2006 Solution Days
Understanding Plant to Plant Variability in Corn
Understanding Plant-to-Plant Variability in Corn
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Overview
• Measuring plant-to-plant variability in your fields
• Field diagnostics – understanding the cause of variability
• Five ways to minimize plant-to-plant yield variation
• Planting tips to improve stand uniformity

Plant Yield Variation

Uneven Emergence

Table:

<table>
<thead>
<tr>
<th>Emergence pattern, % of maximum yield</th>
<th>% delayed plants</th>
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<tbody>
<tr>
<td>EEEM</td>
<td>94</td>
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<tr>
<td>EM</td>
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<td>EEMM</td>
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Source: NRCS44
Uneven Spacing

- Yield loss is primarily a result of missing the target population
- Most research show a standard deviation between 2 to 4 is acceptable
- 10% skips can result in a 5% yield loss
- In most studies, doubles increased yields

Measuring Variability

- Plant Spacing
  - Standard Deviations, Doubles and Skips
- Plant Uniformity
  - Leaf stage (early)
  - Plant size, stalk diameter, ear size and placement
  - Nutrient deficiencies on the lower leaves
  - Pollination and Kernel Set

Plant-Soil Relations
Basic Functions of Planting Equipment

1. Meter the seed
2. Cut/handle the residue
3. Penetrate the soil to desired seeding depth
4. Establish seed-soil contact
5. Close the seed-vee
6. Apply fertilizer, insecticide, herbicide, fungicide, etc.

Yield loss because of spacing variability
4 bu/A per inch of SD over 2 inches StdDev

Yield loss because of nonuniform emergence
1-2 leaves behind 50%
3 or more leaves 90%-100%