Deep Ripping for Corn Production

Gary Wilson, Extension Agent, Agriculture and Natural Resources
Ed Lentz, Extension District Specialist, Agronomy

Objective

To evaluate the effects of deep ripping on corn yields.

Background

Cooperator: Jim Kuhlman
County: Hancock
Nearest Town: Findlay
Drainage: Naturally poorly-drained
Soil type: Millgrove/Colwood silt loam
Tillage: Conventional till
Previous Crop: Soybeans
Hybrid: NK 45A6

Fertilizer: Broadcast and incorporated May 12
County: Hancock
Nearest Town: Findlay
Drainage: Naturally poorly-drained
Soil type: Millgrove/Colwood silt loam
Tillage: Conventional till
Previous Crop: Soybeans
Hybrid: NK 45A6

Methods

Experimental design was a randomized complete block with three treatments replicated four times. Treatments were fall deep ripping at 8 and 14 inches by an Unverferth Inline Ripper and a zero check followed by conventional practices in the spring. Plots were 40 feet wide and 1,530 feet long. Plot yields were measured with a weigh wagon. Yield was adjusted to 15% moisture. Harvest population was estimated by counting plants from 17.4-foot sections of two center rows per plot.

Results

Table 1. Treatment Means for Yield, Moisture, and Population.a

<table>
<thead>
<tr>
<th>Deep Ripping Depth (inches)</th>
<th>Yield (bu/A)</th>
<th>Harvest Moisture (%)</th>
<th>Harvest Population (plants/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>63.1 a</td>
<td>17.3 a</td>
<td>18,750 a</td>
</tr>
<tr>
<td>8</td>
<td>61.9 ab</td>
<td>17.4 a</td>
<td>19,750 a</td>
</tr>
<tr>
<td>0</td>
<td>55.9 b</td>
<td>17.6 a</td>
<td>21,125 a</td>
</tr>
<tr>
<td>LSD (0.05)</td>
<td>6.7</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>F-test</td>
<td>18.8</td>
<td>&lt;1</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

a Means followed by the same letter within a column are not significantly different.
Discussion and Summary

Deep ripping had larger yields than the zero check at the 14-inch depth. The 8-inch depth was similar to the zero check. However, yields overall were greatly reduced by abnormally hot and dry conditions during the growing season. Normally yields would be between 175 and 200 bu/ A. No differences were detected for harvest moisture and population. Populations were lower than most years, which also may have contributed to lower yields. Conditions were cold and wet during planting which may have caused the stand reduction.

Deep ripping at 14 inches in the fall may be a benefit in stress years. This benefit may have been the result of improved soil conditions for root development. However, yields were so low that conclusive statements should not be made until further research has been completed from a more normal growing season.

For more information, contact: Gary Wilson or Ed Lentz
The Ohio State University