

## **United States Department of Agriculture**

Research, Education, and Economics Agricultural Research Service

October 27, 2010

Results of the October 25, 2010, samplings of the First-Stubble (fifth sampling) and Plant-Cane (second 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 5yr 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 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 0.09 in. of rain.

**First-Stubble.** During the 2-week interval, no growth occurred as the period without significant rainfall continues. When compared to the previous four years, sugarcane stalks of the core varieties are average in weight, but slightly shorter for this sampling. The varieties, L 99-233 and L 99-226 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 remain 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 27 lbs./ton of cane (TC) greater than those recorded in 2009. The varieties with the greatest increase in TRS levels were L 99-226 and L 99-233 with an average increase 32 lbs/TC. Of the varieties with major plantings for harvest in 2010, L 01-283, L 97-128 and HoCP 00-950 continue to have the highest TRS levels producing over 300 lbs. of sugar/TC; which is 62 lbs./TC higher than HoCP 96-540. The new variety L 03-371 produced 274 lbs./TC and the



Sugarcane Research Unit 5883 USDA Road Houma, LA 70360 (985) 872-5042 – Fax (985) 868-8369 An Equal Opportunity Employer candidate variety HoCP 04-838 produced 280 lbs./TC which is slightly above average. Of the varieties HoCP 96-540 had the lowest TRS producing 238 lbs./TC.

Estimated cane and sugar 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 99-226, L 99-233, and L 03-371 which yielded 45.1, 44.5, and 45.2 tons/A, respectively.. The highest estimated sugar yields were obtained by L 99-226, L 01-283, and 03-371 producing 12,929, 12,428, and 12,375 lbs./A, respectively. The candidate variety, HoCP 04-838, has cane and sugar yields that are similar to HoCP 96-540.

**Plant-Cane.** Stalk weights 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; but stalk lengths are slightly above average. Stalks increased in length by 6 in. and weight by 0.1 lbs during the 4-week sampling interval. Of the varieties included, L 99-226 and L 97-128 had the heaviest stalks and along with L 99-233 the longest. HoCP 00-950, L 01-283, and HoCP 04-838 had the lightest stalks. Normal juice brix, sucrose, purity and TRS levels are higher in 2010 than in 2009 for this sampling date. The average TRS of the core varieties is 22 lbs./TC higher than those recorded in 2009 and 33 lbs./TC higher than the average for the previous four years. Of the varieties included in this test, HoCP 96-540 had the lowest TRS levels (250 lbs./TC) and HoCP 00-950 the highest (293 lbs./TC) TRS. The newly released variety L 03-371 had TRS levels of 288 lbs./TC which is only 5 lbs less than HoCP 00-950. The candidate varieties HoCP 04-838 and HoCP 05-961 produced TRS levels of 270 and 286 lbs./TC, respectively.

Average cane yields for the five core varieties in the plant-cane test were 51 tons/A which is 3 tons/A more than in 2009. Average sugar yields are 13917 lbs./A which is 1794 lbs./A more than those recorded last year. Of the varieties, the highest cane yields were obtained with L 99-226 (59 tons/A) and HoCP 96-540 (56 tons/A). L 99-226 also had the highest sugar yields at 16304 lbs of sugar/A followed by L 03-371 with 15923 lbs of sugar/A.

The sixth sampling of the first-stubble maturity test is scheduled for November 8<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 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.

October 25, 201	10 <sup>1</sup> .								1	1			
											TRS		
										Previous	0		
				0				0	Sugar	sample	from		nated
				alk²			ormal juic		yield	date <sup>4</sup>	previous	,	eld <sup>6</sup>
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)
Ho 95-988	2010	2.2	92			17.24	14.31	82.97	263.2	242.7	20.5	38.6	10147
	2009	2.7	104			16.34	13.65	83.57	252.1	213.5	38.6	54.2	13654
	2008	2.2	92			16.53	13.38	80.90	243.2	215.2	28.0	41.8	10182
	2007	2.3	98	0.86	1.17	16.00	13.00	81.20	236.7	229.6	7.1		
	2006	2.4	99	0.90	1.04	16.93	13.95	82.37	255.9	202.9	53.0		
HoCP 96-540	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		
	2006	2.3	103	0.86	1.08	16.96	13.95	82.28	258.1	205.6	52.5		
L 97-128	2010	2.3	104			19.01	16.07	84.51	301.1	280.4	20.7	38.8	11692
L 97-120	2010	2.3	104			16.93	14.31	84.50	268.1	238.1	30.0	48.6	13032
	2009	2.7	104			16.69	13.31	79.73	200.1	236.1	26.8	40.0	10193
												42.0	10193
	2007	2.2	107	0.80	1.15	17.20	14.37	83.51	265.2	247.1	18.1		
	2006	2.4	111	0.88	0.99	17.66	14.78	83.66	275.7	233.7	42.0		
L 99-226	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												
	2006												
L 99-233	2010	1.9	114			16.71	13.77	82.37	250.0	219.3	30.7	44.5	11113
L 99-233	2010		114			15.83	12.98	82.01	235.2	219.3		<u>44.5</u> 51.4	12095
	2009	2.0 2.0	109			16.45	13.32	81.02	235.2	210.1	25.1 29.1	46.5	11160
	2008	2.0 1.9	109	0.75	 1.11	16.43	12.99	81.02	240.0	210.9	29.1	40.5	
	2007	2.0	113	0.75	1.05	16.38	12.99	81.61	234.1	208.4	39.1		
	2000	2.0	110	0.77	1.00	10.00	10.00	01.01	211.0	200.2	00.1		
HoCP 00-950	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		
	2006												
L 01-283	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												
	2006												
L 03-371	2010	2.2	93			17.22	14.41	83.65	273.9	246.9	27.0	45.2	12375
L 03-37 I	2010	2.2	103			16.53	13.88	83.93	273.9	246.9	27.0	45.2 56.5	12375
	2003												
	2007												
(Con'td.)	2006												
													•

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, October 25, 2010<sup>1</sup>.

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, October 25, 2010<sup>1</sup>.

											TRS		
										Previous	change		
									Sugar	sample	from	Estimated	
			Sta	alk <sup>2</sup>		Normal juice <sup>3</sup>			yield	date <sup>4</sup>	previous	yie	d <sup>6</sup>
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)
	1		1	I	1 1	I	1	1	ı	1			1
HoCP 04-838	2010	2.0	100			17.89	15.30	85.57	280.0	258.3	21.7	35.0	9799
	2009												
	2008												
	2007												
	2006												
Averages <sup>5</sup>	2010	2.1	99			17.55	14.60	83.09	270.7	248.7	22.0	38.3	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		
	2006	2.1	102	0.84	1.07	17.24	14.35	83.24	264.5	218.6	45.9		

<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 October 12, 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, SRRC, Sugarcane Research Unit, Houma, LA, October 26, 2010<sup>1</sup>.

Research Unit,	nouna, L		20, 20	10.							TRS		
										Previous	change		
									Sugar	sample	from	Estim	nated
			S	talk <sup>2</sup>		N	lormal juic	e <sup>3</sup>	yield	date <sup>4</sup>	previous	yie	
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)
	0010			I	1 1	10.00	40.57	04.55	050.0	0105	0.05	50.4	4 4 0 0 4
HoCP 96-540	2010 2009	2.6	114 101			16.62 15.63	13.57 12.76	81.55 81.62	250.0 235.2	210.5 182.3	39.5 52.9	56.4 46.6	14064 11004
	2009	2.8 2.5	101			16.56	13.39	80.84	235.2	162.3	52.9 76.4	46.6	11277
	2008	2.5	101	0.88	1.18	13.70	10.09	73.63	176.3	137.5	38.8	45.9	
	2007	2.6	113	0.87	1.10	16.49	13.61	82.53	252.2	181.5	70.7		
L 97-128	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		
	2006	2.6	117	0.87	1.06	17.82	14.91	83.66	275.4	229.1	46.3		
L 99-226	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												
	2006												
1 00 000	2010		110	1	1 1	16.06	14.02	00.75	255.2	207.0	40.0	<b>545</b>	12017
L 99-233	2010 2009	2.3 2.3	116 119			16.96 15.74	14.03 12.82	82.75 81.39	255.3 231.5	207.0 195.6	48.3 35.9	54.5 51.5	13917 11884
	2009	2.3	119			16.56	13.63	82.28	231.5	195.0	69.5	51.5	12814
	2008	2.2	112	0.77	1.21	14.76	11.40	77.23	199.4	135.2	64.2		
	2007	2.2	116	0.81	1.06	17.58	14.83	84.39	272.4	228.8	43.6		
HoCP 00-950	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		
	2006	2.3	98	0.89	1.09	18.73	16.06	85.74	305.8	252.2	53.6		
L 01-283	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		
	2006												
1 02 271	2010	25	102	1	1 1	17.00	15.07	04.22	2075	230.3	57.2	55.4	15000
L 03-371	2010	2.5	102			16.73				230.3	65.3	57.7	15923
	2009	2.7	95			17.07	14.12 14.20	84.39 83.19	269.6 269.3	187.9	81.4	45.4	15583 12235
	2000								203.5				
	2007												
			I									I	
HoCP 04-838	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												
Contid	2007												
Cont'd	2006												

## Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, SRRC, Sugarcane Research Unit, Houma, LA, October 26, 2010<sup>1</sup>.

											TRS			
										Previous	change			
									Sugar	sample	from	Estimated		
			S	talk <sup>2</sup>		N	ormal juic	e <sup>3</sup>	yield	date <sup>4</sup>	previous	yield <sup>6</sup>		
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)	
HoCP 05-961	2010	2.5	107			18.11	15.37	84.87	285.7	241.5	44.2	43.8	12512	
	2009													
	2008													
	2007													
	2006													
F														
Averages <sup>5</sup>	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			
	2006	2.4	108	0.88	1.08	17.38	14.61	84.05	269.9	213.2	56.7			

<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 10-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> Previous sample date, September 27, 2010.

<sup>5</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>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.