

## CORN PRODUCT YIELD ADVANCEMENTS

### TRIAL OVERVIEW

- Corn products are being commercialized at a fast pace as Monsanto’s robust breeding pipeline delivers new products that are designed to increase yield potential and decrease the risk of issues like disease, lodging, and poor emergence. Products may only be on the market for three to five years before they are replaced with a new advancement.
- This study was designed to address the question of whether more recent products are significantly better than older products under the growing conditions on the Great Plains.

Newer corn products	Year of launch	Trait package	Older corn products	Year of launch	Trait package
110RM-A	2016	SSRIB	113RM-B	2006	CONV
114RM-A	2016	SSRIB	111RM-A	2007	VT3
110RM-B	2013	SSRIB	113RM-C	2011	VT3PRIB
113RM-A	2017	SSRIB	106RM-B	2011	SSRIB
106RM-A	2016	SSRIB	110RM-C	2001	CONV
114RM-B	2013	SSRIB			

CONV = Conventional, SSRIB = SmartStax® RIB Complete® corn blend, VT3 = YieldGard VT Triple®, VT3PRIB = Genuity® VT Triple PRO® RIB Complete® corn blend

Table 1. Corn product details

### RESEARCH OBJECTIVE

- To evaluate the performance of older corn products (released between 2001 and 2011) and more recent corn products (released between 2013 and 2017) under two irrigation treatments and two seeding densities.

Location	Soil	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield/Acre	Planting Rate/Acre
Gothenburg, NE	Hord silt loam	Soybean	Strip tillage	05/08/2017	10/24/2017	250 bu/acre	28,000 and 36,000 seeds/acre

SITE NOTES:

- The study was a split-plot design with irrigation as the whole plot and seeding rate as the subplot and had four replications.
- Eleven corn products were utilized with RMs ranging from 106 to 114 (Table 1).
- Two irrigation treatments were utilized: 100% full irrigation (FI) to meet the evapotranspiration needs of the crop and 25% of FI, amounting to 9.2 and 2.7 inches of irrigation, respectively.
- The number of barren plants and plants that died prematurely were counted in each plot prior to harvest.

### UNDERSTANDING THE RESULTS

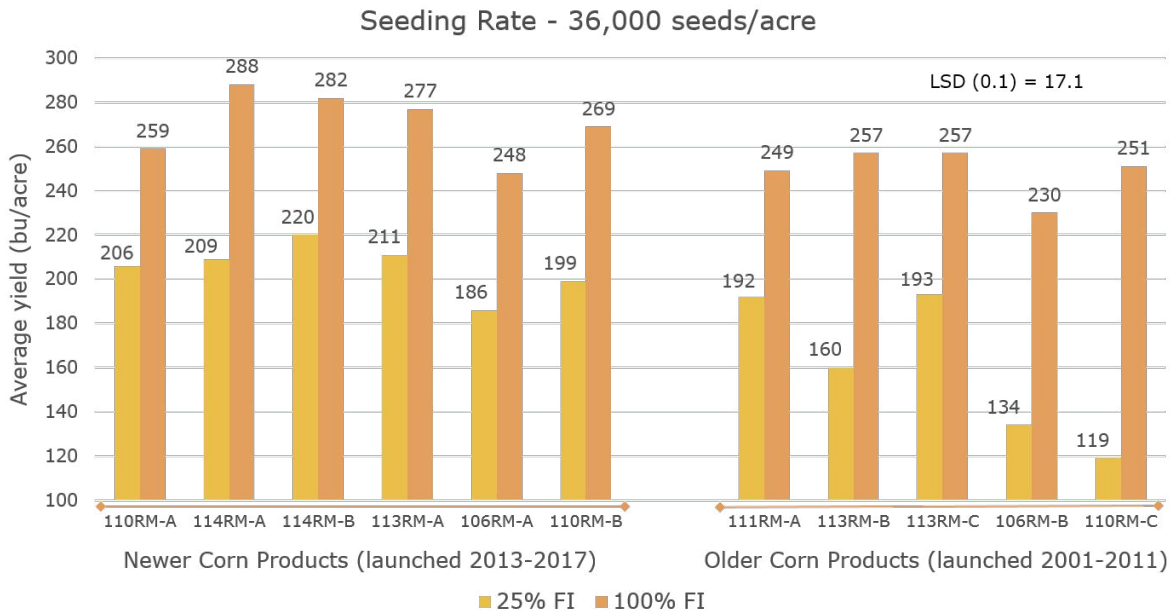


Figure 1. Yields by irrigation treatment at the 36,000 seeds/acre seeding rate

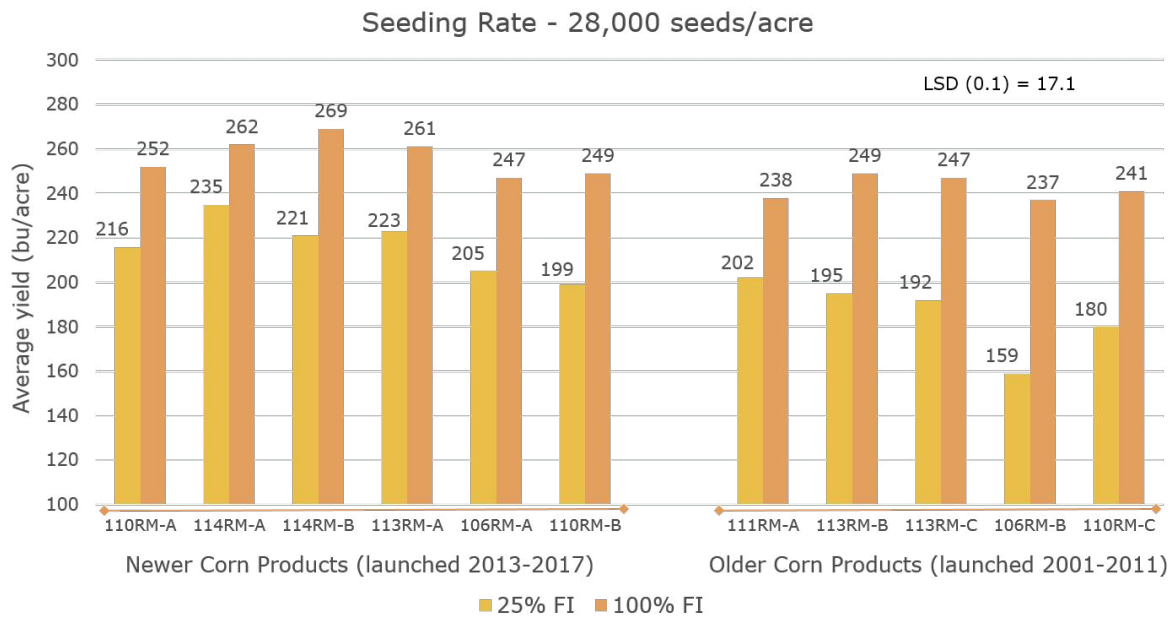


Figure 2. Yields by irrigation treatment at the 28,000 seeds/acre seeding rate



Figure 3. Comparison of ears from the newer (bottom, launched between 2013-2017) and older (top, launched between 2001-2011) corn products



- Overall, average yield was higher for the newer corn products compared to the older corn products at the 100% and 25% FI treatments.
- The newer corn products tested yielded more at higher seeding rates regardless of irrigation environment.
- Corn product stability improved for the newer products in both seeding rates. This is highlighted in the 25% FI environment in which the older 110RM-C product yielded 119 and 180 bu/acre at the 36,000 and 28,000 seeds/acre seeding rate, respectively, while the newer 110RM-B product yielded 199 and 199 bu/acre at the 36,000 and 28,000 seeds/acre seeding rate, respectively. In this example, the newer corn product had higher yields overall and did not have a significant reduction in yield at the higher seeding rate like the older corn product did.
- There was an interaction between corn product, seeding rate, and irrigation environment for barren plants and plants that died prematurely. The general trends across seeding rates and irrigation environments were that:
  - Newer corn products had less barren plants, ranging from 0.6 to 1.8 barren plants/plot compared to the older corn products that had 1.4 to 6.5 barren plants/plot.
  - Newer corn products had less plants that died prematurely, ranging from 0.3 to 0.8 dead plants/plot compared to the older corn products that ranged from 0.8 to 6.3 dead plants/plot.

## WHAT DOES THIS MEAN FOR YOUR FARM?

- Farmers can be confident that newer corn products will likely perform better than older corn products across different irrigation environments and seeding rates. Proper placement of these products will provide a better opportunity for farmers to realize higher yield potential.
- Significant improvement has been made in the ability of the newer corn products tested to yield more in water-limited environments compared to older corn products. This is visually demonstrated in Figure 3 in which ears were collected from 17 feet of row for the newer 110RM-B product (bottom) and the older 110RM-C product (top) in the 25% FI treatment. The newer product had larger ears and a greater number of completely filled ears compared to the older product. This likely stems from the newer product's ability to better pollinate under stressful conditions.

### LEGAL STATEMENT

The information discussed in this report is from a single site, replicated demonstration. This information 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 additional agronomic information, please contact your local seed representative. Developed in partnership with Technology Development & Agronomy by Monsanto.

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**B.t. products** may not yet be registered in all states. Check with your Monsanto representative for the registration status in your state.

**IMPORTANT IRM INFORMATION: RIB Complete®** corn blend products do not require the planting of a structured refuge **except** in the Cotton-Growing Area where corn earworm is a significant pest. SmartStax® RIB Complete® corn blend is not allowed to be sold for planting in the Cotton-Growing Area.

**See the IRM/Grower Guide for additional information. Always read and follow IRM requirements.**

**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.

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