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Results of the November 19, 2012 seventh sampling of the First-Stubble Sugarcane Maturity Test and the final sampling of Plant-Cane Maturity Test at the USDA-ARS Sugarcane Research Unit's Ardoyne Research Farm in Schriever, LA are attached. This study is designed to examine the natural ripening process and compare the results for the same harvest dates over a 5-yr period (2008 – 2012); consequently, a glyphosate-containing ripener is not applied. Samples consist of 15 hand-cut stalks, stripped of leaves, and properly topped. **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 test includes eight released Louisiana varieties: HoCP 96-540, L 99-226, L 99-233, HoCP 00-950, L 01-283, L 01-299, L 03-371 and HoCP 04-838. The plant-cane test includes all the varieties in the first-stubble test and the candidate variety Ho 07-613. Harvestable sugarcane stalks in all plots were counted in early July. Stalk counts, stalk weights, and TRS levels are used to provide an estimation of cane (tons/A) and sugar (lbs/A) yields. During the 2-week sampling period the Ardoyne Farm has received 0.10 in. of rainfall.

First-Stubble: During the 2-week interval, the core varieties (HoCP 96-540, L 99-226, L 99-233, HoCP 00-950, L 01-283 and L 03-371) grew an average of only 1 in. with no increase in stalk weight. When compared to the previous four years, sugarcane stalks of the core varieties are average in weight, but 10 in. longer for this sampling. L 99-226 (2.8 lbs) and HoCP 96-540 (2.5 lbs) continue to have the heaviest stalks. The lightest stalks were produced by HoCP 00-950, L 01-299 and HoCP 04-838 at 2.0 lbs each. As usual, L 99-226 (124 in.) produced the longest stalks followed by L 99-233 (123 in.), while L 03-371 (104 in.) and HoCP 00-950 (106 in.) had the shortest stalks.

Brix, sucrose and purity levels for this sampling date are higher than any time in the previous four years. Since the last sampling, the average increase in theoretical recoverable sugar (TRS) levels for the core varieties was 15.1 lbs/ton of cane (TC) which equals 1.08 lbs/ton/day. The 304 lbs/TC produced are 4.3 lbs/TC better than last year and 16.5 lbs/TC greater than the 4-yr average. Of the varieties with major plantings for harvest in 2012, L 01-283 (318 lbs/TC) and L 03-371 (312 lbs/TC) have the highest TRS levels, while L 99-233 (279 lbs/TC) produced the lowest.

Estimated yields of cane and sugar per acre for the major varieties are better for this sampling date when compared to the 4-yr average. The average cane yield of the core varieties was 51.1 tons/A, which is 2.9 tons/A less than last year, but 3.6 tons/A better than the 4-yr average. The sugar yield of the core varieties was 5410 lbs/A better than the 4-yr average, but 677 lbs/A less than those recorded in 2011. L 99-233 produced the highest cane yields with 55.6 tons/A, the



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lowest cane yields were produced by HoCP 04-838 (46.2 tons/A). HoCP 04-838 also had the lowest sugar yields producing 13491 lbs/A. The highest sugar yields were produced by L 03-371 (16539 lbs/A) and L 01-283 (15993 lbs/A).

Plant-Cane: When compared to the 4-yr average stalks of the core varieties are 8 in. longer for this sampling, but less than average in stalk weight, diameter, and density. There was no increase in weight during the 4-week sampling interval, but stalk length increased by 4 in. The heaviest stalks were produced by L 99-226 (3.1 lbs) and candidate variety Ho 07-613 (2.7 lbs), while L 01-283 and HoCP 00-950 had the lightest stalks at 2.1 lbs each. L 99-226 (126 in.) and L 99-233 (121 in.) had the longest stalks, L 03-371 (107 in.) and HoCP 00-950 (104 in.) produced the shortest stalks.

Similar to the first-stubble test; brix, sucrose, purities and corresponding TRS levels for the core varieties are better than those produced in any to the last four years. The 280 lbs/TC produced are 15.9 lbs more than the 4-yr average and 11.3 lbs better than last year. There was a 70 lbs/TC increase in TRS during the 4-week sampling period. The varieties producing the highest TRS levels were L 01-283 (316 lbs/TC) and HoCP 00-950 (314 lbs/TC) and while the lowest TRS levels were produced by L 99-233 (289 lbs/TC) and L 01-299 (292 lbs/TC).

Estimated cane and sugar yields for the seven core varieties are better than both last year's and the 4-yr average. Cane yields for this sampling were 3.3 tons/A better than last year's and 4.9 tons/A better than the average. Sugar yields were 1583 lbs/A better than those produced in 2011 and 2297 lbs/A more than the 4-yr average. There was only a 1.3 lb increase in tonnage from the previous sample date, but sugar yields increased by 2046 lbs/A. The highest estimated cane yields for the core varieties were produced by L 99-226 (58.8 tons/A) and L 99-233 (58.7 tons/A). L 99-226 (18209 lbs/A) produced the highest sugar yield, followed by L 03-371 (16969 lbs/A). The candidate variety Ho 07-613 produced the highest estimated yields with 66.7 tons/A and 20497 lbs/A.

The eight and **Final Sampling** for the maturity test is scheduled for December 3rd.

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Maturity reports are prepared by Mr. Mike Duet of the USDA-ARS Sugarcane Research Unit.

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)
Averages ⁵	2012	2.4	114	---	---	18.64	16.04	86.00	304.0	288.8	15.1	51.1	15495
	2011	2.3	103	---	---	18.58	15.90	85.53	299.7	291.3	8.4	54.0	16172
	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

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 November 5, 2012 .

⁵ Averages are based only on varieties included in previous year's first-stubble maturity study (HoCP 96-540, L99-226, L99-233, HoCP 00-950, L01-283 and L03-371).

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, SRRC, Sugarcane Research Unit, Houma, LA, November 19, 2012¹.

Variety	Year	Stalk ²				Normal juice ³			Sugar yield	Previous sample date ⁴	TRS change from previous sample	Estimated yield ⁶	
		Wt.	Lh.	Dia.	Density	Bx.	Su.	Pu.				TRRS	TRRS
		(lb.)	(in.)	(in.)	(g/cm ³)	(%)	(%)	(%)	(lb.)	(lb.)	(lb.)	(tons/A)	(lbs/A)
Averages ⁵	2012	2.3	113	0.84	1.03	18.77	16.14	85.99	304.9	280.1	24.8	54.7	16671
	2011	2.6	103	0.89	1.70	18.38	15.59	84.82	293.6	261.3	32.3	51.4	15088
	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

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 10-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, October 22, 2012 .

⁵ Averages are based only on varieties included in previous year's plant-cane maturity study (HoCP 96-540, L99-226, L99-233, HoCP00-950, L01-283, L03-371 and HoCP04-838).

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.