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Results of the November 22, 2010, samplings of the First-Stubble (seventh sampling) and Plant-Cane (third 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 (2006 – 2010); 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 study includes eight released Louisiana varieties: Ho 95-988, HoCP 96-540, L 97-128, L 99-226, L 99-233, HoCP 00-950, L 01-283 and L 03-371, and the candidate variety HoCP 04-838. L 01-299 is omitted from this test because its release was not expected when the test was planted in 2008. The plant-cane study includes all of the varieties in the first-stubble test with the exception of Ho 95-988. The study also contains the experimental variety HoCP 05-961 which is a candidate for release in 2012. 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.

Strong winds associated with a previous cool front have caused some degree of lodging in most of varieties in the first-stubble and plant-cane tests. Since the last sampling, the farm has received 0.82 in. of rain.

**First-Stubble.** During the 2-week interval, there was essentially no change in stalk length or weight for the core varieties (Ho 95-988, HoCP 96-540, L 97-128, L 99-233 and HoCP 00-950). When compared to the previous four years sugarcane stalks of the core varieties are average in weight and length. The varieties, L 99-233 and L 99-226 had the longest stalks and HoCP 00-950 and Ho 95-988 had the shortest stalks. The variety L 99-226 had the heaviest stalks, while L 01-283, L 99-233 and HoCP 04-838 had the lightest.

Brix and sucrose percentages are above average when compared to the previous four years for this sampling date. However, the average theoretically recoverable sugar (TRS) levels for the core varieties in 2010 are 27 lbs./ton of cane (TC) greater than those recorded in 2009 and 16 lbs./TC above the 4-yr average. With shorter day lengths and cooler nights, the crop is beginning to reach its maximum maturity. The average increase in TRS/TC/day is 1.18 lbs. however, the high sugar, early and mid maturing varieties are increasing less than 1 lb. TRS/TC/day. Of the varieties with major plantings for harvest in 2010, L 97-128, L 01-283 and HoCP 00-950 continue to have the highest TRS levels producing over 316 lbs. of sugar/TC; which is 30 lbs./TC higher than HoCP 96-540. The new variety L 03-371 produced 301 lbs./TC



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and the candidate variety HoCP 04-838 produced 296 lbs./TC. Of the varieties L 99-233 (281 lbs./TC) and HoCP 96-540 (286 lbs./TC) had the lowest TRS levels.

Estimated yields of the major varieties are lower in 2010 when compared to the 2009 data at this sampling date for both tons/A and lbs/A. Of the varieties sampled, the highest cane yields were produced by L 03-371 and L 99-226 which yielded over 49.0 tons/A. The highest estimated sugar yields were also obtained by L 99-226 and L 03-371 producing 15,123 lbs./A and 14,933 lbs./A respectively.

**Plant-Cane.** Stalk weights for the five core varieties (HoCP 96-540, L 97-128, L 99-233, HoCP 00-950 and L 01-283) are similar to the previous four years; but stalk lengths are slightly above average. Stalks increased in length by 2 in. and weight by 0.1 lbs during the 4-week sampling interval. Of the varieties included in this test L 99-226 and L 97-128 had the heaviest stalks and HoCP 00-950 and HoCP 04-838 had the lightest stalks. L 99-226 and L 99-233 had the longest stalks, while L 01-283, L 03-371 and HoCP 00-950 had the shortest.

Normal juice brix, sucrose, purity and TRS levels are slightly higher in 2010 than in 2009 for this sampling date. The average TRS of the core varieties is 10 lbs./TC higher than those recorded in 2009 and 19 lbs./TC higher than the average for the previous four years. Of the varieties included, L 99-233 and HoCP 04-838 had the lowest TRS levels (283 lbs./TC) and L 99-226 and HoCP 00-950 the highest (306 lbs./TC) TRS. The newly released variety L 03-371 and candidate variety HoCP 05-961 produced TRS levels 301 lbs./TC and 300 lbs./TC, respectively.

Average cane yields for the core varieties in the plant-cane test were 53 tons/A which is equal to those recorded in 2009 at this sample date. Average sugar yields are 15339 lbs./A which is only 476 lbs./A more than those recorded last year. Of the varieties, the highest cane yields were obtained with L 99-226 (64 tons/A). L 99-226 also had the highest sugar yields at 19,506 lbs of sugar/A followed by L 03-371 with 17,128 lbs of sugar/A.

The eight and final sampling of the first-stubble maturity test is scheduled for December 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 2011, 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 Mr. Mike Duet and Dr. Ed Richard of the USDA-ARS Sugarcane Research Lab.*

*Happy Thanksgiving*



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)
HoCP 04-838	2010	2.0	104	---	---	18.68	16.11	86.25	295.7	283.4	12.3	35.4	10452
	2009	---	---	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---	---	---
Averages <sup>5</sup>	2010	2.2	101	---	---	18.52	15.85	85.56	297.6	283.6	14.0	40.9	12127
	2009	2.4	111	---	---	17.28	14.57	84.28	270.6	250.5	20.1	52.9	143
	2008	2.1	101	---	---	18.10	15.20	84.20	282.1	267.8	14.3	42.2	11898
	2007	2.0	102	0.76	1.19	18.10	15.45	85.23	286.3	267.5	18.8	---	---
	2006	2.2	98	0.83	1.13	18.12	15.51	85.55	289.3	276.3	13.0	---	---

<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 = 0.8854; Sucrose factor = 0.8105.

<sup>4</sup> Previous sample date was November 8, 2010.

<sup>5</sup> Averages are based only on varieties included in previous year's first-stubble maturity study (Ho 95-988, HoCP 96-540, L 97-128, L 99-233, and, HoCP 00-950).

<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.



Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, SRRC, Sugarcane Research Unit, Houma, LA, November 19, 2010<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)
Averages <sup>5</sup>	2010	2.5	114	0.79	1.34	18.27	15.55	85.11	292.4	274.4	18.0	52.6	15339
	2009	2.8	105	0.93	1.17	17.81	15.09	84.73	282.1	252.0	30.1	52.6	14863
	2008	2.3	99	0.85	1.19	18.19	15.45	85.07	288.0	250.5	38.5	42.5	12206
	2007	2.5	112	0.83	1.17	16.09	13.04	80.73	235.9	194.5	41.4	---	---
	2006	2.6	112	0.88	1.06	18.17	15.52	85.40	289.3	269.0	20.3	---	---

<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-stalk sample of each rep, will be taken on the 1st & 3rd plant-cane maturity study sampling.

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

<sup>4</sup> Previous sample date, October 26, 2010.

<sup>5</sup> Averages are based only on varieties included in previous year's plant-cane maturity study (HoCP 96-540, L 97-128, L 99-233, HoCP00-950 and L 01-283).

<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.