**Otter Tail County Soybean Aphid Insecticide Evaluation**

**Cooperator:** Dan and Phil Jennen  
**Nearest Town:** Fergus Falls  
**Soil Type:** Silt loam  
**Tillage:** Disk ripper  
**Previous Crop:** Corn  
**Variety:** Legend 009  
**Planting Date:** May 25, 2002  
**Row Width:** 22"  
**Herbicide:** Rezult at recommended rates  
**Harvest Date:** September 28, 2002  

**Experimental Design:** Randomized complete block with 4 replications

**Purpose of Study**
Evaluate insecticide efficacy and residual control on soybean aphid populations.

**Results**
Insecticides were applied at a ‘late’ time (R3 or the beginning of pod set). All insecticides provided significant reductions in aphid numbers 4 days after treatment. Differences in residual control were evident at the 21 and 28 day evaluations, with better ‘long-term’ control provided by insecticides Warrior T, Asana XL, Actara (not labeled on soybean) and Assail (not labeled on soybean). Yield differences ranged from 6 to 10 bu/a. Much of the increase in yield can be attributed to better seed fill. In this study, the kernel weight and seeds per pound data suggests that the differences, in yield are due to the effects of aphid feeding on grain fill.

**Yield and Protein Concentration Response to Phosphorus Rates**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Oil (%)</th>
<th>Protein (%)</th>
<th>Yield (bu/acre)</th>
<th>Gross Return ($/bu)</th>
<th>Net Return ($/bu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>16.5</td>
<td>31.8</td>
<td>37.6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>0 lb</td>
<td>16.4</td>
<td>32.1</td>
<td>40.2</td>
<td>2.6</td>
<td>$13.00</td>
</tr>
<tr>
<td>15 lb</td>
<td>16.5</td>
<td>32.8</td>
<td>40.1</td>
<td>2.5</td>
<td>$12.35</td>
</tr>
<tr>
<td>30 lb</td>
<td>16.2</td>
<td>32.9</td>
<td>40.9</td>
<td>3.3</td>
<td>$16.50</td>
</tr>
<tr>
<td>45 lb</td>
<td>15.7</td>
<td>32.5</td>
<td>41.6</td>
<td>3.9</td>
<td>$19.60</td>
</tr>
<tr>
<td>75 lb</td>
<td>16.4</td>
<td>33.4</td>
<td>42.6</td>
<td>4.9</td>
<td>$24.60</td>
</tr>
<tr>
<td>LSD</td>
<td>1.0</td>
<td>NS</td>
<td>43.1</td>
<td>5.5</td>
<td>$27.50</td>
</tr>
</tbody>
</table>

* Results based on $5.00 local price
** Results based on P2O5 at $0.22/lb

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**Soybean Phosphorus Rate Evaluation**

**Cooperator:** Ron Peterson  
**Nearest Town:** Crookston  
**Soil Type:** Ulen loamy fine sand  
**Tillage:** Chisel plowed  
**Previous Crop:** Sugarbeets  
**Variety:** Legend 009  
**Planting Date:** May 25, 2002  
**Row Width:** 22"  
**Fertilizer:** 23-60-50 applied as DAP + potash  

**Experimental Design:** Randomized complete block with 4 replications

**Purpose of Study**
To determine if phosphorus fertility is required and at what rate on low testing phosphorus soils in northwest Minnesota with the newer soybean varieties available.

**Results**
There was a yield and protein concentration response to phosphorus rates. Soybean yields increased from 37.6 bu/acre with no added phosphorus to 43.1 bu/acre with the addition of 90 pounds of P2O5/a. Protein concentration increased from 31.8 percent with no added phosphorus to 33.8 percent with the addition of 90 pounds of P2O5.

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