



United States Department of Agriculture

Research, Education, and Economics  
Agricultural Research Service

October 16, 2009

Results of the October 13, 2009 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. **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. 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.

Since the October 5<sup>th</sup> sampling, the Ardoyne Farm has received rainfall on 9 of the 14 days that totaled 3.56 in. 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.

During the 2-week interval, the crop grew an average of 4 in. with only a 0.18 lb increase in weight. When compared to the averages for the 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 (0.30 lbs) and longer (14 inches). Stalk densities remain slightly higher than the average while diameter would be considered average for this time of year. The varieties L 99-226, L 97-128, and Ho 95-988 have the heaviest stalks and L 97-128, L 99-226, L 99-233, and L 01-299 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.

Above average day and nighttime temperatures, rainfall and the cloudy weather associated with the rainfall over the last 2 weeks have been conducive to the continued growth of the cane and not maturation. As a result, 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 only 6 lbs/TC while the four year average for this time of year is 28 lbs/TC. The varieties with the greatest increase in TRS levels were L 03-371, Ho 95-988 and HoCP 00-950 with an average increase of 18.4 lbs/TC. Three varieties: HoCP 96-540 and L 97-128 did not post an increase in TRS. HoCP 00-950 has the highest TRS/TC at 258 lbs., 20 lbs higher than L 97-128 and 69 lbs/TC higher than HoCP 96-540. L 01-



Sugarcane Research Unit  
5883 USDA Road  
Houma, LA 70360  
(985) 872-5042 – Fax (985) 868-8369  
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283 produced 244 lbs/TC, which is higher than all other varieties except HoCP 00-950. The varieties with the lowest TRS levels were HoCP 96-540 (189 lbs/TC) and the L 01-299 (196 lbs/TC).

Even though they had the lowest TRS levels, when looking at the estimated yields, HoCP 96-540 and L 01-299 produced the highest cane yields (55.5 tons/A) and (55.4 tons/A), respectively. Every variety except of LCP 85-384 produced sugar yields of over 10,000 lbs/A. The varieties L 03-371 (12,443 lbs/A) and L 01-283 (12,210 lbs/A) produced the highest estimated sugar yields.

The fifth sampling of the first-stubble maturity test is scheduled for October 26<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:

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***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 13, 2009<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/cm3)	Bx. (%)	Su. (%)	Pu. (%)				Cane (tons/A)	Sugar (lbs/A)
L 03-371	2009	2.4	97	0.89	1.11	15.47	12.60	81.42	236.6	213.9	22.7	52.5	12443
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---	---	---
Averages <sup>5</sup>	2009	2.3	105	0.82	1.16	14.8	11.7	79.2	210.8	204.7	6.1	49.9	10492
	2008	2.0	91	0.82	1.11	15.36	11.96	77.84	213.2	178.9	34.3	39.0	8311
	2007	1.9	94	0.76	1.23	15.67	12.62	80.40	228.4	201.5	26.9	---	---
	2006	2.0	93	0.81	1.12	15.42	12.18	78.91	218.6	188.6	30.0	---	---
	2005	1.8	85	0.81	1.08	15.71	12.98	82.61	225.9	202.7	23.3	---	---

<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 28, 2009.

<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.