United States Department of Agriculture

Research, Education, and Economics
Agricultural Research Service

October 26, 2011

Results of the fifth sampling (October 24) of the 2011 First-Stubble, Sugarcane Maturity Test and the second 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. Beginning in 2008, harvestable stalks in all plots are counted in mid-July and together with stalk weights and TRS levels are used to provide an estimation of gross cane (tons/A) and sugar (lbs/A) yields. During the 2-week sampling period, the weather pattern has remained essentially the same with cool nights, sunny days, and no rain.

First-Stubble. During the 2-week interval, the average growth for the core varieties (HoCP 96-540, L 97-128, L 99-233, HoCP 00-950 and L01-283) was 2.4 in. with no increase in stalk weight. When compared to the previous four years sugarcane stalks of the core varieties are average in weight and height for this sampling. Of the varieties, L 99-226 and L 97-128 had the longest stalks and HoCP 00-950 and L 03-371 the shortest stalks. L 99-226 and L 97-128 continue to have the heaviest stalks, with all of the other varieties producing stalks in excess of 2.0 lbs.

Brix and sucrose percentages are slightly better than those obtained last year for this sample date but much better than the 4-year average. For the 2-week period theoretically recoverable sugar (TRS) levels for the core varieties increased by 24 lbs./TC producing an average TRS of 278.1 lbs./TC. The varieties with the greatest increase (>30 lbs./TC) were L 97-128, L 99-226, and L 03-371. Of the varieties with major plantings for harvest in 2011, HoCP 00-950 (308.8 lbs./TC) and L 01-283 (298.8 lbs./TC) continue to have the highest TRS levels with the experimental variety Ho 05-961 producing the 3rd highest TRS levels at 294.3 lbs./TC.

Estimated yields of the major varieties remain higher in 2011 when compared to the 2010 data at this sampling date for both tons/A and lbs/A. The average estimated cane yield of the core varieties was 51.2 tons/A, which is 7.3 tons better than the 4-yr average and 12.3 tons better than last year. The sugar yield of the core varieties was 3100 lbs./A higher than the 4-yr average and

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those recorded in 2010. The highest cane and sugar yields were produced by L 03-371 and L 01-283 with 57.0 tons/A each, while producing 16143 and 17139 lbs./A, respectively. The new variety HoCP 04-838 had the third highest cane (55.8 tons/A) and sugar (15587 lbs./A) yields.

Plant-Cane. Stalk weights for the six core varieties (HoCP 96-540, L 97-128, L 99-226, L 99-233, HoCP 00-950, L 01-283, and L 03-371) are similar to the previous four years; but stalk lengths are slightly below average. Stalks increased in length by 5 in. and weight by 0.2 lbs during the 4-week sampling period. Of the varieties included, L 97-128 and L 99-226 had the heaviest stalks and along with L 99-233 the longest. HoCP 00-950, L 01-299, and HoCP 04-838 had the lightest stalks but none were less than 2 lbs.

Brix and sucrose percentages are slightly lower in 2011 than in 2010 for this sampling date. The average TRS of the core varieties is 261.3 lbs/TC which is 13.1 lbs./TC lower than those recorded in 2010 and 18.5 lbs./TC less than the average for the previous four years. Of the varieties included in this test, HoCP 96-540 had the lowest TRS levels (236.3 lbs./TC) and HoCP 00-950 the highest (292.2 lbs./TC) TRS. The candidate variety HoCP 05-961 produced the second highest TRS at 286.5 lbs./TC., while the new variety HoCP 04-838 was equal to the average.

Average cane (48.3 tons/A) and sugar (12643 lbs./A) yields for the six core varieties are equivalent to the 4-yr average. Of the varieties, the highest cane yields (>50 tons/A) were obtained by L 99-226 and L 03-371. The highest sugar yields were also produced by L 99-226 and L 03-371 with 14525 lbs./A and 13753 lbs./A, respectively.

The sixth sampling for the first-stubble maturity test is scheduled for November 7th.

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 .

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, October 24, 2011[1].

Variety	Year	Stalk[2]				Normal juice[3]			Sugar yield	Previous sample date[4]	TRS change from previous	Estimated yield[6]	
		Wt.	Lh.	Dia.	Density	Bx.	Su.	Pu.	TRS	TRS	sample	Cane	Sugar
		(lb.)	(in.)	(in.)	(g/cm3)	(%)	(%)	(%)	(lb.)	(lb.)	(lb.)	(tons/A)	lbs/A)
HoCP 96-540	2011	2.2	99	---	---	17.09	13.99	81.83	258.1	232.1	26.0	55.7	14329
	2010	2.2	98	---	---	16.25	13.04	80.24	238.3	220.3	18.0	36.8	8772
	2009	2.5	108	---	---	15.54	12.60	81.09	231.5	189.0	42.5	55.6	12877
	2008	2.4	99	---	---	16.14	12.93	80.09	236.2	212.1	24.1	44.0	10371
	2007	2.3	105	0.81	1.25	15.61	12.54	80.33	229.3	213.1	16.2	---	---
L 97-128	2011	2.5	105	---	---	17.89	14.81	82.81	274.9	244.0	30.9	50.6	13943
	2010	2.3	104	---	---	19.01	16.07	84.51	301.1	280.4	20.7	38.8	11692
	2009	2.7	114	---	---	16.93	14.31	84.50	268.1	238.1	30.0	48.6	13032
	2008	2.5	104	---	---	16.69	13.31	79.73	242.6	215.8	26.8	42.0	10193
	2007	2.2	107	0.80	1.15	17.20	14.37	83.51	265.2	247.1	18.1		
L 99-226	2011	2.8	109	---	---	17.24	14.31	82.96	265.8	226.0	39.8	55.5	14742
	2010	2.6	108	---	---	18.11	15.30	84.49	286.6	253.9	32.7	45.1	12929
	2009	3.1	113	---	---	15.74	12.85	81.61	237.0	201.9	35.1	53.1	12599
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
L 99-233	2011	2.1	104	---	---	16.67	13.75	82.45	249.8	229.3	20.5	48.3	12121
	2010	1.9	114	---	---	16.71	13.77	82.37	250.0	219.3	30.7	44.5	11113
	2009	2.0	115	---	---	15.83	12.98	82.01	235.2	210.1	25.1	51.4	12095
	2008	2.0	109	---	---	16.45	13.32	81.02	240.0	210.9	29.1	46.5	11160
	2007	1.9	107	0.75	1.11	16.03	12.99	81.06	234.1	208.4	25.7	---	---
HoCP 00-950	2011	2.2	89	---	---	18.93	16.22	85.69	308.8	286.0	22.8	43.9	13519
	2010	2.0	88	---	---	18.55	15.83	85.34	300.9	281.0	19.9	33.0	9917
	2009	2.1	100	---	---	17.55	14.95	85.15	283.9	257.6	26.3	44.0	12503
	2008	1.7	94	---	---	18.04	15.06	83.45	283.3	263.9	19.4	39.2	11094
	2007	2.1	91	0.83	1.17	18.33	15.69	85.60	298.5	279.8	18.7	---	---
L 01-283	2011	2.2	103	---	---	18.68	15.80	84.55	298.8	278.5	20.3	57.3	17139
	2010	1.8	97	---	---	18.79	15.97	84.97	302.9	287.1	15.8	41.1	12428
	2009	2.1	106	---	---	17.07	14.46	84.73	273.9	244.1	29.8	51.8	14212
	2008	2.2	103	---	---	16.87	13.63	80.79	252.5	234.8	17.7	47.5	11949
	2007	---	---	---	---	---	---	---	---	---	---	---	---
L 03-371	2011	2.2	95	---	---	17.58	14.69	83.60	279.3	245.4	33.9	57.8	16143
	2010	2.2	93	---	---	17.22	14.41	83.65	273.9	246.9	27.0	45.2	12375
	2009	2.6	103	---	---	16.53	13.88	83.93	264.4	236.6	27.8	56.5	14951
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
HoCP 04-838	2011	2.3	100	---	---	17.84	15.15	84.93	279.0	266.7	12.3	55.8	15587
	2010	2.0	100	---	---	17.89	15.30	85.57	280.0	258.3	21.7	35.0	9799
	2009	---	---	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---	---	---
(Con'td.)	2007	---	---	---	---	---	---	---	---	---	---	---	---

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, October 24, 2011[1].

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.	TRS	TRS		Cane	Sugar
		(lb.)	(in.)	(in.)	(g/cm3)	(%)	(%)	(%)	(lb.)	(lb.)	(lb.)	(tons/A)	lbs/A)
Ho 05-961	2011	2.3	97	---	---	18.70	15.95	85.27	294.3	273.0	21.3	52.5	15440
	2010			---	---								
	2009	---	---	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
Averages[5]	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
	2007	1.0	100	0.78	1.19	16.35	13.46	82.32	246.2	228.4	17.8	---	---

[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 12, 2011 .
[5] 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).
[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 25, 2011[1].

Variety	Year	Stalk[2]				Normal juice[3]			Sugar yield	Previous sample date[4]	TRS change from previous	Estimated yield[6]	
		Wt.	Lh.	Dia.	Density	Bx.	Su.	Pu.	TRS	TRS	sample	Cane	Sugar
		(lb.)	(in.)	(in.)	(g/cm3)	(%)	(%)	(%)	(lb.)	(lb.)	(lb.)	(tons/A)	(lbs/A)
HoCP 96-540	2011	2.4	96	---	---	16.58	13.05	78.71	236.3	176.3	60.0	45.3	10705
	2010	2.6	114	---	---	16.62	13.57	81.55	250.0	210.5	39.5	56.4	14064
	2009	2.8	101	---	---	15.63	12.76	81.62	235.2	182.3	52.9	46.6	11004
	2008	2.5	101	---	---	16.56	13.39	80.84	245.6	169.2	76.4	45.9	11277
	2007	2.6	107	0.88	1.18	13.70	10.09	73.63	176.3	137.5	38.8	---	---
L 97-128	2011	2.6	107	---	---	17.53	14.19	80.92	260.5	199.2	61.3	47.7	12443
	2010	2.7	116	---	---	18.42	15.44	83.84	288.3	229.4	58.9	45.6	13184
	2009	2.8	110	---	---	17.00	14.23	83.71	265.5	229.9	35.6	48.4	12839
	2008	2.5	107	---	---	17.09	13.92	81.44	256.4	194.3	62.1	39.1	10007
	2007	2.6	115	0.84	1.19	14.76	11.40	77.23	204.5	156.4	48.1	---	---
L 99-226	2011	3.2	107	---	---	17.09	13.80	80.69	253.0	170.3	82.7	57.2	14525
	2010	3.0	116	---	---	17.77	14.89	83.76	278.0	214.3	63.7	58.6	16304
	2009	3.1	111	---	---	15.56	12.71	81.51	234.4	189.6	44.8	54.1	12858
	2008	2.9	112	---	---	16.29	13.15	80.68	241.0	154.5	86.5	45.6	10986
	2007	---	---	---	---	---	---	---	---	---	---	---	---
L 99-233	2011	2.0	101	---	---	16.60	13.27	79.88	237.4	150.6	86.8	45.5	10843
	2010	2.3	116	---	---	16.96	14.03	82.75	255.3	207.0	48.3	54.5	13917
	2009	2.3	119	---	---	15.74	12.82	81.39	231.5	195.6	35.9	51.5	11884
	2008	2.2	112	---	---	16.56	13.63	82.28	247.7	178.2	69.5	51.7	12814
	2007	2.2	116	0.77	1.21	14.76	11.40	77.23	199.4	135.2	64.2	---	---
HoCP 00-950	2011	2.2	92	---	---	18.50	15.50	83.78	292.2	234.8	57.4	46.6	13554
	2010	2.2	104	---	---	18.28	15.49	84.71	293.4	257.1	36.3	47.0	13800
	2009	2.5	98	---	---	17.66	15.01	84.99	284.8	247.7	37.1	48.9	13917
	2008	2.1	95	---	---	18.48	15.61	84.45	295.2	236.8	58.4	43.3	12794
	2007	2.3	100	0.86	1.18	16.03	12.84	80.05	236.7	214.6	22.1	---	---
L 01-283	2011	2.4	93	---	---	18.11	14.92	82.37	278.9	203.1	75.8	45.3	12678
	2010	2.2	108	---	---	18.11	15.14	83.63	285.1	229.9	55.2	51.3	14619
	2009	2.3	103	---	---	17.04	14.38	84.38	272.0	229.9	42.1	48.7	13267
	2008	2.1	100	---	---	17.58	14.77	84.03	278.7	206.1	72.6	42.3	11753
	2007	2.4	108	0.81	1.28	15.83	12.95	81.87	241.3	180.5	60.8	---	---
L 01-299	2011	2.2	100	---	---	16.78	13.41	79.92	242.2	177.7	64.5	42.0	10175
	2010	---	---	---	---	---	---	---	---	---	---	---	---
	2009	---	---	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
L 03-371	2011	2.5	94	---	---	17.46	14.37	82.24	271.0	182.5	88.5	50.7	13753
	2010	2.5	102	---	---	17.86	15.07	84.32	287.5	230.3	57.2	55.4	15923
	2009	2.7	101	---	---	16.73	14.12	84.39	269.6	204.3	65.3	57.7	15583
	2008	2.3	95	---	---	17.07	14.20	83.19	269.3	187.9	81.4	45.4	12235
	2007	---	---	---	---	---	---	---	---	---	---	---	---
HoCP 04-838	2011	2.1	98	---	---	17.13	14.33	83.63	262.0	191.5	70.5	45.7	11972
	2010	2.2	111	---	---	17.18	14.64	85.22	270.0	219.5	50.5	48.0	12971
	2009	2.5	109	---	---	17.09	14.61	85.48	267.1	217.8	49.3	50.5	13497
	2008	---	---	---	---	---	---	---	---	---	---	---	---
Cont'd	2007	---	---	---	---	---	---	---	---	---	---	---	---

Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, SRRC, Sugarcane Research Unit, Houma, LA, October 25, 2011[1].

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.	TRS	TRS		Cane	Sugar
		(lb.)	(in.)	(in.)	(g/cm3)	(%)	(%)	(%)	(lb.)	(lb.)	(lb.)	(tons/A)	(lbs/A)
Ho 05-961	2011	2.3	95	---	---	18.66	15.65	83.87	286.5	210.7	75.8	45.1	12937
	2010	2.5	107	---	---	18.11	15.37	84.87	285.7	241.5	44.2	43.8	12512
	2009	---	---	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
Averages[5]	2011	2.5	99	---	---	17.41	14.16	81.23	261.3	188.1	73.2	48.3	12643
	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
	2007	2.4	107	0.84	1.21	14.56	11.06	75.91	194.5	138.1	56.4	---	---

[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 26, 2011 .

[4] 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).

[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.