Field Crops Virtual Breakfast

7:00 – 7:30 a.m.

Every Thursday from April 16 – Sept. 10, 2020

"Corn & Soybean Planting Considerations"

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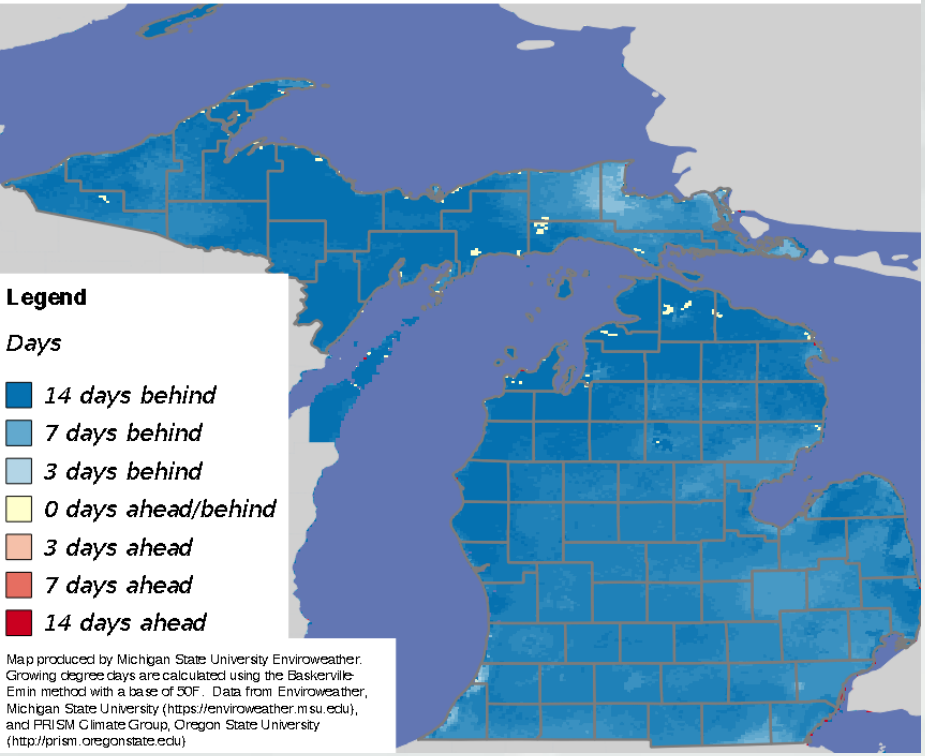
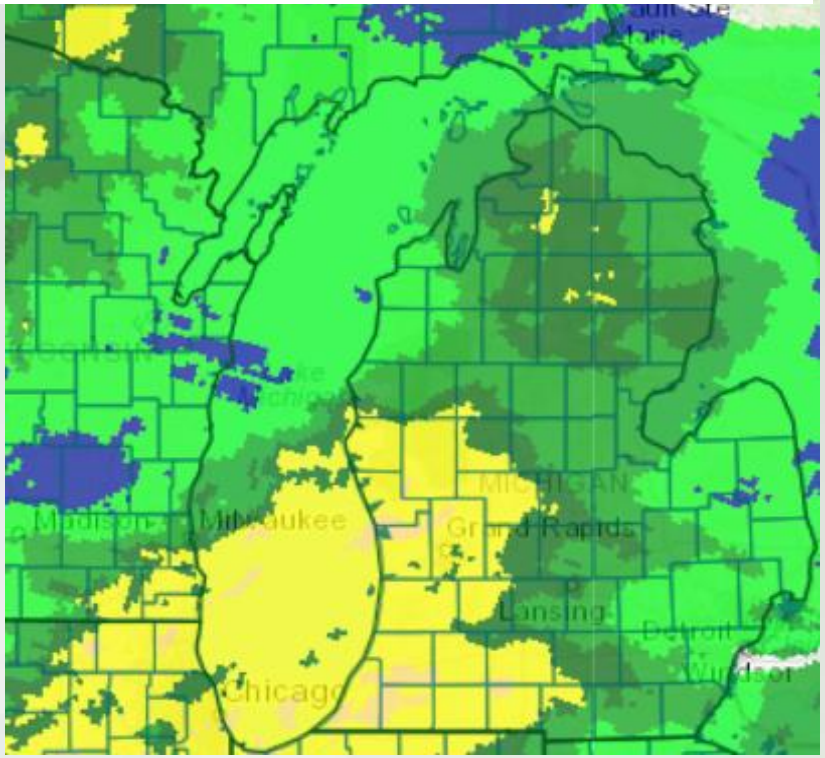
MICHIGAN STATE UNIVERSITY | Extension

2020 Spring & Planting Progress

Heat accumulation compared with normal (in days): March 1 - April 28, 2020



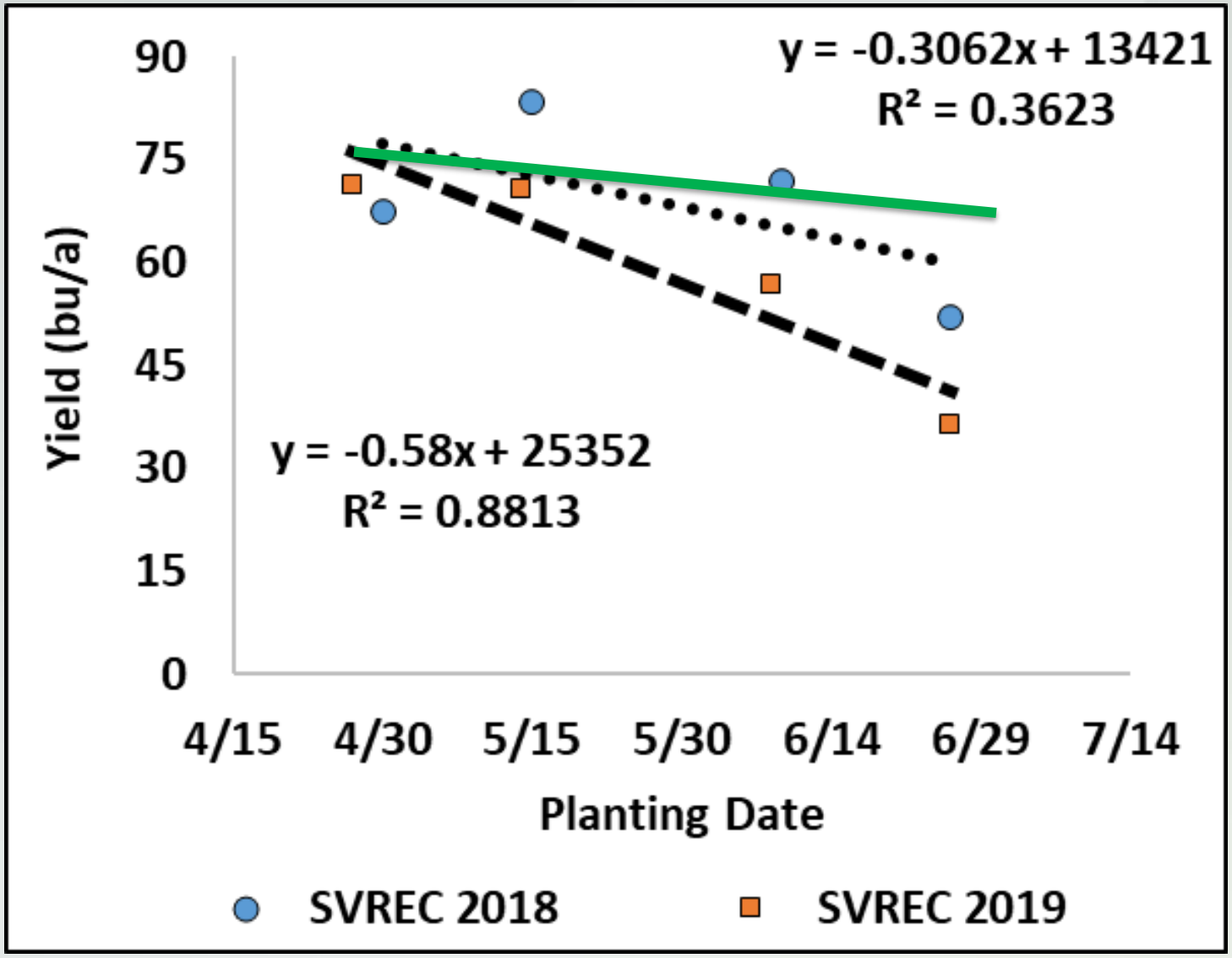
Precipitation- Last 14 days



- Cool and wet weather, leading to slow start of field activities
- Corn at 3% and soybean at 4% planted as of April 26

Planting Time	Conditions
Early Season (late April – early May)	• Cool, wet soil • Extended growing season
Mid Season (mid May – early June)	• Typically adequate soil temperature and moisture
Late Season (mid June – late June)	• Lack of soil moisture • Growing season is shortened

Planting Time Impacts Yield in Michigan



How to Improve Yield Potential

OR Minimize Input Cost

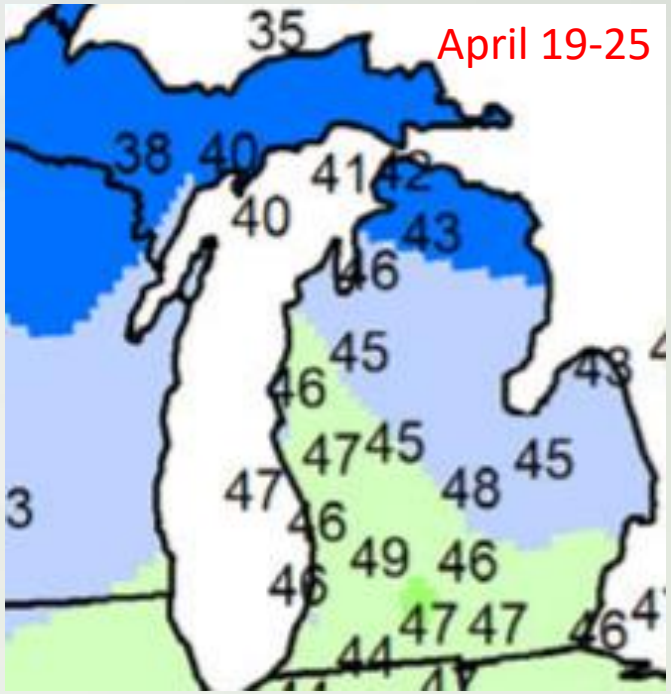
Increased Profit

Field Conditions

- **Soil Moisture**: avoid tilling/planting when soil is wet ("mudding it in")
  - Soil Compaction
  - Side-wall compaction
  - Non-ideal seed placement
  - Poor seed-to-soil contact

Figure 1. Sidewall compaction from planting into marginal conditions (photo: ISUEO).

- **Soil Temperature**
  - Wait for soil temp ~50°F and rising
  - Imbibition chilling injury at <50°F
  - Slow emergence and initial growth



Source: USDA

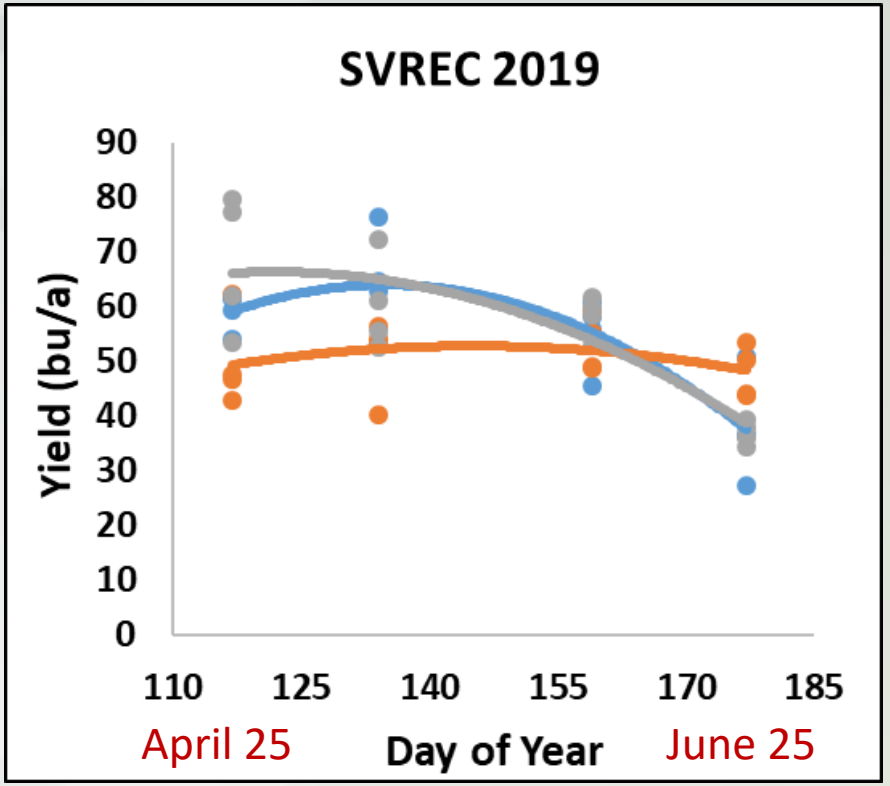
Planting Time

- Planting window vs calendar date
- Optimum window: end-April to mid-May
- Plant in good soil conditions, as planting in marginal soils can limit yield
- Mid- to end-May planting can still result in high yield

- What to plant first: corn or soybean?
  - **Field conditions** (texture, drainage)
  - Equipment availability

Maturity Selection- Soybean

- **Early-season planting**:
  - Late-maturity varieties
- **Mid-season planting**:
  - Mid- & early-maturity varieties
- **Late-season planting**:
  - Early-maturity varieties



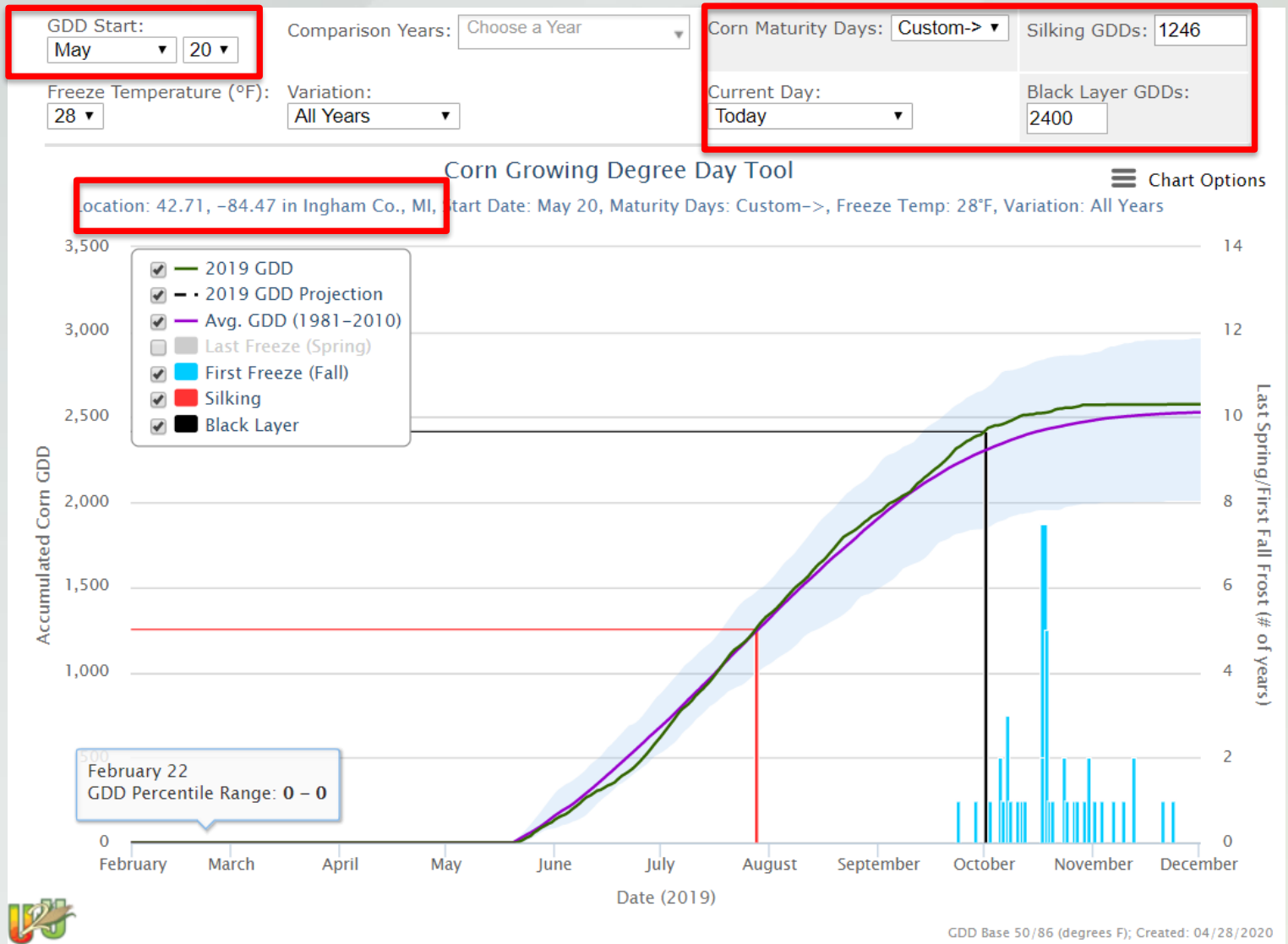
MG 1.0 MG 2.0 MG 3.0

Maturity Selection- Corn

- Adapted **early-maturity hybrids** can yield as much as late hybrids in most Michigan locations
- Low moisture in early hybrids in all years and locations compared to late-maturity hybrids
- Net returns higher in early-maturity hybrids in most years and locations
- Other benefits: mature before killing frost, timely fall tillage, early harvest, low mycotoxins

Maturity Selection- Corn

Useful 2 Usable Tool (U2U)- https://mrcc.illinois.edu/U2U/gdd/

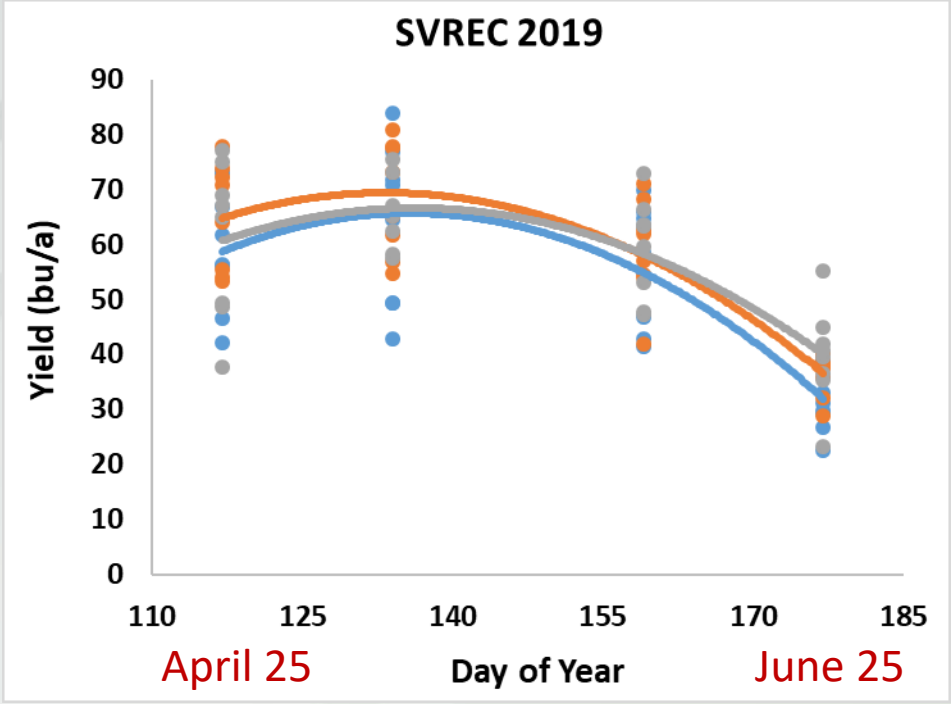


Seeding Rate- Soybean

50,000 Seeds/A	90,000 Seeds/A	130,000 Seeds/A	170,000 Seeds/A	210,000 Seeds/A
3.9 Branches	3.3 Branches	2.3 Branches	2.0 Branches	1.6 Branches

Seeding Rate- Soybean

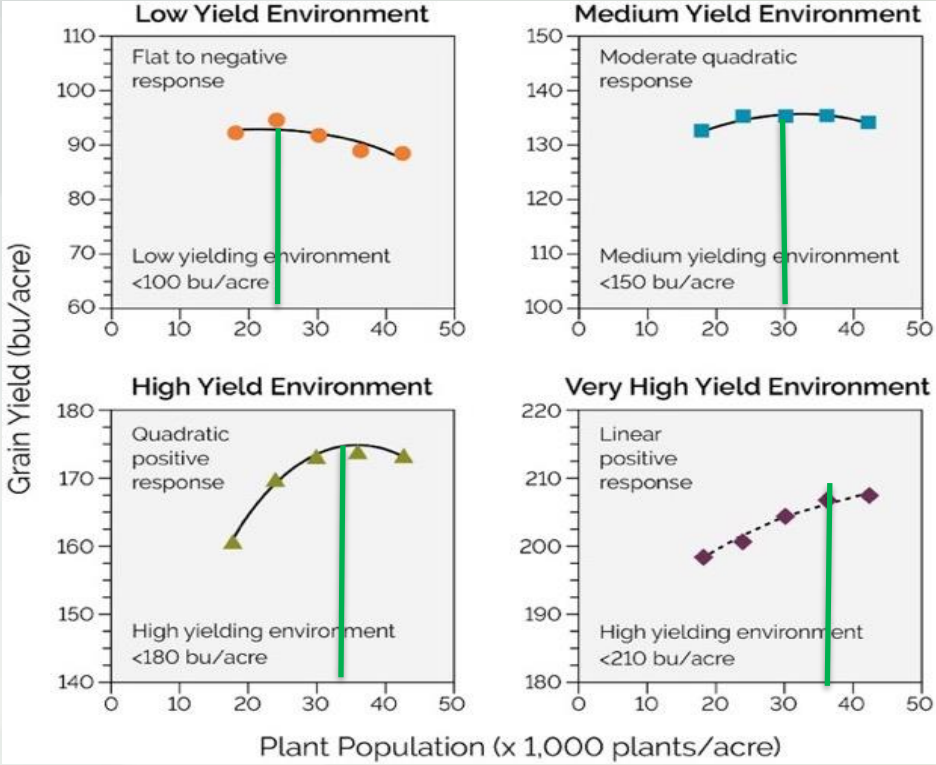
- **Early-season planting**:
  - ≤ 130,000 seeds/ac
- **Mid-season planting**:
  - < 130,000 seeds/ac
- **Late-season planting**:
  - > 130,000 seeds/ac



- Seed quality- plant high quality seed first, **germ test**?
- Planting in cold and wet soil could benefit the most from seed treatment (limited to improved stand?)

Seeding Rate- Corn

- Based on Yield Environment of field
  - ~30,000 plants/ac for medium yield environment
  - ~34,000 plants/ac for high yield environment
- Target Plant Stand vs Seeding rate (5-10% extra)
- Agronomic vs Economic optimum rate



Source: Assefa et al., 2016

Take Home Points

- Optimal planting time is critical, however planting in marginal soils can reduce yield more than late planting
- Corn/soybean planting time as per field conditions
- Diversify maturity selection, switch maturity only under late planting
- Potential for lower soybean seeding rates under early/mid-season planting

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Thank You for Attending!

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