



RESPONSE OF FOUR ASGROW® BRAND SOYBEAN PRODUCTS TO COMMON PLANTING ERRORS

Several different issues can lead to planting errors in soybean production. Sometimes, planting failures may not be realized until seedlings emerge. Growers are often concerned about what should be done once planting mistakes are realized. Should they fill in, replant, or leave the crop as is?

Past research has shown that soybean plants have the ability to adjust growth and development in order to compensate for reduced plant populations. Soybean plants can produce more branches and pods to make up for a reduced population. This study was designed to evaluate the yield response of soybean stands with planting errors of a missing row and either one or two missing twin rows. The results should help guide growers in making decisions about whether to fill in the missing parts of a stand or replant the field.

Data from this demonstration indicates that soybeans have an incredible ability to compensate for reduced populations, whether the population is spread across the field or caused by missing rows. In comparison to a full population check plot, there was no significant difference in yield observed across any of the reduced population treatments. This demonstration indicates that under resource-unlimited circumstances, it would not be necessary to fill in missing rows or replant areas of a field. However, it should be noted that under dryland conditions or a stressed planting system, there may be limitations in the ability of soybean plants to compensate. It is also important to consider that weed control must be a priority with missing rows as weeds may thrive with reduced canopy closure.



Background



- Growers often express concern about planting mistakes that they have made.
 - Mechanical failures may not be apparent until seedlings emerge.
- This study will aid decision making when considering replanting soybeans.

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Background



- Soybean plants have the ability to adjust growth and development to compensate for different plant populations.
- Plants can produce more branches and pods per plant at reduced populations and fewer at higher populations.

Source: Pedersen, P. 2008. Optimum plant population in Iowa. Iowa State University Department of Agronomy. <http://extension.agron.iastate.edu>. Web source verified 10/12/2015.

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Study Guidelines



- A soybean demonstration trial was conducted at the Monsanto Learning Center near Scott, MS to determine:
 - Yield response in soybean stands with missing rows and either one or two unplanted twins in an individual row
 - How well soybeans compensate for missing rows
 - When replanting or filling in a missing part of a stand should be considered

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Study Guidelines



- 4 Asgrow® soybean products were used:
 - AG4232 Brand
 - AG4835 Brand
 - AG4934 Brand
 - AG5633 Brand
- Trial was planted April 29, 2015 and harvested October 1, 2015
- All field work was completed per local standard

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Study Guidelines



- This demo was designed to simulate common planting errors that growers often face in day-to-day farming.
 - Specifically, entire missing rows and missing twin rows caused by mechanical failure that is not apparent until after planting.

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Study Guidelines



- 4 treatments were included:
 - 4-row check plot planted at 145,000 plants/acre
 - 4-row plot with one row missing
 - Peas planted in the missing row and killed out after emergence
 - Planting population of 108,750 plants/acre
 - 4-row plot with one missing twin of the eight in a 4-row pass
 - Peas planted in the missing row and killed out after emergence
 - Planting population of 126,875 plants/acre
 - 4-row plot with two separated twins in the pass
 - Peas planted in the missing rows and killed out after emergence
 - Planting population of 108,750 plants/acre.

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Results and Discussion



Figure 1. Treatment with missing pair of twin rows.

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Results and Discussion



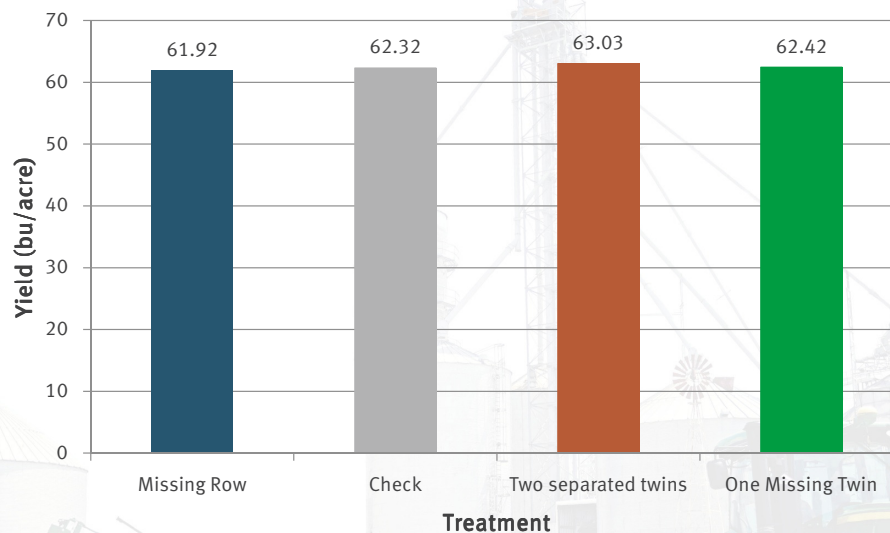
Figure 2. Treatment with one row missing.

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Results and Discussion



Average Yield per Treatment



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Take Aways



- Planting errors often occur in soybean fields.
- Little guidance has been available in the past as to what should be done to these fields.
- Common questions include:
 - When should I replant?
 - Should I fill in missing rows?

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Take Aways



- Demo data indicates that soybeans have a tremendous ability to compensate for reduced populations, whether the plant population is spread across the field or caused by actual missing rows.
- We observed no significant differences in yield across any of the treatments.
- By the end of the season, the only treatment left visibly identifiable was the missing row and it had almost shaded the skipped row.

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Take Aways



- There were no confounding issues but a couple of points should be made:
 - This demo was planted in basically a resource unlimited environment.
 - In a dryland or weaker soil/system, some potential limitation in compensatory ability could be seen, but soybeans will likely always compensate on some level.
 - Weed control in unplanted areas would be important to consider.
 - Shading offers great benefits in weed management and the lack of it would likely cause a need for more aggressive residual weed management programs.

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Legal Statements



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.

For more information regarding the intellectual property protection for the seed products identified in this publication, please see www.asgrowanddekalb.com.

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