Planting Rates for Determinate and Indeterminate Corn Hybrids
Steve D. Ruhl, Agriculture and Natural Resources Extension Agent

Objective
To evaluate the effect of three different planting rates on yields of hybrids differing in ear growth habit.

Background
Cooperator: Tom Weiler  
Fertilizer: 206-70-99 Ib/A actual N-P-K  
County: Morrow  
Herbicides: PRE: Dual II Magnum (1 qt/A)  
Nearest Town: Chesterville  
Atrazine (1.5 lb/A)  
Soil Type: Chili loam  
Balance (1.0 oz/A)  
Previous Crop: Soybeans  
POST: Clarity (1 pt/A)  
Drainage: Naturally well-drained  
Varieties: Pioneer 34G81  
Tillage: Conventional  
Golden Harvest 2547  
Soil Test: pH 6.5, P 104 ppm,  
Planting Date: May 1, 2000  
K 208 ppm  
Planting Rate: See Methods  
Row Spacing: 30 inches  
Harvest Date: October 23, 2000

Methods
Three different planter rates (24,300, 30,100, and 35,700 seeds per acre) were replicated three times in a complete randomized block design study for each hybrid. Treatment plots for the determinate corn hybrid, Pioneer 34G81, averaged 626 feet in length, and plots for the indeterminate hybrid, Golden Harvest 2547, averaged 594 feet in length. All treatment plots were 12 rows wide. The treatment plots were harvested completely and weighed using a weigh wagon.
Results

Table 1. Corn Population and Yield.

<table>
<thead>
<tr>
<th>Planting Rate (seeds/A)</th>
<th>Pioneer 34G81 Yield (bu/A)</th>
<th>Golden Harvest 2547 Yield (bu/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24,300</td>
<td>133.5</td>
<td>130.7</td>
</tr>
<tr>
<td>30,100</td>
<td>137.9</td>
<td>134.4</td>
</tr>
<tr>
<td>35,700</td>
<td>138</td>
<td>129.2</td>
</tr>
<tr>
<td>F</td>
<td>3.5 - NS</td>
<td>&lt;1 - NS</td>
</tr>
<tr>
<td>CV</td>
<td>5.90%</td>
<td>1.90%</td>
</tr>
</tbody>
</table>

NS = Not significantly different at P = 0.05.

Summary and Notes

According to some seed companies, a "fixed-ear" hybrid is associated with a relatively determinate ear size that limits its potential to compensate for variation in plant population and growing conditions. In contrast, a "flex-ear" hybrid has a more indeterminate ear size, which can adjust for differences in plant population and environment.

This study showed there is no significant difference in yields on the three planting rates used in this one-year, one-location study. Yields were limited at this location in 2000 due to excessive rains in May through June while July through August weather was dry.

Acknowledgment

The author would like to thank the Golden Harvest Seed and Pioneer companies for their donation of the seed used in this study. Also, thanks to Golden Harvest for weighing the corn at harvest.

For additional information, contact: Steve Ruhl
The Ohio State University Extension
ruhl.1osu.edu