

## IMPACT OF UNEVEN EMERGENCE IN CORN

### TRIAL OVERVIEW

- Corn yield potential can be affected negatively by uneven seedling emergence. Factors that can adversely affect seedling emergence include:
  - Plant residue (trash)
  - Large soil clods or chunks
  - Poor soil conditions (cool temperatures and excessively wet/dry soil)
  - Poor soil-to-seed contact
  - Uneven planting depth

### RESEARCH OBJECTIVE

- Determine the impact on yield potential of late emerging corn plants.

Location	Soil	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield/Acre	Planting Rate/Acre
Monmouth, IL	Silt loam	Soybean	Conventional	05/09/2016	09/28/2016	NA	36,000 seeds/acre

#### SITE NOTES:

- Marking of seedling emergence
  - Seedlings emerging first were marked with red flags.
  - Seedlings emerging on day 3 or two days after first emerging seedlings were marked with white flags.
  - Seedlings emerging on day 5 or two days after second seedling group were marked with blue flags.
- Harvest
  - Five randomly selected ears from each seedling group were hand harvested.
  - Ears were weighed and average kernels/ear calculated.

### UNDERSTANDING THE RESULTS

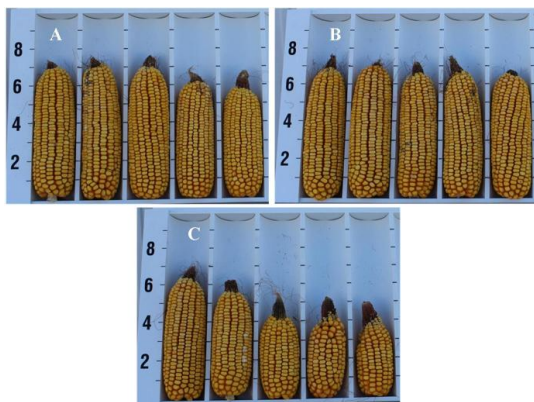


Figure 1. Ear samples of A) Seedlings emerging on day 1; B) Seedlings emerging on day 3; C) Seedlings emerging on day 5.

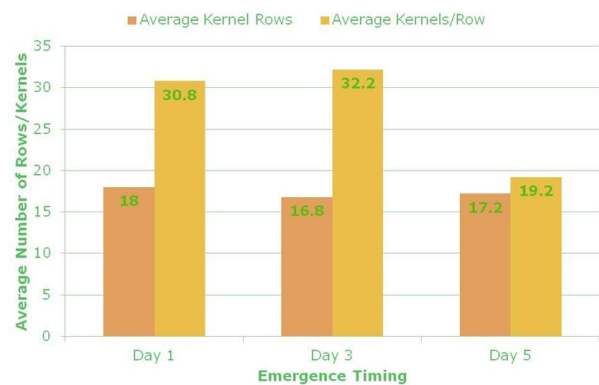


Figure 2. Average kernel rows and kernels/row when corn seedlings emerge erratically.

- Late emerging seedlings suffer from extra competition and struggle to become established.
- Late emerging seedlings exhibit reduced growth throughout the growing season and at harvest have smaller ears, reduced kernel count, and reduced yield (Figures 1, 2, and 3).
  - Figure 1A shows ear samples of seedlings emerging on day 1 (average of 18 kernel rows, 30.8 kernels/row, and 554 kernels/ear).
  - Figure 1B shows ear samples of seedlings emerging on day 3 (average of 16.8 kernel rows, 32.2 kernels/row, and 540.96 kernels/ear).



# DEMONSTRATION REPORT

MONSANTO LEARNING CENTER AT MONMOUTH, IL

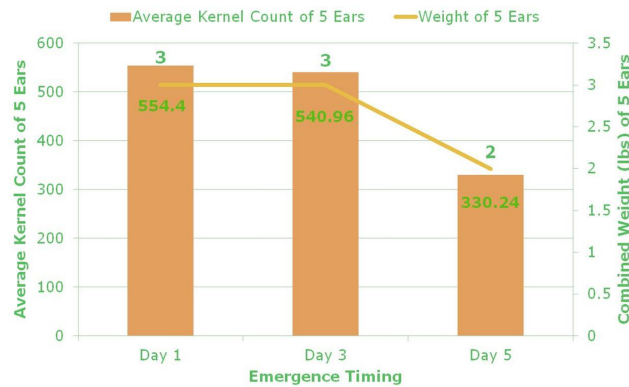


Figure 3. Average kernel count and weight of 5 ears when corn seedlings emerge erratically.

- Figure 1C shows ear samples of seedlings emerging on day 5 (average of 17.2 kernel rows, 19.2 kernels/row, and 330.24 kernels/ear).

- Seedling emergence on Day 1 represents yield potential of 100%, Day 3 represents 98%, and Day 5 represents 60%, respectively.

## WHAT DOES THIS MEAN FOR YOUR FARM?

- Utilization of available tools and techniques can help ensure uniform plant emergence and can help maximize yield potential. Tools and techniques include:
  - Waiting to plant until soil moisture and temperatures are conducive to seed germination.
  - Tilling appropriately to create a uniform seed bed.
  - Planter set and adjusted properly to help ensure even planting depths.
    - Row cleaners properly set to push aside plant residue and soil chunks.
    - Use of seed firmers to help ensure good seed-to-soil contact.

### LEGAL STATEMENT

The information discussed in this report is from a single site, non-replicated demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly. Developed in partnership with Technology Development & Agronomy by Monsanto. Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Monsanto and Vine Design® is a registered trademark of Monsanto Technology LLC. All other trademarks are the property of their respective owners. ©2016 Monsanto Company. 161025111546 11152016