United States Department of Agriculture

Research, Education, and Economics
Agricultural Research Service

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Results of the seventh sampling (November 21) of the 2011 First-Stubble, Sugarcane Maturity Test and the third and final 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 for the same harvest dates over a 5-yr period (2007 – 2011). 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 for this harvest date 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 very little 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 3.0 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 continue to have the longest and HoCP 00-950 and L 03-371 the shortest stalks. Likewise, L 97-128, L 99-226, and L 03-371 continue to have the heaviest stalks, but all of the varieties produced stalks in excess of 2.0 lbs.

Brix and sucrose percentages are slightly better than those obtained for the 4-year average and about equivalent to those obtained in 2010 suggesting that maturation has plateaued. For the 2-week period theoretically recoverable sugar (TRS) levels for the core varieties increased by only 8.4 lbs./TC producing an average TRS of 300 lbs./TC. Only HoCP 96-540, L 97-128, L99-233, and L 03-371 showed a greater than 10 lbs./TC increase in TRS between the two sampling periods. 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 (317.3 lbs./TC) and L 03-371 (320.2 lbs./TC) continue to have the highest TRS levels and L99-233 (276.7 lbs./TC) the lowest.

Estimated yields of the major varieties remain higher in 2011 than in 2010 at this sampling date for both T/A and lbs./A. The average estimated cane yield of the core varieties was 54.0 T/A, which is 13.1 tons better than last year. The sugar yield of the core varieties was 4045 lbs./A

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higher than those recorded in 2010. Three varieties, HoCP 96-540, L 01-283, and L 03-371 produced estimated gross cane yields in excess of 60 T/A and sugar yields in excess of 18,000 lbs./A.

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 below the average. Stalks increased in length by 4 in. and weight by only 0.1lbs during the 4-week sampling interval. Of the varieties included, L 99-226 had the heaviest and longest stalks while L 99-233, HoCP 00-950, and HoCP 04-838 had the lightest stalks.

Brix and sucrose percentages in 2011 are equivalent to those for the 2010 sampling on this date. The average TRS of the core varieties is 293.6 lbs./TC which is equivalent to those recorded in 2010. Of the varieties included in this test, L 99-233 had the lowest TRS levels (270.5 lbs./TC) and HoCP 00-950 and L 01-283 the highest (308 lbs./TC) TRS.

Average cane (51.4 T/A) and sugar (15088 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 with L 99-226, HoCP 00-950, and L 03-371. The highest sugar yields were also produced by L 99-226, HoCP 00-950, and L 03-371 with 18067, 15564, and 16154 lbs./A, respectively.

The eighth sampling for the first-stubble maturity test is scheduled for December 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 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, Novembaer 21, 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	101	---	---	18.59	15.98	85.92	301.7	289.1	12.6	62.0	18690
	2010	2.3	100	---	---	17.84	15.18	85.11	285.5	258.6	26.9	38.1	10878
	2009	2.6	109	---	---	17.09	14.24	83.35	265.2	237.1	28.1	56.5	14997
	2008	2.5	103	---	---	17.97	15.15	84.27	283.5	263.9	19.6	46.0	13025
	2007	2.2	103	0.79	1.19	17.69	15.05	85.04	277.3	246.2	31.1	---	---
L 97-128	2011	2.5	105	---	---	18.57	15.77	84.90	296.1	281.2	14.9	49.7	14700
	2010	2.3	107	---	---	19.19	16.41	85.49	309.0	308.5	0.5	40.2	12397
	2009	2.7	116	---	---	17.91	15.20	84.89	285.4	272.8	12.6	49.6	14146
	2008	2.4	104	---	---	18.22	15.22	83.56	283.8	262.9	20.9	40.2	11393
	2007	2.4	110	0.79	1.20	18.80	16.20	85.78	302.6	278.9	23.7	---	---
L 99-226	2011	2.8	107	---	---	18.66	16.09	86.25	304.4	304.5	-0.1	56.4	17146
	2010	2.8	112	---	---	18.77	16.28	86.72	308.7	294.0	14.7	49.0	15123
	2009	3.1	119	---	---	16.82	14.04	83.46	261.6	244.2	17.4	54.0	14120
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
L 99-233	2011	2.2	109	---	---	17.75	15.04	84.70	276.7	258.4	18.3	50.5	13962
	2010	2.0	113	---	---	17.91	15.25	85.17	281.3	261.0	20.3	48.0	13532
	2009	2.2	119			17.24	14.41	83.59	263.5	246.7	16.8	56.9	15005
	2008	2.1	112	---	---	17.93	14.96	83.45	273.2	266.4	6.8	49.2	13453
	2007	1.8	104	0.72	1.12	17.69	14.93	84.37	274.1	259.1	15.0	---	---
HoCP 00-950	2011	2.3	95	---	---	19.19	16.60	86.48	317.3	318.7	-1.4	46.0	14593
	2010	2.1	92	---	---	19.17	16.55	86.36	316.3	308.1	8.2	34.1	10783
	2009	2.4	101	---	---	18.15	15.58	85.82	296.8	290.4	6.4	51.0	15101
	2008	2.1	93	---	---	18.86	16.22	85.99	309.3	286.4	22.9	43.0	13311
	2007	2.1	97	0.81	1.18	19.48	16.97	87.13	325.5	304.1	21.4	---	---
L 01-283	2011	2.3	103	---	---	18.81	16.11	85.64	306.7	308.9	-2.2	61.7	18914
	2010	2.0	102	---	---	19.28	16.65	86.34	318.0	312.9	5.1	46.6	14847
	2009	2.4	107	---	---	17.69	14.96	84.59	283.2	279.8	3.4	58.2	16541
	2008	2.2	104	---	---	18.75	16.06	85.65	305.6	285.6	20.0	47.6	14537
	2007	---	---	---	---	---	---	---	---	---	---	---	---
L 03-371	2011	2.5	97	---	---	18.70	16.22	86.70	320.2	302.2	18.0	64.6	20703
	2010	2.4	97	---	---	18.15	15.63	86.13	301.3	289.0	12.3	49.6	14933
	2009	2.6	101	---	---	16.93	14.26	84.19	272.0	258.8	13.2	56.7	15448
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
HoCP 04-838	2011	2.3	103	---	---	18.19	15.62	85.84	289.1	293.8	-4.7	55.5	16059
	2010	2.0	104	---	---	18.68	16.11	86.25	295.7	283.4	12.3	35.4	10452
	2009	---	---	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---	---	---
(Cont'd)	2007	---	---	---	---	---	---	---	---	---	---	---	---

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)
Ho 05-961	2011	2.3	100			19.17	16.49	86.02	305.5	307.9	-2.4	54.3	16563
	2010	---	---	---	---	---	---	---	---	---	---	---	---
	2009	---	---	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
Averages[5]	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	14315
	2008	2.1	101	---	---	18.10	15.20	84.20	282.1	267.8	14.3	42.2	11898
	2007	2.0	102	0.76	1.19	18.10	15.45	85.23	286.3	267.5	18.8	---	---

[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 November 7, 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, November 21, 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	2.5	98	0.90	1.66	18.19	15.33	84.25	286.9	236.3	50.6	47.7	13694
	2010	2.6	112	0.80	1.30	17.84	15.17	85.02	285.1	250.0	35.1	56.1	15984
	2009	3.0	106	0.95	1.56	17.11	14.37	83.94	268.4	235.2	33.2	50.5	13616
	2008	2.5	102	0.87	1.13	18.31	15.58	85.09	292.8	245.6	47.2	46.6	13646
	2007	2.9	115	0.86	1.20	15.47	12.20	78.79	220.9	176.3	44.6	---	---
L 97-128	2011	2.8	108	0.92	1.63	18.33	15.31	83.51	285.3	260.5	24.8	50.3	14341
	2010	2.7	116	0.83	1.64	18.22	15.44	84.78	289.8	288.3	1.4	45.7	13241
	2009	2.9	112	0.90	1.13	18.15	15.40	84.86	289.2	265.5	23.7	50.9	14682
	2008	2.7	104	0.91	1.09	18.50	15.58	84.71	291.2	256.4	34.8	42.1	12276
	2007	2.5	120	0.82	1.08	15.92	12.84	80.64	235.3	204.5	30.8	---	---
L99-226	2011	3.4	112	0.95	1.76	18.39	15.68	85.25	295.0	253.0	42.0	61.2	18067
	2010	3.3	123	0.91	1.14	18.75	16.18	86.29	306.0	278.0	28.0	63.7	19506
	2009	3.2	113	0.98	1.07	17.15	14.46	84.15	270.5	234.4	36.1	56.0	15214
	2008	2.9	111	0.96	1.02	17.80	15.16	85.16	285.0	241.0	44.0	45.4	12950
	2007	---	---	---	---	---	---	---	---	---	---	---	---
L 99-233	2011	2.2	108	0.79	1.73	17.49	14.74	84.31	270.5	237.4	33.1	49.8	13490
	2010	2.4	119	0.78	1.16	18.06	15.34	84.95	282.6	255.3	27.3	56.5	15957
	2009	2.5	113	0.87	1.03	17.77	15.20	85.51	280.8	231.5	49.3	56.5	15855
	2008	2.0	107	0.79	1.07	17.97	15.18	84.45	278.9	247.7	31.2	48.8	13578
	2007	2.2	115	0.76	1.16	16.65	13.61	81.74	246.2	199.4	46.8	---	---
HoCP 00-950	2011	2.3	99	0.88	1.60	18.99	16.18	85.21	307.4	292.2	15.2	50.3	15464
	2010	2.3	106	0.77	1.26	18.81	16.12	85.66	306.7	293.4	13.3	47.7	14614
	2009	2.8	97	0.98	1.08	18.66	15.85	84.93	300.5	284.8	15.7	56.7	16996
	2008	2.3	94	0.92	1.00	19.30	16.69	86.45	318.9	295.2	23.7	46.9	14962
	2007	2.5	103	0.84	1.17	17.49	14.75	84.35	278.8	236.7	42.1	---	---
L 01-283	2011	2.5	98	0.86	1.80	18.95	16.25	85.76	309.50	278.9	30.6	46.5	14403
	2010	2.4	115	0.75	1.32	18.42	15.68	85.15	297.7	285.1	12.6	56.8	16897
	2009	2.6	106	0.90	1.06	18.33	15.53	84.72	294.1	272.0	22.1	54.0	15908
	2008	2.2	101	0.82	1.12	18.88	16.18	85.71	308.1	278.7	29.4	43.8	13469
	2007	2.4	109	0.79	1.20	17.13	14.27	83.29	268.3	241.3	27.0	---	---
l 01-299	2011	2.4	103	0.84	1.73	17.86	15.11	84.57	280.4	242.2	38.2	44.8	12526
	2010	2.6	111	0.84	1.19	18.70	16.04	85.78	299.7	285.7	14.0	46.5	13945
	2009	---	---	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
L 03-371	2011	2.7	96	0.92	1.71	18.33	15.66	85.47	300.8	271.0	29.8	53.7	16154
	2010	2.5	103	0.85	1.20	18.19	15.64	85.96	301.1	287.5	13.6	56.9	17128
	2009	2.8	98	0.94	1.16	17.73	15.05	84.89	288.1	269.6	18.5	60.6	17477
	2008	2.3	92	0.92	1.05	18.55	16.02	86.38	309.1	269.3	39.8	46.0	14227
	2007	---	---	---	---	---	---	---	---	---	---	---	---
HoCP 04-838	2011	2.3	99	0.86	1.61	18.22	15.66	85.98	289.9	262.0	27.9	48.4	14013
	2010	2.3	114	0.76	1.24	17.91	15.32	85.54	283.0	270.0	13.0	51.3	14551
	2009	2.7	107	0.87	1.17	18.24	15.67	85.92	287.2	267.1	20.1	54.2	15557
	2008	---	---	---	---	---	---	---	---	---	---	---	---
	2007	---	---	---	---	---	---	---	---	---	---	---	---
Ho 05-961	2011	2.5	98	0.90	1.63	19.08	16.31	85.50	301.3	286.5	14.8	48.5	14601
	2010	2.6	111	0.84	1.19	18.70	16.04	85.78	299.7	285.7	14.0	46.5	13945
	2009	---	---	---	---	---	---	---	---	---	---	---	---
	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, November 21, 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)
Averages[5]	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
	2008	2.3	99	0.85	1.19	18.19	15.45	85.07	288.0	250.5	38.5	42.5	12206
	2007	2.5	112	0.83	1.17	16.09	13.04	80.73	235.9	194.5	41.4	---	---

[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 15-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 25, 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.