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Research, Education, and Economics
Agricultural Research Service

August 31, 2015

Results of the initial sampling of the 2015, First-Stubble, Sugarcane 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-year period (2011 – 2015); consequently, a glyphosate-containing ripener is not applied. Samples consist of 10 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 study includes seven commercially released Louisiana varieties: HoCP 96-540, L 99-226, HoCP 00-950, L 01-283, L 01-299, HoCP 04-838 and Ho 07-613; and two experimental varieties: HoCP 09-804 and Ho 09-840.

Conditions at the USDA-ARS Ardoyne Farm have been near perfect for cane growth all summer. Data from growth measurements recorded from within the Maturity Test indicated we received above average rainfall in March, April, and May with a good mix of sunshine and above average nighttime temperatures. This allowed the crop to get off to a fast start with above average growth for April and May followed by a more average pattern in June, July and August. At the time of this sampling all the varieties in the test remain erect.

Stalk measurements indicate that the crop is 10 in. taller than last year and 4 in. taller than the 4-year average for this sampling period. Stalks are heavier than last year by 0.31 lbs. and 0.15 lbs. heavier than the 4-year average. Density is only slightly less than last year (1.07 g/cm^3 vs. 1.10 g/cm^3), while diameter is considered average at 0.85 in.

L 99-226 (2.47 lbs.) and Ho 07-613 (1.99 lbs.) had the heaviest stalks, by for the lightest stalks were produced by candidate variety Ho 09-840 (1.19 lbs.) The longest stalks were produced by Ho 07-613 (85 in.) and L 99-226 (84 in.), while HoCP 00-950 (68 in.) had the shortest stalks. The largest diameter stalks were produced by L 99-226 (0.99 in.) and Ho 07-613 (0.92 in.), Ho 09-840 had the smallest diameter stalks (0.73 in.). The varieties with the greatest densities were HoCP 96-540 (1.16 g/cm^3) and L 01-299 (1.11 g/cm^3); Ho 07-613 had the smallest density (0.98 g/cm^3).

Brix, sucrose, and purities are better than the 4-year average for this sampling date. When compared to last year's data, theoretical recoverable sugar (TRS) levels for this sample date are 23.7 lbs./ton of cane (TC) better. In general, brix and sucrose levels are at least 1.0 % better than the 4-year average and purity is 12.5% better. The 10-year average for TRS at the first sample date is 142 lbs., the average for this year is 171; a 31 lb. difference.

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Of the varieties in 2015, HoCP 00-950 (214 lbs./TC) and HoCP 09-804 (190 lbs./TC) have the highest early TRS levels; the lowest TRS levels were produced by L 01-299 (150 lbs./TC) and L 99-226 (140 lbs./TC).

When looking at the expected maturity curve for each variety based this year and previous year's data; HoCP 00-950, L 01-283, and so for HoCP 09-804 would be considered early maturing; Ho 07-613, HoCP 04-838, L 99-226, and so for Ho 09-840 would be mid-maturing; HoCP 96-540 and L 01-299 would be late maturing.

It should be noted that data from 2003-2014 indicate that one can expect about a 60 lb. increase in TRS levels from the last week in August through the last week in September, followed by increases of approximately 2.00 lbs./day until the end of October. However, this is average, increases have ranged from as little as 6 lbs./week to as much as 24 lbs./week depending on environmental conditions during that time span.

The second sampling for the 1st stubble maturity test is scheduled for September 14th.

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. Brenda Aysenne by email (Brenda.Aysenne@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.

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, August 31, 2015[1].

Variety	Year	Stalk[2]				Normal juice[3]			Sugar yield
		Wt.	Lh.	Dia.	Density	Bx.	Su.	Pu.	TRS
		(lb.)	(in.)	(in.)	(g/cm3)	(%)	(%)	(%)	(lbs/ton)
HoCP 96-540	2015 (08/31)	1.80	78	0.84	1.16	12.59	9.0	78.3	155.5
	2014 (08/25)	1.32	63	0.81	1.14	11.62	7.8	67.2	129.3
	2013 (08/26)	1.31	73	0.76	1.10	10.20	6.3	61.2	96.7
	2012 (08/27)[4]	---	---	---	---	---	---	---	---
	2011 (08/29)	1.93	81	0.89	1.06	10.98	7.2	65.7	117.6
L 99-226	2015 (08/31)	2.47	84	0.99	1.06	11.62	8.2	77.0	139.7
	2014 (08/25)	1.63	69	0.88	1.08	11.36	7.5	66.3	123.7
	2013 (08/26)	1.58	76	0.85	1.02	10.54	6.7	63.7	107.0
	2012 (08/27)	---	---	---	---	---	---	---	---
	2011 (08/29)	2.05	85	0.93	1.00	10.60	6.7	63.3	106.7
HoCP 00-950	2015 (08/31)	1.65	68	0.89	1.08	14.99	11.7	85.5	213.9
	2014 (08/25)	1.28	59	0.86	1.05	14.25	10.7	75.0	190.7
	2013 (08/26)	1.39	67	0.82	1.11	13.41	9.7	72.6	170.4
	2012 (08/27)	---	---	---	---	---	---	---	---
	2011 (08/29)	1.77	76	0.93	0.97	14.06	10.6	75.4	189.3
L 01-283	2015 (08/31)	1.63	78	0.82	1.09	13.83	10.5	82.7	187.8
	2014 (08/25)	1.45	76	0.78	1.11	13.10	9.4	71.6	163.0
	2013 (08/26)	1.23	72	0.72	1.17	12.35	8.6	69.9	147.9
	2012 (08/27)	---	---	---	---	---	---	---	---
	2011 (08/29)	1.87	86	0.88	1.00	12.97	9.4	72.3	163.7
L 01-299	2015 (08/31)	1.70	81	0.82	1.11	12.24	8.8	78.2	149.5
	2014 (08/25)	1.29	74	0.73	1.13	11.91	8.1	67.6	132.3
	2013 (08/26)	1.31	74	0.74	1.15	10.87	7.0	64.1	110.8
	2012 (08/27)	---	---	---	---	---	---	---	---
	2011 (08/29)	---	---	---	---	---	---	---	---
HoCP 04-838	2015 (08/31)	1.55	75	0.82	1.09	12.20	9.2	82.0	158.5
	2014 (08/25)	1.21	61	0.79	1.13	11.91	8.4	70.2	139.7
	2013 (08/26)	1.32	72	0.77	1.09	10.96	7.7	70.1	128.5
	2012 (08/27)	---	---	---	---	---	---	---	---
	2011 (08/29)	1.64	81	0.85	1.00	11.69	8.5	72.6	144.0
Ho 07-613	2015 (08/31)	1.99	85	0.92	0.98	13.13	10.0	83.4	180.4
	2014 (08/25)	1.66	74	0.86	1.09	12.31	8.8	70.9	151.4
	2013 (08/26)	1.68	78	0.83	1.10	11.89	8.4	70.7	144.8
	2012 (08/27)	---	---	---	---	---	---	---	---
	2011 (08/29)	---	---	---	---	---	---	---	---
HoCP 09-804	2015 (08/31)	1.48	79	0.81	1.02	14.28	10.8	83.0	190.8
	2014 (08/25)	---	---	---	---	---	---	---	---
	2013 (08/26)	---	---	---	---	---	---	---	---
	2012 (08/27)	---	---	---	---	---	---	---	---
(Cont'd)	2011 (08/29)	---	---	---	---	---	---	---	---
Ho 09-840	2015 (08/31)	1.19	75	0.73	1.05	12.42	9.3	81.6	162.1
	2014 (08/25)	---	---	---	---	---	---	---	---

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, August 31, 2015[1].

Variety	Year	Stalk[2]				Normal juice[3]			Sugar yield
		Wt.	Lh.	Dia.	Density	Bx.	Su.	Pu.	TRS
		(lb.)	(in.)	(in.)	(g/cm3)	(%)	(%)	(%)	(lbs/ton)
	2013 (08/26)	---	---	---	---	---	---	---	---
	2012 (08/27)	---	---	---	---	---	---	---	---
	2011 (08/29)	---	---	---	---	---	---	---	---
	2015 (08/31)	1.72	78	0.85	1.07	13.03	9.7	81.3	170.9
Averages[5]	2014 (08/25)	1.40	68	0.82	1.10	12.40	8.7	69.8	147.1
	2013 (08/26)	1.40	73	0.79	1.10	11.37	7.6	66.6	125.5
	2012 (08/27)[4]	---	---	---	---	---	---	---	---
	2011 (08/29)	1.90	82	0.89	1.01	12.40	8.7	70.0	147.9

[1] Data for each parameter represents the average of four replications of 10 stalks each.
[2] Stalk diameter and density will be taken on the 1st, 4th, and 8th maturity study sampling dates.
[3] Brix factor = 0.8854; Sucrose factor = 0.8105.
[4] No data taken during this year due to hurricane Isaac.
[5] Averages are based on all varieties in the first-stubble maturity study.