

50605	15.26	15.64	4763	99.1	117.9	116.6	1
50606	14.58	15.27	4453	94.7	115.1	109.0	1-2
50607	12.51	15.87	3971	81.3	119.6	97.2	1-2
50608	13.73	15.32	4207	89.2	115.4	103.0	2-1
50609	14.40	14.92	4297	93.6	112.4	105.2	1-2
50610	17.78	16.94	6024	115.4	127.7	147.5	1
50611	16.79	18.24	6125	109.1	137.5	149.9	2-1
50612	18.86	17.14	6465	122.5	129.2	158.3	2-1
50616	16.52	14.37	4748	107.3	108.3	116.2	2-1
50644	15.03	16.81	5053	97.7	126.7	123.7	2-1
50681	15.12	16.68	5044	98.2	125.7	123.5	1-2
Diff. for Sig.	1.34	.32	433				

It will be noticed that nearly all of these strains have a high sugar content with relation to the yield. This is because of selections being made from our Spanish material as the type of beet grown in Spain is the extreme sugar type.

The sugar yield is, in some cases, very satisfactory even with the rather low yield in tonnage. However, it may be stated that the tonnage for most of these strains is considerably better than that of the material from which the selections were made showing that adaptability to this country is already asserting itself in tonnage without lowering the sugar content after one year of inbreeding in this country.

We are of the opinion that this work is valuable because it can be compared with work of a similar nature in European countries where leaf spot is prevalent.

CURLY TOP RESISTANT VARIETIES

F. V. Owen, Bion Tolman, Charles Price, Albert Murphy, F. L. Larmen, Eubanks Carsner, U.S.D.A.

Curly-top areas will probably depend upon sugar beet seed from U.S. 33 and U.S. 12 for a considerable portion of acreage for the next two or more years. U.S. 33 is higher in sugar and is probably acknowledged as the better variety where curly top is not a serious factor. U.S. 12 is more resistant to curly top, however, and usually gives a reasonably good performance in yield of sugar per acre. Five new strains are now to be considered as competitors with U.S. 33 and U.S. 12. These strains are known at present only by temporary numbers assigned by the Division of Sugar Plant Investigation at Salt Lake City. If any number is decided upon for commercial distribution a U. S. number will be assigned later.

The tables give comparisons of U. S. 33 and U. S. 12 and numbers 610, 611, 612, 622, and 623. At Buhl, Idaho, all of the new numbers were highly resistant to curly top, and in this respect roughly comparable with U. S. 12. Number 610 is more of a sugar type, while 622 and 623 are more on the order of yield types, and 611 and 612 are probably intermediate.

With regard to bolting tendency, number 610 and 612 may bolt nearly as

much as U.S. 33, but 611, 622 and 623 have been remarkably free from bolting in Idaho and northern Utah and may be ranked roughly with U. S. 14 under California conditions. Number 623 is of some special interest in California due to a considerable amount of mildew resistance which it seems to possess.

Before decisions are made regarding the release and distribution of the five new varieties, 610, 611, 612, 622, and 623, they will all be tested another year by the respective sugar companies who are interested as well as by government workers. This policy will insure against the hazard of hasty decisions. After another year's work it is expected that the best varieties for the respective curly-top areas can be chosen. A constructive effort to reduce the confusion caused by a large number of varieties will be possible by this policy. In the past it has been necessary to release curly-top resistant varieties rather rapidly to meet an emergency. Now that the emergency has been met fairly well with U. S. 33 and U. S. 12, more time will be taken to more thoroughly evaluate the new improved varieties.

VARIETY TEST UNDER SEVERE CURLY TOP EXPOSURE
S. D. BONAR FIELD - Buhl, Idaho - 1937

Variety	Acre Yield		Sucrose Percent	Coef. Apparent Purity	Percent Curly top July 28	Beets per 100 ft. row at harvest
	Tons Indic. Avail. Sugar	Tons Beets				
622	2.443	15.28	17.45	91.59	16.89	103
611	2.130	13.17	17.79	90.97	17.49	101
612	2.087	12.95	17.73	90.79	26.83	103
623	1.872	12.05	17.06	91.12	25.65	92
610	1.868	11.65	17.54	91.28	35.68	98
U.S. 12 (618)	1.719	10.52	17.92	91.18	27.80	97
U.S. 33 (5642)	1.178	7.09	18.01	92.37	91.98	93
Old Type (5638)*		1.58		No sig.	100.00	
				F value		
S.E. Mean	0.124	.826	.221	0.70		
Diff. for 19:1 odds	.248	1.65	.442	1.40		
Diff. for 99:1 odds	.323	2.15	.575	1.82		

*Estimated results from adjacent test.

Note: This table is a result of averaging 12 replicated plots, each 60 ft. long. Half of the test was planted April 9 and the other half May 6. Harvested October 8 to 14, 1937.

Variety Test Under Medium Curly-Top Exposure
 Hill Bros. - Granger, Utah - 1937
 by Bion Tolman

Variety	Acre Yield		Sucrose Percent	Coefficient of apparent purity	Number of Beets per 100 ft. of row
	Tons Indicated Available Sugar	Tons Beets			
622	3.447	26.28	15.01	87.46	90
612	3.341	24.90	15.30	87.27	90
611	3.333	24.66	15.53	86.78	94
623	3.331	25.35	15.17	86.91	93
610	3.301	23.22	15.97	88.73	90
U.S. 12 (618)	3.235	23.67	15.52	87.88	92
U.S. 33(5642)	3.194	22.14	16.13	89.14	94
Old Type (5638)		10.00*			
S.E. of Mean					
Difference	0.1067	0.4765	0.2955	0.8822	
Diff. for 19:1	0.211	0.95	0.59	1.76	
Signif. 99:1	0.281	1.24	0.77	2.29	
Odds					
F Value	4.26	18.57	14.16	4.56	
5% point	1.59	1.59	1.59	1.59	
1% point	1.92	1.92	1.92	1.92	

*Acre Yield of Old Type calculated from the Weight of beets in a 6-row strip running through the center of the field.

Note: The above data are averages of 12 replications of 4-row plots 55 feet long. One half of the experimental field was given an extra heavy application of manure. Half of the replications on each fertility section were thinned to 8" and half to 20". The effect of both spacing and fertility levels was quite pronounced. In the above table these have all been averaged together. The analysis of variance was run on the complete tests which included 24 varieties (16 varieties in addition to the above 8). Planted April 13, harvested October 28, 1937.

Variety test - King City, California - 1937
 by Charles Price

Variety	Acre Yields Calculated ¹		Sucrose Percent	Coefficient of Apparent Purity
	Tons Indicated Available Sugar	Tons Beets		
622	5.981	34.15	18.94	91.68
612	5.810	32.24	19.50	92.49
U.S. 33(5642)	5.792	30.65	20.41	92.64
610	5.691	31.08	19.73	93.14
623	5.683	33.31	18.66	91.65
S.E. of Mean				
Difference	0.2135	1.6101	0.38605	0.72346
Diff. for 19:1	0.4301	3.2427	0.77750	1.4571
Signif. 99:1	0.5744	4.3311	1.03847	1.94611
Odds				
Z Value	0.7108	0.2947	0.8041	0.7123
5% Point	0.32903	0.32903	0.32903	0.32903
1% point	0.48355	0.48355	0.48355	0.48355

¹Determined from normal competitive beets.

Note: Planted March 4, harvested October 5 & 6, 1937, with 6 replicated plots

and 10 varieties included in the test.
 Variance analyses taken from complete data with 10 varieties.

Variety Tests With Regard To Bolting, 1937

Variety	Granger,	Salinas,	Davis	Riverside, Calif.	
	Utah	Calif.	Calif.	April 22	May 18
U. S. 12 (618)	0.06	21.50	70.23	34.5	64.1
U. S. 33 ¹ (3407)	---	11.50	56.05	11.2	41.0
do (5642)	0.40	25.00	62.60	41.0	72.8
U. S. 14 ² (515)	---	6.00	27.36	0.3	4.3
do (617)	---	10.50	64.64	1.7	16.1
U. S. 15 (5651)	---	1.00	13.72	0.0	0.6
Old Type (5638)	---	4.08	24.43	0.4	3.6
610	0.40	23.50	50.55	8.1	34.9
611	0.00	5.50	44.39	5.1	24.3
612	0.32	16.50	50.45	22.0	52.5
622	0.06	10.00	43.75	2.7	18.3
623	0.06	---	---	4.5	22.7
Date of Planting	April 13 1937	Dec. 22 1936	Dec. 20 1936	October 23, 1936	
Date of Record	Aug. 1	May 27	June 10	April 22	May 18

¹/ No. 3407 is the original U. S. 33 while No. 5642 is a second increase.

²/ No. 515 is the original U. S. 14 while No. 617 is the next increase.

VARIETY TRIALS OF MONITOR SUGAR COMPANY

G. W. Bradford
 Monitor Sugar, Bay City, Michigan

Our work on the varietal tests which we conducted in the season of 1937 was divided into two parts. First, in our experimental field we made comparative tests of 3 American and 12 European varieties of seed. Four replications of each variety were made in plots 8 rows wide and 100 feet long. The stand of beets was somewhat reduced by the presence of black root, although a fairly even stand was secured.

A moderately severe infestation of leaf spot set in about August 1. Under such conditions as these the variety U.S.D.A. #217 was superior to all other varieties in this field in sugar per acre produced, in sugar content of beets and average weight of the individual beets. Two other varieties in this field yielded only slightly higher tonnage but their sugar content was significantly lower. Yields of the fifteen varieties ranged from 7.6 to 10.6 tons per acre. Sugar content varied from 12.91 to 15.33 percent. From 2167 to 3206 pounds of sugar per acre was produced by these different varieties.

The second part of our variety tests consisted of field trials of No. 217 in different parts of the territory served by the Monitor Sugar. These plots occupied from 1/2 acre to 2 acres in commercial fields of our beet growers and were under the direct supervision of our fieldmen. We obtained complete data on 14 fields on which these comparisons were made.