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

| Grading Seed Strain | Stand | Tonnage | Sugar | Purity | Sug. per Acre |
|--|--|--|--|--|--|
| Ont. Sel. Gt. West. Holly- Gt. West. Russian - N type Russian - Z type Polish - Leaf Spot U. S. 217 German - Leaf Spot Russian - E type Stokes Cross -zz type English Commercial German - Normal type German-Sugar type U. S. 34 Ont. Home Grown Polish Sugar type Polish Sugar type U.S. 1 Dutch Commercial U. S. 14 U. S. 14 German Commercial | 86.6 88.4 87.2 85.2 84.0 88.2 86.4 89.4 89.4 89.4 89.4 89.4 89.4 89.4 89 | x 11.13 x 11.92 x 12.10 10.99 o 9.91 x 11.38 10.26 x 11.43 10.53 x 11.08 10.38 10.63 10.63 10.87 o 9.97 1C:34 o 8.95 10.24 10.28 11.05 10.00 | x 15.22 14.26 13.90 14.84 x 16.26 14.04 x 15.48 13.98 14.84 14.02 14.86 14.50 13.86 14.84 14.08 x 16.00 13.96 0 13.58 0 12.46 0 13.08 | 88.0 87.1 84.6 86.0 87.0 87.0 87.1 86.6 85.5 84.7 86.2 86.2 86.2 86.2 86.2 86.2 86.2 86.2 | 2981 2961 2846 2805 2804 2783 2751 2732 2678 2678 2678 2659 2657 2597 2597 2597 2597 2597 2597 2597 25 |
| Average | 86.7 | 10.67 | 14.40 | 86.1 | 2642 |
| Diff. for Significance 5.0% .496 .66 1.6% | | | | | |

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

BEET VARIETAL TRIALS IN MICHIGAN, OHIO, INDIANA AREA

M. J. Buschlen, Farmers and Manufacturers Association

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 varietics 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 sugar sample. A sugar and purity analysis was made in cooperation with Mr. J. G. Lill in the U. S. Department of Agriculture Testing Laboratory at East Lansing, Michigan.

| Rank | Variety | Tons Per Acre | Percent Sucrose | Percent Purity | Recoverable Sugar |
|-----------------|---|--|--|--|--|
| 123456789011234 | U.S.D.A. #217 Am. Crystal #4 Great Western U.S.D.A. #34 Am. Crystal #3 U.S.D.A. #33 Stokes Home Grown M.S.C. Check Am. Crystal #1 Commercial Check Am. Crystal #5 Holly Special Kohls Elite Amalgamated #600 | 14.43 14.06 13.39 13.01 12.78 13.11 11.66 12.30 11.98 12.73 10.89 11.18 10.37 11.71 | 17.61 16.85 17.22 17.13 16.63 16.44 18.18 16.83 17.09 15.87 18.10 16.62 17.13 15.68 | 85.88 85.21 87.12 86.61 85.23 84.84 85.83 85.17 85.54 84.53 86.19 85.32 84.93 82.53 | 4,276.1 4,018.8 3,878.6 3,860.0 3,670.0 3,646.5 3,631.6 3,550.3 3,508.0 3,404.6 3,399.0 3,187.8 3,026.1 3,017.0 |
| | stical Dependability values differ more than | over 99% 1.95 | over 99% 1.1% | over 19% 2.11% | over 99% 640# |

Ranked according to Recoverable Sugar

According to the statistical analysis (Fisher's method) of our data from the Fairgrove test, we find it requires a difference of 1.95 tons and a difference of 1.1% Sucrose, and a difference of 640 lbs. of sugar per acre for 1% significance, or odds of 99 to 1. The purity figures are only significant to 5%, or odds of 19 to 1.

A careful study reveals that U.S.D.A. #217 heads the list, probably because it carries considerable resistance to blight. It is significantly better in tonnage than seven of the other varieties included in the test. American Crystal #4, which was the next best, is significantly better in tonnage than six of the other varieties. These two were also outstanding in the test last season, however, none of the varieties are significantly better in tonnage than the Commercial Check.

Seven varieties appear to be significantly better in Sucrose content than the Commercial Check. U. S. #217 appears to be significantly better in the amount of recoverably sugar produced than the Commercial Check, as well as being significantly better than seven other varieties included in the test.

| Variety | Fairgrove, M Av. Size of beet Pound | % Stand | Holgate, Av. Size of beet Poun | % Stand |
|--|---|--|---|--|
| U.S.D.A. #217 American Crystal #4 Great Western U.S.D.A. #34 American Crystal #3 U.S.D.A. #33 Stokes Home Grown M.S.C. Check American Crystal #1 Commercial Check American Crystal #5 Holly Special Kohls Elite Amalgamated #600 Average | 1.39 1.18 1.13 1.23 1.24 1.16 1.23 1.36 1.14 1.23 1.15 1.21 1.02 1.12 1.2 | 87 100 100 89 87 95 80 76 72 87 80 78 86 88 86 | •56 •54 •49 •50 •51 •56 •51 •56 •56 •51 •56 •56 •57 •56 •56 •57 •56 •57 •56 •57 •57 •56 •57 •57 •56 •57 •57 •57 •57 •57 •57 •57 •57 •57 •57 | 65 68 70 65 76 71 65 75 76 75 76 76 76 76 76 76 76 76 76 76 76 76 76 |

The results of two years trials are shown in the following table:

VARIETY SERIES - Fairgrove, Michigan Average for 1936 and 1937

| Rank | Variety | Tons per Acre | Percent Sucrose | Percent Purity | Recoverable Sugar |
|-----------------|--|--|--|---|---|
| 123456789011234 | Am. Crystal #4 Am. Crystal #3* U.S.D.A. #34 U.S.D.A. #217 Great Western Am. Crystal #1 Am. Crystal #5* Commercial Check U.S.D.A. #33 M.S.C. Check Holly Special* Stokes Home Grown Amalgamated #600 Kohls Elite | 12.71 12.78 12.16 11.99 11.83 11.36 10.89 11.83 11.43 11.07 11.17 9.78 10.42 9.23 | 17.37 16.63 17.26 17.25 17.31 17.39 18.10 16.68 17.22 17.06 16.62 17.99 16.24 17.36 | 86.61 85.23 87.11 88.44 87.28 85.59 86.19 86.03 84.03 84.03 84.89 85.32 87.90 84.83 85.92 | 3,802.8 3,670.0 3,653.4 3,542.6 3,502.6 3,433.5 3,399.0 3,376.8 3,283.6 3,283.6 3,264.1 3,187.8 3,081.2 2,845.6 2,749.4 |

* - 1937 only

It is interesting to note that when the results of the two years -1936 and 1937 are combined U. S. #217 is not on top but holds up vory well. In 1936 very little blight occurred, while in 1937 a severe epidemic of blight was encountered, indicating we will probably not be penalizing ourselves greatly in not blight years by using blight resistant seed to protect us in years when blight might occur.

The following table shows the results of the trial at Holgate, Ohio:

| Rank | Variety | Tons per Acre | Percent Sucrose | Percent <u>Purity</u> | Recoverable Sugar |
|----------------|---|--|---|--|---|
| 12345678901234 | Commercial Check U.S.D.A. #217 Holly Special M.S.C. Check Stokes Home Grown Am. Crystal #3 Am. Crystal #4 Great Western U.S.D.A. #33 Kohls Elite U.S.D.A. #34 Am. Crystal #1 Am. Crystal #5 Amalgamated #600 | 4.60 4.35 4.58 4.36 4.32 4.32 4.36 4.21 4.36 3.54 3.60 3.61 3.61 | 16.83 17.12 16.72 17.04 17.66 16.73 16.32 16.60 17.16 17.16 17.16 16.53 16.78 17.15 15.77 | 85.54 83.71 85.89 86.85 85.71 85.26 85.42 86.85 | 1,321.3 1,311.1 1,309.3 1,275.5 1,250.0 1,212.5 1,190.0 1,160.8 1,058.6 1,058.0 1,058.0 1,048.8 1,026.0 998.8 987.00 |
| Stati | istical Dependability | over 99% | over 99% | over 19% | over 19% |
| | values differ more than | 2.44 | .96 | 1.62 | 225.7 |

Ranked according to recoverable sugar

Due to the very extreme wet weather the results are very disappointing. A careful study reveals that very little significance occurs in this data. I am inserting it only as a matter of record. It has very little value from an experimental standpoint in determining the worth of the various varieties.

OTHER STATE TESTS WITH U. S. #217

In 1937 we harvested 53 plots of blight resistant seed in direct comparison to the ordinary commercial seed which was being used in the various territories. Due to limited time and space I shall not insert the data here but suffice to say that in the majority of cases U.S. #217 showed up better than the ordinary commercial, in some instances as much as 15% increase was noted in favor of U.S. #217 over the ordinary Commercial variety.

TESTS OF U. S. 217 IN 1937

G. H. Coons, Dewey Stewart, J. O. Gaskill, G. W. Deming, H. W. Bockstahler, J. O. Culbertson, and S. B. Nuckols, U.S.D.A.

Following is a report on agronomic tests conducted with U. S. 217 in 1937. This variety, formerly called Acc. 217 or Acc. 220, is composed of 5 leaf-spot-resistant inbreds allowed to intercross. Details of the make up of this variety have been given in the first report made last year and in the 1936 U. S. Department of Agriculture Yearbook, page 641.

A summary of 11 intensive tests of U.S. 217 in comparison with a