Aspire® Soybean Boron Study

Objectives
• Evaluate the yield response of Aspire® (0-0-58-0.5B) compared to MOP (0-0-60).
• Compare the yield response of Aspire to an MOP + boron (B) blend and MOP + foliar B (V3 and R1).

Overview
• MOP is commonly used as a potassium (K) source in soybean production.
• Micronutrients such as boron are essential for plant growth and are often overlooked in efforts to balance crop nutrition.
• Granular B products can be blended with K, but application of these blends leads to undesirable distribution.
• Aspire is the first-of-its-kind micronutrient-enhanced potash fertilizer. Formed using Nutriform® technology, Aspire combines potassium and boron in each granule to help achieve uniform nutrient distribution of B.

Trial Details
CROP: Soybeans (Glycine max)
YEARS: 2013–2014
LOCATIONS: 20 trials across the U.S. – AL, AR, GA, IA, IL, MN, MO, MS, NC, OH, SC, WI.
DATA SOURCE: Field studies conducted by third-party, independent researchers.
EXPERIMENTAL DESIGN: Small-plot RCBD with 4 replications.
CROPPING CONDITIONS:
• P Rate: As required by soil test.
• K Rate: 60 lbs K₂O/ac
• B Rate: 0.5 to 1.0 lb B/ac
• Application Timing and Method:
  – Aspire, MOP and granular B: Preplant broadcast
  – Soluble B: Foliar treatments applied at V3 (3 unfolded trifoliate leaves) and R1 (beginning of flowering – 1 flower at any node) growth stages.

Results

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<thead>
<tr>
<th>Yield (bu/ac)</th>
<th>55</th>
<th>56.9</th>
<th>56.7</th>
<th>56.9</th>
<th>58.5</th>
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<tbody>
<tr>
<td>Check</td>
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<td>MOP</td>
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<td>MOP + Granular B</td>
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<td>MOP + Foliar B (V3 + R1)</td>
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<td>Aspire</td>
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Boron Rate (lbs/ac) 1.0 0.5 + 0.5 0.5

Summary
• Aspire increased yield by 1.6 bu/ac over MOP and 3 bu/ac over the check.
• A preplant application of Aspire at 0.5 lb B/ac (58.5 bu/ac) outyielded the granular B blend applied at 1.0 lb B/ac (56.7 bu/ac).
• Aspire applied at 0.5 lb B/ac outyielded two foliar applications (V3 and R1) of soluble B at 1.0 lb B/ac.
• The higher yield with Aspire compared to other treatments demonstrates the advantages of uniform nutrient distribution with a premium potash fertilizer containing boron.

Boron toxicity with Granular B at 1 lb, 2 lb and 4 lb B/ac, respectively.