

SOME OBSERVATIONS ON VARIETY TRIALS
CONDUCTED IN CERTAIN HUMID AND IRRIGATED AREAS IN 1937

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Variety tests conducted in 1937 in 17 different localities in the 7 states in which the American Crystal Sugar Company operates, revealed some interesting relationships. Results of tests in the humid areas, namely in North Dakota and Minnesota indicate that varieties intermediate in tonnage yield are productive of greater sugar per acre yields than either the strictly tonnage or sugar varieties. In Iowa, Eastern Nebraska, and in Southeastern Colorado the sugar varieties and especially those resistant to leafspot (*Cercospora beticola* S) were the better performers. In California the tonnage varieties (especially those resistant to the curly top disease) and in Montana some of the intermediate types produced the highest sugar per acre yields.

From the results of this large number of tests (which are a part of a variety testing program extending over a period of years) it becomes apparent that no single variety of sugar beets can be recommended as the best one to use over a wide geographic area. It is further apparent, that breeding for adaptation of a variety or varieties for certain regions or even sub-regions is imperative from standpoint of maximum sugar per acre yields. To paraphrase F. D. Richey, Chief of the Bureau of Plant Industry "It seems clear that green pastures for the breeders of sugar beets will continue and must be pastured for some time to come."

BET VARIETY TRIALS IN ONTARIO

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The Ontario commercial crop of sugar beets has been grown, chiefly from European beet seed, with a small but increasing amount of locally produced seed during the past several years. The European seed has been mostly of the "Normal" or "Intermediate" type, and in Ontario has averaged 9.2 tons per acre with 15.3% sugar, over a 35 year period. The past five years has been a little above the long time average with 10.0 tons per acre and 15.6% sugar in the beets.

Each year variety tests have been conducted on the commercial strains--

- (a) to see that all come up to a general average standard.
- (b) to locate the superior type of seed or firm supplying a better adapted strain.
- (c) to compare Home Grown varieties and selections with the European strains.

The following table is the result of the 1937 tests. The 20 seed types were sown in 3 row blocks, 50 feet long, and repeated 5 times in randomized order. Seeding was done May 14th, and harvesting, block by block, on October 31st--November 2nd.

Commercial strains are listed only as to the country of origin, while

selected strains are designated by their source. Recoverable sugar per acre is the product of tonnage by sugar and purity.

<u>Grading</u>	<u>Seed Strain</u>	<u>Stand</u>	<u>Tonnage</u>	<u>Sugar</u>	<u>Purity</u>	<u>Sug. per Acre</u>
1	Ont. Sel. Gt. West.	86.6	x 11.13	x 15.22	83.0	2981
2	Holly- Gt. West.	88.4	x 11.92	14.26	87.1	2961
3	Russian - N type	87.2	x 12.10	13.90	84.6	2846
4	Russian - Z type	85.2	10.99	14.84	86.0	2805
5	Polish - Leaf Spot	84.0	o 9.91	x 16.26	87.0	2804
6	U. S. 217	88.2	x 11.38	14.04	87.1	2783
7	German - Leaf Spot	86.4	10.26	x 15.48	86.6	2751
8	Russian - E type	89.4	x 11.43	13.98	85.5	2732
9	Stokes Cross -zz type	84.2	10.53	14.84	84.7	2678
10	English Commercial	89.6	x 11.08	14.02	86.2	2678
11	German - Normal type	87.8	10.38	14.86	86.2	2659
12	German-Sugar type	85.2	10.63	14.50	86.2	2657
13	U. S. 34	87.4	10.87	13.86	86.2	2597
14	Ont. Home Grown	83.2	o 9.97	14.84	86.9	2571
15	Polish Tonnage type	85.8	10.34	14.08	86.7	2507
16	Polish Sugar type	89.6	o 8.95	x 16.00	86.9	2489
17	U.S. 1	87.6	10.24	13.96	85.7	2450
18	Dutch Commercial	84.8	10.28	o 13.58	85.6	2390
19	U. S. 14	85.2	11.05	o 12.46	83.2	2291
20	German Commercial	87.8	10.00	o 13.08	84.4	2208
<u>Average</u>		<u>86.7</u>	<u>10.67</u>	<u>14.40</u>	<u>86.1</u>	<u>2642</u>
<u>Diff. for Significance</u>		<u>5.0%</u>	<u>.496</u>	<u>.66</u>	<u>1.6%</u>	

x types significantly above average for sugar or tonnage
o types significantly below average for sugar or tonnage

BEEET VARIETAL TRIALS
IN MICHIGAN, OHIO, INDIANA AREA

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The variety testing work of the Farmers and Manufacturers Beet Sugar Association was carried on this past season in two locations, ---one at Fairgrove, Michigan and the other at Holgate, Ohio. It may be said that this year was very discouraging from an experimental standpoint because of the severe wet weather and the terrible epidemic of blight which struck shortly after the first of August and continued until the harvest season.

On these plots there were a total of 32 varieties tested, but I shall report on only 14 varieties, 13 of which are of domestic origin and one commercial, which was used as a check.

These varieties were tested in plots 100 feet long, eight rows wide, and were replicated six times. The beets from the center four rows were counted, tared and weighed for yield. Twenty beets were selected at random for a