

3. The row blocker was set to thin the beets in one operation, followed with no hand labor.

These plots were replicated with a check plot of hand-thinned beets.

Naturally the mechanically thinned plots required much less labor, but this year the yield was significantly less than for the methods where the long-handled hoe was used alone.

CROSS BLOCKING OF SUGAR BEETS

by

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Blocking sugar beets mechanically by drawing a cultivator carrying special equipment across the planted rows was undertaken for the first time in Minnesota in 1929. Discs and knives were so arranged that undisturbed blocks of 4 to 5 inches were left on 16, 18 and 20 inch centers, while the balance of the beets and weeds in the row were removed.

In later years the blocks were narrowed to 3 inches and the spacing within the row reduced to 12 to 14 inches. This change resulted in a higher plant population per acre. Discs, if used at all, are now run straight and a special 5 inch knife has been designed which cuts clean and does not accumulate trash. The work is performed shortly after the seedlings emerge.

There is a saving in labor, both as to number of workers required and cost per acre. Competing beets and weeds may be eliminated early in the season and thus moisture and fertility is conserved. A beneficial mulch is left about the block and growth is retarded but little as thinning is accomplished in most instances without the use of a hoe.

Workers find that they can thin the cross blocked beets rapidly and their earnings per day are greater than when the old method is used even though the per acre rate is less. The method was particularly attractive to the grower whose beets were cared for by his own family. Fields that do not lend themselves to wire checking because of irregular borders or uneven contour may be cross blocked with success and at a saving.

HILL DROP PLANTING

The idea of a Hill Drop Planter was conceived by Joe Wartman in 1932. He proposed to accomplish the result of depositing seed at 10, 12 or 14 inch intervals in the row, saving the seed that would later grow into seedlings that would be blocked out. This first planter performed well, but it was felt that the seed was dropped too much in a clump for rapid thinning.

By 1934 at least three manufacturers were offering four and six row hill-drop planters at prices ranging from \$160.00 to \$230.00. The one that gained the most favor was the Rassman planter which used a rotor with cut-away spaces for depositing the seed at regular intervals. Spacings were regulated by using a variety of sizes of drive gears.

Hill-drop planting is the accepted method in 20% of the sugar beet area of Southern Minnesota. The seeding rate is between 6 and 7 lbs. per acre, resulting in a saving of approximately 2/3 of the former cost of seed. If the operator uses ordinary care and judgment in planting, skips do not occur making it difficult for a worker to justify poor work.

Workers who are willing to accept changing methods take no exception to working in the hill-drop planted fields. Their earnings per day are greater inasmuch as experience shows that they work an acre in 18% less time.

The method lends itself to rolling, irregular fields, where the check-wire planter does not perform well.

EXPERIMENTS WITH NON-THINNING OF SUGAR BEETS
by

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HARVESTING AND LOADING OF THE BEET CROP
IN
IOWA, SOUTHERN AND NORTHWESTERN MINNESOTA AND EASTERN NORTH DAKOTA

Our experience with cross cultivation has clearly indicated that we have increased the number of acres an adult worker can thin, and realizing that some day mechanical means will be available for reducing the number of workers needed for harvesting, which will then unbalance our seasonable labor requirements.

The first problem confronting us was to find some means whereby a planter would distribute one single seed ball at a desired spacing. After considerable correspondence with implement companies we decided, with their recommendation, to plant in a continuous row with a No. 16 John Deere planter using plate #N2469D, having 54 cells, with false plate #Y2630B and using seed graded between 9/64ths and 11/64ths in size, with a special transmission regulating the speed of the plate to drop one seed 1-1/2" to 2" apart.

A number of plots were planted with this arrangement but resulted in plants being bunched and unevenly spaced which we attributed to the light weight of the seed and height of drop, so the idea of not thinning these plots was abandoned. To overcome this difficulty we decided to try checking one seed in a hill, spacing 18 inches in the row and 18 inches between the row. By use of the check arrangement we would be able to take advantage of the lower valve which is close to the surface of the double valve arrangement in the Deere check-row planter. By reducing the 54 cell plate #N2469D to a 16 cell plate we planted 17.89 acres and cross cultivated them. The only labor used was for hoeing in August to remove the weeds at the cost of \$4.00 per acre. It might be well to mention that this plot was planted two weeks later than the balance of the field which we are using for a comparison.