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Results of the October 22, 2007, samplings of the First-Stubble (5th sampling) and Plant-Cane (2nd sampling) Sugarcane Maturity Tests at the USDA-ARS Sugarcane Research Laboratory's Ardoyne Research Farm at Schriever, LA are attached. The study is designed to examine the natural ripening of these crops in 2-wk (first stubble) and 4-wk (plant cane) increments, and compare the results for the same harvest dates over a 5-yr period (2003 – 2007); consequently, a glyphosate-containing ripener is not applied. Samples consist of 15, hand-cut stalks of clean, trash-free and properly topped cane from each of four replications. **When mechanically harvested, one can expect TRS/TC levels to be 10 to 20% lower as a result of additional trash in the cane.** The first-stubble study includes eight released Louisiana varieties: LCP 85-384, HoCP 85-845, HoCP 91-555, Ho 95-988, HoCP 96-540, L 97-128, L 99-226, and L 99-233 and the newly released variety HoCP 00-950. The plant-cane study includes the variety L 01-283 that is a candidate for release in 2008, but does not include the variety L 99-226 that was accidentally omitted at planting. The variety HoCP 85-845 is no longer being planted in our maturity studies as the acreage planted to this variety is declining.

The Ardoyne Farm has received timely rains throughout the growing season. The farm received nearly 9 inches of rain since the October 9th sampling date. Of this, 2.75 in. occurred on October 9th with lodging to various degrees occurring in all of the varieties. The varieties with the greatest degree of lodging included: Ho 95-988, HoCP 96-540, L 99-226, and L 99-233 (previously lodged). It should be noted that 5 in. of rain has fallen on this sampling date which will probably result in further lodging.

First-stubble. During the 14-day interval, the stubble crop grew an average of 5 in. and increased in stalk weight by 0.1 lbs., but actually showed a slight (8%) decrease in stalk density. Growth of 10 in. or more was obtained with the newly lodged HoCP 96-540 and L 99-226. Over all, stalk heights and weights for the varieties with major plantings (core varieties) are at best average when one considers the 5-yr average. Density measurements began in 2005 for the first-stubble study. Stalk densities are higher in 2007 for all varieties despite the slight decrease from the previous sampling. The newly released variety HoCP 00-950 continues to have some of the shortest stalks of the varieties in this test, but its stalks are heavier than LCP 85-384, HoCP 85-845, HoCP 91-555, and L 99-233.



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Brix, sucrose, and purity percentages and theoretical recoverable sugar (TRS) levels are no longer higher in 2007 than in 2006 at this sampling date probably because of the cloudiness and lodging associated with the frequent and above normal rainfall. The greatest impact was on Brix and sucrose percentages that are now lower than the 4 previous years for this sampling time. The effects are reflected in TRS levels with the average increase for the 2-wk sampling period being only half of that obtained the previous four years. As a result, TRS levels are the lowest for the 5-yr period. Of the core varieties, L 97-128 continues to have the highest early TRS level producing 265 lbs/TC; however, HoCP 91-555 is producing similar TRS levels at this time. TRS levels for L 97-128 are higher than both LCP 85-384 (24 lbs) and HoCP 96-540 (36 lbs). The newly released HoCP 00-950 has the highest TRS/TC level at 299 lbs/TC, which is 34 and 70 lbs/TC higher than L 97-128 and HoCP 96-540, respectively.

Plant-cane. Stalk heights and weights for the six core varieties included in the last five years are, as expected, greater than the first-stubble stalk heights and weights, but they are at best average for this sampling date. On average the stalks increased in height by 10 in. and weight by 0.2 lbs during the 4-wk sampling interval. Increases in stalk of height of greater than 10 in. for the 4-wk sampling period were obtained with Ho 95-988, L 97-128, and the experimental variety L 01-283. Stalk density estimates were first collected in the plant-cane study in 2006 for this sampling period. Stalk densities are only slightly higher for all varieties in 2007 as compared to 2006 and essentially equivalent to average densities in the first-stubble test.

Despite the fact that increases in recoverable sugar for the 4-wk sampling period (56 lbs.) are essentially similar to those in previous years, TRS levels for the core varieties are nearly 60 lbs/TC lower. Of continued concern is the fact that Brix, sucrose, and purity percentages in the plant-cane crop are all lower than in previous years and significantly less than the percentages obtained in the first-stubble test. In addition, TRS levels in the plant-cane crop are over 50 lbs/TC lower than the average TRS levels in the first-stubble crop on this date. Like the first-stubble results, HoCP 00-950 has the highest TRS level at 237 lbs/TC which is 33 and 61 lbs/TC higher than L 97-128 and HoCP 96-540, respectively. It should be noted that HoCP 00-950 had the smallest increase in TRS levels for the 4-wk sampling period suggesting that this variety may reach its peak maturity earlier than the other varieties currently recommended for planting. This may not be the case with the experimental variety, L 01-283, as its TRS levels are now the highest in the plant-cane maturity study.

The sixth sampling of the maturity test is scheduled for November 5th.

Reminder. If you would like to discontinue your receipt of these reports or if you know of individuals who would like to begin receiving this information in 2007, please contact Mrs. Sandy Roberts by email (sroberts@srrc.ars.usda.gov). Emailing insures address accuracy. Information regarding USDA research activities can also be found on our website: www.ars.usda.gov/msa/srrc/sru .

Maturity reports are prepared by Dr. Ed Richard of the USDA-ARS Sugarcane Research Lab.

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, SRRC, Sugarcane Research Unit, Houma, LA, October 22, 2007¹.

Variety	Year	Stalk ²				Normal juice ³			Sugar yield TRS (lb.)	Previous sample date ⁴ TRS (lb.)	TRS change from previous sample (lb.)
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm3)	Bx. (%)	Su. (%)	Pu. (%)			
LCP 85-384	2007	1.64	94	0.71	1.30	15.94	13.15	82.49	241.2	218.2	23.0
	2006	2.14	102	0.83	1.11	17.04	14.26	83.65	263.4	222.2	41.2
	2005	1.62	84	0.78	1.10	16.87	13.76	81.55	251.0	220.8	30.2
	2004	1.80	100	---	---	16.56	14.19	85.67	265.0	236.4	28.6
	2003	1.61	90	---	---	16.87	13.92	82.52	255.5	232.6	22.9
HoCP 85-845	2007	2.07	90	0.81	1.18	15.94	13.34	83.66	245.7	241.3	4.3
	2006	2.26	105	0.86	1.06	17.53	14.88	84.90	276.8	239.0	37.8
	2005	1.95	80	0.82	1.16	17.07	14.16	82.99	260.6	226.5	34.1
	2004	1.91	95	---	---	16.53	14.16	85.66	264.4	242.0	22.4
	2003	1.75	79	---	---	17.49	14.68	83.93	271.5	232.4	39.1
HoCP 91-555	2007	1.88	97	0.78	1.16	17.35	14.38	82.84	261.8	242.2	19.6
	2006	1.80	97	0.81	1.02	17.44	14.32	82.11	259.7	207.7	52.0
	2005	1.68	84	0.74	1.20	17.69	14.45	81.69	261.3	240.0	21.3
	2004	1.72	98	---	---	17.33	14.71	84.85	270.7	242.4	28.3
	2003	1.55	88	---	---	18.31	15.25	83.32	278.6	244.7	33.9
Ho 95-988	2007	2.34	98	0.86	1.17	16.00	13.00	81.20	236.7	229.6	7.1
	2006	2.39	99	0.90	1.04	16.93	13.95	82.37	255.9	202.9	53.0
	2005	2.07	89	0.87	1.06	16.82	13.77	81.83	251.6	214.3	37.3
	2004	---	---	---	---	---	---	---	---	---	---
	2003	---	---	---	---	---	---	---	---	---	---
HoCP 96-540	2007	2.29	105	0.81	1.25	15.61	12.54	80.33	229.3	213.1	16.2
	2006	2.32	103	0.86	1.08	16.96	13.95	82.28	258.1	205.6	52.5
	2005	1.90	87	0.83	1.07	16.67	13.55	81.26	249.2	211.0	38.2
	2004	2.41	101	---	---	16.18	13.46	83.16	250.3	233.2	17.1
	2003	1.90	91	---	---	16.96	13.86	81.69	255.5	225.5	30.0
L 97-128	2007	2.24	107	0.80	1.15	17.20	14.37	83.51	265.2	247.1	18.1
	2006	2.42	111	0.88	0.99	17.66	14.78	83.66	275.7	233.7	42.0
	2005	2.06	94	0.83	1.09	17.22	13.97	81.09	256.6	236.6	20.0
	2004	2.31	106	---	---	17.73	15.38	86.76	291.7	270.8	20.9
	2003	1.89	92	---	---	18.64	15.84	84.97	297.6	265.8	31.8
L 99-226	2007	2.75	106	0.90	1.13	16.29	13.39	82.21	247.7	237.5	10.2
	2006	2.85	115	0.95	1.02	17.51	14.73	84.12	275.4	230.2	45.2
	2005	2.23	92	0.86	1.08	17.27	14.14	81.87	261.0	213.4	47.6
	2004	---	---	---	---	---	---	---	---	---	---
	2003	---	---	---	---	---	---	---	---	---	---
L 99-233	2007	1.88	107	0.75	1.11	16.03	12.99	81.06	234.1	208.4	25.7
	2006	1.98	113	0.77	1.05	16.38	13.38	81.61	244.3	205.2	39.1
	2005	1.78	98	0.74	1.15	17.29	13.99	80.96	254.4	237.6	16.8
	2004	1.77	110	---	---	16.67	14.08	84.40	261.3	241.2	20.1
(Con'td.)	2003	2.01	92	---	---	17.29	14.53	84.04	271.6	239.8	31.8

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, SRRC, Sugarcane Research Unit, Houma, LA, October 22, 2007¹.

Variety	Year	Stalk ²				Normal juice ³			Sugar yield TRS (lb.)	Previous sample date ⁴ TRS (lb.)	TRS change from previous sample (lb.)
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm3)	Bx. (%)	Su. (%)	Pu. (%)			
HoCP 00-950	2007	2.08	91	0.83	1.17	18.33	15.69	85.60	298.5	279.8	18.7
	2006	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---
	2004	---	---	---	---	---	---	---	---	---	---
	2003	---	---	---	---	---	---	---	---	---	---
Averages ⁵	2007	2.00	100	0.78	1.19	16.35	13.46	82.32	246.22	228.38	17.8
	2006	2.13	102	0.84	1.07	17.24	14.35	83.24	264.5	218.6	45.9
	2005	1.86	88	0.80	1.13	17.05	13.94	81.76	254.9	225.9	29.0
	2004	2.03	102	---	---	16.77	14.29	85.21	266.6	241.8	24.8
	2003	1.78	88	---	---	17.58	14.65	83.35	270.7	236.0	34.8

¹ Data for each parameter represents the average of four replications of 15 stalks each.

² Stalk diameter and density based on a subsample consisting of 8 randomly selected stalks from the 15-stalk sample of each rep.

³ Brix factor = .8854; Sucrose factor = .8105.

⁴ Previous sample date was October 9, 2007.

⁵ Averages are based only on varieties included in previous year's first-stubble maturity study (LCP 85-384, HoCP 85-845, HoCP 91-555, HoCP 96-540, L 97-128, and L 99-233).

Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, SRRC, Sugarcane Research Unit, Houma, LA, October 23, 2007¹.

Variety	Year	Stalk ²				Normal juice ³			Sugar yield	Previous sample date ⁴	TRS change from previous sample
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm ³)	Bx. (%)	Su. (%)	Pu. (%)	TRS (lb.)	TRS (lb.)	(lb.)
LCP 85-384	2007	2.2	97	0.80	1.26	14.50	11.16	77.01	197.8	134.3	63.5
	2006	1.9	101	0.74	1.23	16.89	14.18	83.91	262.3	211.4	50.9
	2005	1.7	81	0.82	0.97	17.07	13.95	81.68	254.7	---	---
	2004	2.0	91	---	---	16.80	14.23	84.65	264.2	205.8	58.4
	2003	1.8	89	---	---	16.51	13.48	81.63	246.0	179.8	66.2
HoCP 91-555	2007	2.2	105	0.81	1.20	14.56	10.59	72.73	180.2	116.5	63.7
	2006	2.2	105	0.82	1.06	18.42	15.55	84.41	285.5	222.4	63.1
	2005	1.7	82	0.75	1.16	18.17	14.99	82.45	274.9	---	---
	2004	2.0	100	---	---	17.42	14.51	83.27	264.8	215.3	49.5
	2003	1.9	93	---	---	17.35	14.10	81.25	254.3	196.0	58.3
Ho 95-988	2007	2.7	104	0.92	1.20	15.10	11.73	77.65	208.9	148.9	60.0
	2006	2.6	103	0.91	1.09	17.44	14.62	83.76	270.1	215.8	54.3
	2005	2.3	87	0.95	0.98	16.91	13.76	81.34	248.4	---	---
	2004	2.3	96	---	---	15.83	12.80	80.80	232.6	194.3	38.3
	2003	---	---	---	---	---	---	---	---	---	---
HoCP 96-540	2007	2.6	107	0.88	1.18	13.70	10.09	73.63	176.3	137.5	38.8
	2006	2.6	113	0.87	1.12	16.49	13.61	82.53	252.2	181.5	70.7
	2005	2.1	85	0.90	1.06	16.16	13.01	80.47	235.8	---	---
	2004	2.5	96	---	---	16.31	13.43	82.25	248.4	199.4	49.0
	2003	2.2	94	---	---	16.67	13.52	81.12	248.5	179.6	68.9
L 97-128	2007	2.6	115	0.84	1.19	14.76	11.40	77.23	204.5	156.4	48.1
	2006	2.6	117	0.87	1.06	17.82	14.91	83.66	275.4	229.1	46.3
	2005	2.2	100	0.88	1.04	17.89	14.57	81.44	268.3	---	---
	2004	2.4	104	---	---	17.86	15.32	85.76	289.0	254.5	34.5
	2003	2.1	98	---	---	17.04	13.87	81.37	255.3	199.8	55.5
L 99-233	2007	2.2	116	0.77	1.21	14.76	11.40	77.23	199.4	135.2	64.2
	2006	2.2	116	0.81	1.06	17.58	14.83	84.39	272.4	228.8	43.6
	2005	1.7	97	0.77	1.03	17.49	14.46	82.68	268.2	---	---
	2004	1.9	106	---	---	17.07	14.20	83.20	261.6	209.4	52.2
	(Cont'd.)	2003	1.8	107	---	---	16.31	13.21	80.93	240.0	168.4

Variety	Year	Stalk ²				Normal juice ³			Sugar yield	Previous sample date ⁴	TRS change from previous sample
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm3)	Bx. (%)	Su. (%)	Pu. (%)	TRS (lb.)	TRS (lb.)	(lb.)
HoCP 00-950	2007	2.3	100	0.86	1.18	16.03	12.84	80.05	236.7	214.6	22.1
	2006	2.3	98	0.89	1.09	18.73	16.06	85.74	305.8	252.2	53.6
	2005	---	---	---	---	---	---	---	---	---	---
	2004	---	---	---	---	---	---	---	---	---	---
	2003	---	---	---	---	---	---	---	---	---	---
L 01-283	2007	2.4	108	0.81	1.28	15.83	12.95	81.87	241.3	180.5	60.8
	2006	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---
	2004	---	---	---	---	---	---	---	---	---	---
	2003	---	---	---	---	---	---	---	---	---	---
Averages ⁵	2007	2.4	107	0.84	1.21	14.56	11.06	75.91	194.5	138.1	56.4
	2006	2.4	108	0.88	1.08	17.38	14.61	84.05	269.9	213.2	56.7
	2005	2.0	89	0.86	1.05	17.23	14.11	81.81	258.4	---	---
	2004	2.3	100	---	---	16.81	14.05	83.53	260.0	214.7	45.4
	2003	2.0	96	---	---	16.70	13.60	81.46	248.4	183.9	64.5

¹ Data for each parameter represents the average of four replications of 15 stalks each.

² Stalk diameter and density based on a subsample consisting of 8 randomly selected stalks from the 15-stalk sample of each rep.

³ Brix factor = .8854; Sucrose factor = .8105.

⁴ Previous sample date, September 26, 2007 .

⁵ Averages are based only on varieties included in previous year's plant-cane maturity study (LCP 85-384, HoCP 91-555, Ho 95-988, HoCP 96-540, L97-128, and L99-233).