# A Six-Row Experimental Plot Planter

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There are two general schemes which have been rather generally employed in planting experimental plots. One scheme is to use a can-type commercial planter, the other is to mark the field out ahead of time and plant with a hand-type garden planter, it being necessary in either case to clean out the planter hoppers at the end of each plot. For either of these methods there is always some danger of seed mixture and considerable time is involved in cleaning hoppers. The hand planter has been more generally used in the past at this Station because of its flexibility and because it was not necessary to take such large quantities of seed to the field as when a commercial-type planter is used.

The scheme used previous to 1940 by this Station was to take a bag containing an ample supply of seed to the field, the drill being calibrated for each plot immediately before planting. During the years 1940, '41, and '42 this calibrating was done in the laboratory previous to planting and various means were devised to speed up the field operation. For all the above methods the lot of seed had to be gathered up after each plot and redistributed for each successive replication.

In 1943 a scheme was adopted whereby the required amount of seed for each plot was packed in separate envelopes and all the seed in each envelope was distributed by hand through funnels attached to the drills while one man pushed the drill and another walked alongside distributing the seed. An even distribution of the seed was accomplished with a little practice. This method had the advantage of eliminating the redistribution of seed lots after each replicate, there was no remnant seed to return to the seed inventories, and any possibility of mixture of seed lots in the field was eliminated. The planting operation was speeded up materially by this method. Perhaps the most undesirable feature of this method was a somewhat uneven planting by individual drills, both as to depth of planting and row width.

In order to increase efficiency further and to obtain more uniformity of planting in 1944, six hand planters were attached to a sled framework in a similar manner to that employed in some vegetable- and beet-growing areas. The funnels were attached to the drills as in the previous year with six operators riding on a platform, the entire unit being pulled by a tractor. The operators were more efficient in distributing the seed than in 1943 since their entire attention

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could be devoted to metering the seed through the funnels. The envelopes containing the seed for each operator were arranged in boxes in their proper order according to plots for one complete round of the drill, it being necessary to stop momentarily between each plot while the operator picked up the next envelope and emptied the seed into his hand. This method proved very successful. Disk-type commercial drill units were installed in place of the garden drills in 1945 to improve the planter further. Flexible metal tubes from the funnels to the shoes are to be replaced by smooth plastic or metal tubes in 1946.

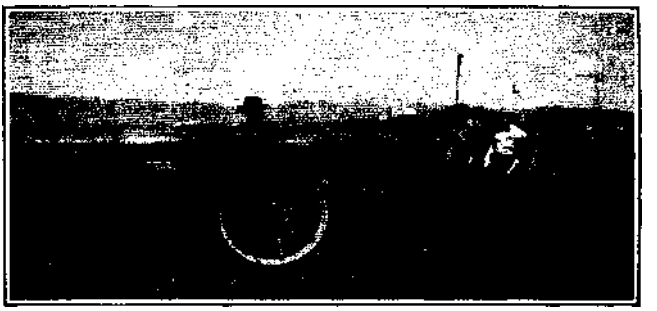
Various views of this planter are shown in figures 3 and 2.

The extent to which the efficiency of the planting operation has been improved is shown in the following table where the results are based on plots 1 row by 28 feet.

| Year | Plots planted per man-hour | Acres per man-hour |
|---|---|---|
| 1939 | 8.6 | .009 |
| 1940 | 14.1 | .015 |
| 1941 | 17.1 | .018 |
| 1942 | 18.2 | .019 |
| 1943 | 28.4 | .030 |
| 1944 | 44.7 | .048 |
| 1945 | 68.8 | .074 |

The apparent gain in efficiency for 1945 over 1944 is due mainly to a higher degree of familiarity with the six-row scheme.

The principal qualification for the drill operators is that they must be conscientious. It is easy to obtain a high degree of uniformity



in distributing the seed where the workers are careful. Plot boundaries must, of course, be established before the planting starts. The plots as planted have been 28 feet in length, but with seed of good quality it would be feasible to hold enough seed in the hand to plant rows two or three times this length. This planter can be used for planting plots of any desired number of rows, it being simply necessary to make up an envelope of seed for each row.

The drill is transported from field to field on a low trailer, and this trailer makes a desirable work bench for arranging the seed in boxes by someone who has the field plan before him. keeping boxes filled for one round in advance of the planter.

The advantages of the six-row experimental plot planter and the present method of planting over types of equipment and methods used previously are:

1. Most of the details of preparing seed for planting may be done during the slack winter months, thereby facilitating a very rapid planting operation.
2. Some possibilities of mixtures and errors which were characteristic of earlier practices are eliminated.
3. Uniformity of depth of planting and width of rows are much improved.
4. Six rows can be cultivated at one time, thus affecting a saving of 50 percent over the four-row cultivator for this operation.