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Results of the September 28, 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 study is designed to examine the natural ripening process and compare the results for the same harvest dates over a 5-yr period (2005 – 2009); 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 nine released Louisiana varieties: LCP 85-384, Ho 95-988, HoCP 96-540, L 97-128, L 99-226, L 99-233, HoCP 00-950, L 01-283 and L 01-299, and the candidate variety L 03-371 that is up for release in 2010. The plant-cane study includes all of the varieties in the first-stubble test with the exception of LCP 85-384 and L 01-299 whose release in 2009 was not expected when the study was planted in 2008. The study also contains the experimental varieties, HoCP 04-838 and HoCP 05-902 that are candidates for release in 2011 and 2012, respectively. Harvestable sugarcane stalks in all plots were counted on July 9<sup>th</sup>. Stalk counts, stalk weights, and TRS levels are used to provide an estimation of cane (tons/A) and sugar (lbs/A) yields.

The Ardoyne Farm had a very dry early growing season but has received frequent rains during the last several weeks. Since the 2nd sampling, the farm has received 4.40 in. of rain. Strong winds associated with some of these rain events have caused a majority of the varieties in the maturity test to become lodged. The varieties with the greatest degree of lodging were L 99-233 and L 99-226.

**First-Stubble.** During the 2-week interval, the crop grew an average of 8 in. with only a 0.22 lb increase in weight. When compared to the averages for previous four years, stalks of the core varieties (LCP 85-384, Ho 95-988, HoCP 96-540, L 97-128, and L 99-233) are heavier (0.25 lbs) and longer (12 inches). The varieties L 99-226 and L 97-128 had the heaviest stalks, L 97-128 also had the longest stalks along with L 99-233. HoCP 00-950 continues to have some of the shortest stalks of the varieties in this test, but its stalk weight is similar to those of the core varieties.

Brix, sucrose, and purities are typical for this time of year when compared to the previous four years. However, theoretically recoverable sugar (TRS) levels for the core varieties are 25.8 lbs/ton of cane (TC) higher in 2009 than in 2008 at this sampling date. The varieties with the greatest increase in TRS levels were L 99-233, L 03-371 and L 97-128 with an average increase of 32 lbs/TC. Those varieties showing the lowest increase in TRS were L 99-226, HoCP 96-540 and Ho 95-988 with an average increase of 14 lbs/TC. The new varieties, HoCP 00-950 and L



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01-283, continue to produce good early sugar. HoCP 00-950 has the highest TRS/TC at 244 lbs, only 2 lbs higher than L 97-128 but 46 lbs/TC higher than HoCP 96-540. L 01-283 produced 235 lbs/TC, which is higher than all other varieties except HoCP 00-950 and L 97-128. The newest variety, L01-299, and the candidate variety, L 03-371, had TRS levels of 192 lbs/TC and 214 lbs/TC, respectively, which is average when compared to the core varieties. The varieties with the lowest TRS levels were LCP 85-384 and L 99-226, which both produced 191 lbs/TC. For the core varieties, the average increase in TRS per day for the two-week sampling period is 1.74 lbs.

When looking at the estimated yields, the highest cane yields were produced by HoCP 96-540 (51.2 tons/A) and L 03-371 (48.2 tons/A). Every variety except of LCP 85-384 produced sugar yields of over 8,600 lbs/A. The varieties L 97-128 (10,697 lbs/A) and L 01-283 (10,504 lbs/A) produced the highest estimated sugar yields.

**Plant-Cane.** Average stalk weight, length, diameter, and density for the five core varieties (Ho 95-988, HoCP 96-540, L 97-128, L 99-233, and HoCP 00-950) are similar to the previous four years. Of the varieties included, L 97-128 and L 99-226 had the heaviest stalks and L 99-233 and L 99-226 the longest. As expected HoCP 00-950 had the shortest stalks, but its stalk weight, diameter, and density are similar to the averages for the core varieties.

Normal juice Brix, sucrose, purity and TRS levels for the plant cane are higher in 2009 than in 2008 for this sampling date and very similar to those recorded in 2006. The average TRS of the core varieties is 28 lbs/TC higher than in 2008 and 24 lbs/TC higher than the average for the previous four years. Of the varieties included in this test, HoCP 96-540 had the lowest TRS levels (182 lbs/TC) and HoCP 00-950 the highest ( 248 lbs/TC) TRS. TRS levels for L 97-128 and the newly released L 01-283 are lower than HoCP 00-950 but higher than the other varieties included in this test. The experimental varieties L 03-371 and HoCP 04-838 produced TRS levels of 204 and 218 lbs./TC, respectively.

Average cane yields for the five core varieties in the plant-cane test were 43 tons/A, which is similar to those achieved in 2008, however sugar yields are 9,010 lbs/A which is 1,446 lbs/A more than those recorded in 2008. Of the varieties, the highest cane yields were obtained with L 03-371 and L 01-283. L 03-371 also had the highest sugar yields at 11,140 lbs of sugar/A followed by HoCP 00-950 with 10,874 lbs of sugar/A. At this sampling date, all of the varieties, except Ho 95-988 and HoCP 96-540, are producing more than 8,000 lbs of sugar/A.

The fourth sampling of the first-stubble maturity test is scheduled for October 13<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 2009, please contact Mrs. Ashley DeHart by email (Ashley.DeHart@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, Sugarcane Research Unit, Houma, LA, September 28, 2009<sup>1</sup>.

Variety	Year	Stalk <sup>2</sup>				Normal juice <sup>3</sup>			Sugar yield	Previous sample date <sup>4</sup>	TRS change from previous sample	Estimated yield <sup>6</sup>	
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm3)	Bx. (%)	Su. (%)	Pu. (%)	TRS (lb.)	TRS (lb.)	(lb.)	Cane (tons/A)	Sugar (lbs/A)
L 03-371	2009	2.22	94			14.76	11.60	78.49	213.9	181.6	32.3	48.2	10434
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---	---	---
Averages <sup>5</sup>	2009	2.12	101			14.6	11.4	78.1	204.7	180.4	24.3	45.6	9340
	2008	2.10	90	---	---	13.81	10.28	74.39	178.9	no data	0.0	42.0	7506
	2007	1.70	89	0.77	1.16	14.67	11.37	77.43	201.5	184.9	16.6	---	---
	2006	2.00	94	0.83	1.14	14.24	10.75	75.42	188.6	155.4	33.2	---	---
	2005	1.60	83	0.81	1.00	15.19	11.51	75.77	202.6	171.2	31.5	---	---

<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-stalksample 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.

<sup>5</sup> Averages are based only on varieties included in previous year's first-stubble maturity study (LCP 85-384, Ho 95,988, HoCP 96-540 L 97-128, and L 99-233).

<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.



Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma LA, September 28, 2009<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)
HoCP 04-838	2009	2.3	96	0.86	1.15	14.92	12.17	81.58	217.8	46.2	10078
	2008	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---
HoCP 05-902	2009	1.9	90	0.86	1.02	15.05	11.32	75.10	202.0	40.7	8150
	2008	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---
Averages <sup>5</sup>	2009	2.3	95	0.87	1.12	14.99	11.62	77.34	208.2	43.2	9010
	2008	2.2	94	0.88	1.07	13.69	10.29	75.10	180.5	42.0	7564
	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	---	---	---	---	---	---	---	---	---	---

<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 (Ho 95-988, HoCP 96-540, L 97-128, L 99-233, and HoCP00-950).

<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.