.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
LCP85-384	7606	28.0	272	1.80	31772
HOCP85-845	7099 -	27.3	261 -	2.04 +	27316 -
HOCP91-555	7117	25.8 -	276	1.84	28813 -
HOCP96-540	7756	28.9	270	2.21 +	26577 -
L97-128	7725	27.8	280 +	2.20 +	25177 -

Table 32. Combined second-stubble means across outfield locations from 2002 to 2003.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	5070 -	20.3 -	250 -	1.93 +	21098 -
LCP85-384	6806	26.5	260	1.60	33231
HOCP85-845	6353	25.4	251 -	1.85 +	27711 -
HOCP91-555	6845	25.3	272 +	1.62	31740
HOCP96-540	7359	28.7	258	1.96 +	29295 -

Table 33. Combined third-stubble means across outfield locations from 2002 to 2003.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP70-321	6032 -	24.2 -	249	2.08 +	23698 -
LCP85-384	7622	29.8	256	1.46	43022
HOCP85-845	6375 -	25.5 -	249	1.81 +	28825 -
HOCP91-555	6469 -	24.2 -	267	1.65	29807 -
HOCP95-988	7620	28.3	269	1.83 +	31229 -

SUCROSE LABORATORY AT ST. GABRIEL

G. L. Hawkins and K. A. Gravois
St. Gabriel Research Station

More than 2,900 samples were processed at the St. Gabriel Sucrose Laboratory during the 2003 harvest season (Table 1). Standard laboratory procedures, which include use of Octapol® clarifier, were used to measure the Brix and pol of the juice. The use of the ABC Clarifier was discontinued because of inconsistencies in clarifying the juice. The pol was analyzed using an autopol 880 model that could read dark samples. The juice was extracted via a three-roller mill for 2932 samples. Fiber analysis was done on 34 samples using a pre-breaker to shred the sample. A new computer program was developed for the sucrose laboratory that assigned a sample identification number to each set processed. In addition, it indicated the number of samples analyzed in that set. The program was designed to automatically calculate sucrose and theoretical recoverable sugar based on the Brix and pol numbers. The laboratory numbers were recorded on the sample tags and returned to the researchers, along with the computer file that contains Brix, pol and theoretical recoverable sugar per ton of cane. The sucrose laboratory processed samples from September 2003 to December 2003.

Table 1. Number of sugarcane samples processed at the St. Gabriel Sucrose Laboratory during the 2003 harvest season.

Project Area	Leader	Number of Samples
Agronomy & Environmental Mmgt.	James Griffin	324
	Chuck Kennedy	467
	Magdi Selim	6
	Jim Wang	80
Iberia Research Station	William Hallmark	462
	Howard Viator	12
Plant Pathology and Crop Physiology	Jeff Hoy	213
	Clayton Hollier	8
LCES	Ben Legendre	246
USDA	Jim Fouss	36
St. Gabriel Research Station	Line Trials	288
	Increase	88
	Nursery	250
	Nursery (fiber)	34
	Cross Appraisal	8
	Harvestibility Study	300
	Planting Rate	144
TOTAL		2966

LAES SUGARCANE TISSUE CULTURE LABORATORY

Q.J.Xie, J.L Flynn, and K.A.Gravois
Certis USA, LLC and St. Gabriel Research Station

During the 2003-2004 production season, about 30,000 sugarcane plantlets were regenerated in the Louisiana Agricultural Experiment Station Sugarcane Tissue Culture Laboratory. A total of 29,247 plantlets were turned over to Certis USA, LLC, Kleentek Div., for transplanting into the greenhouse at Houma. The number of plantlets transplanted for each cultivar are listed in Table one.

Table 1. The number of tissue-culture-derived plantlets of different cultivars transplanted in the greenhouse.

Cultivar	Number of plantlets
LCP85-384	5,328
Ho98-988	6,396
HoCP96-540	8,118
L97-128	4,298
HoCP91-555	1,152
L99-233	525
CP89-2143	634
L99-226	922
L00-266	1500
L98-209	374
Total	29,247

THE 2003 LOUISIANA SUGARCANE VARIETY SURVEY

Benjamin L. Legendre and Kenneth A. Gravois
LSU AgCenter, St. Gabriel Research Station

A sugarcane variety survey was conducted during the summer of 2003 by the county agents in the 24 sugarcane-growing parishes of Louisiana to determine the variety makeup and distribution across the industry in the state. The information presented in this report was summarized from those individual parish surveys.

Agents in each sugarcane-producing parish collected acreage figures by variety and crop from growers in their respective parishes. Eight varieties, CP 65-357, CP 70-321, CP 72-370, LCP 82-89, LHo 83-153, LCP 85-384, HoCP 85-845 and HoCP 91-555, were listed along with "Others" in the survey. The category of others included, but was not limited to, small acreages of CP 67-412, CP 74-383, CP 76-331, CP 79-318 and LCP 86-454. Crop was divided into four categories, which included plant-cane, first-stubble, second-stubble and third-stubble and older crops. Additional information was collected as needed from the local Farm Service Agency (FSA) offices regarding acres of sugarcane grown in the parishes.

Actual acreages covered by this survey for each parish, region and the statewide total are shown in Table 1. Figure 1 shows the parishes where sugarcane is grown. Statewide, the area planted to sugarcane reported in this survey was 475,873 acres. This is 99.0% of the total acres planted to sugarcane as reported in Louisiana Agricultural Summary for 2003 (Anonymous 2003). Total area planted to sugarcane for the three regions, Bayou Teche, River-Bayou Lafourche and Northern, and parishes (counties) are shown in Table 1. The Bayou Teche region has the largest area planted to sugarcane, with 202,792 acres reported (42.6% of the total acreage), followed by the River-Bayou Lafourche region with 165,441 acres (34.8%) and the Northern area with 107,640 acres (22.6%).

The estimated statewide sugarcane acreage in percent by variety and crop is shown in Table 2. The leading variety for 2003 was LCP 85-384, with 88% of the total acreage followed by HoCP 85-845, HoCP 91-555 and CP 70-321 and with 4, 4 and 3% of the total acreage, respectively. These are the only four varieties recommended for commercial planting in Louisiana (Legendre 2001), although a fifth variety, HoCP 96-540, was released for commercial use during 2003 (Knipling et al. 2003). LCP 85-384 continues to increase in popularity among growers since its release in 1993. No other variety occupied more than 1% of the total acreage in the current survey. Although LCP 85-384 was planted on 88% of the total area in the state, it occupied 90% of the plant-cane crop and 89% of the first-stubble crop in 2003.

As in previous years (Legendre & Gravois 2003), the Northern region tends to plant less cane each year and to keep more of its acreage in stubble crops, especially third and older (Table 3). For the current survey, the Northern area had 23.2% in plant cane compared to 34.3% in third and older stubble. On the other hand, the River-Bayou Lafourche region tends to plant more cane each year, with less of its area committed to stubble crops. However, for the current

year the River-Bayou Lafourche region had only 23.3% of its area in plant cane while 23.6% of its area was in third stubble and older. This reduced planting occurred because of Tropical Storm Isidore and Hurricane Lilly and the rainy weather that followed throughout the harvest. More cane was planted in the Bayou Teche region (24.3%), while the acreage reported in third and older stubble was intermediate between the other two regions (25.6%). In recent years, there has been a general tendency by the industry statewide to plant less cane while keeping more acreage in older stubble. Two of the four recommended varieties, LCP 85-384 and HoCP 85-845, are listed as very good stubbling varieties, and HoCP 91-555 is listed as moderate to good in its stubble behavior (Legendre 2001).

LCP 85-384 was the preferred variety in all regions (Tables 4, 5 and 6). In the Bayou Teche region, LCP 85-384 was the leading variety with 87% of the total area followed by CP 70-321 with 5% and HoCP 85-845 and HoCP 91-555 with 4% each (Table 4). LCP 85-384 occupied 89% of the area in the River-Bayou Lafourche region (Table 5). HoCP 85-845 was the second most popular variety with 6% of the planted area followed by 3% for HoCP 91-555 and only 1% for CP 70-321. For the Northern region, LCP 85-384 occupied 89% of the planted area (Table 6). HoCP 85-845 and HoCP 91-555 were next with 4% each followed by CP 70-321 with 3%. Again, there was a tendency for even higher percentages for LCP 85-384 in the plant-cane and first-stubble crops in all three regions, indicating that the variety has yet to reach its peak.

Only two varieties, LCP 85-384 and HoCP 91-555, showed an increase in the acreage occupied in 2003 when compared to the previous year (Table 7) (Legendre & Gravois 2003). LCP 85-384 increased by 3%, and HoCP 91-555 increased by 1%. All other varieties in the survey either decreased in area or remained the same from the previous year. CP 70-321 continues its decline in popularity with a decrease of 2% from crop year 2002. CP 70-321 occupied 49% of the planted acreage as late as 1995; however, with the release of LCP 85-384 in 1993, its acreage has been steadily declining. Only one other variety, CP 65-357, released in 1973, reached more than 70% of the total acreage with a high of 71% in 1980. LCP 85-384 now occupies 17 percentage points more than CP 65-357 when that variety was at its peak. LCP 85-384 is a high-yielding, excellent-stubbling variety; however, after lower cane yields experienced during the 2003 crop, skeptics feel that the variety is in “decline.” However, much of this so-called decline can be attributed to the greater than normal amount of third and older stubble as well as the residual effect of the horrendous harvest conditions in 2002 following the two tropical systems and record rainfall that fell during the harvest. Most all fields were rutted to the point that drainage was severely impaired. Further, because of the cane’s tendency to lodge and the poor harvesting conditions, combine operators set bottom blades at below ground level to reduce the amount of scrap (loss) at harvest. LCP 85-384 produces a large number of small stalks and consistently outyields the other three recommended varieties in tons of cane and sugar per acre (Garrison et al. 2003).

It is anticipated that LCP 85-384 will continue to gain in popularity for the near term because of its superior yielding ability in tons of cane and sugar per acre and will remain the top variety in the state until comparable or superior varieties are released for commercial production from the breeding program. HoCP 96-540 was released for commercial use in 2003 (Knipling et al. 2003). This variety has the potential to replace significant acreage now occupied by LCP 85-

384, depending on its productivity under commercial field conditions. It is further anticipated that the remaining varieties will continue to decrease in total acreage, with the possible exception of HoCP 91-555. HoCP 91-555 is being considered as a possible alternative to LCP 85-384 by some growers; however, it appears that the increase in acreage in future years, if any, will be minimal. It is not anticipated that this variety will ever become a major variety statewide (exceeding 25% of the planted area).

Over 90% of the Louisiana sugarcane crop is now harvested by combine to take advantage of the superior yielding ability of LCP 85-384; however, with the lower yields experienced in 2003, many growers reverted to the whole-stalk "soldier" system for harvesting their crops. Time will tell if this trend continues. From all the data thus far, it appears that HoCP 96-540 is a better harvesting variety when compared to LCP 85-384, and some growers might switch to HoCP 96-540 to take advantage of this one characteristic so long as they are not sacrificing yield of sugar per acre.

Most sugarcane-producing areas of the world do not place a high dependence on a single variety, as is the case in Louisiana (Tew 1987). The need to avoid genetic vulnerability was seen in Cuba several years ago when its growers suffered substantial yield losses because of a rust epidemic and the heavy dependence on one variety, B 4362. As a result, guidelines were established in Cuba advising growers not to plant more than 30% of their area to B 4362, their leading commercial variety. A similar situation occurred recently in Australia with Q124 and susceptibility to orange rust. However, once a clearly superior variety is found, the inadvisability of becoming highly dependent on a single variety must be weighed against the increased profitability anticipated from the culture of only one variety. Occasionally expectations will outweigh potential risk considerations (Tew 1987).

In Louisiana, LCP 85-384 is now considered susceptible to rust as well; however, it appears that rust is not causing a significant reduction in its yield. Another disease was found in LCP 85-384 in recent years, sugarcane yellow leaf virus (Grisham et al. 2001); however, it appears that the variety is also tolerant to this disease as well. In a continuing effort to lessen the dependence of the industry on one variety, the Louisiana variety development program is constantly striving to develop other new, superior varieties that are as good as or better than LCP 85-384; however, the task has not been an easy one. Besides the recent release of HoCP 96-540, there are two additional varieties, Ho 95-988 and L 97-128, that equal or exceed the yield of LCP 85-384 and are candidates for commercial release in 2004 (Ken Gravois, personal communication).

ACKNOWLEDGMENTS

We acknowledge the assistance of the county agents for soliciting the sugarcane variety information published in this survey. We also want to thank the sugarcane producers who took the time and effort to respond to the survey from their agents.

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Table 1. Total area planted to sugarcane in Louisiana by region and parish (county), 2003¹.

Bayou Teche region		River-Bayou Lafourche region		Northern region	
Parish	Acres	Parish	Acres	Parish	Acres
Acadia	3,174	Ascension	14,215	Avoyelles	21,286
Calcasieu	4,244	Assumption	41,541	East Baton Rouge	560
Cameron	404	Iberville	36,033	Evangeline	3,115
Iberia	63,300	Lafourche	31,426	Pointe Coupee	32,876
Jeff Davis	5,450	St. Charles	2,196	Rapides	13,380
Lafayette	15,859	St. James	24,900	St. Landry	21,063
St. Martin	34,283	St. John	4,035	West Baton Rouge	15,360
St. Mary	43,140	Terrebonne	11,095		
Vermilion	32,938				
Total	202,792	Total	165,441	Total	107,640
Total all regions: 475,873					

¹ Estimates are based on information obtained in variety surveys in 2003 by the county agents.

Figure 1. Parishes (counties) in Louisiana where sugarcane is grown.



Table 2. Estimated Statewide Sugarcane Acreage Percentage by Variety and Crop Year, 1999¹.

Variety	Plant Cane	1 st Stubble	2 nd Stubble	3 rd Stubble And Older	Total
	-----%-----				
CP 65-357	<1	2	3	4	1
CP 70-321	9	17	30	40	20
CP 72-370	2	3	4	2	3
CP 74-383	<1	<1	1	1	<1
CP 76-331	0	0	<1	<1	<1
CP 79-318	<1	1	1	1	1
LCP 82-89	2	6	6	5	5
LHO 83-153	2	2	3	3	3
LCP 85-384	75	60	44	39	58
HOCP 85-845	9	9	7	4	8
LCP 86-454	1	1	1	1	1
Others	<1	<1	<1	<1	<1
Total Acres	133,759	129,229	120,690	38,906	422,584
Percent Total Crop (%)	31.7	30.6	28.6	9.2	

¹Based on 1999 variety survey information from county agents.

Table 3. Estimated Sugarcane Distribution by Region and Crop Year, 1999¹.

Crop Year	Teche	River Bayou Lafourche	Northern	State Total
Plant Cane Acres %	51,633 31	52,695 26	29,431 34	133,759 29.2
1 st Stubble Acres %	50,733 30	53,524 26	24,972 29	129,229 28.2
2 nd Stubble Acres %	44,697 27	50,363 25	25,630 29	120,690 26.3
3 rd Stubble and Older Acres %	19,907 12	12,149 7	6,850 8	38,906 9.2
Total Acres	166,970	168,731	86,883	422,584

¹Based on 1999 variety survey information from county agents.

Table 4. Estimated Teche Region Acreage Percentage by Variety and Crop Year, 1999¹.

Variety	Plant Cane	1 st Stubble	2 nd Stubble	3 rd Stubble And Older	Total
CP 65-357	<1	<1	<1	<1	4
CP 70-321	13	24	39	42	27
CP 72-370	1	1	2	1	1
CP 74-383	0	0	<1	0	0
CP 79-318	<1	<1	1	1	<1
LCP 82-89	2	4	7	6	4
LHO 83-153	1	1	2	1	1
LCP 85-384	77	63	44	46	60
HOCP 85-845	6	6	5	2	5
LCP 86-454	<1	<1	<1	<0	<1
Others	<1	1	<1	1	<1

¹Based on 1999 variety survey information from county agents.

Table 5. Estimated River-Bayou Lafourche Region Sugarcane Acreage Percentage by Variety and Crop Year, 1999¹.

Variety	Plant Cane	1 st Stubble	2 nd Stubble	3 rd Stubble And Older	Total
CP 65-357	<1	2	4	5	2
CP 70-321	6	11	18	26	13
CP 72-370	3	4	8	5	5
CP 74-383	<1	<1	1	2	1
CP 79-318	<1	1	1	1	1
LCP 82-89	3	8	8	6	6
LHO 83-153	3	4	5	5	4
LCP 85-384	67	55	44	41	54
HOCP 85-845	15	14	10	9	13
LCP 86-454	1	1	2	1	1
Others	<1	<1	<1	1	<1

¹Based on 1999 variety survey information from county agents.

Table 6. Estimated Northern Region Sugarcane Acreage Percentage by Variety and Crop Year, 1999¹.

Variety	Plant Cane	1 st Stubble	2 nd Stubble	3 rd Stubble And Older	Total
CP 65-357	<1	3	8	14	4
CP 70-321	4	17	36	57	21
CP 72-370	0	1	2	1	1
CP 74-383	<1	1	2	1	1
CP 76-331	0	0	<1	<1	<1
CP 79-318	<1	<1	2	<1	1
LCP 82-89	1	4	2	2	2
LHO 83-153	1	1	1	6	1
LCP 85-384	88	67	45	16	64
HOCP 85-845	4	5	3	4	4
LCP 86-454	2	1	<1	0	1
Others	0	0	0	0	0

¹Based on 1999 variety survey information from county agents.

Table 7. Louisiana Sugarcane Variety Trends 1995-1999¹.

Variety	% of state total acreage by year					1 yr. Change
	1995	1996	1997	1998	1999	
CP 65-357	15	10	6	3	1	-2
CP 70-321	49	40	35	29	20	-9
CP 72-370	9	9	7	5	3	-2
CP 74-383	4	3	2	1	<1	-1
CP 76-331	<1	<1	<1	<1	<1	0
CP 79-318	2	3	3	2	1	-1
LCP 82-89	13	16	10	7	5	-2
LHO 83-153	4	4	4	3	3	0
LCP 85-384	3	13	29	43	58	+15
HOCP85-845	<1	2	4	6	8	+2
LCP 86-454	<1	<1	<1	1	1	0
Others	<1	<1	<1	1	<1	-1

¹Based on annual variety survey reports from county agents in sugarcane-producing parishes, 1995-1999.

Table 8. Estimated statewide sugarcane acreage percentage by variety and crop, all regions, 2003¹.

Variety	Plant-cane	First-stubble	Second-stubble	Third-stubble and older	Total
	-----%-----				
CP 65-357	<1	<1	<1	<1	<1
CP 70-321	2	3	4	4	3
CP 72-370	<1	<1	<1	<1	<1
LCP 82-89	<1	<1	<1	1	<1
LHo 83-153	<1	<1	<1	<1	<1
LCP 85-384	90	89	87	86	88
HoCP 85-845	2	3	5	7	4
HoCP 91-555	6	4	3	1	4
Others	<1	<1	<1	<1	<1
Total acres	112,782	117,065	118,016	128,010	475,873
Percent total crop (%)	23.7	24.6	24.8	26.9	

¹ Based on information obtained in variety surveys in 2003 by county agents.

Table 9. Estimated sugarcane distribution by region and crop, 2003¹.

Crop	Bayou Teche	River-Bayou Lafourche	Northern	State total
Plant-cane				
Area (acres)	49,250	38,571	25,004	112,825
Percent (%)	24.3	23.3	23.2	23.7
First-stubble				
Area (acres)	52,538	43,638	21,057	117,233
Percent (%)	25.9	26.4	19.6	24.6
Second-stubble				
Area (acres)	49,107	44,180	24,703	117,990
Percent (%)	24.2	26.7	22.9	24.8
Third-stubble and older				
Area (acres)	51,897	39,052	36,876	127,825
Percent (%)	25.6	23.6	34.3	26.9
Total acres	202,792	165,441	107,640	475,873

¹ Based on information obtained in variety surveys in 2003 by county agents.

Table 10. Estimated area planted to sugarcane in percent by variety and crop for the Bayou Teche region, 2003¹.

Variety	Plant-cane crop (%)	First-stubble crop (%)	Second-stubble crop (%)	Third-stubble crop & older (%)	Total (%)
CP 65-357	<1	<1	<1	<1	<1
CP 70-321	3	5	6	6	5
CP 72-370	<1	<1	<1	<1	<1
LCP 82-89	<1	<1	<1	1	<1
LHo 83-153	0	<1	0	<1	<1
LCP 85-384	86	87	86	87	87
HoCP 85-845	3	3	3	5	4
HoCP 91-555	8	5	4	1	4
Others	<1	<1	<1	<1	<1
Totals	100	100	100	100	100

¹ Based on information obtained in variety surveys in 2003 by county agents.

Table 11. Estimated area planted to sugarcane in percent by variety and crop for the River/Bayou Lafourche region, 2003¹.

Variety	Plant-cane crop (%)	First-stubble crop (%)	Second-stubble crop (%)	Third-stubble crop & older (%)	Total (%)
CP 65-357	<1	0	<1	<1	<1
CP 70-321	<1	1	1	2	1
CP 72-370	0	<1	<1	<1	<1
LCP 82-89	0	0	<1	2	1
LHo 83-153	<1	<1	1	1	<1
LCP 85-384	94	92	88	82	89
HoCP 85-845	2	3	6	12	6
HoCP 91-555	4	3	3	1	3
Others	<1	<1	<1	<1	<1
Totals	100	100	100	100	100

¹ Based on information obtained in variety surveys in 2003 by county agents.

Table 12. Estimated area planted to sugarcane in percent by variety and crop for the Northern region, 2003¹.

Variety	Plant-cane crop (%)	First-stubble crop (%)	Second-stubble crop (%)	Third-stubble crop & older (%)	Total (%)
CP 65-357	0	0	0	<1	<1
CP 70-321	1	2	5	5	3
CP 72-370	0	0	0	<1	<1
LCP 82-89	0	<1	0	1	<1
LHo 83-153	0	0	<1	<1	<1
LCP 85-384	92	89	88	87	89
HoCP 85-845	<1	3	5	5	4
HoCP 91-555	7	6	2	2	4
Others	<1	0	0	0	<1
Totals	100	100	100	100	100

¹ Based on information obtained in variety surveys in 2003 by county agents.

Table 13. Louisiana sugarcane variety trends, by variety and years, all regions, 1999-2003¹.

Variety	Area planted to sugarcane by variety and years (%)					1 yr. Change
	1999	2000	2001	2002	2003	
CP 65-357	1	1	1	<1	<1	0
CP 70-321	20	13	8	5	3	-2
CP 72-370	3	2	1	1	<1	-1
LCP 82-89	5	2	1	<1	<1	0
LHo 83-153	3	2	1	<1	<1	0
LCP 85-384	58	71	78	85	88	+3
HoCP 85-845	8	8	7	6	4	-2
HoCP 91-555	<1	<1	1	3	4	+1
Others	<1	<1	1	<1	<1	0
Totals	100	100	100	100	100	

¹ Based on annual variety surveys from county agents in sugarcane-producing parishes, 1999-2003.

PERFORMANCE OF CP 89-2143 IN LOUISIANA

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T. Tew
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The Florida sugarcane variety ‘CP 89-2143’ was released for commercial production in the fall of 1996 (1). The new variety has performed well in Florida and is characterized as having high early sucrose content with excellent population. Based on this information, a study was initiated at the LSU AgCenter, St. Gabriel Research Station and the USDA-ARS Sugarcane Research Unit’s Ardoyne Farm in 2002.

In 2002, tissue culture derived plants were obtained from Certis U.S.A. (Kleentek). Plots were established with plantlets on paired rows. The plantlets were planted with a mechanical transplanter and were spaced 16 inches apart. There were 16 plantlets on each of two rows, and the test was replicated two times. Because the tests were established with plantlets, the plantcane data was not obtained.

The test was harvested in the first stubble crop on December 3, 2003, in St. Gabriel and on November 20, 2003, at Chacahoula. A combine harvester was used along with a weigh wagon fitted with load cells to measure plot weight. Cane yield was derived from the plot weight. A 10-stalk sample was hand cut and sent to the sucrose laboratory for quality analysis. The quality analysis determined Brix and pol, which were used to derive the pounds of sugar per ton of cane. Sugar per acre was derived as the product of cane yield and sugar per ton of cane. Stalk weight was estimated from the 10-stalk sample, and stalk number was derived based on counting millable stalks in the plot during August 2003. The statistical analysis calculated least square means (SAS 8.01 Proc Mixed). Mean separation used least square mean probability differences (P=0.05). Varieties that have the same letter are not statistically different from each other.

Table 1. First-stubble harvest data for 2003 for the test conducted at the St. Gabriel Research Station, St. Gabriel, Louisiana.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP 70-321	5196 A	19.2 A	270 AB	1.86 B	20285 A
LCP 85-384	7224 A	26.1 A	277 A	2.12 B	24337 A
CP 89-2143	7806 A	30.2 A	259 B	2.75 A	21981 A
HoCP 91-555	6812 A	24.8 A	273 AB	2.01 B	24711 A

Table 2. First-stubble harvest data for 2003 for the test conducted at the USDA-ARS Sugarcane Research Unit Ardoyne Farm, Chacahoula, Louisiana.

Variety	Sugar per Acre (lbs/A)	Cane Yield (tons/A)	Sugar per Ton (lbs/ton)	Stalk Weight (lbs)	Stalk Number (stalks/A)
CP 70-321	11969 B	38.8 B	308 B	1.21 AB	64191 B
LCP 85-384	12812 B	42.7 AB	300 B	1.25 A	69287 B
CP 89-2143	13245 AB	44.0 A	301 B	1.38 A	64859 B
HoCP 91-555	14300 A	44.5 A	322 A	1.06 B	86516 A

In the St. Gabriel test, varieties were not significantly different for sugar per acre, cane yield, and stalk number. CP 89-2143 produced significantly less sugar per ton of cane than LCP 85-384, but not less than CP 70-321 and HoCP 91-555. The Florida variety produced a larger stalk weight than the three Louisiana varieties. It was noted in this test that after four nights with temperatures below 32 F (27 F being the coldest night temperature), CP 89-2143 exhibited excellent cold tolerance. It was also observed that the Florida variety appears to have some resistance to the sugarcane borer.

In the Chacahoula test, CP 89-2143 produced as much sugar and cane per acre as the newer cultivars LCP 85-384 and HoCP 91-555, and greater cane yield than CP 70-321. The Florida variety produced a higher cane yield than CP 70-321. CP 89-2143 had similar sugar per ton of cane to both CP 70-321 and LCP 85-384, but significantly less sugar per ton of cane than HoCP 91-555.

Based on these two preliminary tests and observations, the new Florida variety, CP 89-2143, warrants further testing in the Louisiana sugarcane variety development program.

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GENETIC DIVERSITY AND RELATIONSHIPS AMONG PARENTS IN THE LSU AGCENTER SUGARCANE CROSSING PROGRAM

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Genetic diversity is an essential ingredient in any crop improvement program. The genetic diversity among parents is what determines the level of segregation and genetic variability among the progeny on which selection is performed. Therefore, a basic understanding of the genetic diversity among the parents used for breeding is fundamental to the success of the breeding program. This knowledge is important for the conservation, management and utilization of genotypes and indeed genes in the breeding gene pool. For example, crosses could be planned between genotypes from divergent backgrounds to maximize genetic variability and segregation among the progenies, and the progenies from different crosses could be selected to increase genetic diversity in the cultivated gene pool.

Sugarcane breeders commonly use pedigree records to plan crosses between divergent parents. However, the complex genome structure (interspecific polyploid and aneuploid) and genealogy, coupled with accidental mislabeling of clones, may complicate this effort. In addition, one would like to detect genetic diversity among phenotypically superior parents. This could be a very difficult task considering that superior phenotypic characteristics are often obtained at the expense of genetic diversity.

Molecular markers can be especially useful in assessing genetic diversity among adapted germ plasm because they measure allele frequency differences at the DNA level. As such, molecular markers offer direct comparison of genetic diversity without some simplifying assumptions inherent with the pedigree-based method. In this study we measured genetic diversity among a random set of parents from the LSU AgCenter sugarcane breeding gene pool using the Amplified Fragment Length Polymorphism (AFLP) marker technique.

Our preliminary results using four AFLP primer combinations showed that the technique could be useful in detecting genetic differences among parents in the collection (Fig. 1). More important, the results revealed the narrow level of genetic diversity among parents in the collection, suggesting that concerted efforts have to be made to broaden the genetic base of our parent collection. This is being addressed by crossing among germplasm derived from recent wide crosses between commercial cultivars and wild *Sacharum spontaneum* clones. For example, the cultivars LCP85-384 and HoCP85-845 were derived from such recent wide crosses. Several backcrosses to existing commercial cultivars are required to reconstitute the commercial phenotype. Unfortunately, only a few clones from such wide crosses make it to advanced selection stages. The promiscuousness of the few clones that are derived from wide crosses (e.g LCP85-384) seems to negate the base broadening effort (Fig 2).

The relationships revealed between clones in this study were mostly in agreement with what is known from their pedigree history (Fig 2). However, there were instances where the relationships failed to conform to known pedigree information. While the mislabeling of clones is not being discounted, the non-conformity is hardly surprising, given the complex genome structure and mode of inheritance (chromosomal mosaics are possible within the same cross) of sugarcane. This underscores why molecular markers maybe more informative for assessing genetic diversity among parents in the crossing program.

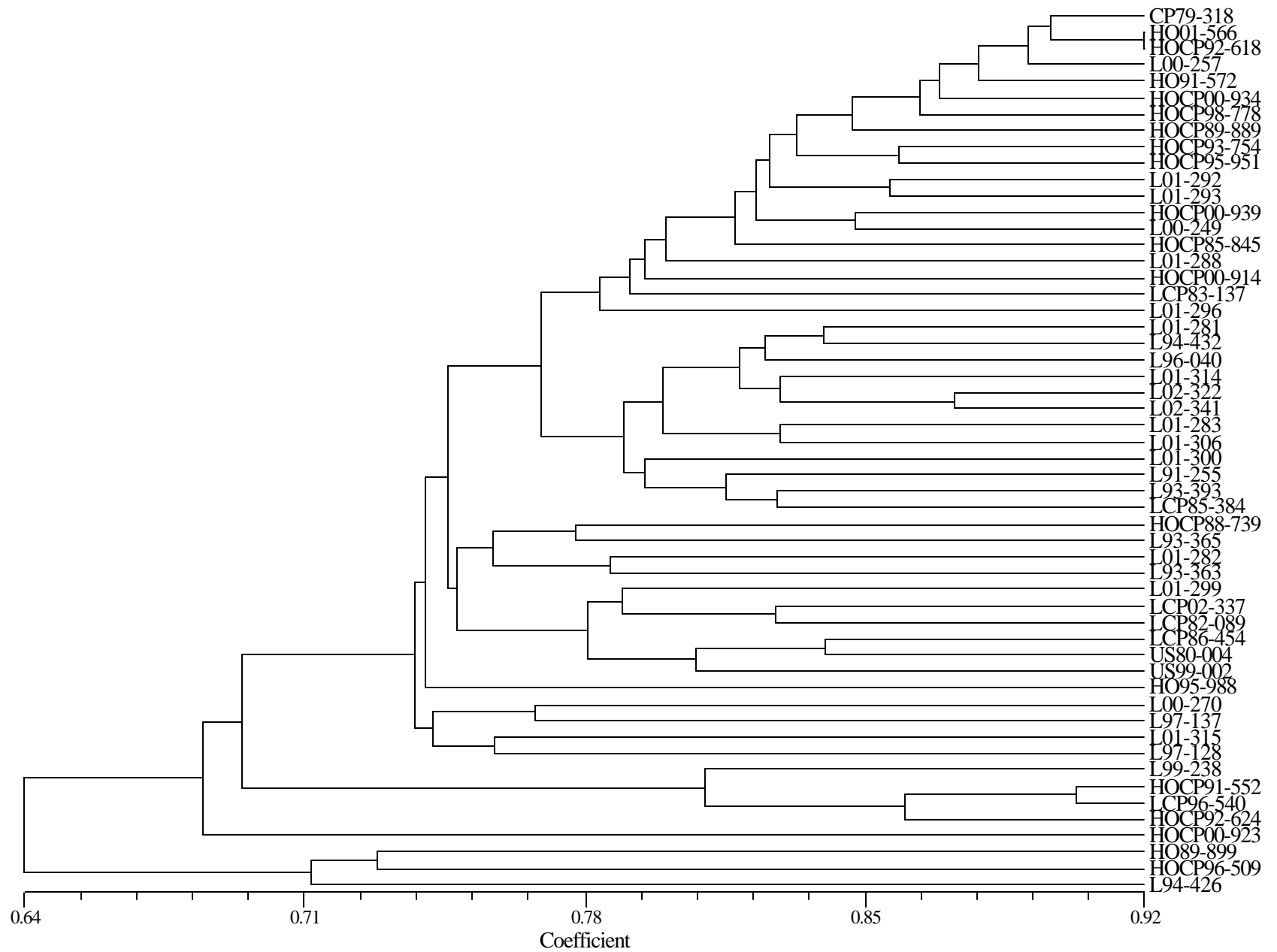
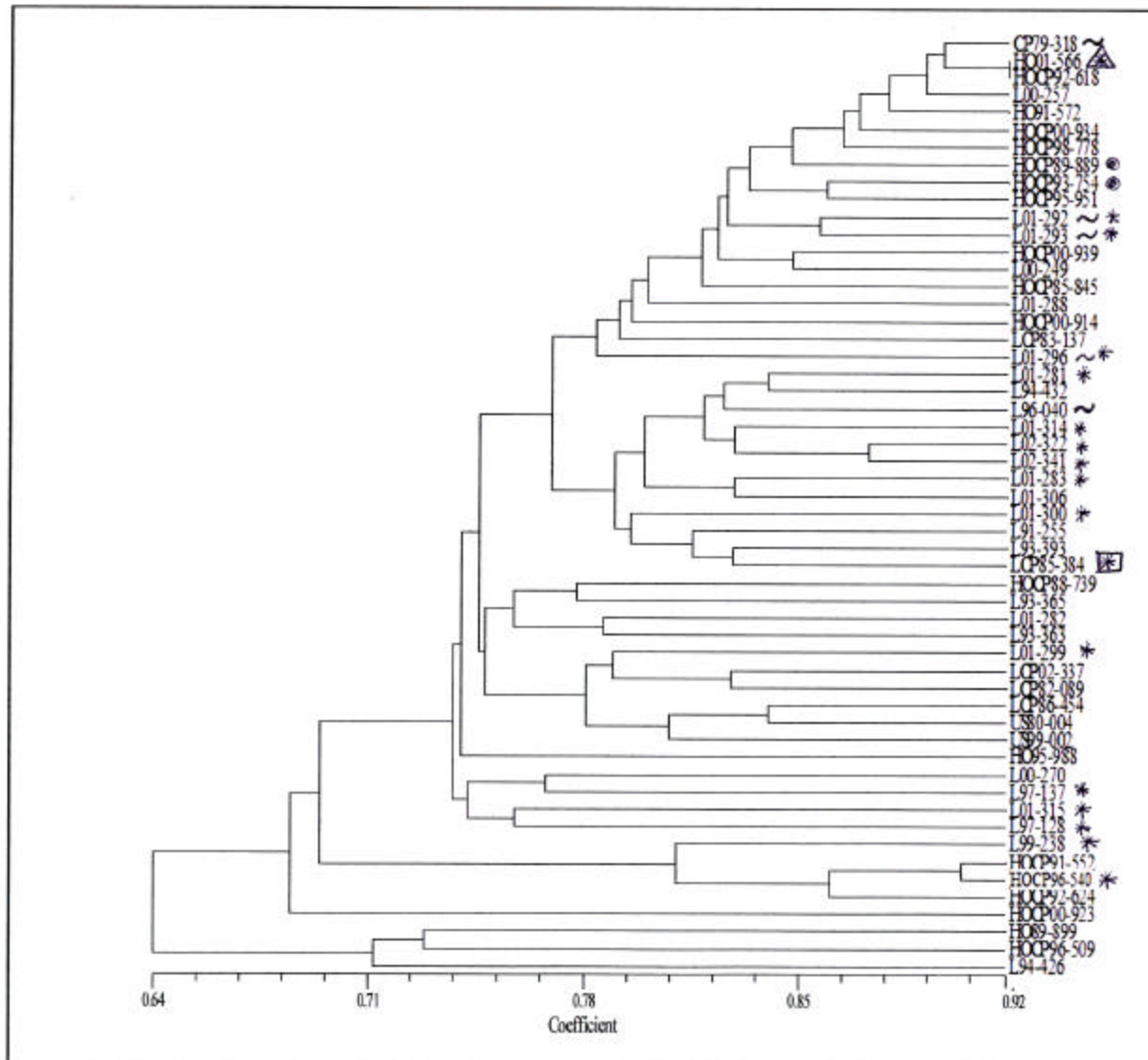


Fig. 1 Cluster analysis of genetic similarity (Dice coefficient) between sugarcane parental clones as revealed by 4 AFLP primer combinations.



Cultivar	Female	Male
CP79-318	CP65-357	L65-069
HO01-566	LCP85-384	L75-020
HOC92-618	CP78-304	LCP81-030
L00-257	LCP85-313	CP76-331
HO91-572		
HOC90-934	HOC91-542	HOC91-552
HOC96-778	HO89-889	CP90-956
HOC89-889	CP79-318	US80-024
HOC93-754	CP79-318	CP83-657
HOC95-951	CP85-866	CP85-830
L01-292	CP65-357	LCP85-384
L01-293	CP65-357	LCP85-384
HOC90-939	LCP86-454	CP89-825
L00-249	L91-281	LHO92-314
HOC85-845	CP72-370	CP77-403
L01-288	L93-363	LCP85-384
HOC90-914	CP89-837	CP66-901
LCP83-137	CP72-0356	CP73-0343
L01-296	CP65-357	LCP85-384
L01-281	LCP86-429	LCP85-384
L94-432	LCP81-010	LCP82-089
L96-040	CP65-357	HOC95-845
L01-314	HoCP88-739	LCP85-384
L02-322	LCP85-396	LCP85-384
L02-341	L96-071	LCP82-089
L01-283	L93-365	LCP85-384
L01-306	HoCP93-767	L94-431
L01-300	LCP86-422	LCP85-384
L91-255	CP73-340	86P1
L93-393	CP80-328	CP70-321
LCP85-384	CP77-310	CP77-407
HOC98-739	CP79-302	CP80-323
L93-365	CP78-304	CP72-2086
L01-282		
L93-363	LCP85-313	LCP85-336
L01-299	L93-365	LCP85-384
LCP02-337		
LCP82-089	CP52-068	CP72-370
LCP86-454	CP77-310	CP69-380
US80-004	US73-079	CP77-410
US90-002		
HO95-888	CP86-941	US89-012
L00-270	CP70-330	L92-312
L97-137	LCP81-010	LCP85-384
L01-315	HoCP93-746	LCP85-384
L97-128	LCP81-010	LCP85-384
L99-238	CP79-318	LCP85-384
HOC91-557	LCP81-010	CP72-356
HOC96-540	LCP86-454	LCP85-384
HOC92-624	CP81-325	CP71-1038
HOC90-923	CP87-644	HOC92-614
HO89-899	CP83-644	CP84-722
HOC96-509	CP81-332	LCP81-010
L94-426		