

December 11, 2013

Results of the November 18, 2013 sampling of the First-Stubble (seventh sampling), Sugarcane Maturity Test and the final of three samplings 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 (2009 – 2013). 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.** Both studies include 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, HoCP 04-838 and the candidate variety Ho 07-613. Harvestable sugarcane stalks in all plots were counted in early August. Stalk counts, stalk weights, and TRS levels are used to provide an estimation of cane (tons/A) and sugar (lbs/A) yields.

Since the last sampling, the farm has received 1.24 inches of rain. Overall, the varieties in both tests remain fairly erect, with the exceptions of L 99-233, L 99-226 and Ho 07-613.

First-Stubble: Stalk measurements indicate the crop grew 1 inch and increased in weight by only 0.1 lbs since the last sample date. These numbers are normal when compared to the 4-yr average, but less than last year.

Brix, sucrose, and purities remain lower for this sampling date when compared to 2012 and the 4-yr average. The theoretically recoverable sugar (TRS) levels for this sample date are 21.6 lbs/ton of cane (TC) less than last year, but 10.6 lbs less than average. Among the varieties with major plantings for harvest in 2013, L 01-299 and HoCP 96-540 produced the lowest TRS levels with 261 lbs/TC each, while HoCP 00-950 (308 lbs/TC) has the highest TRS levels. Candidate variety Ho 07-613 has the second highest TRS levels producing 296 lbs/TC. The varieties with the largest increase in TRS were L 99-226 (20.0 lbs) and L 01-299 (19.3 lbs), while L 01-283 (1.4 lbs) and Ho 07-613 (3.6 lbs) had the smallest increase.

Estimated yields are above the 4-yr average for both tons/A and lbs/A and better than or equal to those produced in 2012. For this sample date, the average estimated cane yield (52.1 tons/A) is 1.0 ton/A more than last year and 2.3 tons/A more than the 4-yr average. The estimated sugar yield is 140 lbs/A more than the 4-yr average and only 834 lbs/A less than the 2012 average. L 01-233 (57.0 tons/A), Ho 07-613 (55.9 tons/A) and L 01-299 (55.2 tons/A) produced the highest cane yields. Ho 07-613 and L 99-233 also had the highest sugar yields producing 13165 lbs/A and 12030 lbs/A, respectively.

Plant-cane: Plant-cane weight (2.3 lbs) was slightly less than the 4-yr average (2.6 lbs) for this sample period; however, stalk length was 5 in. greater than average. Both weight and length

were equal to those achieved last year. There was no increase in stalk weight and only a 2 inch increase in length since the last sample date.

Brix and sucrose levels for this sampling period are lower than those produced in 2012 and the 4-yr average, but purity levels are slightly better than last year and the average. Overall, the average TRS is 12.2 lbs/TC less than last year but 0.5 lbs/TC more than the 4-yr average. Similar to the first-stubble data, the varieties with the lowest TRS levels were L 01-299 (267 lbs/TC) and HoCP 96-540 (283 lbs/TC). The varieties producing the highest TRS levels were HoCP 00-950 (318 lbs/TC) and L 01-283 (301 lbs/TC).

Estimated cane and sugar yields remain lower than last year and the 4-yr average. The estimated cane yield (47.3 tons/A) is only 5.6 tons/A less than average and 7.4 tons/A less than last year. Varieties producing the highest cane yields were Ho 07-613 (56.4 tons/A) and L 99-233 (51.1 tons/A), the lowest cane yields were produced by L 01-283 (43.2 tons/A) and L 01-299 (43.4 tons/A). The estimated sugar yield of 13837 lbs/A is 1653 lbs/A less than average and 2834 lbs/A less than last year. The varieties producing the highest sugar yields were Ho 07-613 (16579 lbs/A) and L 99-233 (15135 lbs/A). The varieties producing the lowest sugar yields were L 01-299 (11612 lbs/A) and HoCP 96-540 (12570 lbs/A).

The eight and final sampling for the maturity test is scheduled for December 2nd.

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, please contact Mrs. Brenda Aysenne by email (Brenda.Aysenne@ars.usda.gov) emailing insures address accuracy. Information regarding USDA research activities can also be found on our website: http://www.ars.usda.gov/main/site_main.htm?modecode=64-10-00-00.

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 ⁵	
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm3)	Bx. (%)	Su. (%)	Pu. (%)				Cane (tons/A)	Sugar (lbs/A)
Averages ⁶	2013	2.1	106	---	---	17.65	15.02	85.05	282.4	271.2	11.2	52.1	14661
	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	14288

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, 4th and the 8th maturity study sampling dates.

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

⁴ Previous scheduled sample date was November 4, 2013.

⁵ 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.

⁶ Averages are based on all varieties in the first-stubble maturity study.

Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, November 18, 2013¹.

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.	Lh.	Dia.	Density	Bx.	Su.	Pu.				Cane	Sugar
		(lb.)	(in.)	(in.)	(g/cm ³)	(%)	(%)	(%)	(tons/A)	(lbs/A)			
Averages ⁵	2013	2.3	114	0.79	1.17	18.01	15.49	86.03	292.7	254.3	38.4	47.3	13837
	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

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, 2013.

⁵ 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.

⁶ Averages are based on all varieties in the plant cane maturity study.