



2014 DEMONSTRATION REPORT Monsanto Learning Center at Monmouth, IL

Corn Yield Response to Relative Maturity and Planting Dates

Background

- Corn product selection is based on several factors including insect protection, disease rating, expected potential yield, and the geographic location.¹
- Planting during the early part of the planting window can provide the highest available growing degree units (GDUs) to help maximize yield potential.³
- As planting is delayed, corn generally requires 1.6 GDUs less each day to reach flowering and 6.8 GDUs less each day to reach physiological maturity (black layer).^{2,3}
- Does delayed planting affect yield and warrant a switch of corn products based on relative maturities?

Study Guidelines

This study evaluated the relationship between planting date and corn product selection based on product relative maturities (RM).

- Three planting dates were established:
 - Early-planting 4/21/2014
 - Mid-planting 5/5/2014
 - Late-planting 5/22/2014
- Three corn products were used:
 - 105 RM Genuity® SmartStax® RIB Complete® corn blend
 - 113 RM Genuity® SmartStax® RIB Complete® corn blend
 - 116 RM Genuity® SmartStax® RIB Complete® corn blend

Field Management

- A corn- soybean rotation was used
- Conventional tillage consisting of chisel plow in the fall and soil finisher in the spring
- Nitrogen application that was prior to plant of 200 pounds per acre of 32% urea ammonium nitrate

Demo Set-up

- Plot size: 10' x 100' (0.023 acres)/treatment
- 30 inch single rows, 4 rows/treatment with 2 replications
- Location: Monmouth Learning Center, IL
- Plots were harvested on 10/1/14 and yield data was adjusted to 15% moisture content

Results

In all products studied, yields were highest at early planting and then declined with later planting.

- At each planting date, yield was directly related to relative maturity (RM).
 - The 116 RM product gave the highest yield, followed by the 113 RM and then the 105 RM product except at late planting yields the 113 RM and 116 RM products yields were similar but higher than the 105 RM product.
- The magnitude of yield difference between the RMs decreased with delayed planting.
 - At early planting, yields were 9% and 18% higher in 116 RM than in 113 RM and 105 RM, respectively and 9% higher in 113 RM than in 105 RM.
 - At mid planting, yields were 6% and 15% higher in 116RM than in 113 RM and 105 RM, respectively; and 8% higher in 113 RM than in 105 RM.
 - At late planting, 113 RM and 116 RM out-yielded 105 RM by 6% respectively in both cases.
- Yields across products
 - Yields were higher in early planting than in mid and late plantings by 8 bu/acre (3%) and 33 bu/acre (14%), respectively.
 - Yields were higher in mid planting than in late planting by 20 Bu/A (9%).



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- Yields across planting dates
 - 116 RM out-yielded 113 RM and 105 RM by 12 bu/acre (5%) and 30 bu/acre (13%), respectively.
 - 113 RM out-yielded 105 RM by 18 bu/acre (8%).
- In general full-season products will still safely mature prior to the average date of a killing fall freeze.³
- In most production systems, it is important to try and minimize risks by planting a package of products that range in GDU requirements to flowering and maturity.

Summary

- The results indicate that regardless of the planting date, a full-season, well-adapted product should be chosen as long as enough GDU remain to achieve black layer.³

Keypoints

- The main reason farmers contemplate switching to earlier maturity products with delayed planting is to reduce the risk of immature and wet grain in the fall.
 - Keep in mind, the increased yield potential of full-season products can outweigh the increased cost of drying in the fall.^{1,2}

Sources:

¹Central & Northern IL delayed corn planting recommendations. Alert, Technology Development & Agronomy, JMG05082013.

²Southern Illinois late corn planting recommendations. Alert, Technology Development & Agronomy, EJP04252013.

³Brouder, S., Casteel, S.N., Camberato, J.J., et al., 2014. Corn and soybean field guide. ID-179. Purdue University Extension <http://ag.purdue.edu>. Web sources verified 11/15/14.

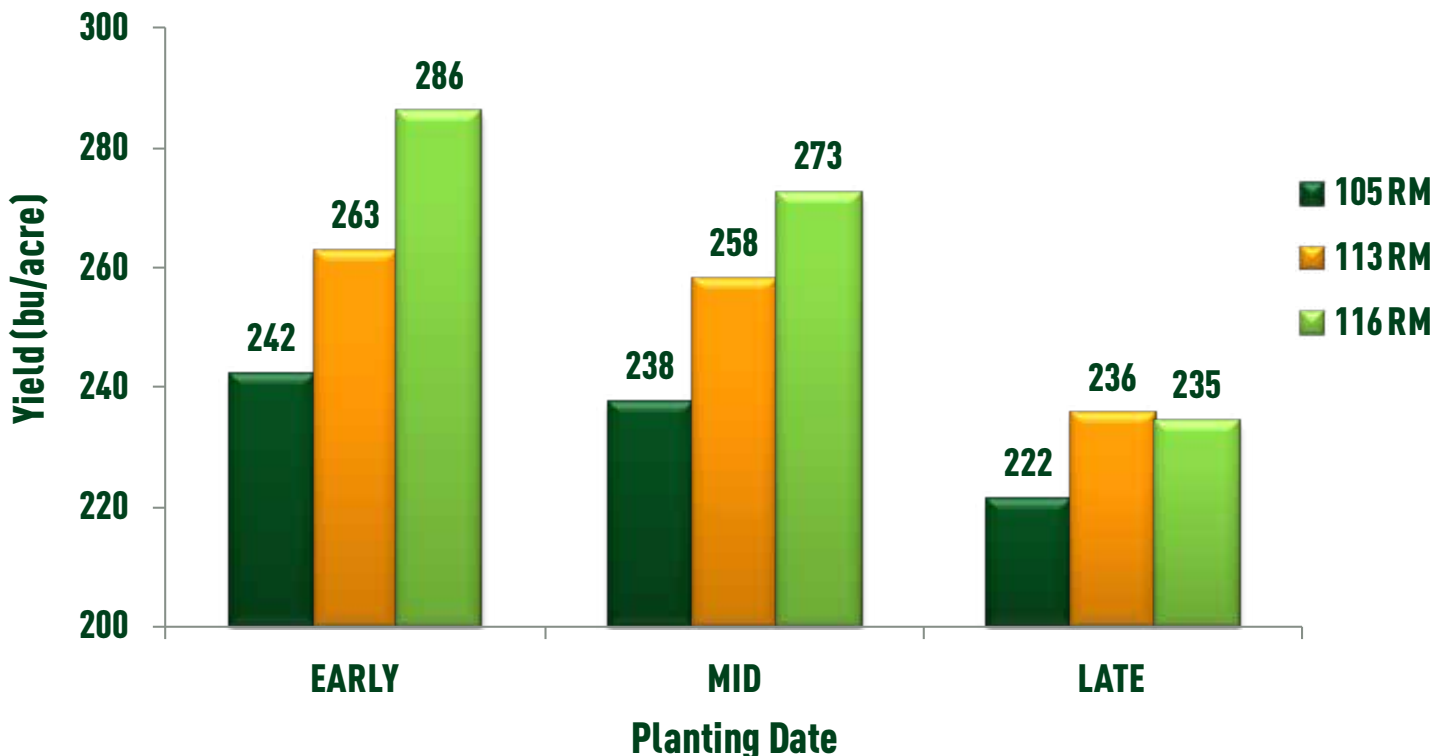


Figure 1. Yield response to planting date for corn products with different relative maturities



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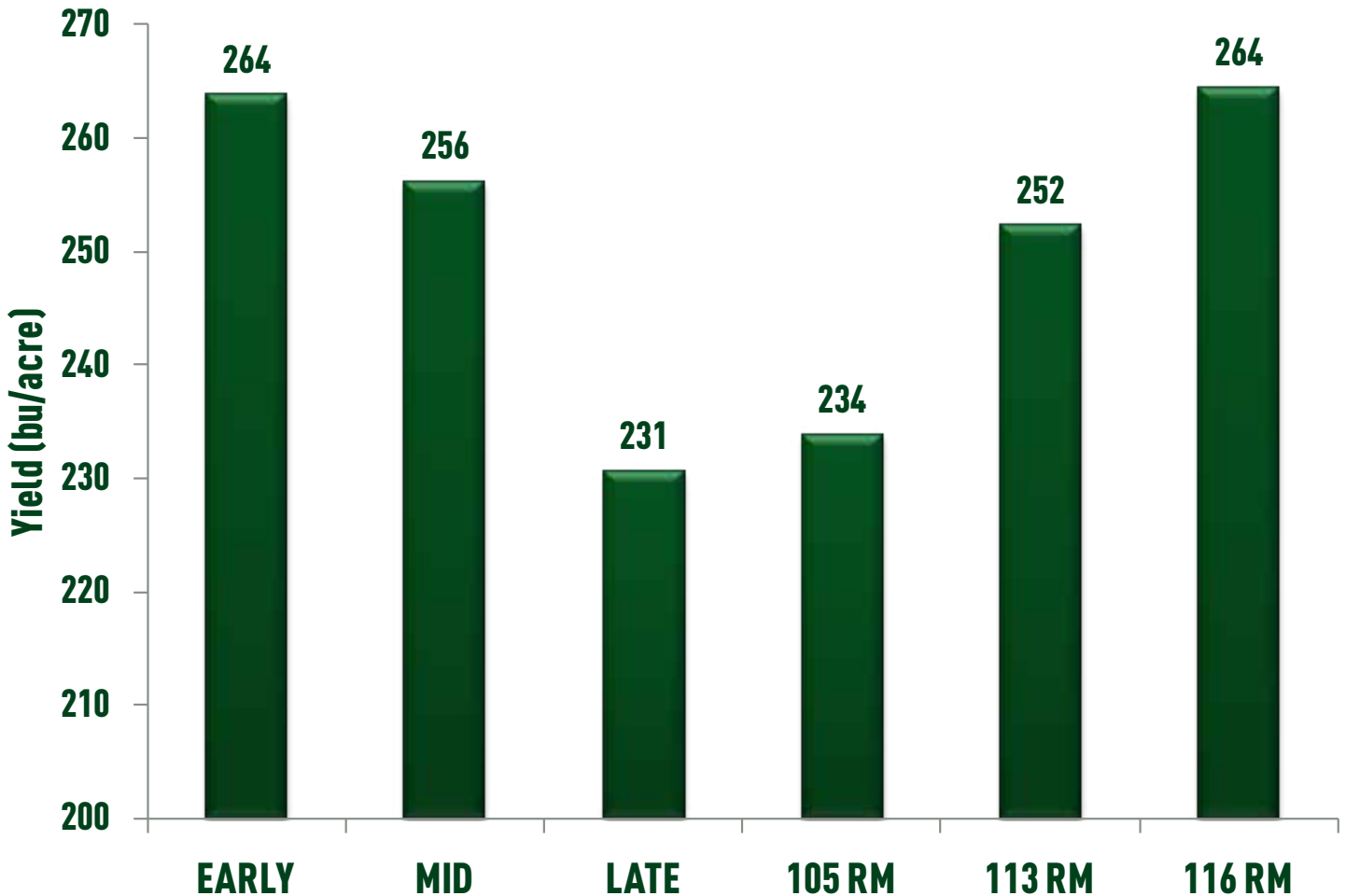


Figure 2. Mean corn yield response to planting date and relative maturity

Legals

The information discussed in this report is from a single year 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.

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IMPORTANT IRM INFORMATION: Genuity® 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. 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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