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Research, Education, and Economics
Agricultural Research Service

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Results of the 3rd sampling of the first-stubble Maturity Test and the 1st sampling of the plant-cane Maturity Test harvested on September 24, 2018 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 (2014 – 2018); 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.** Included in both test are six commercial varieties: HoCP 96-540, L 01-283, L 01-299, HoCP 04-838, HoCP 09-804, L 11-183 and three experimental varieties L 12-201, Ho 12-615 and Ho 12-630. The plant-cane test also includes the experimental varieties: Ho 11-573, Ho 13-739 and HoCP 13-758.

Since the last sampling Ardoyne Farm has received 4.00 in. of rain. At the time of this sampling all the varieties in the test remain erect.

First-Stubble: Over the 2-week sampling period the crop increased in weight by 0.15 lbs. and grew an average of 6 in. The crop is currently 4 in. taller than last year and 6 in. taller than the 4-year average. Stalk weights are 0.33 lbs. heavier than last year and 0.45 lbs. heavier than the 4-year average.

L 12-201 (2.74 lbs.) continues to have the heaviest stalks followed by HoCP 04-838 (2.25 lbs.); the lightest stalks were produced by HoCP 09-804 (1.75 lbs.). The longest stalks were produced by L 12-201 (97 in.).

Brix and purities are less than those achieved last year, however sucrose is better. When compared to the 4-year average brix and sucrose are higher while purities are about equal. Theoretical recoverable sugar (TRS) levels are 23.5 lbs./ton of cane (TC) less than last year and 10.3 lbs. less than the 4-year average. The average increase in TRS during the 2-week period was 18.6 lbs. which is 9.9 lbs. less than the 4-year average of 28.5 lbs.

The varieties with the highest early TRS levels were L 01-283 (252 lbs./TC) and HoCP 09-804 (238 lbs./TC). HoCP 96-540 (198 lbs./TC) and L 11-183 (202 lbs./TC had the lowest TRS levels. The varieties with the largest increases in TRS during the sampling period were L 01-283 (34.2 lbs.) and L 01-299 (25.6 lbs.); the smallest increase occurred in L 11-183 (8.3 lbs.) and Ho 12-630 (8.5 lbs.).

Plant-cane: Average stalk weights are only 0.08 lbs. heavier than last year but 0.25 lbs. heavier than the 4-year average. Stalks lengths are better than last year (+4 in.) and better than the 4-year average (+7 in.), while stalk diameter is equal to last year (0.77in. vs. 0.76 in.) but, 0.09 in. better than the 4-year average. Stalk densities are only 0.04 g/cm^3 more than last year and 0.02 g/cm^3 more than the 4-year average.

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Individually, Ho 11-573 (2.77 lbs.) and L 12-201 (2.59 lbs.) produced the heaviest stalks; HoCP 09-804 (1.73 lbs.) and L 01-283 (1.91 lbs.) produced the lightest stalks. The tallest stalks were produced by L 01-299 (101 in.) along with Ho 12-615 (100 in.) and Ho 11-573 (100 in.); the shortest stalks were produced by L 01-283 (87 in.). The varieties with the largest diameter stalks were L 12-201 (0.93 in.) along with Ho 11-573 and Ho 13-739 at 0.90 in each. The smallest diameter stalks were produced by HoCP 09-804 (0.74 in) and Ho 12-615 (0.76 in.). The varieties with the greatest densities were L 01-299 (1.23 g/cm^3) and Ho 13-739 (1.22 g/cm^3). L 11-183 (1.11 g/cm^3) and L 12-201 (1.12 g/cm^3) had the lowest density stalks

Brix and sucrose levels are less than last year but better than the 4-year average, while purity is 4.9 percentage points better than the 4-year average but only slightly better than last year. The average TRS is 22.7 lbs./TC less than last year but only 2.2 lbs./TC better than the 4-year average. The varieties with the highest TRS levels were Ho 13-739 (251 lbs./TC) and L 01-283 (237 lbs./TC), while L 01-299 (173 lbs./TC) and HoCP 96-540 (188 lbs./TC) had the lowest TRS levels.

The fourth sampling for the 1st stubble maturity test is scheduled for October 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. 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.

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Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, September 24, 2018[1].

Variety	Year	Stalk[2]				Normal juice[3]			Sugar yield	Previous sample date[4]	TRS change from previous sample
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm3)	Bx. (%)	Su. (%)	Pu. (%)	TRS (lb.)	TRS (lb.)	(lb.)
HoCP 96-540	2018	2.23	93	---	---	14.48	13.68	76.59	197.91	173.26	24.7
	2017	1.97	90	---	---	15.10	12.02	79.59	218.84	206.93	11.9
	2016	1.79	91	---	---	14.43	11.39	78.83	206.40	190.80	15.6
	2015	2.34	93	---	---	14.45	11.14	77.04	199.40	157.70	41.7
	2014	1.57	80	---	---	14.76	11.37	77.00	203.50	165.50	38.0
L 01-283	2018	2.05	92	---	---	16.51	16.70	81.94	252.31	218.11	34.2
	2017	1.66	93	---	---	17.18	14.42	83.95	272.08	249.19	22.9
	2016	1.60	89	---	---	16.25	13.47	82.87	252.50	222.00	30.5
	2015	1.98	94	---	---	16.14	13.13	81.38	244.10	212.90	31.2
	2014	1.45	86	---	---	16.16	13.13	81.24	243.80	217.00	26.8
L 01-299	2018	1.86	95	---	---	14.61	14.27	79.00	208.07	182.45	25.6
	2017	1.70	95	---	---	14.96	11.88	79.42	214.00	208.10	5.9
	2016	1.41	92	---	---	14.43	11.38	78.77	204.10	178.90	25.2
	2015	1.88	92	---	---	14.03	10.69	76.09	188.30	158.00	30.3
	2014	1.42	88	---	---	14.76	11.61	78.59	208.00	164.90	43.1
HoCP 04-838	2018	2.25	94	---	---	14.63	14.73	81.55	215.66	200.95	14.7
	2017	1.93	86	---	---	16.40	13.84	84.39	254.16	226.92	27.2
	2016	1.53	80	---	---	15.69	13.16	83.89	241.00	206.00	35.0
	2015	1.76	85	---	---	14.74	11.89	80.65	213.80	183.50	30.3
	2014	1.48	76	---	---	14.92	12.07	80.78	217.20	183.20	34.0
HoCP 09-804	2018	1.75	94	---	---	16.09	16.25	81.80	238.30	217.66	20.6
	2017	1.54	87	---	---	17.02	14.44	84.81	265.74	243.75	22.0
	2016	1.45	84	---	---	17.00	14.32	84.25	265.40	239.70	25.7
	2015	1.55	91	---	---	16.20	13.14	81.09	239.10	199.50	39.6
	2014	---	---	---	---	---	---	---	---	---	---
L 11-183	2018	2.18	92	---	---	16.30	14.03	78.72	201.83	184.21	17.6
	2017	2.01	91	---	---	15.16	12.11	79.88	218.81	194.57	24.2
	2016	---	---	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---	---	---
	2014	---	---	---	---	---	---	---	---	---	---
L 12-201	2018	2.74	97	---	---	16.68	14.28	78.34	209.05	200.71	8.3
	2017	---	---	---	---	---	---	---	---	---	---
	2016	---	---	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---	---	---
	2014	---	---	---	---	---	---	---	---	---	---
Ho 12-615	2018	1.91	94	---	---	16.50	14.39	81.96	216.91	203.82	13.1
	2017	---	---	---	---	---	---	---	---	---	---
	2016	---	---	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---	---	---
	2014	---	---	---	---	---	---	---	---	---	---
Ho 12-630	2018	2.24	92	---	---	16.98	14.58	78.61	213.89	205.38	8.5
	2017	---	---	---	---	---	---	---	---	---	---
	2016	---	---	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---	---	---
	2014	---	---	---	---	---	---	---	---	---	---
Averages[5]	2018	2.13	93.67	---	---	15.86	14.77	79.83	217.10	198.51	18.6
	2017	1.80	90.33	---	---	15.97	13.12	82.01	240.61	218.60	17.5
	2016	1.56	87.20	---	---	15.56	12.74	81.72	233.88	207.48	26.4
	2015	1.90	91.00	---	---	15.11	12.00	79.25	216.94	182.32	34.6
	2014	1.48	82.50	---	---	15.15	12.05	79.40	218.13	182.65	35.5

[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 the 8th maturity study sampling dates.

[3] Brix factor = .8854; Sucrose factor = .8105.

[4] Previous scheduled sample date was September 10, 2018

[5] Averages are based on all varieties in the first-stubble maturity study.

Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma,LA, September 24, 2018[1].

		Stalk[2]				Normal juice[3]			Sugar yield
Variety	Year	Wt.	Lh.	Dia.	Density	Bx.	Su.	Pu.	TRS
		(lb.)	(in.)	(in.)	(g/cm3)	(%)	(%)	(%)	(lb.)
HoCP 96-540	2018	2.17	97	0.83	1.16	14.01	10.69	76.28	190.40
	2017	2.39	97	0.88	1.13	15.27	11.94	78.08	215.34
	2016	2.22	101	0.79	1.25	14.03	10.93	77.86	196.82
	2015	2.46	104	0.84	1.18	15.16	11.82	77.97	213.01
	2014	2.14	88	0.78	1.39	14.06	10.37	73.64	181.26
L 01-283	2018	1.91	87	0.81	1.18	15.80	12.84	81.16	237.38
	2017	1.83	95	0.74	1.25	16.76	13.61	81.16	252.76
	2016	1.90	100	0.72	1.31	16.07	13.22	82.23	247.09
	2015	2.46	96	0.85	1.25	15.25	12.07	79.16	221.25
	2014	1.95	93	0.73	1.39	15.54	12.22	78.59	223.29
L 01-299	2018	2.11	101	0.77	1.23	13.13	9.87	75.13	172.64
	2017	1.88	87	0.80	1.21	15.74	12.30	78.09	219.54
	2016	1.98	105	0.72	1.28	13.77	10.56	76.66	186.70
	2015	2.54	105	0.84	1.22	14.01	10.74	76.56	189.72
	2014	1.81	88	0.74	1.39	13.99	10.29	73.52	177.96
HoCP 04-838	2018	1.99	94	0.81	1.13	14.28	11.56	80.93	208.17
	2017	2.28	92	0.86	1.19	16.69	13.81	82.76	251.36
	2016	2.20	102	0.79	1.23	14.85	12.30	82.81	223.84
	2015	2.24	97	0.84	1.16	14.96	12.07	80.63	216.91
	2014	1.67	85	0.76	1.31	14.90	11.98	80.39	214.94
HoCP 09-804	2018	1.73	98	0.74	1.15	15.76	12.84	81.46	231.95
	2017	1.77	91	0.78	1.14	17.20	14.27	82.95	260.08
	2016	1.72	100	0.70	1.23	16.53	13.77	83.27	251.28
	2015	1.98	100	0.79	1.12	15.69	12.61	80.26	228.40
	2014	1.60	86	0.72	1.28	16.07	12.85	79.97	232.23
L 11-183	2018	2.36	97	0.88	1.11	13.88	10.71	77.16	188.22
	2017	2.29	92	0.89	1.12	15.52	12.45	80.14	225.37
	2016	2.34	102	0.83	1.18	14.21	11.21	78.88	205.27
	2015	---	---	---	---	---	---	---	---
	2014	---	---	---	---	---	---	---	---
Ho 11-573	2018	2.77	100	0.90	1.21	13.66	10.76	78.70	192.86
	2017	---	---	---	---	---	---	---	---
	2016	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---
	2014	---	---	---	---	---	---	---	---
L 12-201	2018	2.59	95	0.93	1.12	13.92	10.65	76.46	189.94
	2017	3.13	96	1.01	1.13	15.65	12.23	78.14	222.85
	2016	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---
	2014	---	---	---	---	---	---	---	---
Ho 12-615	2018	1.92	100	0.76	1.17	13.61	10.75	78.94	191.11
	2017	1.95	101	0.75	1.21	16.31	13.36	81.87	241.78
	2016	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---
	2014	---	---	---	---	---	---	---	---
Ho 12-630	2018	2.32	98	0.86	1.14	14.14	10.83	76.56	193.19
	2017	2.32	94	0.85	0.97	16.11	12.85	79.72	234.11
	2016	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---
	2014	---	---	---	---	---	---	---	---
Ho 13-739	2018	2.52	90	0.90	1.22	16.38	13.47	82.21	251.49
	2017	---	---	---	---	---	---	---	---
	2016	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---
	2014	---	---	---	---	---	---	---	---
HoCP 13-758	2018	2.38	97	0.87	1.14	14.59	11.68	80.04	217.54
	2017	---	---	---	---	---	---	---	---
	2016	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---
	2014	---	---	---	---	---	---	---	---
Averages[4]	2018	2.06	88.77	0.77	1.07	13.32	10.51	72.69	189.61
	2017	1.98	84.50	0.76	1.04	14.53	11.68	72.29	212.32
	2016	1.77	87.14	0.65	1.07	12.78	10.28	68.82	187.29
	2015	1.95	83.67	0.69	0.99	12.51	9.89	65.76	178.22
	2014	1.53	73.33	0.62	1.13	12.43	9.62	64.35	171.61

[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 & 3rd plant-cane maturity study sampling.

[3] Brix factor =0.8854; Sucrose factor = 0.8105.

[4] Averages are based on all varieties in the plant cane maturity study.