The Effect of Plant Population on Corn

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Objective

Numerous studies have been conducted to determine the effect of plant population on corn. Populations have generally increased over the years but there is still a wide variation of populations among producers.

The objective of this study is to determine what population is most economical.

Background

Cooperator:       County Home Farm
County:              Morrow
Nearest Town:   Mt. Gilead
Drainage:           Moderately drained
Soil Type:          Centerburg Silt Loam
Tillage:              No-till
Previous Crop:  Soybeans
Variety:             Croplan 503RR2
Soil Test:           pH = 7.0
                      P = 44 ppm
                      K = 120 ppm
Fertilizer:        N = 147#,  P2O5 = 69#,  K2O=30#
Herbicides:        BicepII Magnum 2.3 qt.
                      Simazine90  1.0 #
                      GramoxonePlus 1.3 pt.
Planting Date:      May 7, 2005
Planting Rate:      See table
Row Width:          30-inch
Harvest Date:    Nov. 25, 2005

Method

This study consisted of four replications in a randomized complete block experimental design. The treatments were 12-rows wide and approximately 500-feet long. All treatments were planted with a J. D. 7000 planter traveling at 4.5 mph. The entire plot was harvested and treatments weighed using a weigh wagon. Populations were counted on June 9th by counting plants in two side-by-side rows for the length of 17-feet 4 inches (1/1000 of an acre) and the average means reported.
Results

Table 1. The Effect of Plant Population on Corn Yield

<table>
<thead>
<tr>
<th>Desired Population at Planting</th>
<th>Counted Population (a)</th>
<th>Cost of Additional Seed, $/acre (b)</th>
<th>Yield (Bu./Ac.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26,100</td>
<td>27,380</td>
<td>-</td>
<td>173.4 A</td>
</tr>
<tr>
<td>30,200</td>
<td>30,580</td>
<td>4.61</td>
<td>178.6 A</td>
</tr>
<tr>
<td>35,600</td>
<td>37,250</td>
<td>10.69</td>
<td>178.8 A</td>
</tr>
</tbody>
</table>

LSD (0.05) = 7.9
CV = 2.58

(a) The average plant population measured on June 9th
(b) The cost per unit of corn used to calculate this value was $90 per 80,000 seed unit. The cost is in addition to 26,100 seeds/acre.

Summary

There was no significant difference between any of the plant populations in this study. These results are similar to those printed by most Universities and seed corn companies.

Acknowledgement

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