NC COOPERATIVE EXTENSION N.C. A&T STATE UNIVERSITY NC STATE UNIVERSITY

Field Crops Newsletter

Granville and Person County
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INSIDE

Evaluating Fungicide Programs for Black Shank in Flue-Cured Tobacco

By: Dr. Daisy Ahumada

Figure 1. Black Shank of Tobacco.

Managing black shank disease in tobacco remains a critical challenge for growers, especially in areas with a history of the disease. To help identify the most effective fungicide programs, a trial was conducted in a commercial tobacco field in Johnston County, NC in 2024.The study was conducted using a randomized complete block design with four replications to ensure reliable results. Each plot measured 14.7 feet wide and 50 feet long, containing four rows of tobacco, with the two center rows used for evaluation.

The previous crop was sweet potatoes, and standard practices for non-irrigated tobacco production in North Carolina were followed. The tobacco variety NC196 was transplanted on April 15 at a 44-inch row spacing and 22-inch in-row spacing using a mechanical transplanter. This trial tested ten fungicide treatments against an untreated control (Table 1). Application methods varied by treatment to evaluate different strategies for black shank control.

Fungicide applications were made using a CO_2-pressurized backpack sprayer, calibrated to apply 15 gallons per acre at 30 PSI in a soil-directed band spray. To monitor disease progression, black shank incidence was recorded weekly from April 22 to July 10. Disease severity was calculated using the Area Under the Disease Progress Curve (AUDPC), a method commonly used to evaluate plant disease over time. The middle two rows of each plot were used for final yield evaluations. Harvesting was conducted in three stages based on stalk positions: lower stalk (July 30), middle stalk (August 15), and upper stalk (August 29).

This newsletter is designed to give you up to date information on crops from NC State University and other sources. For more information:

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Black Shank Fungicide Program (continued…)

Table 1. Fungicides evaluated for black shank suppression in Johnston County, NC, 2024 with 'NC196'.

Treatment	April 15	April 29	May 30
1	Untreated	–	–
2	Orondis Gold DC (at transplant)	–	–
3	Orondis Gold DC (Pre plant)	–	–
4	Orondis Gold DC (surface applied band)	–	–
5	Orondis Gold Premix (at transplant)	Ridomil (8 fl. oz/A)	Presidio (4 fl. oz/A)
6	Orondis Gold DC (at transplant)	Ridomil (8 fl. oz/A)	Presidio (4 fl. oz/A)
7	Orondis Gold DC (at transplant)	Revus (16 fl. oz/A)	Presidio (4 fl. oz/A)
8	Ridomil (at transplant)	Ridomil (8 fl. oz/A)	Presidio (4 fl. oz/A)
9	Revus (at transplant)	Ridomil (8 fl. oz/A)	Presidio (4 fl. oz/A)
10	Orondis Gold DC (Pre plant)	Ridomil (8 fl. oz/A)	Presidio (4 fl. oz/A)
11	Orondis Gold DC (surface applied band)	Ridomil (8 fl. oz/A)	Presidio (4 fl. oz/A)

The 2024 season began with an early-season drought but later experienced hurricanes and heavy rains. Black shank pressure was moderate to high throughout the season. Treatments with transplant-applied Orondis Gold Premix and Orondis Gold DC initially showed higher levels of chemical injury. However, all affected plots fully recovered within 40 days after treatment. All fungicide treatments significantly reduced black shank severity compared to the untreated control (Figure 1). The best-performing treatments included transplant-applied Orondis Gold Premix or Orondis Gold DC, followed by Ridomil Gold 480 SL and Presidio 4 SC. These treatments resulted in significantly higher yields than the untreated control, demonstrating their effectiveness for black shank management (Table 2). These results provide valuable insights for managing black shank with a combination of transplant-applied, in-season, and layby fungicide applications. While Orondis Gold Premix and Orondis Gold DC treatments showed some early phytotoxicity, plants recovered, and these treatments provided strong disease control and yield benefits.

Figure 2. Effect of fungicides on black shank severity in Johnston County, NC, 2024.

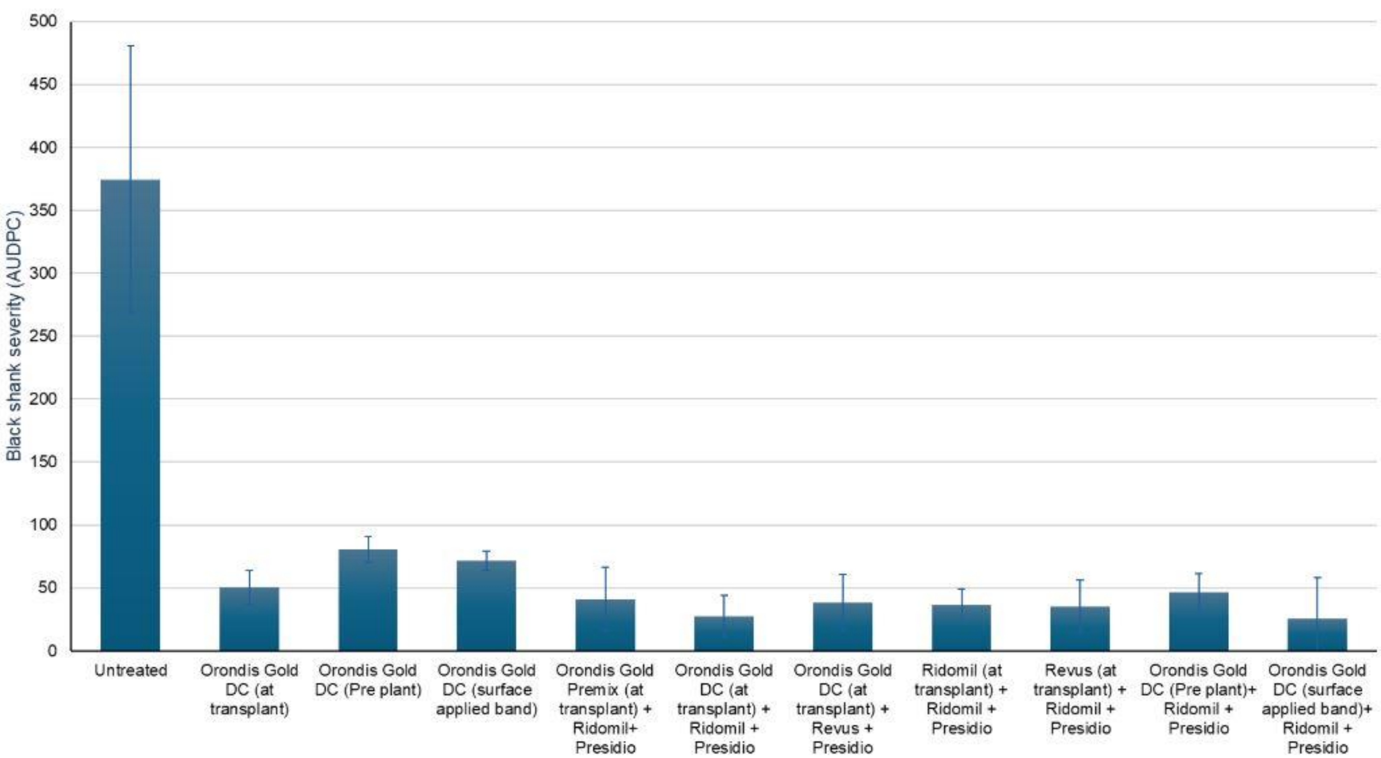

Table 2. Effect of fungicides on yield in Johnston County, NC, 2024.

Treatment	Cured Yield (lb./A)	Yield Difference (lb./A)	Yield Difference (%)	Price ($)/lb.	Fungicide + application cost / A	ROI ($)
Untreated	2062.3					
Orondis Gold DC (at transplant)	2541.2	478.9	23.2	1.97	139	**805**
Orondis Gold DC (Pre plant)	2459.5	397.2	19.3	1.97	139	**644**
Orondis Gold DC (surface applied band)	2380.9	318.6	15.5	1.97	139	**489**
Orondis Gold Premix (at transplant) + Ridomil+ Presidio	2940.1	877.8	42.6	1.97	349	**1380**
Orondis Gold DC (at transplant) + Ridomil + Presidio	2816.3	754.0	36.6	1.97	349	**1136**
Orondis Gold DC (at transplant) + Revus + Presidio	2655.2	592.9	28.7	1.97	386	**782**
Ridomil (at transplant) + Ridomil + Presidio	2485.1	422.9	20.5	1.97	313	**521**
Revus (at transplant) + Ridomil + Presidio	2533.3	471.1	22.8	1.97	350	**578**
Orondis Gold DC (Pre plant) + Ridomil + Presidio	2594.3	532.0	25.8	1.97	349	**699**
Orondis Gold DC (surface applied band) + Ridomil + Presidio	2421.5	359.2	17.4	1.97	349	**359**

With black shank pressure varying season to season, continued trials are necessary to further refine fungicide programs and ensure that growers have access to data-driven disease management strategies.

Determining Wheat Topdress Rate and Timing

The two most important things to keep in mind when deciding your topdress application for your wheat is TIME and RATE.

We are past the time of wheat tillering, and the next step is for stem of the wheat to start elongation. During this phase, the growing point of the wheat, which will become your seed head later this year and is currently down at the soil level of the stem, will start to make its way up. This is what researchers call "growth stage 30" or "GS30," but basically means when wheat starts to "stand up". This stage is very important, especially for nitrogen application, because wheat takes up large amounts of nitrogen at this stage. IF YOU DO NOT SUPPLY ENOUGH NITROGEN TO YOUR WHEAT AT THIS STAGE, IT WILL CAUSE SMALL GRAIN HEADS! Also, if the wheat gets past GS 30, or when the growing point has moved ½ in. up the stem (see Figure 2), you have missed that vital window.

The recommended nitrogen rate will look different for everyone, and likely different for each field. If you think your wheat will be high yielding (90-110 bu/ac), you should plan for a total of 150 lb. of total N per acre (this includes any preplant fertilizer). For lower yielding fields, you should aim for 90-120 lb. of total N per acre. So, if you have a N rate target of 120 lb. N per acre and applied 30 lb. N per acre preplant and spread another 20 lb. N per acre in January, that means you should be putting a total of 70 lb. N per acre out for your topdress application.

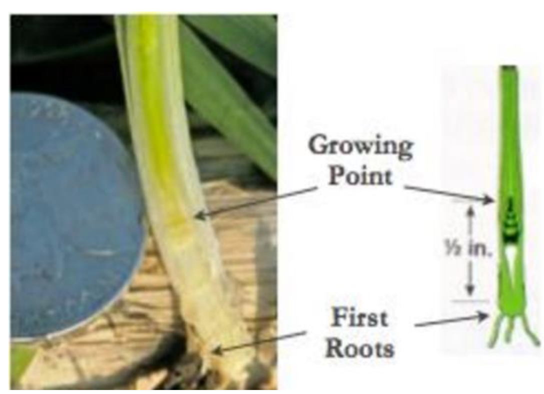

Figure 3. Wheat stem cross section at growth stage 30

Post-Emergent Control of Italian Ryegrass

By Dr. Wesley Everman and Jenny Carleo

Before top-dressing we want to terminate any weeds that could compete with our wheat crop. Here are some considerations on how to control our worst problem weed in small grains – Italian ryegrass.

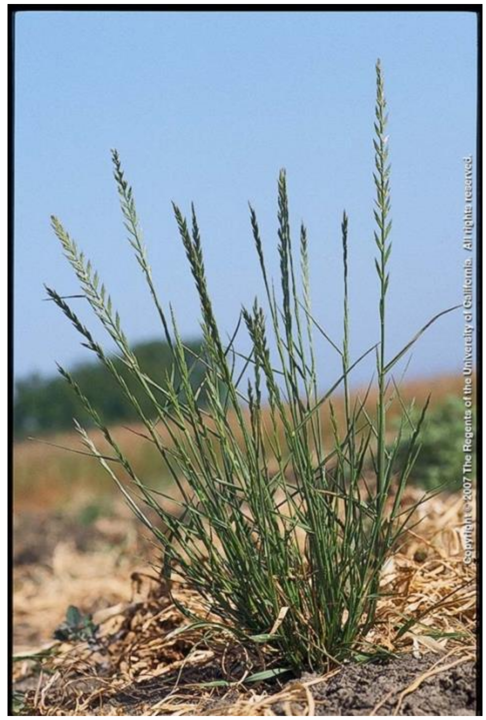

Figure 4. Italian Ryegrass. ***Photo from The Regents of the University of California.***

Scouting:

- December: If no pre-emergence herbicide was applied starting scouting.
- January: If pre-emergence herbicide was applied start scouting.
- February/March: Continue scouting since some Italian ryegrass biotypes germinate in March and compete with the wheat once we're in grain-fill.

Be prepared to make your applications before the Italian ryegrass takes over.

Control:

Hoelon used to be our standard product, however, 95 to 98% of Italian ryegrass samples we tested were resistant to Hoelon, so we've effectively overused it.

We recommend using a residual herbicide in the post-emergence spray especially if you haven't used a pre-emergence herbicide at planting. It takes a little pressure off of that post-emergence herbicide and allows for some control of any that may germinate in the spring.

Currently, we have 3 effective herbicides for post-emergence use on Italian ryegrass in wheat:

Osprey – ALS inhibitor

PowerFlex – ALS inhibitor

Axial XL – ACC-ase inhibitor

We do have Italian ryegrass biotypes that are resistant to each one of these herbicides, but if we understand what bio-types we have and rotate our chemistries we can be effective at controlling it.

Upcoming Events:

Pesticide Exam Session

March 13th @ 1:00PM In-Person exam session allowing you to become a pesticide applicator OR add a category (i.e. Commodity Fumigation)

- Person County Office Building (304 S. Morgan Street, Roxboro, NC)
- Please register for exams by going to go.ncsu.edu/NCDAPesticideExamRegistration or by scanning the QR code