Phosphorus Response in Corn Study

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Objective
To measure the corn yield effect of added phosphorus fertilizer.

Background
Crop Year: 2014
Location: York Township
County/Town: Darke/Brock
Soil Type: Blount Silt Loam/Pewamo
Drainage: None
Previous Crop: Soybeans/ Cereal Rye Cover

Tillage: No-Till
Soil Test: pH 6.8, P 29 ppm M III, K 105 ppm
Planting Date: May 20, 2014
Nitrogen: 200 Pounds per acre
Seeding Rate: 32,000
Harvest Date: October 17, 2014

Methods
Phosphorus application rate per Tri-State Fertility Guide recommendations versus zero application of phosphorus was replicated four times in a randomized complete block design. Treatments were applied at planting with a 12 row White planter. All treatments received the same tillage, herbicide and non-P fertilizer applications. Seed used was Seed Consultants 1121. Plots were harvested with a commercial combine equipped with a 6 row corn head. Yields were verified using a grain cart. Moistures were taken for each treatment. Yields were shrunk to 15.5% moisture.

Treatments
1. 0 pounds of P
2. 75 pounds of P

Results

<table>
<thead>
<tr>
<th>No.</th>
<th>Treatment</th>
<th>Wet Moisture</th>
<th>Treatment Average (bu./acre)</th>
<th>Economic Return of P Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No P</td>
<td>23.0%</td>
<td>139.2</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Tri State</td>
<td>21.5%</td>
<td>148</td>
<td>-$13.35/acre</td>
</tr>
</tbody>
</table>

LSD = 14.75 (p<0.29); CV 7.48; No Significant Difference.
Summary
Corn yield was not influenced by phosphorus rates compared to Tri-State expected yield effects response. There was no significant difference in yield seen with the different phosphorus rates. An economic comparison between the phosphorus rates of 0 and 75 pounds revealed a $13.35 loss over the net return calculated for each rate. Assumptions were P₂O₅ cost $.53 per pound with corn at $3.00 per bushel.

Acknowledgement
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