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Results of the September 27, 2010, samplings of the First-Stubble (third sampling) and Plant-Cane (first 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.

The Ardoyne Farm has received frequent, timely rains during the growing season and at the time of this sampling; the first-stubble test is mostly erect, with the exception of L99-226 and L99-233. However, most varieties in the plant-cane test have some degree of lodging with L99-226 and L99-233 being the worse. Since the last sampling, the farm has received 1.49 in. of rain.

**First-Stubble.** During the 2-week interval, the average growth for the core varieties (Ho 95-988, HoCP 96-540, L 97-128, L 99-233 and HoCP 00-950) was 8 in. with a 0.13 lb increase in stalk weight. When compared to the previous four years sugarcane stalks of the core varieties are average in weight and length for this sampling. The varieties, L 97-128, L 99-233 and L 99-233 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 and L 99-233 had the lightest. The newly released variety, L 03-371, and the candidate for release, HoCP 04-838, are average in length and weight when compared to the averages for the core varieties.

Brix and sucrose percentages are all higher in 2010 than in the previous four years for this sampling date. The average theoretically recoverable sugar (TRS) levels for the core varieties at this sampling date are 14 lbs./ton of cane (TC) greater than those recorded in 2009. The varieties with the greatest increase in TRS levels were Ho 95-988 and L 99-233 with an average increase 34 lbs/TC. Of the varieties with major plantings for harvest in 2010, L 01-283, L 97-128 and HoCP 00-950 continues to have the highest early TRS levels producing over 250 lbs. of



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sugar/TC; which is 69 lbs./TC higher than HoCP 96-540. The new variety L 03-371 produced 224 lbs./TC and the candidate variety HoCP 04-838 produced 229 lbs./TC which is slightly above average. Of the varieties HoCP 96-540 had the lowest TRS producing 181 lbs./TC.

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 which yielded 42.7 tons/A and L 99-226 with 41.7 tons/A. The highest estimated sugar yields were obtained by L 01-283 and L 03-371 producing 10361 lbs./A and 9504 lbs./A respectively. The candidate variety, HoCP 04-838, has cane and sugar yields that were similar to HoCP 96-540.

**Plant-Cane.** Stalk weight and diameter 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; however stalk length and density are above average. Of the varieties included, L 99-226, L 97-128 and HoCP 96-540 had the heaviest stalks and L 99-233 and L 99-226 the longest. L 99-233, HoCP 00-950, L 01-283, and HoCP 04-838 had the lightest stalks.

Normal juice Brix, sucrose, purity and TRS levels for the plant cane are higher in 2010 than in 2009 for this sampling date. The average TRS of the core varieties is 19 lbs/TC higher than in 2009 and 42 lbs/TC higher than the average for the previous four years. Of the varieties included in this test, L 99-233 had the lowest TRS levels (207 lbs./TC) and HoCP 00-950 the highest (257 lbs./TC) TRS. TRS levels for L 97-128 and the newly released L 01-283 are lower than HoCP 00-950 but higher than the other varieties included in this test. The experimental varieties L 03-371 and HoCP 04-838 produced TRS levels of 204 and 218 lbs./TC, respectively.

Average cane and sugar yields for the five core varieties in the plant-cane test were 47.5 tons/A and 10,718 lbs./A, which is higher than in previous years. Of the varieties, plant-cane yields in excess of 50 tons/A the highest cane yields were obtained with HoCP 96-540, L 99-226, L 99-233, L01-283, and L 03-371. L 03-371 also had the highest sugar yields at 12,168 lbs of sugar/A followed by L 99-226 (11,868) and HoCP 00-950 with 11,523 lbs of sugar/A.

The fourth sampling of the first-stubble maturity test is scheduled for October 12<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 2010, 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 Dr. Ed Richard and Mr. Mike Duet 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 27, 2010<sup>1</sup>.

Variety	Year	Stalk <sup>2</sup>				Normal juice <sup>3</sup>			Sugar yield	Previous sample date <sup>4</sup>	TRS change from previous sample	Estimated yield <sup>6</sup>	
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm3)	Bx. (%)	Su. (%)	Pu. (%)	TRs (lb.)	TRs (lb.)	(lb.)	Cane (tons/A)	Sugar (lbs/A)
HoCP 04-838	2010	1.85	94	---	---	15.52	12.73	82.04	228.5	204.8	23.7	32.8	7510
	2009	---	---	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---	---	---
Averages <sup>5</sup>	2010	1.93	95	---	---	15.57	12.17	77.96	218.86	194.80	24.1	35.10	7621.60
	2009	2.12	101	---	---	14.60	11.40	78.10	204.7	180.4	24.3	45.6	9340
	2008	2.10	90	---	---	13.81	10.28	74.39	178.9	no data	0.0	42.0	7506
	2007	1.70	89	0.77	1.16	14.67	11.37	77.43	201.5	184.9	16.6	---	---
	2006	2.00	94	0.83	1.14	14.24	10.75	75.42	188.6	155.4	33.2	---	---

<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 13, 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, Sugarcane Research Unit, Houma LA, September 27, 2010<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)
HoCP 96-540	2010	2.5	102	0.83	1.26	15.07	11.71	77.65	210.5	53.1	11170
	2009	2.6	95	0.92	1.14	13.81	10.34	74.78	182.3	43.5	7934
	2008	2.4	93	0.92	1.07	13.30	9.72	73.09	169.2	44.3	7495
	2007	2.5	98	0.87	1.18	12.02	8.22	68.39	137.5	---	---
	2006	2.5	99	0.91	1.10	14.01	10.36	73.95	181.5	---	---
L 97-128	2010	2.5	107	0.84	1.16	16.03	12.65	78.93	229.4	41.4	9520
	2009	2.5	98	0.86	1.24	15.85	12.62	79.64	229.9	43.9	10093
	2008	2.6	102	0.90	1.09	14.25	10.90	76.31	194.3	40.9	7963
	2007	2.4	104	0.85	1.15	12.79	9.12	71.27	156.4	---	---
	2006	2.6	100	0.90	1.09	16.09	12.74	79.17	229.1	---	---
L 99-226	2010	2.9	112	0.86	1.24	15.18	11.87	78.14	214.3	55.6	11868
	2009	2.6	97	0.95	1.05	14.17	10.70	75.50	189.6	45.7	8674
	2008	3.0	100	0.99	1.07	12.62	9.00	71.34	154.5	46.4	7147
	2007	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---
L 99-233	2010	2.1	114	0.77	1.11	15.21	11.76	77.30	207.0	50.2	10402
	2009	1.9	105	0.80	1.00	14.48	11.15	76.96	195.8	42.7	8326
	2008	2.1	101	0.85	1.03	13.75	10.30	74.93	178.2	51.1	9095
	2007	2.0	108	0.79	1.14	12.35	8.33	67.31	135.2	---	---
	2006	2.0	104	0.81	1.05	16.36	12.88	78.72	228.8	---	---
HoCP 00-950	2010	2.1	99	0.79	1.22	16.98	13.83	81.42	257.1	44.8	11523
	2009	2.2	86	0.89	1.13	16.53	13.37	80.84	247.7	43.9	10874
	2008	2.0	86	0.90	1.03	15.92	12.81	80.48	236.8	41.8	9894
	2007	2.2	89	0.87	1.19	14.37	10.75	74.83	214.6	---	---
	2006	2.1	89	0.90	1.02	16.80	13.60	80.96	252.2	---	---
L 01-283	2010	2.1	106	0.72	1.34	15.96	12.57	78.75	229.9	47.9	10976
	2009	2.2	95	0.87	1.10	15.65	12.49	79.77	229.9	46.8	10734
	2008	2.1	94	0.89	1.03	14.74	11.34	76.89	206.1	43.3	8942
	2007	2.1	93	0.82	1.20	14.03	10.27	73.03	180.5	---	---
	2006	---	---	---	---	---	---	---	---	---	---
L 03-371	2010	2.3	101	0.84	1.17	15.80	12.47	78.85	230.3	52.7	12168
	2009	2.5	92	0.93	1.13	14.54	11.20	76.88	204.3	54.2	11140
	2008	2.2	90	0.91	1.06	14.06	10.48	74.52	187.9	43.7	8220
	2007	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---
HoCP 04-838	2010	2.1	106	0.74	1.26	15.05	12.19	80.96	219.5	45.2	9928
	2009	2.3	96	0.86	1.15	14.92	12.17	81.58	217.8	46.2	10078
	2008	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---

(Cont'd)

Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma LA, September 27, 2010<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)
HoCP 05-961	2010	2.3	100	0.83	1.17	16.29	13.25	81.32	241.5	39.8	9898
	2009	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---
Averages <sup>4</sup>	2010	2.3	106	0.79	1.22	15.85	12.50	78.81	226.8	47.5	10718
	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	---	---
	2006	2.4	97	0.90	1.06	15.20	11.80	78.00	211.6	---	---

<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-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 99-233, HoCP00-950 and L 01-283).

<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.