

FIELD OPERATIONS AND CONDITIONS
ON THE CENTRAL STATION

The center 1/3 of the Mant₂ tract of the Collage Farm (see 1935 report) was used for the test plots in 1938. The previous crops were corn 1935, the crop cut for silage, beets in 1936, oats in 1937. The corn land was heavily manured prior to fall plowing for the 1936 beet crop. In August 1937 following the harvest of the oat crop approximately twenty tons manure to the acre was applied and disked in. Plowing was attempted in late August, but because of dryness of the soil was abandoned when about one third completed. Both the plowed and unplowed portions of the field were then irrigated and the plowing completed when the field was dry enough. The tests were planted in 1938 in such a way that any one complete test occupied land plowed either before or after irrigation. However no differences were discernable in the beet crop on the two plowings. After plowing a weighted subsurface packer was run over the field.

The east end of this tract is very flat land and difficult to irrigate. In November this portion of the field was "Ridged". In March the unridged portion of the field received 125 pounds to the acre of 45% phosphate drilled at right angles to the direction that the beet rows would take.

Moisture conditions in the spring of 1938 were excellent and a very good seed bed was attained. The leaf spot varieties test, space-stand and space-irrigation tests were planted just prior to April 20th when planting was interrupted by a storm. The advanced generations and varieties and strains tests were planted on the ridged portion of the field on April 24 and 25.

General irrigations were given in late June, mid-July and early August. A fourth general irrigation was planned for the first days of September, but rains starting on the last days of August culminated in a heavy rain the night of September 3rd. Flood waters broke irrigation ditches above the field and in addition to the rainfall more or less flood water also reached the beet field. The net result was no damage, but the equivalent of a very heavy irrigation.

Ridging materially aided in the handling of irrigation water on the flat portion of the field. No "drowning" of the beets occurred in any place in this part of the field in 1938. Because the ridges could not be spring worked there were more weeds at thinning time on this part than on the flat planted part of the field. These weeds were not a serious problem however and except for adding to the difficulty of thinning appeared to have no effect on the crop. Cutworm damage was more severe on the ridges and there was much more "Blackroot" than on the flat planted part of the field.

A fairly heavy attack by alfalfa webworm occurred in June and though paris green spray was applied the beet leaves in spots were partially skeletonized. The damage appears to have been relatively negligible.

A moderately severe attack of leaf spot reached a peak just after the middle of September. Damage was apparently not severe.

Except for the Blackroot previously mentioned practically no root rot of any sort occurred. Considerable mosaic was observed, being most evident in mid-summer.

Methods of harvest are discussed in more detail under the test headings. Actual yields were obtained in all cases by the harvest of all beets on accurately determined row lengths per plot. Yields of "competitive" beets were also determined for the leaf spot varieties test, the date of planting and variety test and the space-irrigation test. With reasonably uniform and good to excellent stands either method appears to be reliable. However yields determined from competitive beets are liable to bias if any treatment has differentially affected stands and also when different spacings is one of the factors under test. The latter is very evident in the 1938 space-irrigation test.

The following system of carding samples in the field has been found to be very good when two samples per plot are taken for analysis, and washed weights are taken on all remaining beets; which is the standard practice at this station. Washed weights are certainly more satisfactory than any tare system and are probably as economical in the end. (1) The two Analysis cards are samples 1 and 2; these cards are typed before harvest and packaged in order for each replication. (2) All competitive beets remaining after the analysis samples are taken are carded Sample 3; all sacks of these beets whether one or a dozen get this No. 3. (3) Finally all remaining beets from the plot (the noncompetitives) are carded Sample 4 in the same way. The "Weight" cards are used for samples 3 and 4. One master card each per plot for samples 3 and 4 is typed as are the Analysis cards and additional blank cards are filled out in the field when there are more than a single sack of either sample. If care is taken to use these blank cards in the order of their serial numbers almost any mistake in carding can be corrected with considerable certainty. Two cases will illustrate: (1) Seven sample 4 cards came in for plot 265 and none for plot 260; the serial numbers indicated that three of these sacks of beets were from one of the plots and four from the others; a comparison of the serial numbers with those on cards from the adjacent plots in each case indicated that four were from plot 265 and the others from plot 260. (2) Plot 347 was correctly carded; later when plot 374 was harvested it was also carded 347. A check of the serial numbers made correction certain.

The stock of gladioli used as an appreciation present in connection with the isolation plantings for seed has now increased to the point that a good package of bulbs is available for each of the 1939 plantings and a supply of planting stock remains which is sufficient to maintain the supply from year to year without the purchase of additional stock. The cash outlay in growing and harvesting these bulbs was about \$1.00 per thousand in 1938.