



Nebraska On-Farm Research Network

Chemigation of fungicide for disease management

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Objective: Test the effects of fungicide chemigation for control of the corn disease tar spot.

Rationale: In Fall 2021, the fungal disease tar spot was confirmed in Nebraska and has continued to spread across eastern Nebraska. This disease can cause yield loss of up to 50 bu/acre in susceptible corn hybrids. Under pivot irrigated conditions, this disease is expected to proliferate more rapidly due to the wetter canopy conditions that are favorable for the fungus causing tar spot. Results of fungicide trials conducted across the country have demonstrated efficacy for control of tar spot by several products when applied at critical timings to prevent severe disease during grain fill.

Most corn producers rely on aerial application of fungicides to post-tasseling corn that may be delayed during peak application times or during disease outbreaks and are out of the control of most producers. Chemigation, or application of chemicals through irrigation, is one possible application method that may aid in control of disease and allow more producer control and flexibility in the application timing of fungicides.

Most research on the efficacy of fungicides applied via chemigation has been evaluated on other crops including dry beans, potato, sugar beet, and more. In these studies, chemigation decreased disease severity in most plots and increased yield in over 60% of trials. However, little to no research has been conducted on use on fungicide chemigation in disease management of corn, especially for tar spot management.

Treatment Design: The following is the suggested treatment design for chemigation of a fungicide. A minimum of 4 replications per treatment are recommended for this trial. The same hybrid and management practices should be used across the entire study area. The following is a list of fungicides with “very good” efficacy ratings for management of tar spot according to results of regional University trials reported by the Corn Disease Working Group.

Fungicides Labeled for Application via Chemigation Rated Highly for Tar Spot Management:

Product/Trade Name	Rate (fl oz/acre)	Tar Spot Efficacy Rating	Allowable Application Depth
Delaro Complete 3.83 SC	4.0-12.0	VG	0.125-0.5”
Revytek	8.0-15.0	VG	<0.5”
Miravis Neo 2.5 SE	13.7	G-VG	0.1-0.25”
Trivapro 2.21 SE	13.7	G-VG	0.1-0.25”
Veltyma	7.0-10.0	VG	<0.5”
Approach Prima 2.34 SC	3.4-6.8	G-VG	Allowed
Delaro 325 SC	4.0-12.0	G-VG	0.125-0.5”
Headline AMP 1.68 SC	10.0-14.4	G-VG	<0.5

Note: Adapted from the Nebraska Extension EC130 publication, “Weed, Disease, and Insect Management in Nebraska” and Crop Protection Network: [Crop Protection Network - Fungicide Efficacy of Corn Diseases](#). Review and follow product labels. Application of specific chemical may require a specific application depth.

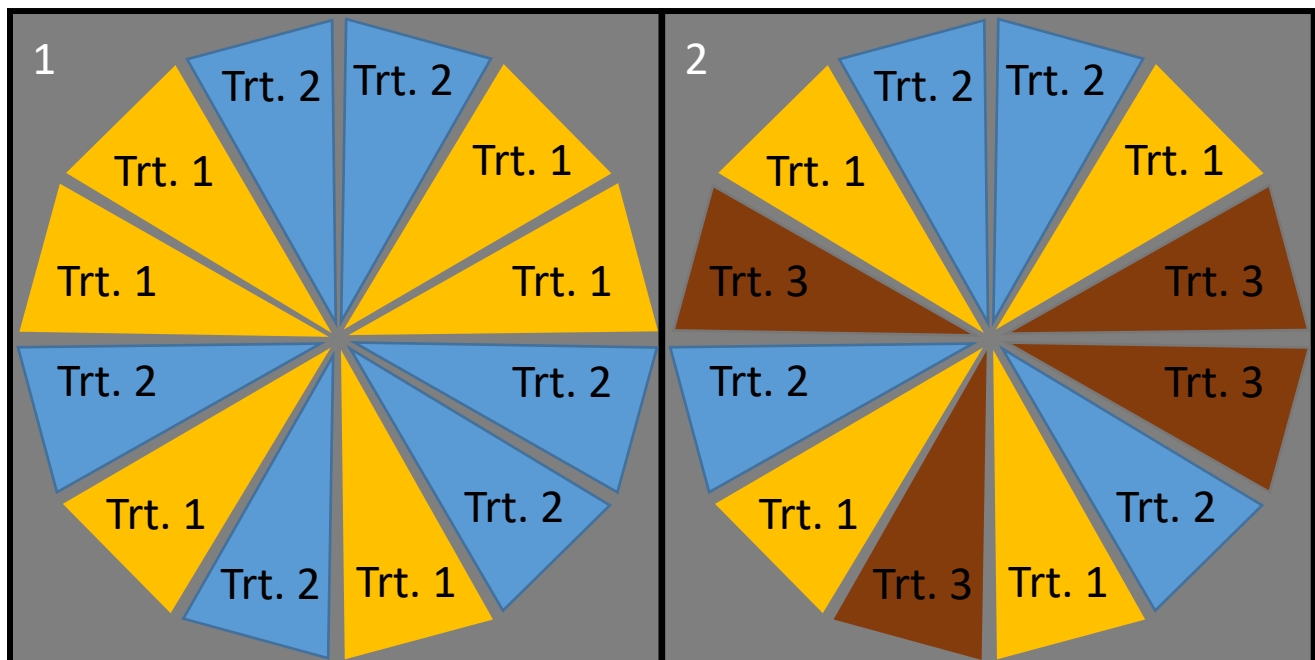
Procedure: This protocol is developed for corn fields irrigated with a center pivot system accessorized with a chemigation system.

Treatment 1: Nontreated

Treatment 2: Chemigated Fungicide

Treatment 3 (optional)*: Chemigated Fungicide with adjusted application rate or application timing

Treatment Layout (1 or 2):



Assessment Data:

1. Disease severity – Evaluation of plots in each treatment via a percent of leaf area covered by disease. Collection of data will be assisted by UNL Extension and associates. Assessments occurring 3-4 times post-treatment.
2. Push Lodging – Estimation of stalk strength as a predictor or standability. Push 100 or more plants from each plot to an angle of 45° (approximately arm length). Note percent of plants that bend or “lodge” below the ear leaf. Collection of data will be assisted by UNL Extension and associates. Assessment occurs prior to harvest.

Yield – Collected with yield monitor, weight wagon, or analysis of yield map (ex. ARC-GIS) *Grower*

Requirements:

1. Aid in flagging or marking GPS location of each treatment.
2. Provide necessary inputs for crop production.
3. Complete background agronomic form about site and practices.
4. Collect yield data and grain moisture with weight wagon or yield monitor. If using yield monitor, please designate a separate “load” for each treatment and set up separate “product” names for each treatment harvested. Yield monitor must be **well calibrated**. Contact UNL Extension if assistance with this process is needed.
5. Submit harvest data to UNL Extension within 30 days of harvest or by Dec. 15.
6. Allow UNL Extension to use submitted and collected data for research, educational, and informational purposes.

Nebraska On-Farm Research Network will:

1. Provide technical assistance in setting up replicated and randomized experimental design.
2. Provide assistance upon request with treatment implementation, flagging, stand counts, stalk rot tests, foliar disease assessments, and recording yield.
3. Analyze raw data using statistical analysis and provide this information to the grower.

Disclaimer: The Nebraska On-Farm Research Network does not endorse the use of products tested in on-farm replicated strip trials. While treatments are replicated within trials and may be replicated across multiple sites under various conditions, your individual results may vary.

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