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Results of the September 22, 2008, samplings of the First-Stubble (third sampling) and Plant-Cane (first sampling) Sugarcane Maturity Tests at the USDA-ARS Sugarcane Research Laboratory's Ardoyne Research Farm at Schriever, LA are attached. The second sampling scheduled for September 8<sup>th</sup> was not performed because of the damage to our facilities from Hurricane Gustav. The study is designed to examine the natural ripening process and compare the results for the same harvest dates over a 5-yr period (2004 – 2008); 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 study includes seven released Louisiana varieties: LCP 85-384, HoCP 91-555, Ho 95-988, HoCP 96-540, L 97-128, L 99-233, HoCP 00-950, and the newly released L 01-283. The variety, L 99-226 was inadvertently omitted when the study was planted in 2006. The plant-cane study includes L 99-226 as well as all of the varieties in the first-stubble test with the exception of HoCP 91-555. The study also contains the variety L03-371 that is a candidate for release in 2010. Harvestable sugarcane stalks in all plots were counted on August 25<sup>th</sup>. Stalk counts and stalk weights and TRS levels from today's harvest were used to provide an estimation of cane (t/A) and sugar (lbs./A) yields for the various varieties in this test.

All of the varieties were severely lodged as a result of Hurricane Gustav on September 1<sup>st</sup> and to a lesser extent from Hurricane Ike on September 12<sup>th</sup>. Stalk breakage did occur for a number of the varieties in this test, but efforts were made to include only whole stalks properly topped for this study; as has been done in the past. The Ardoyne Farm has also received frequent rains since the previous sampling on August 25<sup>th</sup>.

**First-Stubble.** When averaged over the six core varieties (LCP 85-384, HoCP 91-555, Ho 95-988, HoCP 96-540, L 97-128, and L 99-233), sugarcane stalks appear to be average in weight and length for this sampling date. Of the varieties, L 97-128 and L 99-233 continued to have the longest stalks and HoCP 96-540 and L 97-128 the heaviest. As expected, HoCP 00-950 has the shortest stalks of the newer varieties in this test, but its stalk weight is similar to all of the varieties except HoCP 96-540 and L 97-128.

Brix, sucrose, and purities continue to be lower than in previous years, and as a result, the average theoretically recoverable sugar (TRS) levels are also lower by at least 10 lbs./ton of cane



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(TC). Of the varieties with major plantings for harvest in 2008, L 97-128 and L 99-233 have the highest TRS levels producing on average 189 lbs. of sugar/TC; nearly 20 lbs./TC higher than HoCP 96-540. Both HoCP 00-950 (221 lbs./TC) and L 01-283 (198 lbs./TC) produced higher TRS levels than HoCP 96-540, L 97-128, and L 99-233. Average cane and sugar yields for the six core varieties was 42 t/A and 7506 lbs./A, respectively. Of the varieties, the highest cane yields were found with HoCP 96-540, L 99-233, HoCP 00-950, and L 01-283. Two of the varieties, HoCP 00-950 and L 01-283, produced sugar yields of approximately 10,000 lbs./A.

**Plant-Cane.** Average stalk weight, length, diameter, and density for the five core varieties (LCP 85-384, Ho 95-988, HoCP 96-540, L 97-128, and L 99-233) are similar to previous years. Of the varieties included: L 97-128 and L 99-226 had the heaviest stalks and L 97-128 and L99-233 the longest. As expected, HoCP 00-950 had the shortest and lightest stalks of the newer varieties. It is also interesting to note that unlike previous years, stalk weights for the plant-cane are similar to those for the first-stubble at this sampling date.

Normal juice Brix, sucrose, and purity and TRS levels for the plant cane are higher in 2008 than in 2007 but not as high as those recorded in 2004 and 2006. Of the varieties included in this test, L 99-226 had the lowest TRS levels (154 lbs./TC) and HoCP 00-950 the highest ( 237 lbs./TC) TRS. TRS levels for the newly released L 01-283 are lower than HoCP 00-950 but higher than the other varieties included in this test. The experimental variety L 03-371, appears to produce TRS levels that are comparable to L 97-128. Average cane and sugar yields for the five core varieties in the plant-cane test were 42 t/A and 7564 lbs./A, respectively. These yields were similar to those obtained in the first-stubble test for the core varieties. Of the varieties, the highest cane yields were found with L 99-226 and L 99-233. At this sampling date, all of the varieties, except LCP 85-384, are producing more than 7,000 lbs. of sugar/A. Two of the varieties, L 99-233 and HoCP 00-950, produced sugar yields that were in excess of 9,000 lbs./A. Tonnage was the clear factor in L 99-233's high sugar yields while TRS was the clear factor in HoCP 00-950's superior sugar yields. Stalk breakage was reported for both of these varieties following hurricanes Gustav and Ike. The maturity data would suggest that the impact of stalk breakage will be less with HoCP 00-950 because of its high sugar content – assuming the percentage of broken stalks is similar.

The fourth sampling for the first-stubble maturity test is scheduled for October 6<sup>th</sup>.

**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 2008, please contact Mrs. Sandy Roberts by email ([Sandra.Roberts@ars.usda.gov](mailto:Sandra.Roberts@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](http://www.ars.usda.gov/msa/srrc/sru) .

*Maturity reports are prepared by Dr. Ed Richard and Mr. Mike Duet 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, September 22, 2008 <sup>1</sup>.

Variety	Year	Stalk <sup>2</sup>				Normal juice <sup>3</sup>			Sugar yield TRS (lb.)	Previous sample date <sup>4</sup> TRS (lb.)	TRS change from previous sample (lb.)	Estimated yield <sup>6</sup>	
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm <sup>3</sup> )	Bx. (%)	Su. (%)	Pu. (%)				Cane (tons/A)	Sugar lbs/A
LCP 85-384	2008	1.8	84	---	---	13.46	10.27	76.30	181.2	no data	0.0	36.9	6699
	2007	1.5	87	0.73	1.18	14.01	10.70	76.36	188.8	167.8	21.0	---	---
	2006	1.9	96	0.79	1.18	13.99	10.72	76.59	189.5	156.2	33.3	---	---
	2005	1.4	74	0.77	0.99	14.63	10.97	74.92	191.6	156.5	35.1	---	---
	2004	1.5	91	---	---	14.54	11.12	76.44	196.3	190.6	5.7	---	---
HoCP 91-555	2008	1.9	84	---	---	13.70	9.71	70.79	162.7	no data	0.0	40.7	6598
	2007	1.5	88	0.74	1.09	15.43	11.79	76.38	206.1	189.2	16.9	---	---
	2006	1.6	88	0.79	1.08	14.52	10.41	71.67	175.5	142.8	32.7	---	---
	2005	1.5	84	0.78	1.03	15.74	11.66	74.04	200.3	160.8	39.5	---	---
	2004	1.6	90	---	---	14.96	11.15	74.52	192.5	175.2	17.2	---	---
Ho 95-988	2008	2.1	84	---	---	13.95	10.39	74.54	181.1	no data	0.0	39.3	7117
	2007	2.1	92	0.86	1.09	14.32	10.82	75.49	189.8	156.4	33.4	---	---
	2006	2.2	91	0.88	1.08	13.86	10.08	72.71	173.2	140.5	32.7	---	---
	2005	1.8	80	0.86	0.96	14.81	10.95	73.91	189.9	153.7	36.2	---	---
	2004	---	---	---	---	---	---	---	---	---	---	---	---
HoCP 96-540	2008	2.4	93	---	---	13.28	9.78	73.62	170.8	no data	0.0	45.0	7695
	2007	2.0	88	0.81	1.22	14.06	10.66	75.85	189.4	178.2	11.2	---	---
	2006	2.3	95	0.83	1.21	13.55	9.94	73.34	173.5	151.3	22.2	---	---
	2005	1.8	81	0.84	1.02	14.56	10.90	74.82	192.1	163.7	28.4	---	---
	2004	1.9	89	---	---	14.76	11.37	77.00	203.5	191.9	11.7	---	---
L 97-128	2008	2.5	97	---	---	14.19	10.72	75.54	190.0	no data	0.0	41.9	7942
	2007	2.0	95	0.8	1.16	15.49	12.37	79.83	222.0	209.7	12.3	---	---
	2006	2.2	103	0.83	1.12	15.27	11.91	77.97	214.7	180.6	34.1	---	---
	2005	1.9	91	0.84	0.97	15.80	12.13	76.75	216.7	193.9	22.8	---	---
	2004	2.1	97	---	---	16.34	13.21	80.83	242.4	228.0	14.4	---	---
L 99-233	2008	2.0	99	---	---	14.30	10.80	75.53	187.6	no data	0.0	47.9	8982
	2007	1.6	95	0.72	1.14	14.28	10.77	75.40	186.9	162.1	24.8	---	---
	2006	1.7	104	0.78	1.01	13.44	9.78	72.79	168.2	148.9	19.3	---	---
	2005	1.4	87	0.75	0.95	15.96	12.26	76.84	217.2	181.5	35.7	---	---
	2004	1.6	100	---	---	14.52	11.21	77.10	198.9	197.4	1.5	---	---
HoCP 00-950	2008	2.2	88	---	---	15.47	12.11	78.27	220.8	no data	0.0	45.6	10048
	2007	1.7	81	0.77	1.25	16.67	13.60	81.61	253.2	241.6	11.6	---	---
	2006	---	---	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---	---	---
	2004	---	---	---	---	---	---	---	---	---	---	---	---
L 01-283	2008	2.2	95	---	---	14.61	11.07	75.73	198.5	no data	0.0	48.4	9624
	2007	---	---	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---	---	---
	2004	---	---	---	---	---	---	---	---	---	---	---	---
(Cont'd.)	2004	---	---	---	---	---	---	---	---	---	---	---	---
Averages <sup>5</sup>	2008	2.1	90	---	---	13.8	10.3	74.4	178.9	no data	0.0	42.0	7506
	2007	1.7	89	0.77	1.16	14.67	11.37	77.43	201.5	184.9	16.6	---	---
	2006	2.0	94	0.83	1.14	14.24	10.75	75.42	188.6	155.4	33.2	---	---
	2005	1.6	83	0.81	1.00	15.19	11.51	75.77	202.6	171.2	31.5	---	---
	2004	1.8	92	---	---	14.89	11.55	77.47	205.9	194.2	11.7	---	---

<sup>1</sup> Data for each parameter represents the average of four replications of 15 stalks each.

<sup>2</sup> Stalk diameter and density based on a subsample consisting of 8 randomly selected stalks from the 15-stalk sample of each rep, will be taken on the 1st, 4th and the 8th maturity study sampling dates.

<sup>3</sup> Brix factor = .8854; Sucrose factor = .8105.

<sup>4</sup> Previous scheduled sample date was September 8, 2008 (no data taken due to hurricane Gustav).

<sup>5</sup> Averages are based only on varieties included in previous year's first-stubble maturity study (LCP 85-384, HoCP 91-555, Ho 95-988, HoCP 96-540, L97-128, and L 99-233).



Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, SRRRC, Sugarcane Research Unit, Houma, LA, September 22, 2008<sup>1</sup>.

Variety	Year	Stalk <sup>2</sup>				Normal juice <sup>3</sup>			Sugar yield	Estimated yield <sup>6</sup>	
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm <sup>3</sup> )	Bx. (%)	Su. (%)	Pu. (%)	TRS (lb.)	Cane (tons/A)	Sugar lbs/A
L 03-371	2008	2.2	90	0.91	1.06	14.06	10.48	74.52	187.9	43.7	8220
	2007	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---
	2004	---	---	---	---	---	---	---	---	---	---
Averages <sup>5</sup>	2008	2.2	94	0.88	1.07	13.69	10.29	75.10	180.5	42.0	7564.2
	2007	2.2	97	0.84	1.16	12.30	8.37	67.96	138.1	---	---
	2006	2.4	97	0.90	1.06	15.20	11.80	78.00	211.6	---	---
	2005	---	---	---	---	---	---	---	---	---	---
	2004	2.0	90	---	---	15.27	11.96	78.18	214.2	---	---

<sup>1</sup> Data for each parameter represents the average of four replications of 15 stalks each.

<sup>2</sup> Stalk diameter and density based on a subsample consisting of 8 randomly selected stalks from the 15-stalk sample of each rep, will be taken on the 1st plant-cane maturity study sampling.

<sup>3</sup> Brix factor =0.8854; Sucrose factor = 0.8105.

<sup>4</sup> No data due to hurricane Rita.

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

<sup>6</sup> Estimated cane yield is the product of stalk weight and millable stalk counts, estimated sugar yield is the product of TRS and estimated cane yield