Yield Observations When Shifting to Earlier Relative Maturity Soybeans

Trial Overview

- We continue to see a growing trend for soybean growers to plant "early" soybean products and manage them at a higher level with seed treatments and foliar applications of fungicide and insecticide. This phenomenon, dubbed "relative maturity (RM) shift" is becoming increasingly important in some locations.
- There are many benefits of planting "early" soybeans including, but not limited to, earlier harvest timing, earlier cover crop seeding, and risk management benefits.
- The objective of this study was to determine the yield impact of planting "early" RM soybean products compared to planting normal RM products for the location.

Research Site Detials

Location	Soil Type	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield (bu/acre)	Planting Rate (seeds/acre)
Storm Lake, IA	Silty clay loam	Corn	Vertical	5/1/20	9/15/20, 9/22/20	65	150,000
Marble Rock, IA	Silt loam	Corn	Strip-till	5/2/20	10/4/20	55	150,000
Huxley, IA	Clay loam	Corn	Strip-till	5/1/20	9/30/20, 10/8/20	60	140,000
Atlantic, IA	Silty clay loam	Corn	Conventional	4/25/20	10/6/20	70	150,000
Victor, IA	Silty clay loam	Corn	Conventional	4/28/20	9/23/20, 10/8/20	65	140,000

Site Notes

- The trial consisted of two sets – North and South.
- There were five locations planted:
  - North set – Storm Lake, and Marble Rock
  - South set – Huxley, Atlantic, and Victor
- Each set consisted of 18 unique soybean products.
  - Nine soybean products were considered early RM for the location:
    - North set – 1.1 to 1.9 RM
    - South set – 2.0 to 2.6 RM
  - Nine soybean products were considered normal RM for the location:
    - North set – 2.0 to 2.6 RM
    - South set – 2.9 to 3.7 RM
  - The 2.0 to 2.6 RM group consisted of the same nine soybean products for both of the North and South sets.
- The trial included a mix of plot sizes, replications (reps), and row spacings:
  - Storm Lake (2 reps): six row strips with 20-inch row spacing

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  - » Atlantic (2 reps) and Marble Rock (3 reps): four row strips with 30-inch row spacing
  - » Huxley (2 reps): six row strips with 30-inch row spacing
  - » Victor (1 rep): eight row strips with 30-inch row spacing
- Average rainfall during the growing season was very low compared to long term averages with 3 to 15 inches less rainfall, depending on location.
- Marble Rock was impacted the least with 3 inches less and Atlantic the most with 15 inches less rainfall.

Understanding the Results

- With earlier planting dates in 2020 and rainfall events in September, the effects of RM selection on average soybean yield pointed to a clear advantage of 10.8 bu/acre for the normal RM group (Figure 1).
- For the three years tested (2018-2020, Figure 2) the normal RM group has an advantage of 6.5 bu/ac.

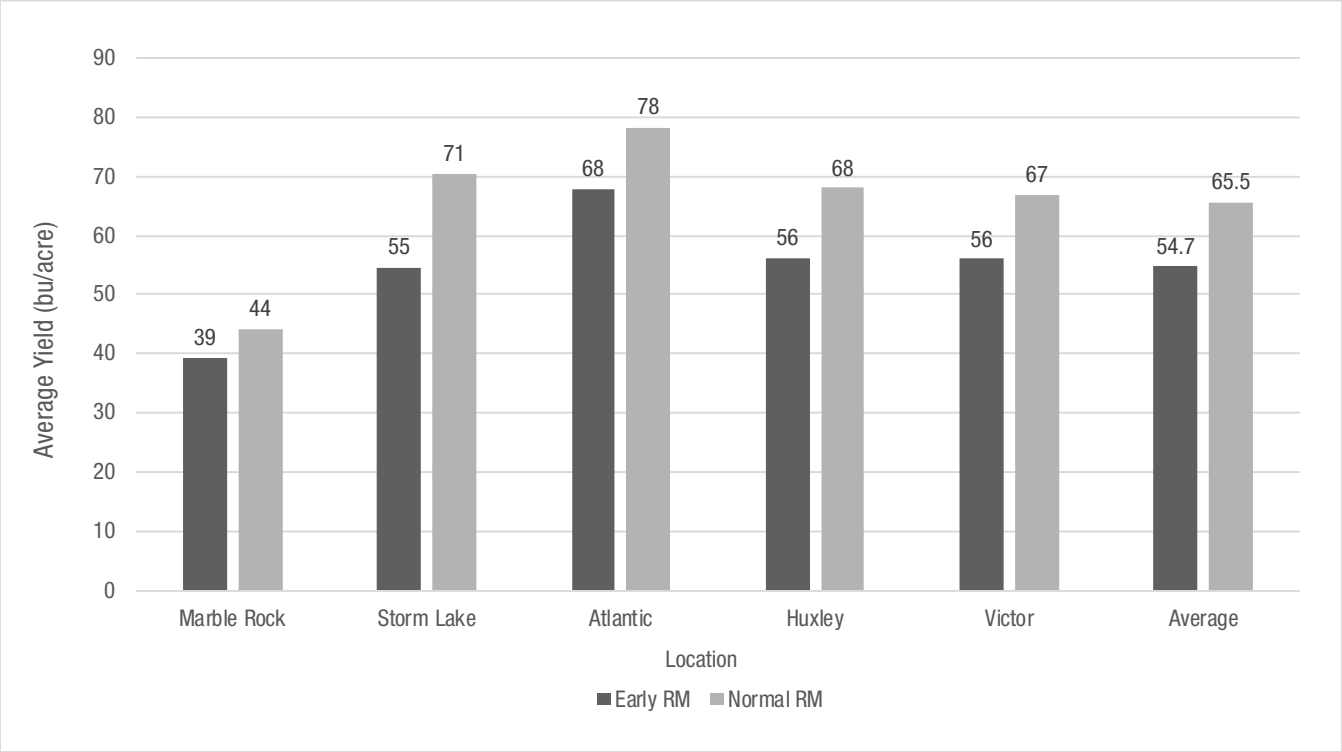

Figure 1. Relative maturity effects on the yield performance of 18 soybean products at Marble Rock, Storm Lake, Atlantic, Huxley, and Victor, Iowa in 2020. Data represents the average yields of nine products in each RM group for each location and the average across all locations.

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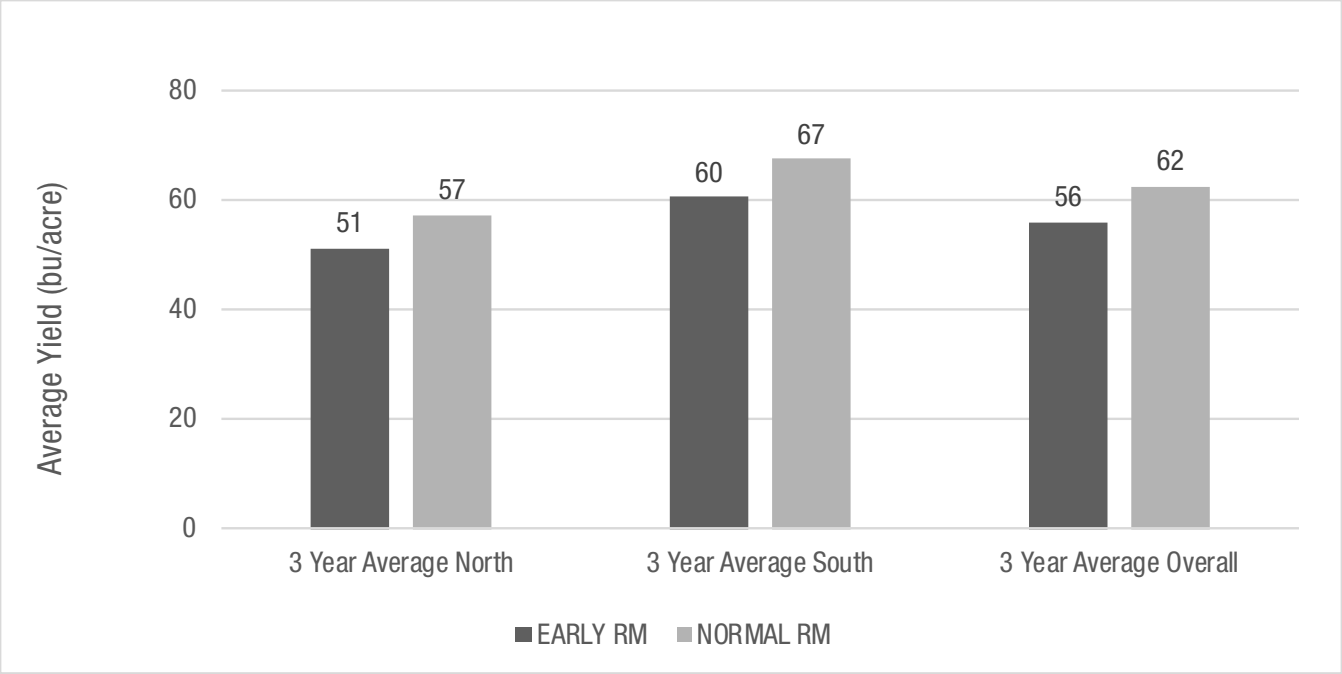

Figure 2. Relative maturity effects on the yield performance of soybean products across Iowa from 2018 through 2020. Data represents the average yields of 30 data points per RM group per North and South locations.

What does this mean for your farm?

- In 2020, the early RM soybean products yielded, on average, 10.8 bu/acre less than the normal RM soybean products and ranged between 5 to 16 bu/acre less than normal RM soybean products for all locations.
- In 2020, late season rainfall was less than normal. Rains returned the second week of September when the early RM soybean products were mostly mature and the normal RM soybean products were in pod-fill stage, increasing yield potential.
- Over three years of testing, 2018 had the most competitive results for the early RM soybean products. Results from 2019 and 2020 have favored the production of normal RM varieties.
- More research should be conducted in the genetic pipeline to better understand which soybean products can be grown south of their typical production area.
- It should be noted that a RM shift may not be applicable for every operation and any potential benefits can be defined in terms other than yield.

Legals

The information discussed in this report is from a multiple site, 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.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.