2020 Winter Agronomy Meetings

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2019 Research Summary

- 7 Variety Trials (Seed Week)
- 15 Agronomic Trials
  - Population
    - Planting rates
    - Variable rate
  - Fertility
    - Foliar nutrients
    - In-furrow applied products
  - Pests & Diseases
    - Movento Insecticide
    - Xanthion
    - Quadris
- In-Progress and Future Research
Percent Emergence in SBA Trials over the Last 10 Years

$y = 0.0141x - 27.579$
Planting Rate, Sylvester Farms

- 24 inch row spacing
- 75.3% emergence
- Significant change in final stand
- No significant difference in yield
- No significant difference in net revenue
Planting Rate, Meylan Farms

- 22 inch row spacing
- 81.1% emergence
- Significant change in final stand
- No significant difference in yield
- No significant difference in net revenue
- Worth the risk?

**Net Revenue**

- $900 at 63,000 plants
- $923 at 55,000 plants

CV = 2.3
Variable Planting Rate

- What impact would variable planting rates have on yield?
- Planting rate varied based on yield maps and soil types
  - Ranged from 39,000 to 59,000 seeds per acre
- Check, 58,000 seeds per acre
- Variety, C-675
- 7 replications
- Very good trial quality
Variable Rate, D&B Karg Farms

- No significant impact on yield
- Potential seed cost savings
QLF BOOST™ (4-0-3-2S) is a supplemental fertilizer product
Intended to improve root health which aids in root disease management

Applications
- 2 gallons/acre with 2x2 blend
- 1 gallon/acre with Quadris (8.1 oz/acre) T-band application

Check, with no BOOST at planting
- BOOST applied to all treatments with CLS fungicide applications

Very good trial quality
No significant difference in yield

Very low level of root diseases

Significant increase in early and late population
Levesol

- A 2% nitrogen fertilizer and pure chelating agent made by West Central
- Intended to make nutrients more available for uptake by plants, improve plant health
- Applied T-band, in-furrow with Quadris
  - Levesol: 2 qt/acre
  - Quadris: 8 oz/acre
- Quadris alone as check
- 4 replications
- Very good trial quality
Levesol, Reif Farms

- Significant increase in tonnage with Levesol
- First year of testing
A 2x2 fertilizer blend by Midwestern BioAg

The blend provides several macro and micronutrients, including N, P, K, S, Ca, Mg, B, Cu, Fe, Mn, and Zn

Intended to improve nutrient availability by providing all the nutrients in each granule of fertilizer

The grower’s standard 2x2 blend was used as the check

Had similar amount of nutrients provided

5 replicates

Very good trial quality
No significant differences in yield

Significant improvement in clear juice purity

Tissue samples, taken in July

No deficiencies found
Foliar nutrients are becoming increasingly popular due to a desire to ensure plant health.
Mora-Leaf is a foliar nutrient produced by Willbur-Ellis.
Contains 20% N, P, and K, as well as several micronutrients, including B, Cu, Mn, Zn, and Fe.
Foliar applied
One application, 2 lb/acre
Tank mixed with Quadris (15.7 oz/acre)
7 inch T-band
Check, no foliar nutrients
6 replications
Mora-Leaf Foliar, Helmreich Farms

- Good trial quality
- No significant differences between the treatment and check
- No nutrient deficiencies identified at this field
Insta-Cal vs NDemand

Insta-Cal is a foliar feed product by Insta-Grow which includes calcium nitrate

Sales representatives claim:
- Provides more available calcium to the plant
- Strengthens cell walls
- Improves Cercospora leaf spot management

NDemand is a common foliar nitrogen product by Wilbur-Ellis
- Manufacturer claims plant health benefits
- Both added to the first 3 CLS fungicide applications
  - 1 gallon per acre
- 5 replications
- Excellent trial quality
- No check
Insta-Cal vs NDemand, Reif Farms

- No significant difference between products at 95% confidence
- Improvement from no foliar fertilizer?
- Very little CLS
Movento

- Insecticide produced by Bayer Crop Science
- Intended to manage root aphids and sugarbeet cyst nematode
- Foliar applied
  - Target, 2 applications
    - Last 10 days of June
    - 2 weeks later
  - 2.5 oz/acre
  - With 1% MSO
- 2 trials
  - LAKKE Ewald Farms
  - Laracha Farms
Movento, LAKKE Ewald Farms

- Excellent trial quality
- 5 replicates
- Variety B-12RR2N
- Applied as intended
- Movento led to a significant increase in:
  - Tons per acre
  - RWSA
  - Revenue
Movento, Laracha Farms

- Good trial quality
- 8 replicates
- Variety B-1606
- Significant decrease in tons per acre
- Reasons?
  - Applied 3-4 weeks later than intended
  - Tank mixed with Super Tin
Xanthion In-Furrow Fungicide

- Fungicide by BASF intended for Rhizoctonia root rot management
- 2 active ingredients
  - Pyraclostrobin (active ingredient in Headline)
  - Biological fungicide
- Compared with Quadris (Syngenta)
- Both products applied in-furrow with Fastac insecticide
  - Xanthion 10.8 oz/acre
  - Quadris 8 oz/acre
  - Fastac 4 oz/acre
- Check had neither a fungicide nor insecticide
Very good trial quality
3 replications
No significant differences
Low levels of Rhizoctonia root rot
Aphanomyces and Fusarium root rots observed
Quadris Plus Adjuvants

To maximize efficacy, Quadris needs to move into the soil. How do different adjuvants affect its mobility and efficacy during foliar application?

2 adjuvants tested
- MasterLock
  - Spreader-sticker from Winfield
  - Applied at 2.25 oz/acre
- Rainier EA
  - Spreader from Wilbur-Ellis
  - Applied at 11.2 oz/acre

Applied with Quadris (15.7 oz/acre) in a 7 inch T-band
In-furrow Quadris applied at planting
Quadris plus Adjuvants
Helmreich Farms

- Very good trial quality
- 4 replications
- Lower than ideal levels of Rhizoctonia
- No significant differences for yield and dead beet count
- Numerically, all treatments with Quadris had lower dead beet count
Other Quadris Trials at Helmreich Farms

- EBDC tank mixed with foliar Quadris application
  - No negative impact observed on the beets
  - Not enough CLS in trial to see visible difference in disease levels
- Topsin tank mixed with foliar Quadris application
  - Research from other states suggests Topsin may have efficacy against Fusarium root rot
  - No negative impact observed on the beets
  - Dead beet count too low to see differences
In-Progress and Future Projects
Clover vs Radish

Both red clover and oilseed radish are popular cover crops after wheat.

Benefits of clover
- Increase in organic matter
- Nitrogen

Benefits of radish
- Reduction of sugarbeet cyst nematode population
- Breaking up compaction
- Some organic matter

In a nematode field, which is the best cover crop before sugarbeets?
Clover vs Radish
Sylvester Farms
Heat Treatment to Reduce C. beticola Inoculum

- *Cercospora beticola* is sensitive to high heat
- In preliminary greenhouse study, observed complete inhibition of spore production, 80-90% lesion fatality
- Purchased burner from Multi-Trail Enterprises
- Tank and propane from Fairgrove Oil
- Key factors to determine:
  - Temperature range
  - Defoliation
  - Storage
  - *C. beticola* survival
Temperature & Defoliation

- Temperature range: 1,200 to 1,600°F
- No impact on defoliation
Inoculum Reduction

Treatments:
1. Control
2. Plow (immediately post-harvest)
3. Burn (prior to defoliation)
4. Desiccant (7 days pre-harvest)

Video credit: Hernandez ft. Multi-Trail Enterprises Burner, Bublitz, and Wenzel
Cercospora beticola

Survival

- Significant differences were detected in samples collected at-harvest (N=133 leaves or 240 lesions)

- Impact on storage, testing in progress

- In 2020, will monitor overwintered leaf samples, early season sporulation, disease, and yield

Figure credit: A. Hernandez
Both strobilurin and benzimidazole (Topsin) fungicides are recommended for Cercospora leaf spot management.

Resistance to both is present in Michigan.

This year, will offer an in-season resistance screening program.

Will help to maximize the efficacy of our fungicide applications.
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Sugarbeet Advancement

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