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Results (September 26) of the third sampling of the 2011 First-Stubble, Sugarcane Maturity Test and the first of three samplings of Plant-Cane Maturity Test at the USDA-ARS Sugarcane Research Laboratory's Ardoyne Research Farm in Schriever, LA are attached. The study is designed to examine natural ripening and compare the results for the same harvest dates over a 5-yr period (2007 – 2011); 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 eight released Louisiana varieties: HoCP 96-540, L 97-128, L 99-226, L 99-233, HoCP 00-950, L 01-283, L 03-371, HoCP 04-838 and the candidate variety Ho 05-961. L 01-299 is omitted from the first-stubble test because it was released after the test was planted in 2009 but is included in the plant-cane maturity test. Harvestable sugarcane stalks in all plots were counted in mid-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 interval, the farm received only one 2.03-in. rainfall event.

**First-Stubble.** As an average of the core varieties, the crop grew 2 in. and increased in stalk weight by 0.2 lb. When compared to the previous four years sugarcane stalks of the core varieties (HoCP 96-540, L 97-128, L 99-233, HoCP 00-950 and L 01-283) are average in weight and slightly below average in length. Of the varieties, L 97 - 128 and L 99-226 had the longest and heaviest stalks and HoCP 00-950 the shortest and with L 99-233 the lightest stalks. The candidate variety, Ho 05-961, falls somewhere in the middle with respect to both stalk weight and length for this sample date.

Weather conditions for natural ripening were excellent as indicated by the fact that Brix, sucrose, and purities are now about average for this sampling date and only slightly less in 2011 than in 2010. The average theoretically recoverable sugar (TRS) levels for 2011 increased by 45.2 lbs./ton over the 2-week sampling period and are now equivalent to the levels observed in 2010 for this sampling date. The varieties with the greatest increase in TRS levels (> 50 lbs./TC) were HoCP 96-540, L 01-283, and L 03-371. Of the varieties with major plantings for harvest in 2011, HoCP 00-950 (260.8 lbs./TC) and L 01-283 (234.6 lbs./TC) continue to have the highest TRS levels with the experimental variety H 05-961 close behind (231.8 lbs./TC). Estimated yields of the major varieties are higher in 2011 when compared to the previous four years for both tons/A and lbs./A primarily as a result of higher stalk populations. The highest first-stubble cane yields (>50 tons/A) were produced by HoCP 96-540, L 01-283, and L 03-371. Four varieties: HoCP 00-950, L 01-283, L 003-371, and Ho 05-961 produced estimated sugar yields in excess of 10,000 lbs./A.



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**Plant-Cane.** Plant-cane stalk heights for the seven core varieties are 12 in. shorter than 2010, but essentially equivalent to the other three years. Despite the shorter stalks, stalk weights are equivalent to 2010, due in part to larger diameter stalks. As in the first-stubble, L 97-128 and L 99-226 had the longest and heaviest stalks and Ho 00-950 the shortest and with L 99-233 the lightest stalks. The variety L 01-299, that was not in the first-stubble test, appears to produce stalks that are slightly taller but lighter than HoCP 96-540. Brix, sucrose, and purities for 2011 for the core varieties are less than in 2010, but appear average for this sampling date. TRS levels for the core varieties at this sampling date are less than in 2010 and 2009, but better than 2008 and 2007. TRS levels for the plant-cane crop are lower than those for the first-stubble, by approximately 32 lbs./TC. Similar to the first-stubble response, only three varieties produced TRS levels above 200 lbs./TC (Ho 00-950, L 01-283, and the experimental variety Ho 05-961). Estimated cane and sugar yields for the seven core varieties are lower in 2011 than in 2010. Only L 99-226 produced cane yields above 50 ton/A and only three varieties produced estimated sugar yields in excess of 9,000 lbs./A (L 97-128, Ho 00-950, and Ho 05-961).

The fourth sampling for the first-stubble maturity test is scheduled for October 11<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.*



Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, September 26, 2011<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)
Ho 05-961	2011	2.00	88	---	---	16.25	12.97	79.79	231.8	184.7	47.1	46.3	10751
	2010			---	---								
	2009	---	---	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
Averages <sup>5</sup>	2011	2.0	94	---	---	15.53	12.16	78.07	219.6	174.4	45.2	47.4	10325
	2010	1.9	95	---	---	15.57	12.17	77.96	218.9	194.8	24.1	35.1	6134
	2009	2.1	101	---	---	14.60	11.40	78.10	204.7	180.4	24.3	45.6	9340
	2008	2.1	90	---	---	13.81	10.28	74.39	178.9	no data <sup>7</sup>	0.0	42.0	7506
	2007	1.7	89	0.77	1.16	14.67	11.37	77.43	201.5	184.9	16.6	---	---

<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 12, 2011 .

<sup>5</sup> Averages are based only on varieties included in previous year's first-stubble maturity study (HoCP 96-540, L 97-128, L99-233, HoCP 00-950, and L01-283).

<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.



Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma LA, September 26, 2011<sup>1</sup>.

Variety	Year	Stalk <sup>2</sup>				Normal juice <sup>3</sup>			Sugar yield	Estimated yield <sup>5</sup>	
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm <sup>3</sup> )	Bx. (%)	Su. (%)	Pu. (%)	TRS (lb.)	Cane (tons/A)	Sugar (lbs/A)
Ho 05-961	2011	2.4	92	0.94	1.02	15.98	12.12	75.82	210.7	46.4	9755
	2010	2.3	100	0.83	1.17	16.29	13.25	81.32	241.5	39.8	9898
	2009	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---
Averages <sup>4</sup>	2011	2.3	94	0.91	1.04	14.81	10.79	72.69	188.1	45.0	8438
	2010	2.3	106	0.81	1.19	15.82	12.49	78.83	226.0	47.4	10654
	2009	2.3	95	0.87	1.12	14.99	11.62	77.34	208.2	43.2	9010
	2008	2.2	94	0.88	1.07	13.69	10.29	75.10	180.5	42.0	7564
	2007	2.2	97	0.84	1.16	12.30	8.37	67.96	138.1	---	---

<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> Averages are based only on varieties included in previous year's plant-cane maturity study (HoCP 96-540, L 97-128, L 99-226, L 99-233, HoCP00-950, L 01-283, and L 03-371).

<sup>5</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.