

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

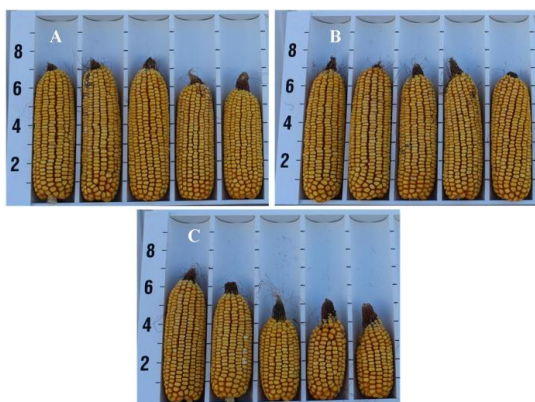


Figure 1. Ear samples of A) Seedlings emerging on day 1; B) Seedlings emerging on day 3; C) Seedlings emerging on day 5.

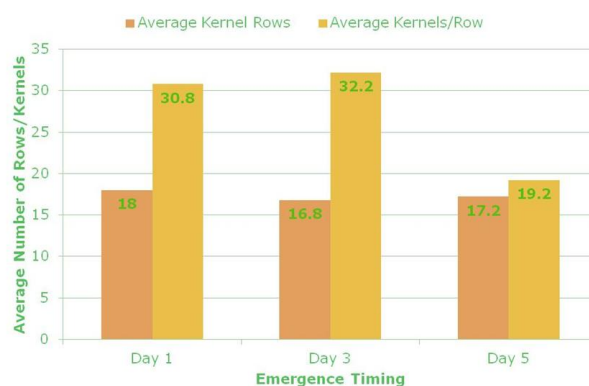


Figure 2. Average kernel rows and kernels/row when corn seedlings emerge erratically.

- 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).

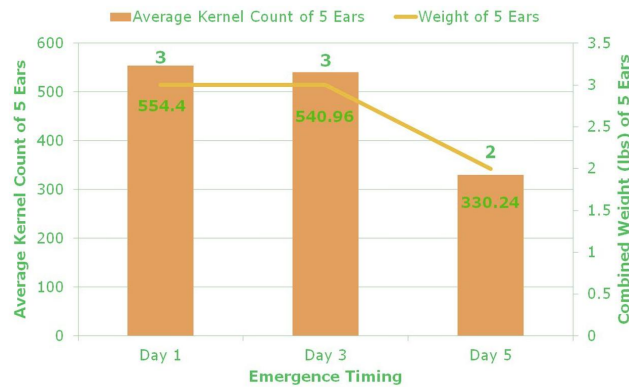


Figure 3. Average kernel count and weight of 5 ears when corn seedlings emerge erratically.

- 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

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