

Field Crops Newsletter

Granville and Person County
Mikayla Graham

Soil Temperature Impact on Planting

APRIL 2022

Each crop that is grown in Person and Granville County has planting recommendations based on soil temperature. Tobacco, corn, and soybeans either need the soil to be warm enough before planting or enough GDDs (growing-degree-days) accumulated for successful germination. Here are some things to keep in mind in regard to what environmental conditions, namely soil temperature, you want to see to begin planting.

TOBACCO

In tobacco, soil temperature can greatly impact root and shoot growth, nutrient availability, and in some cases disease pressure. Tobacco growth is greatly improved as soil temperature is increased from 60°F to 75°F, so it is safe to say that warm soil (or soil at or greater than 65°F). Historically, the soil reaches this temperature sometime around late April. Take a look at the figure below to see the average daily soil temperature for April 15th to May 15th over the past 5 years at the Oxford Research Station. As you can see, the point in time that the soil temperature reaches 65°F is about April 28th.

It is not always reasonable to wait for the soil temperature to warm up to transplant tobacco. If you are planting into colder than ideal soils, it would be beneficial to add about 5 pounds of phosphorus per acre. Phosphorus is not as available in cool, damp growing conditions, so a small phosphorus charge can help the plant get up and running.

Average Soil Temperature (F) Over 5 Years
(2017-2021) @ Oxford Research Station

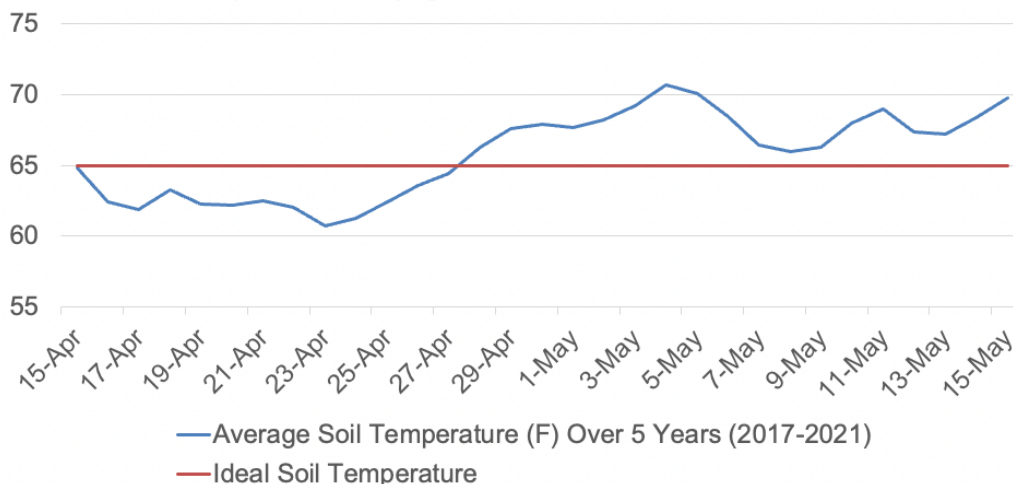


Figure 1. This figure shows the average daily soil temperature, in °F, averaged over 5 years (2017-2021) with the ideal soil temperature for tobacco transplanting (65°F).

INSIDE

Soil Temperature Impact

Money Saving Do's and Don'ts

Join the Facebook Group!

Scouting for Freeze Injury

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 GRAHAM
mikayla_graham@ncsu.edu

Four Tips to Improve Nitrogen Efficiency

Continued...

SOYBEANS

Soil temperature is not typically something that growers need to consider when planting soybeans, but it can potentially become an issue as growers begin planting full-season beans earlier in the year. Full-season soybeans are usually planted around late April at the earliest, when soils have begun to warm up, but there has been recent interest in NC to plant full-season beans before Mid-April.

In any case, soil temperatures should not be any lower than approximately 55°F-60°F because some germination and disease issues can arise. Seedling diseases, like Phytophthora Root Rot and Fusarium Wilt (See photo to the right) are more severe in fields where beans were planted into low-temperature soils. If you are planting into soils that are cool and damp, it is recommended to use a fungicidal seed treatment to ward off any seedling diseases.

*Side note – it has been found that an insecticidal seed treatment is not beneficial for soybeans planted at any time.



Vascular discoloration caused by Fusarium in lower stem tissue (top) compared to healthy root (bottom).
Photo by Lindsey Thiessen, NC State.

CORN

Put simply, corn needs a soil temperature of at least 50°F in order to germinate. However, there is another factor that can also impact corn germination, and new tools are available online to monitor this factor.

Growing Degree Day (or GDD) accumulation is vital for corn germination. This is a measure of heat accumulation and can help predict development rates of many living things, including crops. In order to germinate, corn needs an accumulation of 40-50 GDD's over the 4-5 days after planting. The NC State Climate Office recently developed a "Planting Guidance Chart" that calculates and predicts GDD accumulation at your specific location based on past patterns and current weather predictions. For example, the chart to the right is the chart the tool developed for today's date (3/17/2022) in Roxboro, NC. Based off this, you could potentially plant corn on 3/17 or 3/18 and have corn germinate successfully, but I would not advise it! I encourage you to check this tool for your location as you get close to planting to determine the optimal planting dates for the most successful corn crop. If you have any questions about using this tool, or cannot access the tool but would like a GDD update, please contact me!

You can access this tool by going to the website below:

<https://products.climate.ncsu.edu/ag/corn/>



Tobacco Planting. *Photo by Mikayla Graham.*

Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19	Mar 20
			42	49	33	26
Mar 21	Mar 22	Mar 23	Mar 24	Mar 25	Mar 26	Mar 27
27	25	19	24	20	16	11

Planting Guidance Chart for 36.485°N -78.915 °F
Based on Today's Date. This table shows the predicted accumulation of GDDs over the next 5 days, starting with each date.



Corn Earworm/Tobacco Budworm. *Photo by Mikayla Graham*



Italian Ryegrass. *Photo by Mikayla Graham*



Soil Sampling. *Photo by Mikayla Graham*

Money Saving Do's and Don'ts!

It is well known across the agriculture community that input prices are through the roof. Margins are incredibly tight, and everyone is doing their best to identify ways to reduce input costs for this growing season. BE CAREFUL! There are some input-reducing production tips that can impact your crop's success and potentially have lasting effects on your farm.

DO...

- **Make insecticide application decisions based on scouting.** In many cases, insects are not at an economic threshold when growers make applications. Depending on the product, this can waste money by an application not increasing the yield of the crop OR can make insect problems worse by decreasing the number of beneficial insects in a field. Scouting can ensure that insects have reached the point where they are going to impact yield before spending money and time on an insecticide application.
- **Carefully choose planting dates.** Planting a crop earlier or later in the season can allow you to avoid or suppress specific pests. For example, planting soybeans on the earlier side can allow the crop to shade out some later season weeds, reducing your need for pesticide applications.
- **Follow your soil test.** If you tested your soil this past year, follow the fertility recommendations to ensure you provide enough nutrients for your crop, but don't overfertilize and lose nutrients to leaching or other environmental factors. If you have not tested your soil, you still can at the NCDA&CS Agronomic Division and with turnaround times at 7-10 days you can get information quickly.

DON'T...

- **Put out partial herbicide rates.** Trying to reduce costs by putting out partial herbicide rates will only lead to trouble. You will not effectively control the weeds you are trying to control, meaning the application was a waste of time and money, all while yield will be reduced due to the presence of weeds. You also risk the chance of herbicide resistance occurring in your weed populations in the future, meaning more time and money being spent down the road.
- **Substitute non-fertilizer products for fertilizer.** This advice was given by Dr. Matthew Vann at tobacco production meetings this year but is also applicable to other crops. Nothing can substitute applying nutrients to your soils based on your soil test recommendations and past experiences. Foliar fertility products should only be considered if there is a deficiency in the crop, otherwise is not effective at supplying the crop with nutrients.

Please note that this is not an all-inclusive list of money-saving methods you could (or should not) utilize this year, but it may give you a few ideas! If you need any help scouting or want to discuss potential management practices for this year, please contact me at the extension office, I am happy to help!

Join the Granville/Person County Field Crop Extension Group on Facebook!

Are you on Facebook? If you are, please join the Granville/Person County Field Crop Extension Group! I will be updating this group with information from NC State, event updates, and more! Go to <https://www.facebook.com/groups/persongranvilleextension/>



Scouting for Freeze Injury in Wheat

By: Dr. Angela Post, NCSU Small Grains Extension Specialist

March 14, 2022

This weekend we had freezing temperatures for most if not all of North Carolina. Saturday night lows were in the high teens for some areas of the state and growers should be concerned about early planted wheat with early to medium maturities. Any wheat lines that have already jointed are beginning to lose their cold tolerance and can no longer withstand extended periods of time below freezing without injury. Please see the 2021 NC Small Grains Production Guide Chapter on Freeze Injury in Wheat with the included link to the Kansas State information for freezing temperatures on wheat. This will help in knowing what to look for when scouting wheat after a freeze event. I recommend scouting the wheat starting 5-7 days following the freezing temperatures and to start with the earliest maturing lines. Some examples include: USG 3118, SH 7200, AGS 2024, Progeny [#Berkeley](#), AgriMAXX 492, AgriMAXX 502, and Dyna-Gro 9070. This is not an exhaustive list of early lines, just some examples of material that may be sensitive to the cold temperatures forecast this weekend based on growth stage.

Local Field Conditions

By: Mikayla Graham

Following the freeze and this note from Dr. Angela Post, I have gone out to farms in Person and Granville County to investigate the level of damage the recent freeze caused. If your wheat is on the small side and has not started jointing yet (or does not look like it is starting to “stand up”), you will not likely see any damage appear on your crop. Any fields I have looked at may have leaf burn at the most but has not seen any damage to the stems or growing points. I have seen slightly more damage in older, more mature wheat. At the time of writing this (~5 days after the freeze event), I have not seen any wheat with dead, browning growing points that is mentioned as a possibility in the 2021 NC Small Grains Production Guide. I have, however seen wheat with the following symptoms:



- Could allow further damage/rotting of joint
- Not an issue if no more damage occurs



- Indicates that the entire tiller froze overnight
- Plant will compensate for this type of tissue damage and develop new leaves and tillers
- Not an issue if it's the only damage



- Stem softened/weakened due to freeze
- Will contribute to lodging at the end of the season

If you see some of these symptoms and would like for me to come and check the status of your wheat, please let me know and I am more than happy to come and take a look!

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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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