



December 24, 2013

Results of the December 2, 2013 sampling of the First-Stubble (**final sampling**), 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-yr period (2009 – 2013). 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 study 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, HoCP 04-838 and the candidate variety Ho 07-613. Harvestable sugarcane stalks in all plots were counted in early August. Stalk counts, stalk weights, and TRS levels are used to provide an estimation of cane (tons/A) and sugar (lbs/A) yields.

Since the last sampling, the farm has received 1.09 inches of rain and we received our first freeze of the year. Data loggers in the Cold Tolerance Test at Ardoyne Farm recorded temperatures as low as 27.5° F for 4 to 5 hours on the night of November 28th. Field observations indicated that the terminal buds in most varieties appeared to have been killed and damage could be seen from the growing point downward anywhere from 12 to 15 inches. This was not enough to freeze stalks in our area, but merely kill the growing points and brown the canopy of most varieties.

Stalk measurements indicate the crop grew 1 inch and increased in weight by only 0.1 lbs since the last sample date. Overall, stalk weight is average when compared to last year and the 4-yr average, while length is normal when compared to the 4-yr average, but 9 inches less than last year.

Brix, sucrose, purities and theoretically recoverable sugar (TRS) levels continue to be lower for this time of year when compared to 2012 and the 4-yr average. The average TRS of 291 lbs/ton of cane (TC) is 20 lbs less than last year, but only 6 lbs less than the 4-yr average. Among the varieties with major plantings for harvest in 2013, HoCP 96-540 (271 lbs/TC) and L 99-233 (278 lbs/TC) produced the lowest TRS levels, with HoCP 00-950 (314 lbs/TC) producing the highest TRS levels. Candidate variety Ho 07-613 (309 lbs/TC) had the second highest TRS; it has continuously produced TRS levels just below those of HoCP 00-950 throughout the duration of this study. The average increase in TRS during the 2-week sampling interval at this sample date is 4.6 lbs; however five varieties had increases of 10 lbs or better. The variety with the largest increase was L 01-299 (18.3 lbs), the variety with the smallest increase was L 99-226 (-0.8 lbs).

Similar to the previous sample date, estimated yields are above the 4-yr average for both tons/A and lbs/A and better than or equal to those produced in 2012. For this sample date, the average estimated cane yield (53.4 tons/A) is equal to last year's 53.0 tons/A and 2.2 tons/A better than

the 4-yr average. The estimated sugar yield is 397 lbs/A more than the 4-yr average, but 910 lbs/A less than the 2012 average. The varieties producing the highest cane yields were Ho 07-613 (60.1 tons/A) and L 01-233 (55.6 tons/A). The lowest cane yields were produced by L 01-283 (49.0 tons/A) and HoCP 00-950 (49.2 tons/A). Ho 07-613 had the highest sugar yield producing 18547 lbs/A, the lowest sugar yield was produced by HoCP 96-540 (13960 lbs/A).

As mentioned above this is the eighth and **final sampling** of the 2013 Maturity Test.

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.

Have a Merry Christmas and a Happy New Year!

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, December 2, 2013¹.

Variety	Year	Stalk ²				Normal juice ³			Sugar yield TRS (lb.)	Previous sample date ⁴ TRS (lb.)	TRS change from previous sample (lb.)	Estimated yield ⁵	
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm ³)	Bx. (%)	Su. (%)	Pu. (%)				Cane (tons/A)	Sugar (lbs/A)
HoCP 96-540	2013	2.1	107	0.79	1.13	15.34	13.50	87.99	271.3	260.9	10.4	51.6	13960
	2012	2.7	118	0.85	1.69	18.86	16.28	86.31	307.9	291.4	16.5	56.5	17391
	2011	2.3	100	0.85	1.14	18.84	16.24	86.23	307.1	301.7	5.4	59.2	18153
	2010	2.5	107	0.83	1.18	17.97	15.19	84.54	284.8	285.5	-0.7	40.5	11531
	2009	2.9	113	0.88	1.15	17.00	14.15	83.21	263.2	265.2	-2.0	63.1	16601
L99-226	2013	2.9	115	0.92	1.06	15.74	12.92	82.05	293.5	294.3	-0.8	53.7	15736
	2012	3.0	128	0.90	1.53	19.04	16.61	87.24	315.7	310.6	5.0	50.7	16004
	2011	2.9	108	0.93	1.09	18.70	16.08	85.98	303.7	304.4	-0.7	57.6	17499
	2010	2.9	107	0.86	1.30	19.32	16.79	86.86	318.4	308.7	9.7	50.5	16083
	2009	3.1	121	0.92	1.08	17.29	14.59	84.36	273.2	261.6	11.6	54.1	14816
L 99-233	2013	2.1	114	0.77	1.09	17.58	15.03	85.51	277.6	267.3	10.3	55.6	15442
	2012	2.4	126	0.81	1.57	17.91	15.42	86.11	285.7	279.3	6.4	57.8	16529
	2011	2.1	107	0.82	1.03	17.93	15.28	85.23	281.9	276.7	5.2	48.6	13713
	2010	2.2	115	0.72	1.31	18.37	15.84	86.22	293.7	281.3	12.4	51.7	15197
	2009	2.2	117	0.81	1.01	17.20	14.55	84.49	267.4	263.5	3.9	56.8	15147
HoCP 00-950	2013	2.0	99	0.80	1.13	18.75	16.36	87.25	313.9	308.3	5.6	49.2	15430
	2012	2.2	109	0.85	1.50	19.17	16.70	87.14	320.4	312.1	8.3	52.2	16737
	2011	2.3	96	0.86	1.14	19.32	16.73	86.59	320.0	317.3	2.7	46.6	14923
	2010	2.3	91	0.86	1.19	19.57	16.99	86.83	325.4	316.3	9.1	37.0	12041
	2009	2.4	102	0.84	1.18	18.66	16.14	86.46	308.4	296.8	11.6	51.1	15757
L 01-283	2013	1.8	103	0.72	1.19	17.89	15.40	86.06	293.7	285.1	8.6	49.0	14416
	2012	2.1	112	0.75	1.74	19.21	16.72	87.01	320.4	318.1	2.3	48.5	15554
	2011	2.3	103	0.81	1.20	18.88	16.27	86.15	310.4	306.7	3.7	60.3	18713
	2010	2.1	102	0.74	1.31	19.39	16.69	86.09	318.5	318.0	0.5	47.5	15114
	2009	2.6	114	0.82	1.17	18.06	15.50	85.83	295.3	283.2	12.1	62.4	18396
L 01-299	2013	1.8	112	0.68	1.24	17.42	14.94	85.77	279.1	260.8	18.3	54.7	15271
	2012	2.1	119	0.73	1.78	18.39	15.89	86.35	297.7	291.7	6.0	54.3	16142
	2011	---	---	---	---	---	---	---	---	---	---	---	---
	2010	---	---	---	---	---	---	---	---	---	---	---	---
	2009	---	---	---	---	---	---	---	---	---	---	---	---
L 03-371	2013	2.2	96	0.84	1.16	17.82	15.49	86.93	299.6	284.8	14.8	53.4	16028
	2012	2.3	105	0.90	1.44	18.93	16.46	86.97	318.5	312.3	6.2	52.4	16673
	2011	2.3	94	0.94	1.00	18.70	16.21	86.64	313.0	320.2	-7.2	61.0	19106
	2010	2.4	96	0.85	1.21	18.44	15.94	86.43	307.5	301.3	6.2	49.3	15154
	2009	2.9	103	0.94	1.13	17.75	15.23	85.77	292.8	272.0	20.8	63.2	18496
HoCP 04-838	2013	2.1	106	0.77	1.17	17.58	15.23	86.62	285.2	283.8	1.4	53.7	15310
	2012	2.2	114	0.80	1.58	18.81	16.49	87.64	307.9	292.1	15.8	51.5	15861
	2011	2.2	97	0.83	1.19	18.68	16.09	86.13	298.2	289.1	9.1	52.7	15714
	2010	2.2	102	0.77	1.26	18.97	16.37	86.30	300.6	295.7	4.9	38.4	11522
(Cont'd.)	2009	---	---	---	---	---	---	---	---	---	---	---	---
Ho 07-613	2013	2.5	110	0.82	1.19	18.33	16.06	87.63	308.9	296.2	12.7	60.1	18547

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, Sugarcane Research Unit, Houma, LA, December 2, 2013¹.

Variety	Year	Stalk ²				Normal juice ³			Sugar yield	Previous sample date ⁴	TRS change from previous sample	Estimated yield ⁵	
		Wt. (lb.)	Lh. (in.)	Dia. (in.)	Density (g/cm ³)	Bx. (%)	Su. (%)	Pu. (%)				TRC (lb.)	TRC (lb.)
	2012	---	---	---	---	---	---	---	---	---	---	---	---
	2011	---	---	---	---	---	---	---	---	---	---	---	---
	2010	---	---	---	---	---	---	---	---	---	---	---	---
	2009	---	---	---	---	---	---	---	---	---	---	---	---
Averages ⁶	2013	2.2	107	0.79	1.15	17.38	14.99	86.20	291.4	282.4	9.0	53.4	15571
	2012	2.5	116	0.84	1.58	18.85	16.37	86.80	311.4	304.0	7.4	53.0	16481
	2011	2.3	102	0.85	1.11	18.72	16.08	85.87	303.5	299.7	3.8	53.5	16238
	2010	2.3	103	0.80	1.21	18.70	16.03	85.75	301.4	297.6	3.8	41.4	12449
	2009	2.6	112	0.87	1.09	17.36	14.71	84.69	273.8	270.6	3.2	56.9	15527

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-stalk sample of each rep, will be taken on the 1st, 4th and the 8th maturity study sampling dates.

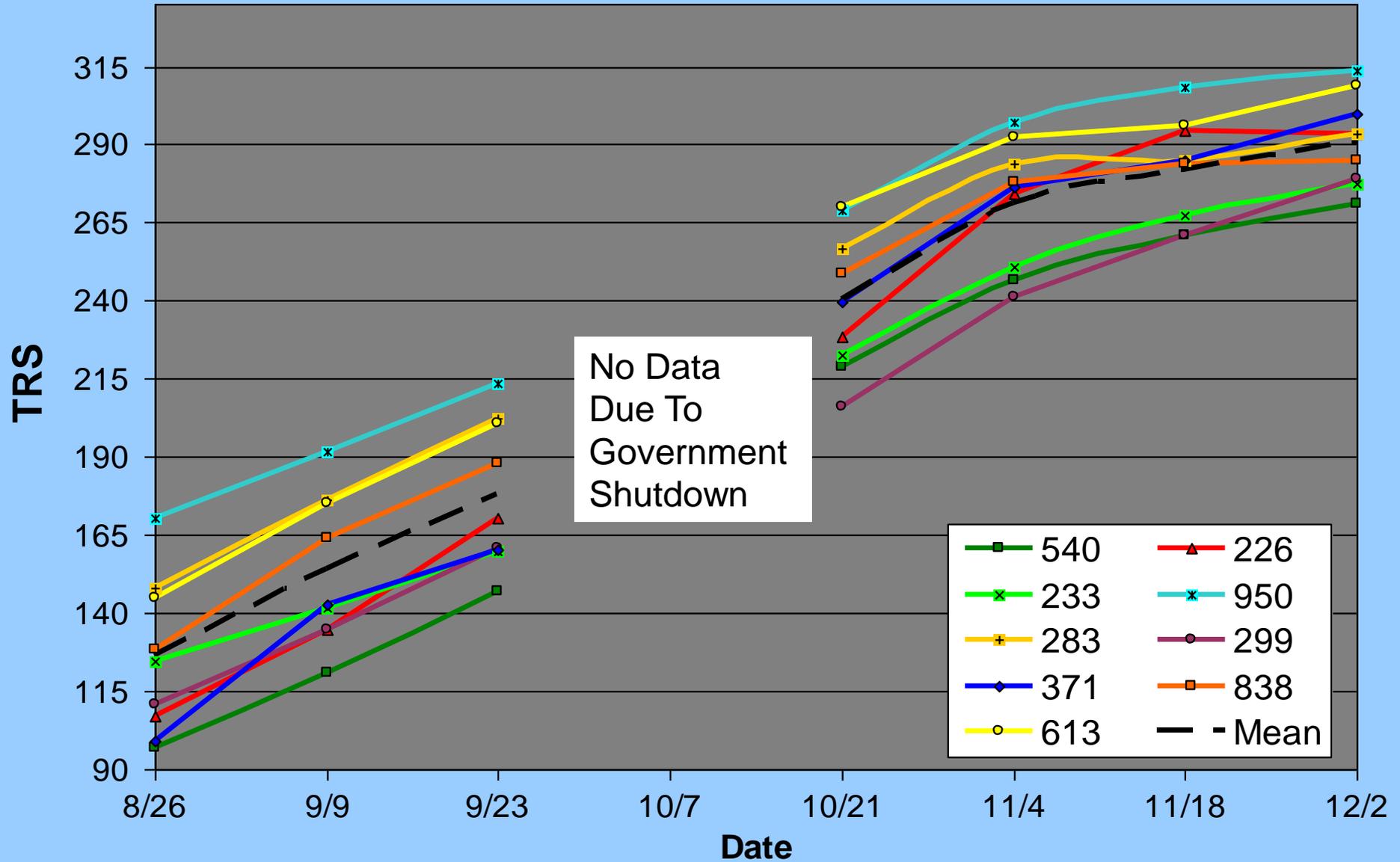
³ Brix factor = .8854; Sucrose factor = .8105.

⁴ Previous scheduled sample date was November 18, 2013 .

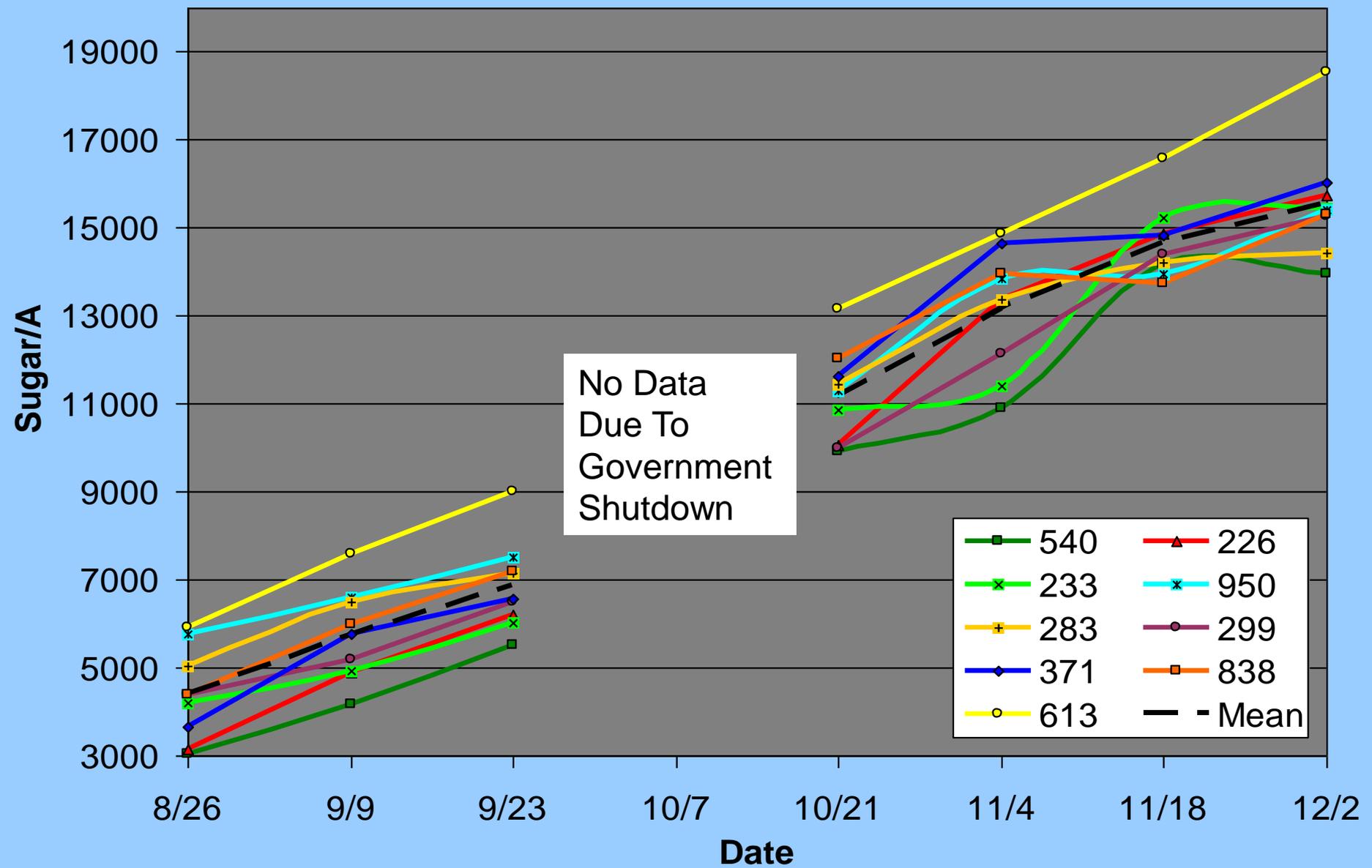
⁵ Estimated cane yield is the product of stalk weight and millable stalk counts, estimated sugar yield is the product of TRS and estimated cane yield.

⁶ Averages are based on all varieties in the first-stubble maturity study.

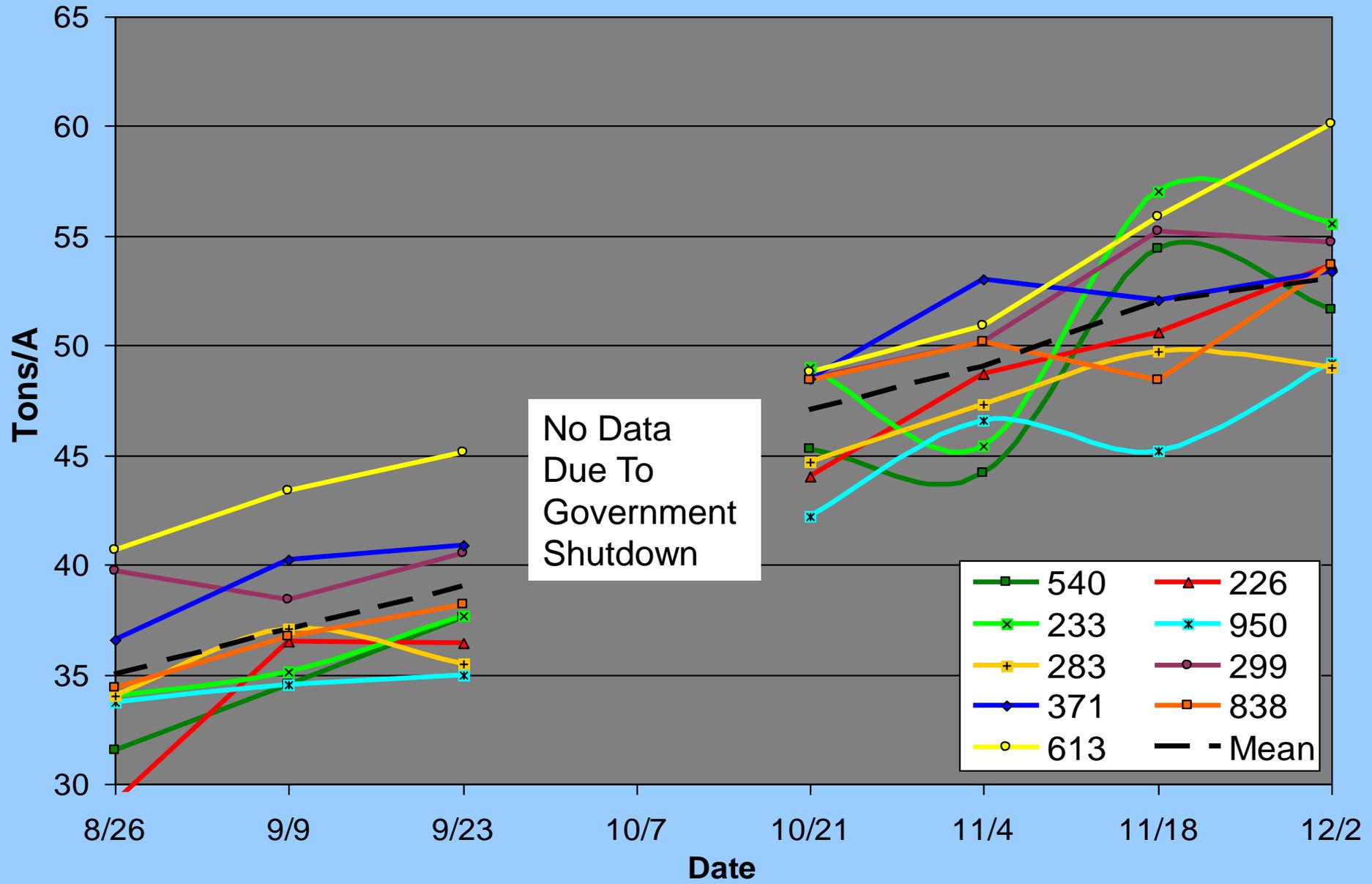
TRS ----1st Stubble Maturity Test 2013



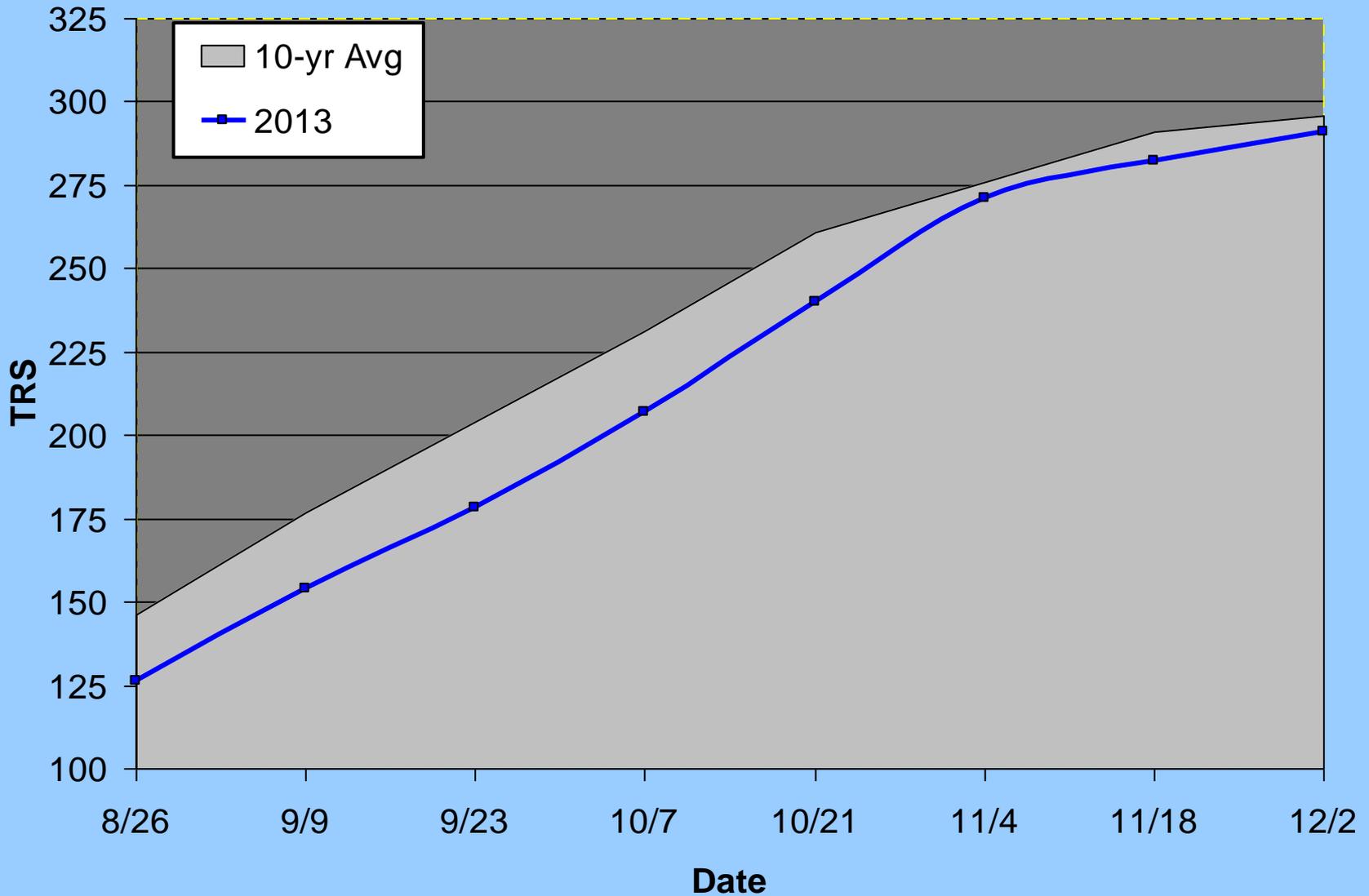
Sugar/Acre ---- 1st Stubble Maturity Test 2013



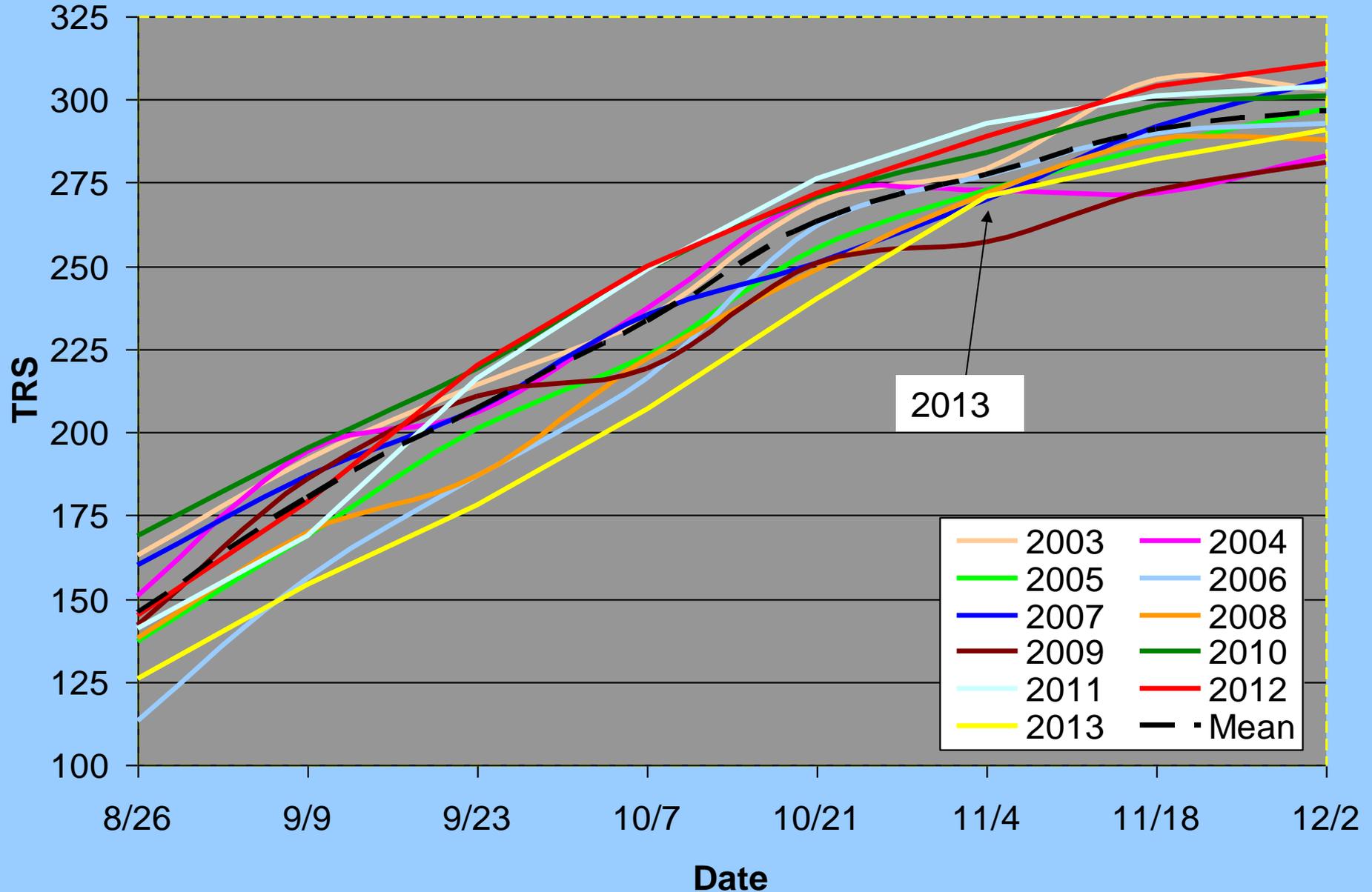
Tons/Acre ---- 1st Stubble Maturity Test 2013



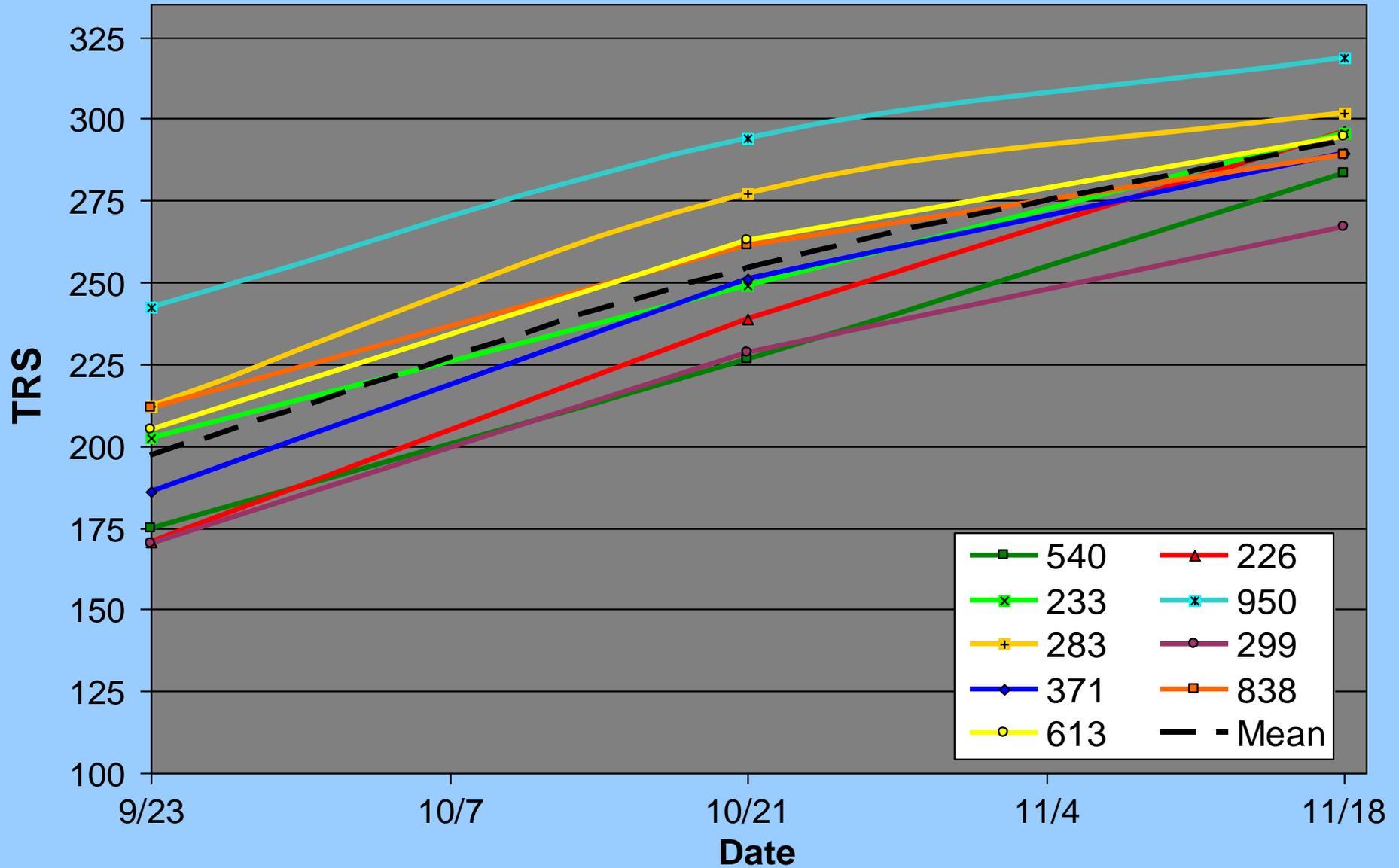
2013 TRS compared to 10-year average in the 1st Stubble Maturity Test



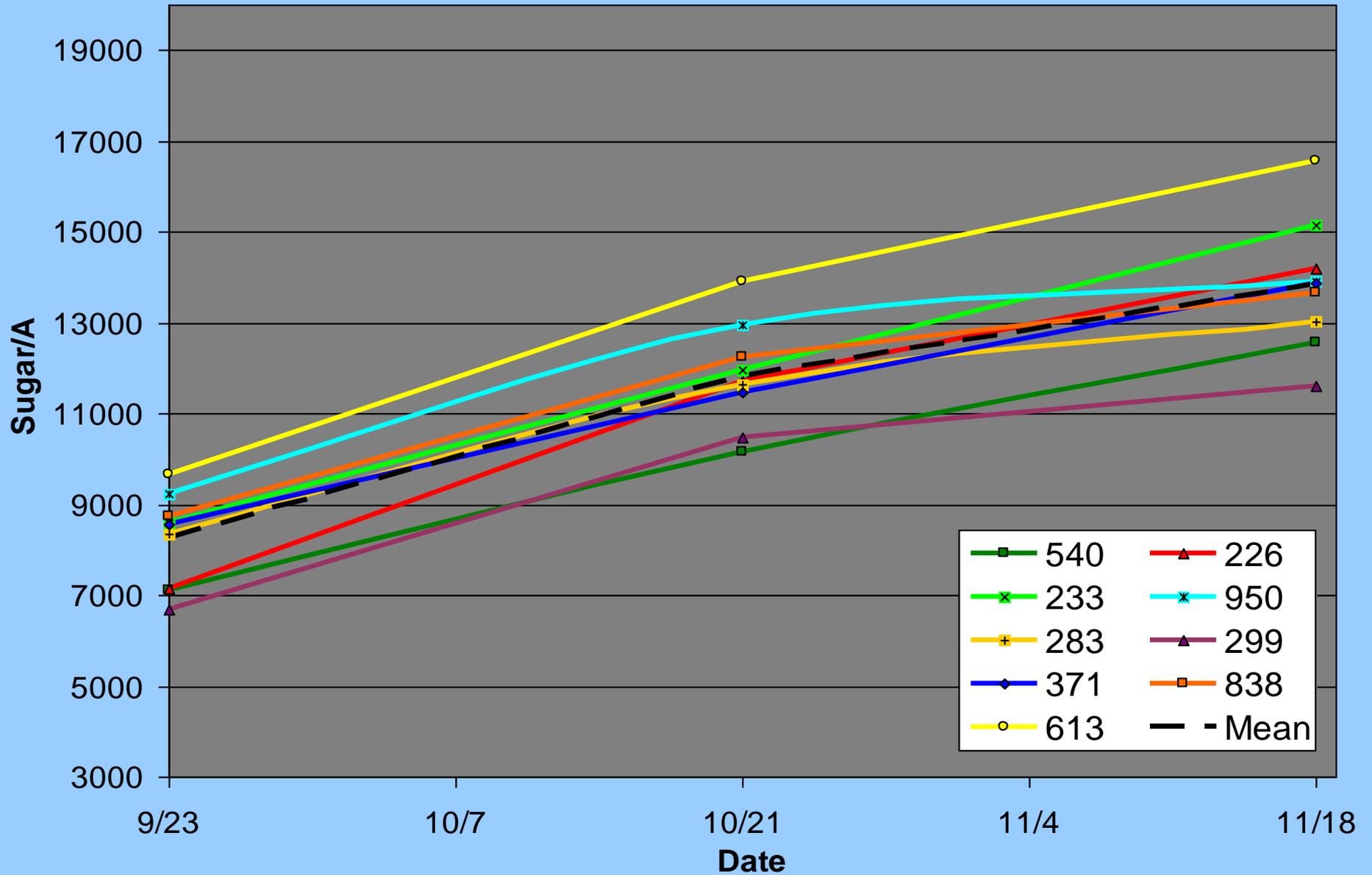
TRS from 2003 to 2013 --- 1st Stubble Maturity Test



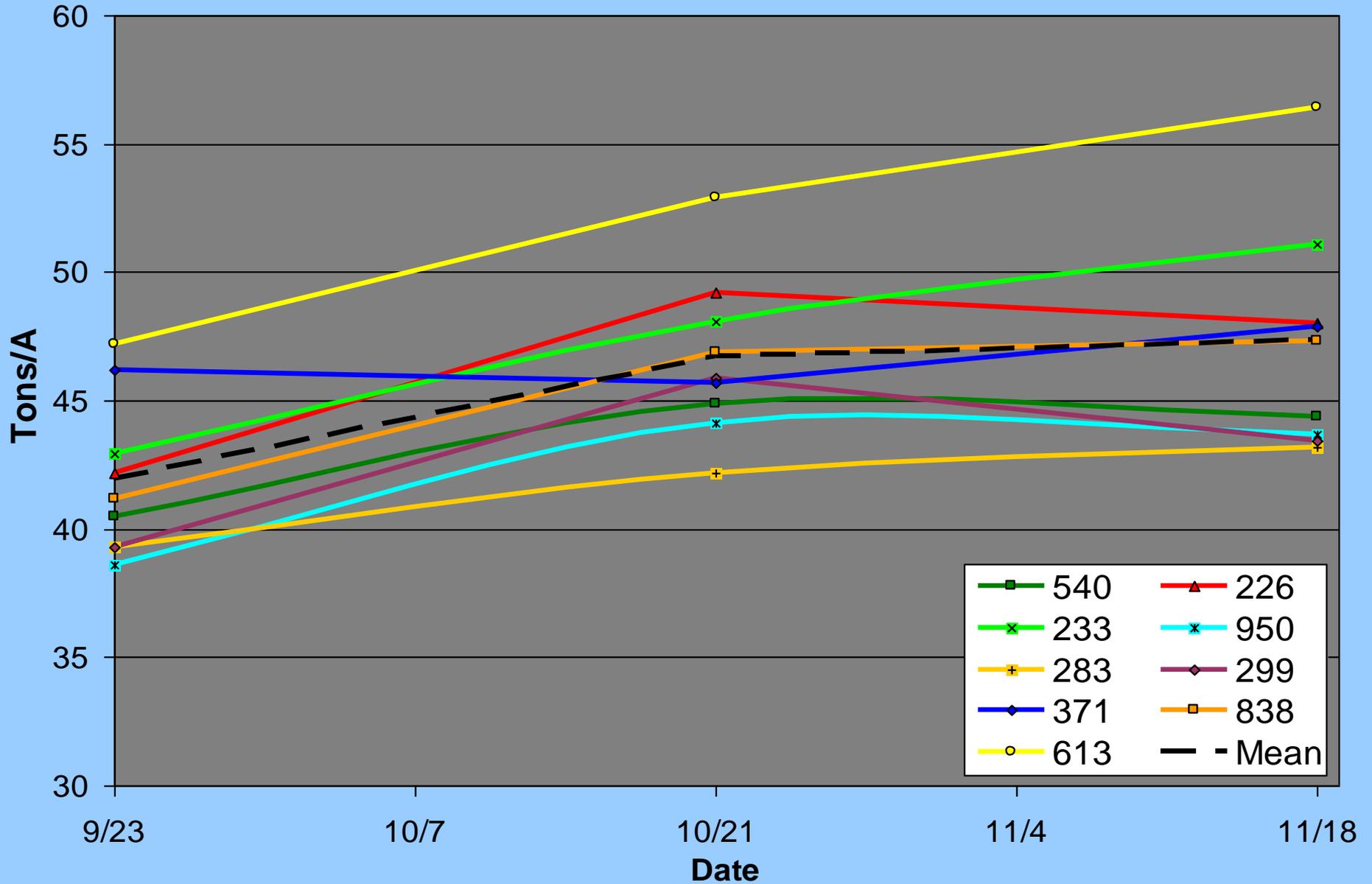
TRS ----Plant-Cane Maturity Test 2013



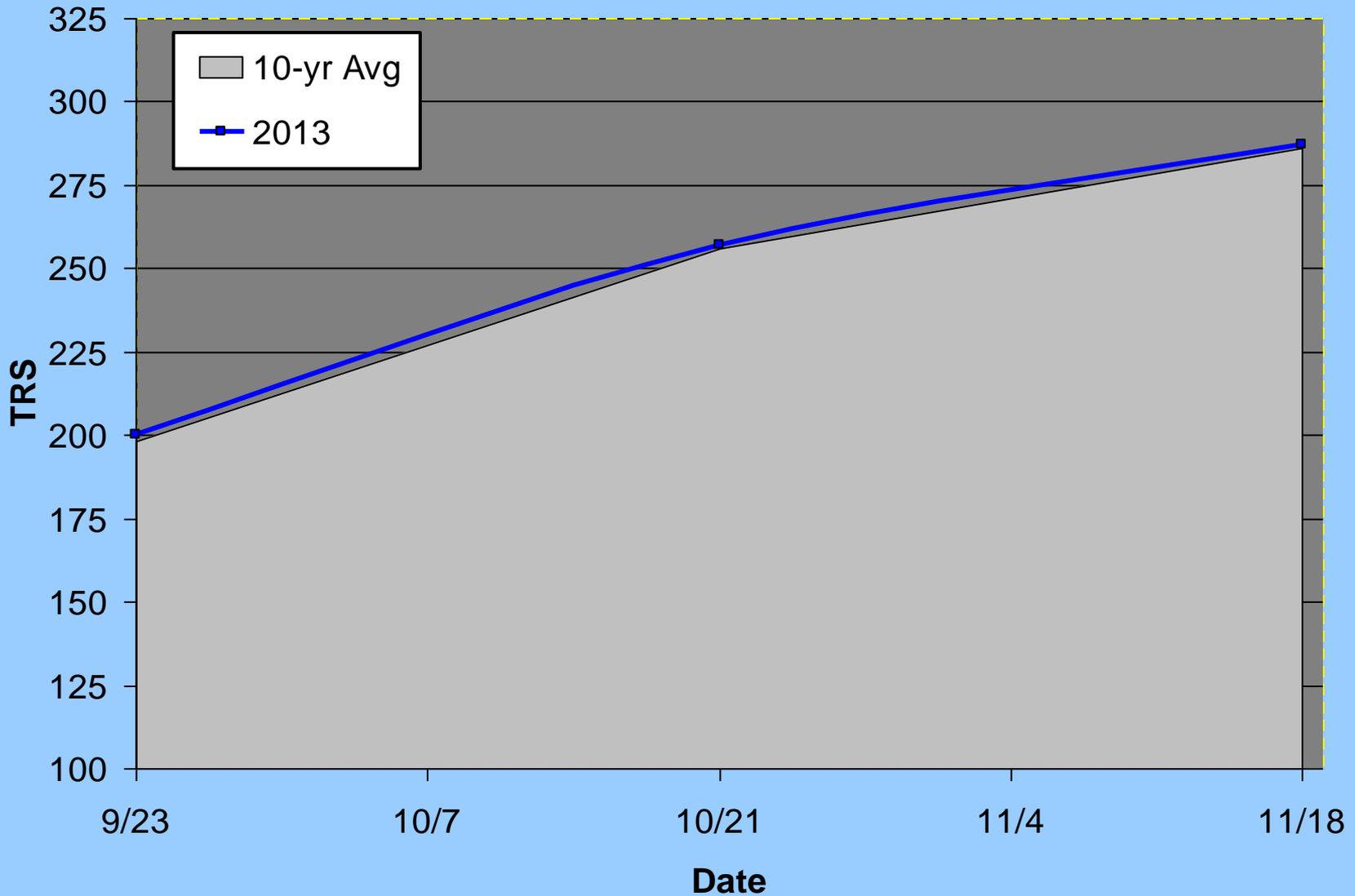
Sugar/Acre ---- Plant-Cane Maturity Test 2013



Tons/Acre ---- Plant-Cane Maturity Test 2013



2013 TRS compared to 10-year average in the Plant-Cane Maturity Test



TRS from 2003 to 2013 --- Plant-Cane Maturity Test

