Value of Pop Up Fertilizer on Corn

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Objective

To evaluate the impact of applying pop-up, 9-19-9 fertilizer, directly to the corn seed at planting, on grain yield and moisture, and initial plant stand.

Background

Cooperator: Gerber Farms   Soil Test: pH 6.8, P 49 ppm, K 130 ppm
County:        Butler   Fertilization: See Methods
Township:    Wayne   Herbicide:      Atrazine .9 lb,
Drainage:     Somewhat poorly drained   Steadfast .75 oz, Clarity 2 ozs
Soil type:      Fincastle   Row width:    30 inches
Tillage:         No till   Planting date: April 15
Previous crop: Soybeans   Planting rate (seeds/A): 34,000
Hybrid:         Golden Harvest 9563BT   Harvest date:   October 24

Methods

This study used a randomized complete block design with four replications. Each plot was 20 feet wide and various lengths. Four gallons of 9-19-9 fertilizer (4-8-4) was applied with the corn seed at planting in the treated plots. All plots received 150 lbs 21-0-0-26 [(NH4)2SO4] and 150 lbs 0-0-60 in the fall prior to planting. Anhydrous ammonia was applied at the rate of 160 lbs N/ acre in the spring prior to planting.

Five weeks after planting, initial plant populations were determined for each plot by counting plants in 1/1000 acre in three different locations within each plot. Grain yield was measured by weighing the grain in a weigh wagon and adjusting to 15.5 percent moisture.

A harvest error in one of the plots eliminated one block so that results are determined by using the 3 remaining replications.
Results

Table 1. Effect of Pop-up, 9-19-9 Fertilizer, Placed on Corn Seed on Initial Plant Stand, Grain Yield and Moisture

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Population</th>
<th>Yield</th>
<th>Moisture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plants/A</td>
<td>Bu/A</td>
<td>%</td>
</tr>
<tr>
<td>Pop-up</td>
<td>27,833</td>
<td>204.4</td>
<td>18.8</td>
</tr>
<tr>
<td>None</td>
<td>28,277</td>
<td>203.5</td>
<td>18.8</td>
</tr>
<tr>
<td></td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
</tbody>
</table>

Summary

There was no significant difference in yield, moisture of the grain at harvest, or in initial plant population. Even though there was a very slight increase in yield when using the pop-up treatment, the added production did not pay for the increase in cost. The best value should be received in not using a pop-up program.