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Results of the October 27, 2009, samplings of the First-Stubble (fifth sampling) and Plant-Cane (second 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. **On a commercial farm, one can expect TRS/TC levels to be as much as 20% lower due to the additional trash in the cane associated with mechanical harvesting.** 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 9th. Stalk counts, stalk weights, and TRS levels are used to provide an estimation of cane (tons/A) and sugar (lbs/A) yields.

Since the October 13th sampling, the Ardoyne Farm has received 2.43 in. of rain. Strong winds associated with previous rain events have caused a majority of the varieties in the maturity test to become lodged. The varieties with the greatest degree of lodging are L 99-233 and L 99-226 in the first-stubble and L 99-233 and HoCP 05-902 in the plant-cane test.

First-Stubble. During the 2-week interval, the crop grew an average of 3 in. with only a 0.10 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 (0.60 lbs) and longer (11 inches). The varieties L 99-226, L 97-128 and Ho 95-988 had the heaviest stalks and L 01-299 and the longest stalks. HoCP 00-950 continues to have some of the shortest stalks of the varieties in this test, but its stalk weight is similar to the weights of the core varieties.

Brix, sucrose, purities and theoretically recoverable sugar (TRS) levels are lower for this time of year when compared to the previous four years. The average increase in TRS from the previous sample date is 32.8 lbs/TC which is slightly better than average for this time of year. HoCP 00-950 has the highest TRS/TC at 284 lbs., 16 lbs higher than L 97-128 and 52 lbs/TC higher than HoCP 96-540. L 01-283 produced 274 lbs/TC, which is higher than all other varieties except HoCP 00-950. The varieties with the lowest TRS levels were LCP 85-384 (231 lbs/TC) and the L 01-299 (229 lbs/TC).



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When looking at the estimated yields, L 03-371(56.5 tons/A) and L 01-299 (55.9 tons/A) produced the highest cane yields. HoCP 00-950 and LCP 85-384 produced the lowest cane yields at 44.0 tons/A each. With the exception of LCP 85-384, all of the varieties had an estimated sugar yield of greater than 12,000 lbs./A with two varieties (L 01-283 and L 03-371) producing in excess of 14,000 lbs/A

Plant-Cane. Average stalk weight and length 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. On average the stalks increased by 10 in. and weight by 0.2 lbs during the 4-week sampling interval. Of the varieties included, HoCP 96-540, L 99-226 and L 97-128 had the heaviest stalks and L 97-128, L 99-233, and L 99-226 the longest.

Normal juice Brix, sucrose and purity are about average for the five core varieties. TRS levels are similar to those recorded in 2008 but 9 lbs. more than the four year average. Of the varieties included in this test, L 99-233 had the lowest TRS level (232 lbs./TC) and HoCP 00-950 the highest (285 lbs./TC). 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 varieties L 03-371 and HoCP 04-838 produced TRS levels of 270 and 267 lbs./TC, respectively.

Average cane yields for the five core varieties in the plant-cane test were 48 tons/A which is 6 tons/A more than in 2008. Sugar yields are 12123 lbs./A which is 1498 lbs./A more than those recorded in 2008. Of the varieties, the highest cane yields were obtained with L 03-371 (58 tons/A) and L 99-226 (54.1 tons/A). L 03-371 also had the highest sugar yields at 15583 lbs of sugar/A followed by HoCP 00-950 with 13917 lbs of sugar/A.

The sixth sampling of the first-stubble maturity test is scheduled for November 9th.

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 .

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, October 27, 2009¹.

Variety	Year	Stalk ²				Normal juice ³			Sugar yield TRS (lb.)	Previous sample date ⁴ (lb.)	TRS change from previous sample (lb.)	Estimated yield ⁶	
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm3)	Bx. (%)	Su. (%)	Pu. (%)				Cane (tons/A)	Sugar (lbs/A)
L 03-371	2009	2.6	103	---	---	16.53	13.88	83.93	264.4	236.6	27.8	56.5	14951
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---	---	---
Averages ⁵	2009	2.4	108	#DIV/0!	#DIV/0!	16.01	13.24	82.61	243.6	210.8	32.8	50.8	12375
	2008	2.1	98	---	---	16.57	13.38	80.72	242.9	213.2	29.7	42.0	10426
	2007	1.0	100	0.78	1.19	16.35	13.46	82.32	246.2	228.4	17.8	---	---
	2006	2.1	102	0.84	1.07	17.24	14.35	83.24	264.5	218.6	45.9	---	---
	2005	1.9	88	0.80	1.13	17.05	13.94	81.76	254.9	225.9	29.0	---	---

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-stalksample of each rep, will be taken on the 1st, 4th and the 8th maturity study sampling dates.

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

⁴ Previous scheduled sample date was October 13, 2009.

⁵ 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).

⁶ 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, SRRRC, Sugarcane Research Unit, Houma, LA, October 27, 2009¹.

Variety	Year	Stalk ²				Normal juice ³			Sugar yield TRS (lb.)	Previous sample date ⁴ TRS (lb.)	TRS change from previous sample (lb.)	Estimated yield ⁶	
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm3)	Bx. (%)	Su. (%)	Pu. (%)				Cane (tons/A)	Sugar (lbs/A)
HoCP 05-902	2009	2.2	103	---	---	16.93	13.94	82.32	260.6	202.0	58.6	46.8	12159
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---	---	---
Averages ⁵	2009	2.5	105	#DIV/0!	#DIV/0!	16.42	13.61	82.85	252.0	208.2	43.8	48.1	12123
	2008	2.2	102	---	---	16.76	13.69	81.65	250.5	180.5	70.0	42.5	10625
	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	---	---	---	---

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, will be taken on the 1st & 3rd plant-cane maturity study sampling.

³ Brix factor =0.8854; Sucrose factor = 0.8105.

⁴ Previous sample date, September 28, 2009 .

⁵ Averages are based only on varieties included in previous year's plant-cane maturity study (Ho 95-988, HoCP 96-540, L97-128, L99-233, and HoCP00-950).

⁶ 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.