



United States Department of Agriculture

Research, Education, and Economics
Agricultural Research Service

November 2, 2012

Results of the October 22, 2012, sampling of the First-Stubble (fifth sampling), Sugarcane Maturity Test and the second 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 (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 0.05 in. of rainfall.

First-Stubble: During the 2-week interval, the average growth for the core varieties (HoCP 96-540, L 99-226, L 99-233, HoCP 00-950, L 01-283 and L 03-371) was 3.0 inches with only a 0.1 lb increase in stalk weight. When compared to the previous four years, sugarcane stalks of the core varieties are average in weight, but 7 inches longer for this sampling. L 99-226 (2.9 lbs) and HoCP 96-540 (2.3 lbs) continue to have the heaviest stalks, with all of the other varieties producing stalks about 2.0 lbs each. The longest stalks belonged to L 99-226 and HoCP 96-540, while L 03-371 and HoCP 00-950 had the shortest stalks.

Brix and sucrose levels for this sampling date are slightly less than those attained in 2011, while purities are higher. When compared to the 4-yr average; brix, sucrose and purity levels are all better. Since the last sampling, the average increase in theoretical recoverable sugar (TRS) levels for the core varieties is 22.7 lbs/ton of cane (TC) which equals 1.62 lbs/ton/day. The 272 lbs/TC produced is 5.9 lbs/TC less than those recorded in 2011, but 13.4 lbs/TC greater than the 4-yr average. Of the varieties with major plantings for harvest in 2012, HoCP 00-950 (290 lbs/TC) and L 01-283 (287 lbs/TC) have the highest TRS levels, while L 99-233 (252 lbs/TC), HoCP 96-540 (256 lbs/TC), and L 01-299 (256 lbs/TC) produced the lowest. L 03-371 and L 99-226 had the largest increases in TRS levels (> 32 lbs/TC) from the previous sampling whereas L 01-283 had an increase of only 9.3 lbs/TC.

Estimated yields of cane and sugar per acre for the major varieties are slightly less in 2012 when compared to the 2011 data at this sampling date. The average cane yield of the core varieties was 52.1 tons/A which is only 0.9 tons/A less than last year's, but 6.4 tons/A higher than the 4-yr



Sugarcane Research Unit
5883 USDA Road
Houma, LA 70360
(985) 872-5042 – Fax (985) 868-8369
An Equal Opportunity Employer

average. The sugar yield of the core varieties was only 45 lbs/A less than those recorded in 2011 yet 2330 lbs/A greater than the 4-yr average. The highest cane yields and sugar yields were produced by L 99-226 with 55.3 tons of cane/A and 14661 lbs of sugar/A. The lowest cane and sugar yields were produced by HoCP 04-838 with 47.1 tons of cane/A and 12972 lbs of sugar/A.

Plant-Cane: When compared to the 4-yr average, stalk weights are equivalent, but the stalks are 5 in. longer for this sampling. There was no increase in weight during the 4-week sampling interval, but stalk length increased by 11 in. The heaviest stalks were produced by L 99-226 and HoCP 96-540 while L 01-283 and HoCP 04-838 had the lightest stalks. L 99-226 and L 99-233 had the longest stalks with L 03-371 and HoCP 00-950 producing the shortest stalks.

Brix, sucrose, purities and corresponding TRS levels for the core varieties are better than those produced in 2011 and higher than the 4-yr average. TRS increased by 61 lbs/TC during the 4-week sampling period, with no variety producing less than 250 lbs/TC. The varieties with the highest TRS levels were HoCP 00-950 (305 lbs/TC) and L 01-283 (303 lbs/TC), while the lowest TRS levels were produced by L 01-299 (253 lbs/TC) and HoCP 96-540 (252 lbs/TC).

Estimated cane and sugar yields for the seven core varieties are higher in 2012 than in 2011. When compared to the last year's data and the 4-yr average, cane yields at this sampling date were 6 tons/A heavier, while sugar yields were 2400 lbs/A better. There was no increase in tonnage from the previous sample date, but sugar yields increased by 3246 lbs/A. For the core varieties, the highest estimated cane yields were produced by L 99-233 (59.3 tons/A) and L 99-226 (57.4 tons/A). HoCP 00-950 (15978 lbs/A) produced the highest sugar yield, followed by L 99-233 (15606 lbs/A). Overall, the candidate variety Ho 07-613 produced the highest estimated yields with 60.2 tons of cane/A and 17367 lbs of sugar/A.

The sixth sampling for the maturity test is scheduled for November 5th.

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. 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: 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.

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, October 22, 2012¹.

Variety	Year	Stalk ²				Normal juice ³			Sugar yield TRS	Previous sample date ⁴ TRS	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	109	---	---	17.40	14.55	83.56	272.2	250.1	22.1	52.1	14165
	2011	2.2	100	---	---	17.85	14.91	83.47	278.1	254.0	24.1	51.2	14210
	2010	2.1	99	---	---	17.55	14.60	83.09	270.7	248.7	22.0	38.9	10328
	2009	2.4	108	---	---	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

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 09, 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, October 22, 2012¹.

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	2.3	109	---	---	17.51	14.74	84.09	274.3	210.2	64.1	53.3	14625
	2011	2.3	98	---	---	17.26	14.04	81.28	257.4	186.3	71.1	46.8	12065
	2010	2.4	112	---	---	17.68	14.73	83.30	274.4	226.8	47.6	51.0	13917
	2009	2.5	105	---	---	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

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, September 25, 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.