SITUATION
As corn’s fifth micronutrient, boron is often an afterthought. Boron’s impact is most felt when it’s not available. Deficiencies or a complete absence of boron can cause stalks to become barren, ears to twist and yield to suffer. Monitor your crop for these symptoms and take action if a deficiency is determined to be present.

FACTORS TO CONSIDER
• Cell division • Silking • Twisted ears • Drought
• Leaching • Soil tests • Plant tissue analysis • Foliar boron application

ACTION PLAN
1 Understand boron’s role in corn production. Boron serves two primary roles. One is supporting plant cell division. And the second is during the silking stage of development, in which boron helps transfer water and nutrients from the roots up through the plant.

2 Consider moisture conditions. In most soils, boron is released through organic matter decomposition. However, drought conditions essentially halt organic matter decomposition and thus limit boron release. Also, boron is water-soluble, so it can be lost via leaching, particularly in sandy, irrigated soils.

3 Monitor for deficiencies. Twisted ears and barren stalks are preliminary indicators of a deficiency, but both soil tests and plant tissue samples are needed to confirm a boron deficiency — especially since growers are doing a better job of maintaining a more neutral soil pH, which lessens boron availability. To conduct a plant tissue analysis during pollination, examine the leaf opposite the ear. Refer to the chart at right to determine if boron amounts are adequate based on results of these tests.

4 Apply foliarly if needed. Researchers estimate that an acre of corn that produces 150 bushels uptake 0.16 pound of boron. After corn has reached the V5 stage, many growers have had success foliarly spraying boron, incorporating with other products like fungicides or a micronutrient blend product. To prevent toxicity, spray at a rate of 0.1 to 0.5 pound of boron per acre.

SOIL TESTING

<table>
<thead>
<tr>
<th>Parts per million</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 to 0.9</td>
<td>Low</td>
</tr>
<tr>
<td>1 to 5</td>
<td>Adequate</td>
</tr>
<tr>
<td>&gt; 5</td>
<td>Excessive</td>
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</tbody>
</table>

PLANT TISSUE ANALYSIS

<table>
<thead>
<tr>
<th>Parts per million</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 2</td>
<td>Deficient</td>
</tr>
<tr>
<td>2 to 5</td>
<td>Low</td>
</tr>
<tr>
<td>6 to 40</td>
<td>Sufficient</td>
</tr>
<tr>
<td>41 to 55</td>
<td>High</td>
</tr>
</tbody>
</table>

SUMMARY
In years with ample moisture during pollination, the benefits of applied boron are often attributed to other factors. But during drier years in soils with low organic matter or in soils with high pH, boron’s importance is illuminated via poorer ear quality and yield potential.

For help measuring the boron availability in your crop and to determine if a prepollination foliar spray can boost your yield, contact your local Mycogen Seeds customer agronomist or trusted agronomic adviser.


Resources:
University of Minnesota Extension Boron for Minnesota Soils
Purdue University Role of Micronutrients in Efficient Crop Production
University of Idaho Managing Nutrients for Corn Production

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