

United States Department of Agriculture

Research, Education, and Economics Agricultural Research Service

November 2, 2012

Results of the October 22, 2012, sampling of the First-Stubble (fifth sampling), Sugarcane Maturity Test and the second 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 Ho 07-613. 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 0.05 in. of rainfall.

First-Stubble: During the 2-week interval, the average growth for the core varieties (HoCP 96-540, L 99-226, L 99-233, HoCP 00-950, L 01-283 and L 03-371) was 3.0 inches with only a 0.1 lb increase in stalk weight. When compared to the previous four years, sugarcane stalks of the core varieties are average in weight, but 7 inches longer for this sampling. L 99-226 (2.9 lbs) and HoCP 96-540 (2.3 lbs) continue to have the heaviest stalks, with all of the other varieties producing stalks about 2.0 lbs each. The longest stalks belonged to L 99-226 and HoCP 96-540, while L 03-371 and HoCP 00-950 had the shortest stalks.

Brix and sucrose levels for this sampling date are slightly less than those attained in 2011, while purities are higher. When compared to the 4-yr average; brix, sucrose and purity levels are all better. Since the last sampling, the average increase in theoretical recoverable sugar (TRS) levels for the core varieties is 22.7 lbs/ton of cane (TC) which equals 1.62 lbs/ton/day. The 272 lbs/TC produced is 5.9 lbs/TC less than those recorded in 2011, but 13.4 lbs/TC greater than the 4-yr average. Of the varieties with major plantings for harvest in 2012, HoCP 00-950 (290 lbs/TC) and L 01-283 (287 lbs/TC) have the highest TRS levels, while L 99-233 (252 lbs/TC), HoCP 96-540 (256 lbs/TC), and L 01-299 (256 lbs/TC) produced the lowest. L 03-371 and L 99-226 had the largest increases in TRS levels (> 32 lbs/TC) from the previous sampling whereas L 01-283 had an increase of only 9.3 lbs/TC.

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. The average cane yield of the core varieties was 52.1 tons/A which is only 0.9 tons/A less than last year's. but 6.4 tons/A higher than the 4-yr



Sugarcane Research Unit 5883 USDA Road Houma, LA 70360 (985) 872-5042 – Fax (985) 868-8369 An Equal Opportunity Employer average. The sugar yield of the core varieties was only 45 lbs/A less than those recorded in 2011 yet 2330 lbs/A greater than the 4-yr average. The highest cane yields and sugar yields were produced by L 99-226 with 55.3 tons of cane/A and 14661 lbs of sugar/A. The lowest cane and sugar yields were produced by HoCP 04-838 with 47.1 tons of cane/A and 12972 lbs of sugar/A.

Plant-Cane: When compared to the 4-yr average, stalk weights are equivalent, but the stalks are 5 in. longer for this sampling. There was no increase in weight during the 4-week sampling interval, but stalk length increased by 11 in. The heaviest stalks were produced by L 99-226 and HoCP 96-540 while L 01-283 and HoCP 04-838 had the lightest stalks. L 99-226 and L 99-233 had the longest stalks with L 03-371 and HoCP 00-950 producing the shortest stalks.

Brix, sucrose, purities and corresponding TRS levels for the core varieties are better than those produced in 2011 and higher than the 4-yr average. TRS increased by 61 lbs/TC during the 4-week sampling period, with no variety producing less than 250 lbs/TC. The varieties with the highest TRS levels were HoCP 00-950 (305 lbs/TC) and L 01-283 (303 lbs/TC), while the lowest TRS levels were produced by L 01-299 (253 lbs/TC) and HoCP 96-540 (252 lbs/TC).

Estimated cane and sugar yields for the seven core varieties are higher in 2012 than in 2011. When compared to the last year's data and the 4-yr average, cane yields at this sampling date were 6 tons/A heavier, while sugar yields were 2400 lbs/A better. There was no increase in tonnage from the previous sample date, but sugar yields increased by 3246 lbs/A. For the core varieties, the highest estimated cane yields were produced by L 99-233 (59.3 tons/A) and L 99-226 (57.4 tons/A). HoCP 00-950 (15978 lbs/A) produced the highest sugar yield, followed by L 99-233 (15606 lbs/A). Overall, the candidate variety Ho 07-613 produced the highest estimated yields with 60.2 tons of cane/A and 17367 lbs of sugar/A.

The sixth sampling for the maturity test is scheduled for November 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, 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: http://www.ars.usda.gov/main/site_main.htm?modecode=64-10-00-00.

Maturity reports are prepared by Mr. Mike Duet of the USDA-ARS Sugarcane Research Unit.

TRS Previous change Sugar sample from Estimated Stalk² date⁴ yield⁶ Normal juice³ yield previous Wt. Lh. Dia. Bx. TRS TRS Cane Variety Year Density Su. Pu. sample Sugar (lb.) (in.) (in.) (g/cm3)(%) (%) (%) (lb.) (lb.) (lb.) (tons/A) lbs/A) HoCP 96-540 2012 2.5 109 16.67 13.77 82.63 255.5 242.1 13.4 53.2 13604 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 12877 ------55.6 2.4 24.1 2008 99 -------16.14 12.93 80.09 236.2 212.1 44.0 10371 233.0 L 99-226 2012 3.3 120 17.24 14.29 82.87 265.3 32.3 55.3 14661 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 32.7 12929 ------286.6 253.9 45.1 2009 3.1 15.74 237.0 113 -------12.85 81.61 201.9 35.1 53.1 12599 2008 ---252.0 27.3 2012 2.3 118 16.87 13.89 82.33 224.7 54.8 13850 L 99-233 2011 2.1 104 ------16.67 13.75 82.45 249.8 229.3 20.5 48.3 12121 16.71 1.9 114 13.77 250.0 219.3 11113 2010 -------82.37 30.7 44.5 2.0 2009 115 ----15.83 12.98 82.01 235.2 210.1 25.1 12095 ---51.4 2008 2.0 109 ------16.45 13.32 81.02 240.0 210.9 29.1 46.5 11160 HoCP 00-950 2012 2.1 101 18.11 15.33 84.66 290.4 274.4 16.0 49.9 14482 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 ------2.1 100 14.95 283.9 2009 ---17.55 85.15 257.6 26.3 44.0 12503 ---2008 1.7 94 ------18.04 15.06 83.45 283.3 263.9 19.4 39.2 11094 2012 106 18.04 15.21 84.29 287.4 278.1 9.3 48.3 13960 L 01-283 2.1 2011 2.2 103 ------18.68 15.80 84.55 298.8 278.5 20.3 57.3 17139 302.9 2010 1.8 97 -------18.79 15.97 84.97 287.1 15.8 41.1 12428 2.1 106 17.07 14.46 29.8 2009 84.73 273.9 244.1 51.8 14212 -------2008 2.2 103 --------16.87 13.63 80.79 252.5 234.8 17.7 47.5 11949 L 01-299 2012 2.0 106 16.93 13.96 82.43 256.1 239.4 16.7 52.1 13321 2011 ------------------------------------2010 --2009 ----------------------------------2008 --2012 2.3 98 17.49 14.80 84.59 282.7 248.4 14433 L 03-371 34.3 51.1 2.2 17.58 279.3 33.9 2011 95 ------14.69 83.60 245.4 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 --2.0 2012 102 17.35 14.90 85.84 275.6 258.4 17.2 47.1 12972 HoCP 04-838 2011 2.3 17.84 15.15 84.93 279.0 12.3 100 ------266.7 55.8 15587 2010 2.0 100 -------17.89 15.30 85.57 280.0 258.3 21.7 35.0 9799 2009 -------------------------------------(Con'td.) 2008 -------------------------------------

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, October 22, 2012¹.

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, October 22, 2012¹.

											TRS		
										Previous	change		
									Sugar	sample	from	Estin	nated
		Stalk ²				Ν	ormal juic	e ³	yield	date ⁴	previous	yie	ld ⁶
Variety	Year	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	2012	2.4	109			17.40	14.55	83.56	272.2	250.1	22.1	52.1	14165
	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

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 09, 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-Al	RS, SRRC,	Sugarcane
Research Unit, Houma, LA, October 22, 2012'.		

											TRS		
										Previous	change		
									Sugar	sample	from	Estimated	
			Sta	alk ²		Ν	lormal iuice	a ³	vield	date ⁺	previous	vield ⁶	
Variety	Year	Wt	L h	Dia	Density	Bx	Su	Pu	TRS	TRS	sample	Cane	Sugar
Valiety	rour	(lb.)	(in.)	(in.)	(a/cm3)	(%)	(%)	(%)	(lb.)	(lb.)	(lb.)	(tons/A)	(lbs/A)
		(10.)	()	()	(9/01110)	(70)	(70)	(70)	(10.)	(10.)	(10.)	(10/10/74)	(100/71)
HoCP 96-540	2012	2.4	109			16.62	13.65	82.10	252.4	189.9	62.5	50.9	12851
	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
L 99-226	2012	3.1	117			17.11	14.21	83.02	264.1	189.3	74.8	57.4	15193
-	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
L 99-233	2012	2.2	115			17.22	14.40	83.62	263.3	212.2	51.1	59.3	15606
-	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
HoCP 00-950	2012	2.2	102			18.59	16.04	86.26	304.8	244.5	60.3	52.4	15978
-	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
L 01-283	2012	2.0	105			18.50	15.88	85.81	302.6	239.6	63.0	50.9	15432
_	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
L 01-299	2012	2.2	110			16.91	13.86	81.93	253.4	191.7	61.7	51.6	13065
_	2011	2.2	100			16.78	13.41	79.92	242.2	177.7	64.5	42.0	10175
-	2010												
_	2009												
	2008												
1 00 071	0010		400	l	1	47.00	45.00	05 10		045.4	70 5	50.0	45000
L 03-371	2012	2.2	100			17.89	15.29	85.48	293.6	215.1	78.5	52.2	15336
-	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
	0040		405	1	1	47.00		05.07	070.0	004.0	75.4	50.0	4 4 9 4 9
HOCP 04-838	2012	2.0	105			17.60	15.11	85.87	279.6	204.2	75.4	50.9	14249
-	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	∠.5	109			17.09	14.01	op.40	207.1	211.ŏ	49.3	5U.5	13497
	2008												
Ho 07-612	2012	24	11/	-	I I	17 59	15 12	86.06	289 5	246.6	110	60.2	17267
-10 07-013	2012	2.4	114			06.11	10.13	00.00	200.0	240.0	41.9	00.2	1/30/
-	2011												
-	2010												
Cont'd	2009												
Contu	2000						L		L	I			

Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, SRRC, Sugarcane Research Unit, Houma, LA, October 22, 2012'.

											TRS		
										Previous	change		
									Sugar	sample	from	Estim	ated
		Stalk ²			N	lormal juic	e ³	yield	date ^⁴	previous	yie	ld ⁶	
Variety	Year	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 [°]	2012	2.3	109			17.51	14.74	84.09	274.3	210.2	64.1	53.3	14625
	2011	2.3	98			17.26	14.04	81.28	257.4	186.3	71.1	46.8	12065
	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

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 25, 2012.
⁵ 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).

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.