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Results of the September 24, 2012 sampling of the First-Stubble (third sampling), Sugarcane Maturity Test and the first 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 Ho07-613. 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 2.62 in. of rainfall.

First-Stubble: When comparing the third sampling data this year to data from the previous four years, stalk weights of the commercial varieties (HoCP 96-540, L 99-226, L 99-233, HoCP 00-950, L 01-283 and L 03-371) were average to slightly above average, but stalk height was seven inches longer. L 99-226 and HoCP 96-540 had the heaviest stalks, while L 99-233, HoCP 00-950, and HoCP 04-838 had the lightest stalks at 1.9 lbs each. The varieties L 99-226, L 99-233 and L 01-299 had the longest stalks at over 100 inches, whereas HoCP 00-950 and L 03-371 had the shortest stalks.

Brix levels for this sampling date are equal to those attained in 2011, while sucrose and purities are slightly better than last year. When compared to the 4-yr average brix and sucrose levels are lower, -0.4 and -0.3 respectively, while purity levels (74.09%) are equal. The average theoretical recoverable sugar (TRS) levels for 2012 are only 4.7 lbs/ton of cane (TC) more than those recorded in 2011. Of the varieties with major plantings for harvest in 2012, L 01-283 (213 lbs/TC) and HoCP 00-950 (195 lbs/TC) have the highest TRS levels, the lowest TRS levels were produced by L 99-233 (162 lbs/TC) and L 01-299 (164 lbs/TC). HoCP 96-540 had the third lowest TRS producing 165 lbs/TC, 2 lbs less than its 4-yr average for this sample date and 14 lbs better than last year. The newer variety, HoCP 04-838 produced the third highest TRS at 187 lbs/TC, which is 22.5 lbs greater than HoCP 96-540 and 8 lbs better than the average for this sample date.

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. Of the varieties sampled, none produced less than 44.5 tons/A or yielded less than 7000 lbs/A. The average cane yield of the core varieties

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was 47.0 tons/A which is 5.9 tons better than the 4-yr average but 2.5 tons less than last year. The sugar yield of the core varieties was only 176 lbs/A, less than those recorded in 2011, yet 981 lbs/A more than the 4-yr average. L 01-299 (51.7 tons/A) and HoCP 96-540 (49.0 tons/A) produced the highest cane yields, while the lowest cane yields were produced by L 99-233 and HoCP 04-838,with both averaging 45.0 tons/A. The highest estimated sugar yields were obtained by L 01-283 and HoCP 00-950 producing 10192 lbs/A and 8883 lbs/A respectively, while L 99-233 (7178 lbs/A) and L 03-371 (7736 lbs/A) producing the lowest sugar yields.

Plant-Cane. Plant-cane stalk weights, lengths, and diameters of the seven core varieties were equal to the 4-yr average for this sample period. When compared to 2011, stalk weights and densities were equivalent, but the stalks are 4 in. shorter with slightly less diameter. HoCP 96-540 and L 99-226 had the heaviest stalks while L 99-233, L 01-283 and HoCP 04-838 had the lightest stalks. L 99-226 and L 99-233 had the longest stalks with the shortest stalks produced by HoCP 00-950 and HoCP 04-838.

Brix, sucrose, and purities for the core varieties are higher than those produced in 2011 and higher than the 4-yr average. TRS levels for the core varieties at this sampling date are greater than any produced in the last four years except 2010. 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 maturity test is scheduled for October 9th.

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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, September 24, 2012[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)
HoCP 96-540	2012	2.26	99	---	---	14.85	11.61	78.13	209.4	164.7	44.7	47.6	9994
	2011	2.05	92	---	---	14.03	10.58	75.29	187.3	150.9	36.4	52.5	9795
	2010	2.09	96	---	---	13.72	10.26	74.74	180.8	167.1	13.7	34.5	6235
	2009	2.32	99	---	---	14.21	11.00	77.42	197.5	183.3	14.2	51.2	10120
	2008	2.41	93	---	---	13.28	9.78	73.62	170.8	no data	0.0	45.0	7695
L99-226	2012	2.78	105	---	---	14.70	11.33	77.08	203.0	174.4	28.6	47.0	9529
	2011	2.44	99	---	---	14.74	11.15	75.57	197.6	139.0	58.6	48.9	9694
	2010	2.38	100	---	---	15.12	11.77	77.82	211.8	188.1	23.7	41.7	8829
	2009	2.61	102	---	---	14.06	10.71	76.22	190.8	179.7	11.1	45.4	8665
	2008	---	---	---	---	---	---	---	---	---	---	---	---
L 99-233	2012	1.96	107	---	---	14.70	11.22	76.33	196.1	161.6	34.5	47.1	9247
	2011	1.95	100	---	---	14.72	11.27	76.56	197.3	139.9	57.4	45.3	8939
	2010	1.61	104	---	---	15.01	11.47	76.42	200.6	167.0	33.6	38.4	7698
	2009	1.80	104	---	---	14.59	11.30	77.36	199.0	166.3	32.7	45.6	9138
	2008	2.02	99	---	---	14.30	10.80	75.53	187.6	no data	0.0	47.9	8982
HoCP 00-950	2012	2.07	94	---	---	16.45	13.31	80.91	246.7	194.5	52.2	48.8	12056
	2011	2.01	84	---	---	17.11	14.00	81.82	260.8	219.5	41.3	41.1	10698
	2010	1.86	84	---	---	16.82	13.57	80.61	251.0	238.1	12.9	30.6	7635
	2009	1.96	89	---	---	16.20	13.15	81.14	244.0	219.3	24.7	42.1	10312
	2008	2.20	88	---	---	15.47	12.11	78.27	220.8	no data	0.0	45.6	10048
L 01-283	2012	1.92	98	---	---	16.49	13.46	81.60	250.6	213.1	37.5	44.6	11188
	2011	2.00	96	---	---	16.16	12.80	79.18	234.6	193.4	41.2	53.0	12432
	2010	1.72	96	---	---	17.09	13.98	81.81	260.5	237.7	22.8	39.7	10361
	2009	1.83	99	---	---	15.87	12.73	80.20	234.9	206.2	28.7	44.7	10504
	2008	2.21	95	---	---	14.61	11.07	75.73	198.5	no data	0.0	48.4	9624
L 01-299	2012	2.03	101	---	---	14.90	11.48	77.04	203.5	164.3	39.2	51.7	10533
	2011	---	---	---	---	---	---	---	---	---	---	---	---
	2010	---	---	---	---	---	---	---	---	---	---	---	---
	2009	---	---	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---	---	---
L 03-371	2012	2.23	94	---	---	15.14	11.72	77.39	214.6	166.2	48.4	50.7	10876
	2011	2.04	89	---	---	14.68	10.95	74.59	196.5	149.8	46.7	53.4	10478
	2010	2.04	92	---	---	15.58	12.16	78.03	223.5	205.0	18.5	42.7	9504
	2009	2.22	94	---	---	14.76	11.60	78.49	213.9	181.6	32.3	48.2	10434
	2008	---	---	---	---	---	---	---	---	---	---	---	---
HoCP 04-838	2012	2.00	95	---	---	15.25	12.65	82.93	230.3	187.2	43.1	46.8	10753
	2011	2.00	92	---	---	14.45	11.35	78.49	201.2	171.0	30.2	48.2	9720
	2010	1.85	94	---	---	15.52	12.73	82.04	228.5	204.8	23.7	32.8	7510
	2009	---	---	---	---	---	---	---	---	---	---	---	---
Cont'd	2008	---	---	---	---	---	---	---	---	---	---	---	---

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, September 24, 2012[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)
Averages[5]	2012	2.2	100	---	---	15.39	12.11	78.57	220.1	179.1	41.0	47.6	10482
	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[7]	0.0	42.0	7506

[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 September 10, 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, Sugarcane Research Unit, Houma LA, September 25, 2012[1].

Variety	Year	Stalk[2]				Normal juice[3]			Sugar yield	Estimated yield[5]	
		Wt.	Lh.	Dia.	Density	Bx.	Su.	Pu.	TRS	Cane	Sugar
		(lb.)	(in.)	(in.)	(g/cm3)	(%)	(%)	(%)	(lb.)	(tons/A)	(lbs/A
HoCP 96-540	2012	2.4	100	0.88	1.10	14.34	10.76	74.87	189.9	50.8	9575
	2011	2.2	90	0.92	1.04	14.17	10.22	72.10	176.3	42.3	7466
	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
L 99-226	2012	3.0	106	1.00	1.01	14.50	10.78	74.27	189.3	56.8	10715
	2011	2.9	100	0.99	1.04	13.90	9.92	71.37	170.3	51.2	8734
	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
L 99-233	2012	2.0	104	0.81	1.04	15.85	12.13	76.54	212.2	54.9	11653
	2011	2.0	99	0.83	1.03	13.59	9.23	67.87	150.6	44.9	6767
	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
HoCP 00-950	2012	2.2	95	0.88	1.08	16.69	13.29	79.64	244.5	54.1	13202
	2011	2.0	84	0.89	1.03	16.58	12.91	77.84	234.8	42.2	9855
	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
L 01-283	2012	2.1	98	0.82	1.11	16.71	13.12	78.49	239.6	52.9	12630
	2011	2.2	91	0.89	1.06	15.52	11.48	73.99	203.1	41.6	8482
	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
L01-299	2012	2.2	100	0.83	1.13	15.10	11.10	73.46	191.7	51.7	9902
	2011	2.1	92	0.84	1.16	14.54	10.43	71.67	177.7	40.7	7191
	2010	---	---	---	---	---	---	---	---	---	---
	2009	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---
L 03-371	2012	2.2	89	0.92	1.02	15.47	11.83	76.46	215.1	52.2	11215
	2011	2.2	88	0.91	1.08	14.63	10.44	71.33	182.5	45.0	8208
	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
HoCP 04-838	2012	2.1	96	0.87	1.02	15.01	11.61	77.33	204.2	52.9	10660
	2011	2.2	94	0.87	1.07	14.63	11.03	75.40	191.5	46.4	8854
	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
(Cont'd)	2008	---	---	---	---	---	---	---	---	---	---

Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma LA, September 25, 2012[1].

Variety	Year	Stalk[2]				Normal juice[3]			Sugar yield	Estimated yield[5]	
		Wt.	Lh.	Dia.	Density	Bx.	Su.	Pu.	TRS	Cane	Sugar
		(lb.)	(in.)	(in.)	(g/cm3)	(%)	(%)	(%)	(lb.)	(tons/A)	(lbs/A
Ho 07-613	2012	2.2	103	0.82	1.11	16.18	13.24	81.80	246.6	55.0	13503
	2011	---	---	---	---	---	---	---	---	---	---
	2010	---	---	---	---	---	---	---	---	---	---
	2009	---	---	---	---	---	---	---	---	---	---
	2008	---	---	---	---	---	---	---	---	---	---
Averages[4]	2012	2.3	98	0.88	1.05	15.51	11.93	76.80	213.5	53.5	11379
	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

[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] 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).

[5] 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.