AN IMPROVED VERSION OF THE PLANET JR. MODEL 300-A PLANTER

The Planet Jr. (Model 300-A) planter has been useful in seeding small grain and grain sorghum in Kansas. In some instances, however, poor stands have resulted because of inadequate seeding depth, contact of seed with dry soil, and lack of a device to press the seed into moist soil. Frequently with standard press wheels, dry surface soil rolls over the seed and covers it with dry soil before the press wheel reaches it.

An improved opener, using a 1” × 7” seed-firming semipneumatic press wheel, has eliminated those problems. Construction details are shown in Figure 1. The standard-equipment opener (Part No. 712) is cut at the base of the adjusting shank, the bottom portion (shown at bottom of Figure 1) is discarded and replaced with a point taken from a garden (wheel-hoe) cultivator. New side panels, which prevent dry soil from contacting the seed before it is pressed down by the press wheel, are made from 14-gauge sheet metal and welded to the point.

Figure 2 shows the 300-A planter as modified with the improved opener and seed-firming press wheel. The main frame of the planter is lengthened to make room for the press wheel. Note that the press wheel is located immediately behind the seed drop tube. If soil conditions are such that covering is a problem, a short chain is attached behind the seed-firming press wheel.

Figure 1—An improved opener (showing component parts) made from the Planet Jr. 712 opener.

Figure 2—The Planet Jr. 300-A planter equipped with an improved opener and seed-firming press wheel.

This modified planter is being used on crop production and performance testing projects at Kansas State University. Establishment of good stands has not been a problem since the modifications were made.—C. W. Swallow Jr., F. C. Stickler, and A. L. Clapp, Instructor (Farm Superintendent), Associate Professor, and Professor Emeritus, respectively.

USE OF OCTA-HEXADECANOL AS A TRANSPERSION SUPPRESSANT

Laboratory and greenhouse studies have indicated that the use of fatty alcohols, such as octa-hexadecanol, as transpiration suppressants may reduce water use by plants. The following note presents data on the use of a commercially available product commonly called hexadecanol (1/2 octadecanol and 1/2 hexadecanol in flake form) in a field trial.

The field experiment was divided into two parts: (1) a completely plastic-covered plot experiment in which transpiration and drainage were the mechanisms of water loss from the sampled soil volume, and (2) a set of plots which were treated, but not covered with plastic, in which soil evaporation was an added component of water loss. Each experiment was a complete randomized block with five replications. The experimental variables are given, along with the data, in Table 1. The hexadecanol was applied by hand and disked in on the broadcast plots. The banded application was applied in a band approximately 6 inches deep immediately beneath the corn row after the disking operation.

Table 1—Water use, grain yield, and corn height as influenced by “hexadecanol.”

<table>
<thead>
<tr>
<th>Type of plot</th>
<th>Hexadecanol added Method</th>
<th>Water use, inches</th>
<th>Yield, bu./A.</th>
<th>Plant height (cm.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>June 28</td>
</tr>
<tr>
<td>Open</td>
<td>(Check)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broadcast</td>
<td>0.9</td>
<td>121</td>
<td>75</td>
<td>166</td>
</tr>
<tr>
<td>Banded</td>
<td>0.9</td>
<td>121</td>
<td>75</td>
<td>164</td>
</tr>
<tr>
<td>Plast.</td>
<td>0.9</td>
<td>123</td>
<td>72</td>
<td>160</td>
</tr>
<tr>
<td>Broadcast</td>
<td>0.9</td>
<td>120</td>
<td>71</td>
<td>154</td>
</tr>
</tbody>
</table>

Water use was determined by soil sampling procedures, direct gravimetric sampling and neutron scattering techniques. Five gravimetric samplings per plot were taken at the beginning and end of the test period (7/5/61–9/14/61). Thus the initial and final values of moisture content for each treatment are represented by the mean from 25 separate determinations. Moisture determinations by the neutron scattering technique were taken at two-week intervals throughout the growing season from a single access tube installed near the center of each plot. The data reported in Table 1 were taken from the gravimetric moisture determinations. The neutron sampling data were essentially the same. Corn yields and plant heights were taken in the usual manner.

The data on seasonal water use, corn yields, and plant growth are presented in Table 1. The data show, in both experimental trials, that no statistically significant difference in either water use or corn yield occurred as a result of hexadecanol application. There was, however, a slight, but statistically significant, reduction in plant height associated with the hexadecanol treatments.

On the basis of these results it does not appear that plant transpiration can be reduced by the techniques used in these experiments under similar moisture conditions.—D. B. Peters, Soil Scientist, USDA; and Associate Professor of Soil Physics, University of Illinois; and W. J. Roberts, Engineer, Illinois State Water Survey.

1 Contribution from the Soil and Water Conservation Research Division, Agricultural Research Service, USDA, the Illinois Agricultural Experiment Station, and the Illinois State Water Survey. Received Mar. 12, 1962.