

Field Crops Newsletter

Granville and Person County
Mikayla Berryhill

MAY 2023

INSIDE

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Early Season Tobacco Management

With tobacco going into the field, there are some early season management considerations that growers should think about:

Disease Management

Last year was a rough year for disease management. As we go into the season, think about the following diseases and how you are going to combat them this season:

- **Black Shank** – one thing in the forefront of everyone's mind is black shank management. The most important management tactic is going to be to put the most resistant varieties in fields with black shank history. However, you may also want to consider including a fungicide (like oxathiapiprolin or Orandis) in with your transplant water. This will give plants early season protection. Thinking forward into the season, you may also want to consider an application around layby of Ridomil or Presidio if conditions are wet, since wet conditions can increase the incidence of black shank.
- **Tomato Spotted Wilt Virus (TSWV)** – Due to the mild temperatures and low rainfall over the winter, it is likely that thrips, which vector

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

Contact

PERSON COUNTY

304 S Morgan Street
Room 123
Roxboro, NC 27573

PH: 336.599.1195
person.ces.ncsu.edu

GRANVILLE COUNTY

125 Oxford Outer Loop
Oxford, NC 27565

PH: 919.603.1350
granville.ces.ncsu.edu

MIKAYLA BERRYHILL
mikayla_berryhill@ncsu.edu

Early Season Tobacco Management

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TSWV, populations were not suppressed like usual. This could indicate that there will be an increase in TSWV incidence in fields this year. Because of this, you may want to consider including a systemic insecticide (i.e. Durivo, Admire Pro, or Platinum) with your transplant water to give plants extra protection from TSWV.

- Target Spot – There has been an increase in target spot issues in recent years. Because of this, you may want to consider a foliar fungicide application around layby. This will set you up for better management options later in the season if a major outbreak of Target Spot occurs.



Photo of a tobacco thrip adult. *Photo by Robert M. McPherson, University of Georgia.*

Fertilizer Management

A wholistic fertilizer program is important for a successful tobacco crop. This includes the choice of starter, fertilizer timing, and more. Keep these things in mind as you build your fertilizer program:

- Starter fertilizer is something that is not always needed, but in years with mild temperatures and wet soils, it can be helpful to give plants a “jump start”. Since we are seeing these conditions now, you may want to consider including about 5 lbs of phosphorus into your transplant water to get quick growth on your tobacco plants.
- Many growers may wait until 7 to 10 days to get the first shot of fertilizer onto fields. In many cases this is not an issues, but this year we are experiencing a rainfall event about ever 7 to 10 days. If you plant tobacco with the mindset of putting out fertilizer 7 to 10 days later, you may not be able to get back into the field due to a rainfall event and fields drying out slowly. By 2 weeks after transplant, those plants are going to be hungry, and growth will most likely be handicapped due to lack of nutrients.

Field Cultivation

Be careful to not have your layby cultivation of fields too late in the season. With our cultivation technology being very aggressive, it could be that late cultivation of tobacco plants is causing unwanted mechanical damage that can exasperate disease and nematode damage. You may want to consider moving up your layby plowing by 1 week, especially in fields with nematode, black shank, or Granville wilt history.

Plant Availability

We may be cutting it close on plant availability due to reduced tobacco growers and some late season greenhouse issues that growers saw this season. If you have plants leftover that you would like to sell or if you are looking to purchase more plants, please let me know. There is a network of agents that connect plant suppliers with growers in need, and I am happy to help as much as possible!

As we get into the season, please let me know if you experience any issues! I am always happy to assist with management recommendations, disease identification, and problem analysis for tobacco and any other crops you have on your farm. If I don't know the answer, I will find someone who does! Give me a call at the Person (336-599-1195) or Granville (919-603-1350) County Extension Office and I'll be more than happy to help!

Poor Water Quality May Negatively Impact Pesticide Performance

By Mike Carroll – Craven County Ag Agent

Water qualities that may impact pesticide application are the water pH, carbonates, water hardness and turbidity. Whether one uses a private well, surface water or a municipal water source, these parameters will vary greatly and should be evaluated before making pesticide applications. Poor water quality can greatly reduce the half-life of pesticides as well as make some product efficacy extremely poor.

- **Water pH** – Ideally, one should apply pesticides in a water solution that has a pH range of 5.5-6.5. Regrettably, much of the water pH within NC ranges from near neutral to slightly basic. Having thus said, a few shallow wells, especially within the coastal areas of NC, may contain water that are very acidic with water pH of 3 or lower. These water pH values may rapidly reduce the half-life of pesticides.
- **Bicarbonate** – Bicarbonate, often referred to as alkalinity, is the measure of carbonate (CO_3) and bicarbonate (HCO_3) levels in water. Pesticide water sources with high carbonates may result in a slower absorption rate of the pesticides or result in degradation of a pesticide's active ingredients to reduce pesticide performance. Furthermore, water with high carbonate levels may cause excessive salt accumulation within hoses and nozzles resulting in poor distribution of the pesticides. Pesticides commonly adversely effected by water with high carbonates are usually those that are salt-formulated pesticides such as glyphosate, glufosinate, and 2,4-D. If the water source is considered hard water (high sodium and calcium) then moderate levels of alkalinity increases the probability of poor mixing and rapid degradation of pesticides.
- **Water Hardness** – Water hardness is primarily the measure of calcium and magnesium and is usually expressed as CaCO_3 ppm. However, other positive ions such as sodium, potassium, iron, or aluminum can interact by binding with some pesticides to form precipitates. These ions bind with active ingredients of pesticides reducing performance by reducing the half-life of pesticides or creating poor mixing/dissolving of product in source water.
- **Turbidity** – Water may contain suspended solids, organic matter, or clay. These particles readily adsorb or bind to some the pesticide's active ingredients making the product less effective.

Typically, larger producers utilize very large tanks to move water from farm to farm. If the pesticide is mixed with this water at the application site and immediately applied, then no negative impacts to pesticide application would be anticipated. However, if pesticides are mixed and stored in a tank with poor water quality, pesticides efficacy may be greatly reduced.

Regrettably, there is no list of pesticides that may be impacted by water quality. Even noting active ingredient of pesticides is not sufficient since the pesticide formulation, additives, or the presence of multiple active ingredients will alter potential reactions. The label of each product must be read to determine what, if any, actions should be taken.

Within North Carolina, the NCDA & CS Agronomic Division Solution Lab offers testing of source water for a small fee. Testing results include water hardness, bicarbonate level (reported as alkalinity within results), water pH, iron content, salt concentration, electrical conductivity, nutrient content and more. Simply fill out Form AD-7 and follow the directions on the form for handling and submission. To collect samples, the water source should be run for at least 10 minutes. Approximately 20 ounces should be collected in a clean plastic bottle. The sample should be refrigerated until sent to the lab. For more specific discussion of potential corrective measures based on water sample results, contact your local N.C. Cooperative Extension office.

Corrective Measure Based on NCDA & CS Solution Analysis Lab Results:

- Add buffering solution to correct for improper solution pH
- Add acid or buffering solution to correct for high alkalinity
- Add ammonium sulfate (AMS) or 30% nitrogen to correct for hard water*
- Mix pesticides in the field and apply within two hours
- Filter turbid water or water with high organic compounds.
- Find an alternative water source if mitigation is not feasible

*Generally, add 8.5 to 17.5 lbs. dry AMS per 100 gallons water or 1.25-2.5% by volume of liquid fertilizer such as 28%N, 32% N or 10-24-0.

Corn Stand Uniformity Impact on Yield

There are many products and practices that can impact corn production and yield, but one of the most important things to pay attention to is germination. Having uniform germination, and in turn, uniform stands, is critical for getting the most out of your corn crop.

A corn germination trial that I performed in Union County in 2021 showed that planted corn that emerges 4 or more days after the first corn in the field emerges has a 15-20% yield decrease. The plot average yield was 190 bu/a. Day 1, day 2, and day 3 emergers yielded 203, 203, and 200 bu/a respectively. Day 4 and day 5 emergers yielded 169 and 173 bu/a respectively, showing a dramatic drop in yield. This means that corn that emerges faster and more uniformly will produce higher yields than corn that emerges slowly and is not uniform.

When will you see corn that is not uniform?

You will most likely see stands that are not uniform when corn is planted into cold, wet soils. This corn will have delayed emergence, which can severely damage yield potential. Another factor you should look out for is Growing Degree Days, or GDDs. GDD is a measurement of heat units which is a major factor that determines corn germination. You can find out what the GDD for a day is by using the calculation below. When you plant corn, you want 40-50 GDDs to accumulate over the next 5 days. For example, if you plant corn on a Tuesday, you want the GDDs accumulated on Tuesday, Wednesday, Thursday, Friday, and Saturday to be greater than or equal to 40-50 GDDs.

$$\text{Growing Degree Day Units} = \frac{\text{Daily Maximum Temperature} + \text{Daily Minimum Temperature}}{2} - 50$$

You can do calculation by hand, or you can use the Corn Climate Dashboard (<http://products.climate.ncsu.edu/ag/corn/>) from the NC State Climate Office, which uses local weather forecasts and historical data to predict the accumulation of GDDs over the 5 days after planting. You can see the chart for late April and Early May below.

What if I can't wait to plant until the conditions are right?

Sometimes rain is coming, equipment broke down, or you just plain don't have enough time to get crops into the ground. You are still able to make great yields when you are in these situations, but it will take some additional management. NC State research has found that starter fertilizers in corn can help increase corn yields when applied in less-than-ideal conditions. So, if you need to plant corn on days that are cold, wet, or will not have a great accumulation of GDDs after planting, this will be a great time to utilize a starter fertilizer or biological product. These management practices have been shown to increase plant vigor and promote uniform crop emergence in many cases.

Planting Guidance Chart for 36.403°N -78.973 °E Based on Today's Date

Corn germination is based on an accumulation of at least 40-50 GDDs over the next 4-5 days (of the current date, not the planting date). This table shows the predicted accumulation of GDDs over the next 5 days, starting with each date.

Mon	Tue	Wed	Thu	Fri	Sat	Sun
Apr 24	Apr 25	Apr 26	Apr 27 51	Apr 28 48	Apr 29 34	Apr 30 36
May 1 44	May 2 52	May 3 58	May 4 69	May 5 51	May 6 34	May 7 21

ABOUT N.C. COOPERATIVE EXTENSION

North Carolina Cooperative Extension is a strategic partnership of NC State Extension, The Cooperative Extension Program at N.C. A&T State University, USDA-NIFA, and 101 local governments statewide. Extension professionals in all 100 counties and the Eastern Band of Cherokee translate research-based education from our state's land-grant universities, NC State and N.C. A&T, into everyday solutions. Extension specializes in agriculture, youth, communities, food, health and the environment by responding to local needs.

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In compliance with the Americans with Disabilities act, N.C. Cooperative Extension or NC State University will honor requests for reasonable accommodations made by individuals with disabilities. Please direct accommodation requests to Mikayla Graham, Mikayla_graham@ncsu.edu, 9195031350 or 336-599-1195. Requests can be served more effectively if notice is provided at least 10 days before the event.