Optimizing Soybean Maturity Group and Population Selection across Planting Date

Rachel Vann and Tristan Morris

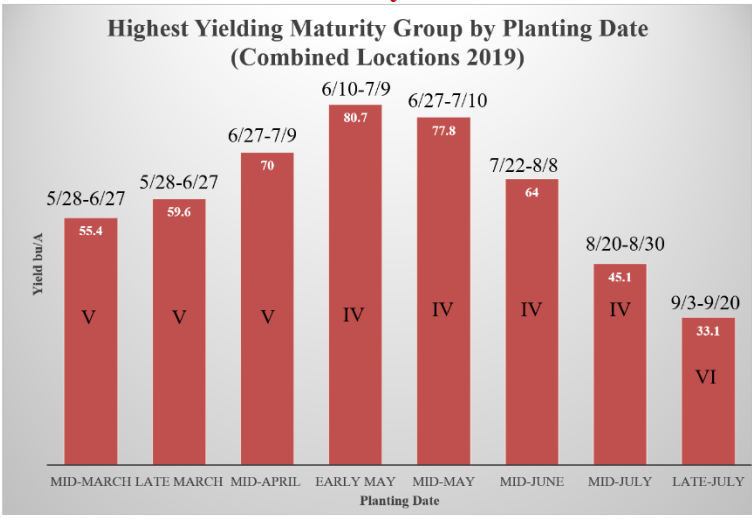
Introduction

- Planting date and maturity group are two of the most important predictors of yield in NC soybean production. Producers in the state plant soybeans from early April through mid-July and use MG II-VIII. Seeding rate adjustments often occur as planting date is delayed. Generating a robust dataset to understand planting date and maturity group influences on soybean yield in this state will be critical to narrow the yield gap.

Materials and Methods

- Planting dates from mid-March through mid-July
  - MG II-VII
  - Seeding rates 75,000 to 175,000 seeds/A
- 2019 research sites: Currituck Co, Hyde Co, Union Co, Sampson Co, Yadkin Co
  - 2020 research sites: Beaufort Co, Robeson Co, Rowan Co
- Data collected: soil temperature at planting, soil moisture at planting, soybean stand (V1-V3), flowering date (R1-R2), grain yield, grain quality, and weather conditions throughout the season.

Preliminary Results



- Notes from Beaufort Co 2020: Excessive kudzu bug pressure in the early April planting date. Earliest flowering (6/2/2020) was observed with MG II planed in early April.

Value of Fungicidal Seed Treatment across Planting Date

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Introduction

The Soybean Extension Program has conducted research over the past few years (2014-2018) evaluating the effect of various seed treatments on soybean yield. In these trials, it was found that there was no impact of fungicidal seed treatments on soybean yield (P=0.69). These trials were generally planted from mid-May through early July with a maturity group V or VI soybean variety and only a few fungicidal seed treatments were evaluated. The goal of this project is to more robustly evaluate fungicidal seed treatments across earlier planting dates with earlier maturing varieties.

Materials and Methods

- Planting dates from late March to mid-June
- MG III-V
- 4-5 fungicidal seed treatments
- 2019 research sites: Beaufort Co, Sampson Co, Yadkin Co
- 2020 research sites: Beaufort Co, Robeson Co, Rowan Co
- Data collected: soil temperature at planting, soil moisture at planting, soybean stand (V1-V3), grain yield, grain quality, and weather conditions throughout the season.

Preliminary Results

- A fungicidal seed treatment protected stand at two of the three 2019 locations across planting dates and maturity groups.
- In both 2019 locations where soybean yield was harvested, the use of a fungicidal seed treatment protected yield (+5.9-6.9 bu/A) across planting date and maturity groups.

Planting Date	Soil Temp at planting (°F)	FST Yield vs Untreated (bu/A)
Late March	61	+9.1
Mid-April	75	+5.9
Mid-May	80	+2.4

- Soybean yield was impacted similarly by all fungicidal seed treatments evaluated.
- We have had an excessively wet spring in 2020; very interestingly we have seen minimal impact on soybean stand from the use of a fungicidal seed treatment this year. Stay tuned for yield results.

Foliar Feeding Soybeans

Rachel Vann

Introduction

Many soybean growers are interested in the use of foliar fertilizers, and multitudes of products are marketed to growers. Growers often use these products while applying fungicides and/or insecticides during early soybean reproductive development. However, with low profit margins, the effect of foliar fertilizers on soybean yield and economic return is important to understand. Here, we evaluate commonly marketed foliar fertilizer products across the U.S. This will help us identify environmental and soil factors where yield response to foliar fertilizers is most likely to occur.

Materials and Methods

- Various nationally selected foliar fertilizer products evaluated
  - Applied at soybean growth stage R3 (beginning pod)
  - 2019 research sites: Currituck Co, Sampson Co, Yadkin Co (20 national sites)
  - 2020 research sites: Beaufort Co, Edgecombe Co, Rowan Co (24 national sites)
- Data collected: Soil nutrient levels, tissue nutrient levels (PRE and POST application), soybean yield, soybean quality

Preliminary Results

No impact on soybean yield at any NC sites in 2019, consistent with >95% of sites nationally. Yield environments ranged from 27 to 83 bu/A.

Beaufort Co Research Plots 7/25/2020

For more information please visit the **NC State Soybean Extension Portal** (soybeans.ces.ncsu.edu)

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