

PRACTICAL USE OF DIXIE BEET THINNER UNDER
ADVERSE FIELD CONDITIONS

Collins T. Cannon 1/

The Dixie Cotton Chopper which is the forerunner of the Dixie Beet Thinner has been known to the sugar industry for about 8 years. In that time it has had but little commercial use, most work with it having been on an experimental basis. The writer's experience with the machine has been largely under adverse conditions---conditions caused by delay in doing hand work principally on account of shortage of labor. The end results of blocking by the Dixie machine as well as those obtained by mechanical cross blocking, have been generally unsatisfactory, largely it is thought, because of the fact that the work was undertaken when the crops were almost hopelessly lost due to weeds and over growth. The yields from such fields, of course, were poor and mechanical blocking received much unjust blame and criticism.

The writer believes that mechanical blocking should not be considered as an emergency method for saving a crop that would otherwise be lost, rather he is convinced that the timely use of the method will forever remove from the industry one of the things which has retarded its advancement, i.e., dependence on transient labor. By all means possible, avoid using the Dixie machine or any other mechanical blocking device under adverse conditions if there is any way possible to do it. Anticipate adverse conditions and prevent their arrival.

The wide spread and highly successful use of segmented seed in 1943 opened up new vistas in the possibilities for mechanization of the spring and early summer work in sugar beets. The Dixie machine was in commercial production and so it was comparatively easy to sell it to the industry. About 500 were purchased and some were placed in practically every beet-growing district. Our small Western South Dakota area received 12 of them.

We had planted several thousand acres of segmented seed labor was doubtless going to be scarce, and so it was hoped that we would mechanically block and thin a thousand or more acres of beets.

The results of our segmented seed planting were somewhat disappointing---not on account of the seed, but on account of the fact that too much per acre of it was planted and its distribution was faulty, resulting in bunching alternating with voids in the rows. We had been led to believe that blocking by the Dixie machine was not safe if germination stands were less than 25 percent, i.e., if less than 25 inches in 100 consecutive inches contained 1 or more beets. Most of our stands were below that and without a single exception owners of such fields refused to permit the use of the Dixie machine fearing that the crop

1/ Utah-Idaho Sugar Company.

would be lost as a result. At that time we were equally fearful. However, if we had known then what we know now we would have insisted that growers thin out mechanically many hundreds of acres of these low stands and we would thereby have saved them from going to over growth or to weeds and we would have avoided what later became the necessity of blocking them mechanically under adverse conditions.

During 30 days of our time best suited for thinning we had warm rainfall which stimulated germination and growth and which at the same time completely stopped work in the fields except in the very light soil areas. When the weather finally cleared, many hundreds of acres of beets were out of hand to such an extent that the available labor could not hope to get them under control by the usual methods. Indeed many were in such condition that labor refused to undertake the thinning at any price.

Many farmers who heretofore had refused to use the Dixie machine, being confronted with the prospect of losing their beet crop entirely, now came to the processor for help. Literally hundreds of acres were in distress. We immediately put all 12 of our Dixie machines to work in these fields under supervision and help of Company field men and extra people from the factory-operating force. We made no attempts to make stand counts preliminary to determining the best setting of knives. Such counts would have been pointless. In fields where segmented seed had been planted and where stands were light we arbitrarily adjusted the machine to leave 2-inch blocks on 5 or 6-inch centers depending on the existing sprocket combinations on the machines. In fields where regular seed had been planted we adjusted the machines to leave 2-inch blocks on 10-inch or 12-inch centers.

The growth of beets and weeds in many of the fields was so heavy and the ground had become so hard that it was difficult to obtain traction for the Dixie machines. Accordingly they were loaded down sometimes with as much as 300 pounds of sand bags. It was also found necessary to propel the machines down the rows at rates of speed much faster than ordinary in order to keep the rotating knives free from weeds and trash.

At first the destruction of the crop seemed complete. Beets left in the blocks were covered with trash, and leaves were stripped off, or they were badly riddled. However, a few hours later when the weeds and trash had wilted down it was noted that without a doubt much good had been accomplished. It seemed apparent that labor could go in and finish the work with no more effort and cost than that necessary in fields blocked and thinned in a timely manner. This was later confirmed when labor actually did finish hundreds of these Dixie Machine blocked acres at regular contract prices.

Again the writer deploras the allowing of fields to get in the condition of those described above. It must be admitted, however, that fields in such condition can be saved by the vigorous employment of the Dixie Machine. The final yields resulting from the above described operation, of course, were poor but in every case they very much more than paid out,

The duty imposed on the Dixie thinning machines by the practice described above was evidently much heavier than was anticipated by the manufacturer. All 12 of our machines finished up the season in bad condition. It was even found necessary to secure from another district, for replacement, six extra gear boxes in order to finish our job.

After the season was completed an examination of the machines revealed several weaknesses, none of which is fundamental and all of which can be rather easily remedied. We recommend that any owner of a machine who expects to work as many as 50 acres of beets under conditions in any degree adverse, make the following changes in his machine; First, double weld knives to existing 1-inch pipe shanks; second, install a 3/8-inch pipe plug in the upper side of each gear case to facilitate the maintaining of sufficient oil in the case; and third, provide a bronze sleeve bearing fitted with an alemite or zerk fitting on each end of gear case ring gear shaft. The cost of this maintenance work is approximately \$30 for each Dixie unit. At present this maintenance work is underway on all of our machines.

It is our opinion that the Dixie beet thinner is a valuable and much needed addition to present-day sugar-beet machinery. We have proved its worth under adverse conditions and next season we are certain that with the further improvement of our seed and our planting methods that we will be able completely to thin many hundreds of acres of sugar beets with our machines.