Soybean Response to Late Planting

Bill Wiebold
University of Missouri Extension
Soybean Planting Progress - Missouri

80% Completed
2009 June 23
2011 June 13
2012 May 20
2013 June 20
2014 June 5
2015 July 10

Portion of expected acreage planted (%)

Source: USDA/NASS
Soybean Planting Progress in 2015
by Missouri District

Source: USDA/NASS
Soybean Planting Progress in 2015
by Missouri District

Source: USDA/NASS
Corn Planting Progress in 2015
by district

Portion of expected acreage planted (%)

Source: USDA/NASS
Focus on Two Impacts from Delayed Planting

Reduced yield potential

Increased vulnerability to season-ending freeze
Focus on Two Impacts from Delayed Planting

Reduced yield potential

Increased vulnerability to season-ending freeze
Crop Productivity and Profitability

- Genetics
- Management

Environment

Delayed planting
When Soybean Yield is Determined (indeterminate variety)

- Number of nodes on stems
- Number of nodes on branches
- Number of flowers
- Number of pollinated flowers
- Number of flowers & pods aborted
- Number of seeds per pod
- Seed size (weight per seed)

Percentage of Soybean Plant Life Cycle
Effect of Short Term Drought Stress on Soybean Grain Yield

Yield as % of Maximum

Vegetative growth
Pod development
Flowering
Seed filling
Effect of Maturity Group and Planting Date on Soybean Development, Portageville

- Jun 16 MG 5
- Jun 16 MG 4
- May 17 MG 5
- May 17 MG 4
- Apr 18 MG 5
- Apr 18 MG 4

Legend:
- R1 to R5
- R5 to R7
Crop Productivity and Profitability

Genetics

Management

Light

Temperature

Water

Environment

Delayed planting
Available Light Energy (MJ/M^2)

<table>
<thead>
<tr>
<th>Month</th>
<th>Available Light Energy (MJ/M^2)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>674</td>
<td>100%</td>
</tr>
<tr>
<td>August</td>
<td>638 (95%)</td>
<td>95%</td>
</tr>
<tr>
<td>September</td>
<td>498 (74%)</td>
<td>74%</td>
</tr>
<tr>
<td>October</td>
<td>406 (60%)</td>
<td>60%</td>
</tr>
</tbody>
</table>
Available Light Energy (MJ/M²)

- **July**: 674 (95%) 656 (88%)
- **August**: 638 (95%) 579 (88%)
- **September**: 498 (74%) 467 (71%)
- **October**: 406 (60%) 343 (52%)
Daily Temperatures (°F)

- MG 4 May 17
- MG 4 June 16

R1 to R5
R5 to R7
R1 to R5
R5 to R7
Daily Maximum Temperatures (°F)

- Apr 1
- May 1
- Jun 1
- Jul 1
- Aug 1
- Sep 1
- Oct 1

Sikeston
Maryville

Temperature Graph
Normal Weekly Precipitation Totals for Sikeston, MO

- **R1 to R5**: MG 4
- **R5 to R7**: MG 5

![Graph showing weekly precipitation totals for Sikeston, MO, with normal weekly precipitation totals indicated.](image-url)
Normal Weekly Precipitation Totals

End Date of 7-Day Period

Sikeston  Maryville

Total Weekly Precipitation (inches)
Effect of Planting Date on Soybean Yield
Portageville

<table>
<thead>
<tr>
<th></th>
<th>April 16</th>
<th>May 17</th>
<th>June 16</th>
</tr>
</thead>
<tbody>
<tr>
<td>MG 3</td>
<td>44</td>
<td>47</td>
<td>48</td>
</tr>
<tr>
<td>Mg 4</td>
<td>57</td>
<td>56</td>
<td>55</td>
</tr>
<tr>
<td>Mg 5</td>
<td>59</td>
<td>57</td>
<td>47</td>
</tr>
</tbody>
</table>
Effect of Planting Date on Corn and Soybean Yields

Percentage of Maximum Yield

Number of days after optimum planting date
Soybean Response to Late Planting

Bill Wiebold
University of Missouri Extension