

Research Trial Protocol: Harvest Management

Updated: Feb 2025 (Amy)

Research Question: Does Harvest Management (swathing vs. straight cut) influence verticillium stripe incidence and severity in the current year as well as inoculum being returned to the soil.

Treatments

1. Swath
2. Straight cut

Trial Design and Layout

1. Randomized Complete Block
2. All treatments are replicated 4 times.
3. Position of treatments must be randomized within each replication (see plot map)
4. Treatments should run the length of the field, excluding headlands.

Rep 1	Treatment 1 (Swath)	Direction of Spraying -->
	Treatment 2 (Straightcut)	
Rep 2	Treatment 2 (Straightcut)	
	Treatment 1 (Swath)	
Rep 3	Treatment 2 (Straightcut)	
	Treatment 1 (Swath)	
Rep 4	Treatment 1 (Swath)	
	Treatment 2 (Straightcut)	
Direction of Swathing and Harvest -->		

Grower and Trial Location

1. Must be a MCGA Member. Grower name to be submitted to MCGA for member check before trial is initiated (**Deadline April 30th**)
2. Grower must have the equipment and willingness to implement both swath and straight cut treatments.
3. Trial area should be placed in a relatively uniform portion of a field, avoiding major landscape changes, headlands or areas with changes in past management history (ex. Half trial area falls on land previously manured or pasture)
4. Legal Land Description and GPS Coordinates of first plot to be set to MCGA no later than **June 15th**.
5. Farmer Research Agreement must be signed and returned to MCGA no later than **July 31st**. MCGA will send a docuSign agreement directly to farmer email.

Field Data Collection

1. Spring Soil Sample for Verticillium and Nutrient Analysis
 - a. One composite sample in the spring from entire trial area (min. 25 cores)
 - a. Depths: 0 - 15 cm (0-6") and + 15 - 60cm (6-24")
 - b. 0-15 cm depth sample to be divided in two subsamples.
 - c. A sample of both depths to be sent to Agvise Laboratories:
 - i. Label with Contractor Name and Trial ID
 - ii. Analysis: **F2 (Complete) AND Texture**
 - iii. Billed to MCGA Account (**MA1258**)
 - b. **Second 0 – 15 cm sample is to be air-dried and held for pickup by MCGA to deliver to the University of Manitoba**

- i. Label with Trial ID, Farm Name and Contractor Name
2. Visual Disease Ratings **TO BE DONE BY MCGA**
 - a. Disease Ratings for Blackleg and Verticillium are to be conducted at two growth stages, **swath timing (60% Seed Colour Change) and at Harvest in each plot.**
 - i. **Please notify MCGA of respective farmers' swath date to ensure timely disease ratings**
 - ii. 25 Stems Per Plot
 - iii. Prevalence: Yes/no are disease symptoms present
 - iv. Severity: Ratings based on intensity of symptoms present on each stem (ratings scales to be provided)
 - b. Stems from each plot are to be packaged and sent to University of Manitoba for analysis.

3. Yield (Grain weight and moisture)

- a. **Weigh all grain from a single combine pass down the center of each plot**, the same combine must be used to harvest the entire trial.
- b. Use a calibrated weight wagon or grain cart to collect plot grain weights. Sensitivity must be <50kg on grain carts.
- c. **Record harvested area for each plot** (combine width, plot length, acres)
- d. **Moisture content is required for each plot**, place 0.75 – 1 kg of seed from each strip in a sealable plastic bag and keep cool until moisture reading can be taken (within 3 days of harvest)
- e. Samples can be discarded after moisture measurement.

4. Next Spring Soil Sample for Verticillium – Spring 2026

- a. Return to trial location in following spring to take soil samples for Verticillium
- b. One composite sample from each plot (min 20 cores)
- c. Depth: 0 - 15 cm (0-6")
- d. **Soil samples should be air-dried and held for pickup by MCGA to deliver to the University of Manitoba**
 - i. Label with Plot #, Trial ID, Farm Name and Contractor Name

5. Weather Data

- a. Growing season (Apr – Sept) rainfall and temps acquired from closest MB Ag weather station or other available data source

6. Observational Data

- a. At each field visit to the research trials take note if there is any major insect pressure/damage, frost events, weed control issues, disease pressure or lodging. Take pictures to capture issues as required.
- b. Record most likely yield limiting factor at trial location.

Agronomic Management Records

The following information needs to be collected for each trial

- Previous crops (last 5 years)
- Previous fungicide applications in all crops grown in last 3 years.
- Harvest management practice in last 5 years
- Pre-seeding tillage (implement, timing)
- Seeding equipment (type, row spacing, opener type and width)

- Seeding date
- Variety – name, TKW, seed treatment
- Seeding rate
- Seeding depth
- Fertilizer applications (product, rate (actual nutrient/ac), placement, timing)
- Herbicide (product, rate, date, crop stage)
- Fungicide (product, rate, date, crop staging)
- Desiccant (if applicable, product, rate, date, crop stage)
- Swathing date
- Post-swath combine date
- Straightcut combine date
- Harvest method (Combine, Grain Cart/Weight Wagon)

General Trial Management

Seeding

- The same variety from the same seed lot should be used throughout the entire trial.
- Use a consistent seed depth, and seeding speed for the entire trial

Fertility

- All nutrients must remain at a similar rate for the entire trial to avoid confounding factors

Pesticide applications

- Spray pest control products (herbicides, fungicides, and insecticides) across the entire trial as needed similar to the remainder of the field.
- Travel perpendicular to treatments, if possible, to ensure wheel tracks are consistent across all treatments. If not possible ensure that sprayer tracks are evenly distributed amongst area to be harvested for trial yield in each plot.

Swathing and Harvest Management

- If swathing, target 60% seed color change
- Minimum harvest length is 1000 ft
- When swathing, mark the swath that represents each plot with a flag that identifies which treatment it is.
- Each strip must be weighed individually (Ex. 3 treatments x 4 reps = 12 weights)
- Harvest all strips on the same day, when possible, if two days are needed harvest all strips within a replicate on the same day.
- If desiccating target an application timing of 90% seed color change

*****All Data must be returned to MCGA by Sept 30*****

Payment: See Research Agreement for Payment Schedule and Invoicing Information for Agronomist Research Contractors. Payment for farmers will be mailed out upon MCGA receiving approved harvest data.

Contact:

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