



United States Department of Agriculture

Research, Education, and Economics
Agricultural Research Service

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Results of the 5th sampling of the first-stubble Maturity Test and the 2nd sampling of the plant-cane Maturity Test harvested on October 21, 2019 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 (2015 – 2019); 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 the test are eight commercial varieties: HoCP 96-540, L 01-283, L 01-299, HoCP 04-838, HoCP 09-804, L 11-183 L 12-201, Ho 12-615 and one experimental variety Ho 13-739. The plant-cane test also includes the experimental variety HoCP 14-885.

Note: After harvesting the first-stubble Maturity Test #1 we noticed some of our yield parameter estimates seemed higher than normal. With the help of Dr. Harold Birkett and Jeanie Stein we were able to determine the problem was the extraction rate of our traditional 3-roller sample mill. Mr. Duane Legendre and Mr. Doug Coots were brought in to diagnose the problem (or problems). After 2 weeks of down time and 2 new bearings on the top roller assembly we're back up and running. A big "Thank You" to everyone who assisted in helping us get this fixed.

These repairs are only temporary and should get us through grinding. To insure that we are providing the most accurate information to growers and mill personal, we will perform extensive repairs to our 3-roller sample mill system this off season.

Since our last sampling on September 23rd Ardoyne Farm has received 0.92 in. of rain. At the time of this sampling all the varieties in the test remain erect.

First-Stubble: During the 4-week sampling period the crop increased in weight by 0.18 lbs. and grew an average of 9.67 in. The crop is currently 25 in. shorter than last year and 16 in. shorter than the 4-year average. Stalk weights are 0.71 lbs. lighter than last year and 0.31 lbs. less than the 4-year average.

The heaviest stalks were produced by L 12-201 (2.17 lbs.) and Ho 13-739 (2.16 lbs.), the lightest stalks were produced by HoCP 09-804 (1.29 lbs.) and L 01-283 (1.62 lbs.). L 01-299 had the longest stalks (100 in.) followed by Ho 12-613 (89 in.). The shortest stalks were produced by Ho 13-739 (82 in.) and L 11-183 (83 in.).

Brix, sucrose and purities are higher than the 4-year average and those produced last year. Theoretical recoverable sugar (TRS) levels are 42 lbs./ton of cane (TC) more than last year and 13 lbs. more than the 4-year average.

The varieties with the highest TRS levels were Ho 13-739 (299 lbs./TC) and L 01-283 (288 lbs./TC), the lowest TRS levels were produced by HoCP 96-540 (260 lbs./TC).

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Plant-cane: For the 4-week sampling period stalks grew 9.4 in. and increased in weigh by 0.12 lbs. Average stalk weights are similar to last year and the 4-year average. Stalks lengths are 5.9 in. less than last year and 7.3 in. shorter than the 4-year average.

The heaviest stalks were produced by L 12-201 (3.04 lbs.) and L 11-183 (2.64 lbs.); while HoCP 09-804 (2.00 lbs.) and Ho 12-615 (2.06 lbs.) produced the lightest stalks. The longest stalks were produced by Ho 12-615 (113 in.) and L 01-299 (108 in.), the shortest stalks were produced by Ho 13-739 (96 in.) and HoCP 09-804 (101 in.).

Brix, sucrose and purity levels are higher than last year and the 4-year average. The average TRS was 26.7 lbs./TC more than last year but only 4.4 lbs./TC more than the 4-year average. The varieties with the highest TRS levels were Ho 13-739 (293 lbs./TC) and HoCP 14-885 (283 lbs./TC), while L 11-183 (245 lbs./TC) and HoCP 96-540 (251 lbs./TC) had the lowest TRS levels.

The sixth sampling for the 1st stubble maturity test is scheduled for November 4th.

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, October 21, 2019.¹

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/cm ³)	Bx. (%)	Su. (%)	Pu. (%)	TRS (lb.)	TRS (lb.)	(lb.)
HoCP 96-540	2019	1.80	85			17.02	14.05	82.51	260.4		
	2018	2.80	113	---	---	14.65	11.18	76.26	199.1	211.8	-12.7
	2017	2.33	106	---	---	16.65	13.85	83.18	257.6	244.6	13.0
	2016	2.27	104	---	---	17.29	14.30	82.73	265.4	239.5	25.9
	2015	2.36	101	---	---	16.34	13.47	82.46	249.5	225.1	24.4
L 01-283	2019	1.62	84			17.95	15.20	84.65	287.8		
	2018	2.36	105	---	---	16.84	13.86	82.29	259.1	264.7	-5.6
	2017	1.94	105	---	---	18.19	15.65	86.02	298.5	287.3	11.2
	2016	1.58	93	---	---	18.31	15.66	85.52	297.8	279.2	18.6
	2015	2.02	101	---	---	17.04	14.34	84.14	270.9	258.2	12.7
L01-299	2019	1.84	100			17.40	14.51	83.37	267.5		
	2018	2.46	117	---	---	15.41	12.16	78.91	218.3	212.8	5.5
	2017	1.88	106	---	---	16.76	14.14	84.36	262.1	252.0	10.2
	2016	1.82	108	---	---	17.49	14.50	82.90	266.7	244.3	22.4
	2015	2.14	104	---	---	16.22	13.40	82.55	245.9	227.9	18.0
HoCP 04-838	2019	1.72	85			17.58	14.85	84.46	272.8		
	2018	2.57	110	---	---	16.05	13.28	82.77	241.7	227.5	14.3
	2017	2.32	98	---	---	17.33	14.80	85.41	273.3	264.1	9.2
	2016	1.70	90	---	---	18.19	15.84	87.03	294.8	270.4	24.4
	2015	1.84	96	---	---	16.22	13.66	84.21	250.6	245.8	4.8
HoCP 09-804	2019	1.29	82			18.19	15.53	85.34	286.5		
	2018	1.93	109	---	---	17.29	14.59	84.41	268.0	255.9	12.1
	2017	1.81	102	---	---	18.11	15.59	86.11	288.9	287.7	1.2
	2016	1.43	89	---	---	18.44	16.04	86.97	301.4	287.3	14.1
	2015	1.76	99	---	---	17.33	14.78	85.26	275.3	269.3	6.0
L 11-183	2019	1.71	83			17.60	14.72	83.60	269.1		
	2018	2.33	108	---	---	15.43	12.33	79.87	220.7	223.9	-3.2
	2017	2.06	99	---	---	16.69	13.93	83.46	257.0	249.6	7.4
	2016	---	---	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---	---	---
L 12-201	2019	2.17	86			17.22	14.12	81.96	260.9		
	2018	3.16	112	---	---	15.21	12.03	79.08	218.4	213.4	5.0
	2017	---	---	---	---	---	---	---	---	---	---
	2016	---	---	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---	---	---
Ho 12-615	2019	1.63	89			17.49	14.77	84.44	271.4		
	2018	2.26	113	---	---	15.94	13.16	82.59	239.3	228.9	10.4
	2017	---	---	---	---	---	---	---	---	---	---
	2016	---	---	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---	---	---
Ho 13-739	2019	2.16	82			18.39	15.73	85.50	299.1		
	2018	---	---	---	---	---	---	---	---	---	---
	2017	---	---	---	---	---	---	---	---	---	---
	2016	---	---	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---	---	---
Averages ⁵	2019	1.77	86.22	---	---	17.65	14.83	83.98	275.0	#DIV/0!	#DIV/0!
	2018	2.48	110.88	---	---	15.85	12.82	80.77	233.1	229.8	3.2
	2017	2.06	102.67	---	---	17.29	14.66	84.76	272.9	264.2	8.7
	2016	1.76	96.80	---	---	17.94	15.27	85.03	285.2	264.1	21.1
	2015	2.02	100.20	---	---	16.63	13.93	83.72	258.4	245.3	13.2

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 October 7, 2019.(rollermill was down for repair so was not harvested)

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, October 21, 2019¹.

Variety	Year	Stalk ²				Normal juice ³			Sugar yield TRS (lb.)	Previous sample date ⁴ TRS (lb.)	TRS change from previous sample (lb.)
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm ³)	Bx. (%)	Su. (%)	Pu. (%)			
HoCP 96-540	2019	2.49	104	---	---	16.58	13.59	81.95	251.0	189.5	61.5
	2018	2.44	108	---	---	16.42	13.37	81.33	246.2	190.4	55.8
	2017	2.77	111	---	---	16.91	14.13	83.54	263.4	215.3	48.1
	2016	2.41	113	---	---	16.69	13.76	82.45	254.9	196.8	58.1
	2015	2.71	114	---	---	16.38	13.16	80.32	240.7	213.0	27.7
L 01-283	2019	2.08	100	---	---	17.62	14.64	83.06	274.7	250.9	23.8
	2018	1.99	97	---	---	16.87	13.91	82.50	260.3	237.4	22.9
	2017	2.01	107	---	---	17.73	15.20	85.68	289.4	252.8	36.6
	2016	2.09	110	---	---	18.06	15.35	84.97	291.2	247.1	44.1
	2015	2.23	107	---	---	17.04	14.32	83.99	270.1	221.3	48.8
L 01-299	2019	2.51	108	---	---	16.73	13.84	82.70	254.4	204.0	50.4
	2018	2.30	117	---	---	14.34	11.03	76.74	195.3	172.6	22.7
	2017	2.27	105	---	---	16.91	14.25	84.25	264.1	219.5	44.6
	2016	2.53	118	---	---	16.84	13.85	82.18	253.8	186.7	67.1
	2015	2.73	117	---	---	16.42	13.12	79.96	238.6	189.7	48.9
HoCP 04-838	2019	2.12	100	---	---	17.29	14.62	84.53	268.7	246.5	22.2
	2018	2.24	108	---	---	15.83	13.03	82.31	236.4	208.2	28.2
	2017	2.49	106	---	---	18.05	15.09	83.74	278.9	251.4	27.5
	2016	2.42	113	---	---	17.80	15.39	86.50	285.8	223.8	62.0
	2015	2.27	109	---	---	17.20	14.56	84.68	267.9	216.9	51.0
HoCP 09-804	2019	2.00	101	---	---	17.93	15.27	85.18	281.6	260.9	20.7
	2018	2.02	110	---	---	16.69	13.77	82.42	250.3	232.0	18.3
	2017	2.03	106	---	---	18.28	15.86	86.72	294.7	260.1	34.6
	2016	1.88	112	---	---	17.86	15.39	86.18	285.4	251.3	34.1
	2015	2.39	113	---	---	17.84	15.33	85.93	286.5	228.4	58.1
L 11-183	2019	2.64	107	---	---	16.53	13.54	81.82	245.1	201.5	43.6
	2018	2.67	113	---	---	15.25	12.11	79.43	216.1	188.2	27.9
	2017	2.88	109	---	---	17.22	14.56	84.52	270.3	225.4	44.9
	2016	2.39	111	---	---	17.09	14.29	83.60	269.0	205.3	63.7
	2015	---	---	---	---	---	---	---	---	---	---
L 12-201	2019	3.04	102	---	---	16.62	13.57	81.61	252.5	214.0	38.5
	2018	2.98	111	---	---	16.27	13.08	80.32	239.4	189.9	49.5
	2017	3.28	108	---	---	17.22	14.40	83.62	271.3	222.9	48.4
	2016	---	---	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---	---	---
Ho 12-615	2019	2.06	113	---	---	17.04	14.2	83.30	261.7	237.0	24.7
	2018	2.27	116	---	---	15.85	12.95	81.69	234.1	191.1	43.0
	2017	2.06	110	---	---	17.13	14.44	84.29	265.0	241.8	23.2
	2016	---	---	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---	---	---
Ho 13-739	2019	2.46	96	---	---	18.11	15.41	85.11	292.5	267.3	25.2
	2018	2.70	101	---	---	17.73	14.85	83.76	279.8	251.5	28.3
	2017	---	---	---	---	---	---	---	---	---	---
	2016	---	---	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---	---	---
HoCP 14-885	2019	2.36	100	---	---	17.44	14.78	84.73	282.7	239.4	43.3
	2018	---	---	---	---	---	---	---	---	---	---
	2017	---	---	---	---	---	---	---	---	---	---
	2016	---	---	---	---	---	---	---	---	---	---
	2015	---	---	---	---	---	---	---	---	---	---
Averages ⁵	2019	2.38	103.10	---	---	17.19	14.35	83.40	266.5	231.1	35.39
	2018	2.40	109.00	---	---	16.14	13.12	81.17	239.8	206.8	32.96
	2017	2.47	107.75	---	---	17.43	14.74	84.55	274.6	236.2	38.48
	2016	2.29	112.83	---	---	17.39	14.67	84.31	273.3	218.5	54.82
	2015	2.47	112.00	---	---	16.98	14.10	82.98	260.8	213.9	46.90

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 Previous sample date, September 20, 2019 .

⁵ Averages are based on all varieties in the plant cane maturity study.