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### Calculated Nutrients/Acre at 3 Levels of Soybean Production (minus 220 Lbs./acre ‘Fixed’ Nitrogen)

<table>
<thead>
<tr>
<th>Fertilizer Component</th>
<th>Stover Per bushel of Grain</th>
<th>60 bu.</th>
<th>80 bu.</th>
<th>100 bu.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen (N)</td>
<td>25</td>
<td>3.75</td>
<td>30</td>
<td>105</td>
</tr>
<tr>
<td>Phosphorus (P)</td>
<td>10</td>
<td>0.36</td>
<td>32</td>
<td>39</td>
</tr>
<tr>
<td>Potassium (K)</td>
<td>70</td>
<td>1.23</td>
<td>144</td>
<td>168</td>
</tr>
<tr>
<td>Calcium (Ca)</td>
<td>90</td>
<td>0.38</td>
<td>113</td>
<td>120</td>
</tr>
<tr>
<td>Magnesium (Mg)</td>
<td>24</td>
<td>0.20</td>
<td>36</td>
<td>40</td>
</tr>
<tr>
<td>Sulfur (S)</td>
<td>3</td>
<td>0.46</td>
<td>31</td>
<td>40</td>
</tr>
</tbody>
</table>

### Take Home Points

- Biostimulants do not replace fertilizer!!
- BioStimulants and Growth Enhancement products can increase yield potential.
- **Application makes a difference:**
  - Seed vs. In-Furrow vs. Foliar results differ
- To realize yield increases additional inputs such as additional fertilizer may be necessary to capture potential yield increases.

### Factors that Effect Response to Biostimulants/ Growth Enhancement Products

- **Crop**
- **Crop Variety**
- **Biostimulant Rate**
- **Herbicide Applications** (tank mixes, subsequent herbicide applications)
  - Growing Environment
  - Surfactant
  - Timing and Application Method (seed vs. in-furrow vs. foliar)
  - Fertility Levels
**BioStimulant Classes**

- Cytokinins
- Gibberellic Acids
- Brassinosteroids
- Polyamines
- Harpin Proteins

- Jasmonic Acid
- Salicylic Acid
- Lipochito-oligosaccharides (LCOs)
- Several Others

**What are plant responses to biostimulants?**

- Faster growth
- Systemic Activated Response (SAR)
- Increased flowering
- Induced Responses for fighting diseases
- Increased stress resistance, etc.