

Field Crops Newsletter

Granville and Person County
Mikayla Graham

Four Tips to Improve N Efficiency

MARCH 2022



Corn at V2. Photo by Mikayla Graham.

A recent article on *Progressive Farmer* by Matthew Wilde discusses 4 tips to improve nitrogen efficiency this year, and it had some great advice for all farmers. As we all know, input prices are through the roof this year, making it even more vital to be as efficient as possible with our nitrogen applications for corn. Here is a summary of the tips included in the article with some North Carolina and tobacco specific advice included as well:

1. CALCULATE ECONOMIC RATE

In the article, a *Maximum Return to Nitrogen Calculator* is mentioned, but this is specifically for Minnesota, Wisconsin, Illinois, Indiana, Iowa, Michigan, and Ohio farmers. Here in North Carolina, we can utilize a tool from NC State that calculates Realistic Yield Expectations for North Carolina Soils. Here, you can enter the county, soil type, and (if you want to include it) the slope of a field you manage, and the tool will give you a list of crops (including tobacco, corn, and soybeans), their estimated realistic yield, and nutrient requirements to obtain that yield on your field.

I encourage you to utilize this tool, your soil test report results, and knowledge from previous crop yields in your fields to identify the most economically viable fertilizer rates for your crops this year. If you need help identifying what soil type you have in your field or have trouble using the tool, please give me a call! You can find the tool by going to

<http://realisticyields.ces.ncsu.edu/>.

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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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Four Tips to Improve Nitrogen Efficiency

Continued...

2. SPLIT APPLICATIONS

Nitrogen left in the soil too long will leach and will not be available for the plant throughout the growing season. The article mentions corn research trials conducted at the University of Kentucky by Dan Quinn that show that split applying N at planting and in-season is more efficient than pre-plant applications, and similar results have been seen across North Carolina.

In tobacco, it has been shown that excessive nitrogen rates can cause many issues, like extended curing time, higher rates of sucker growth, increased pest issues, and other issues, so anyone growing tobacco is probably efficient with nitrogen applications every year. But, just as a reminder, please utilize Table 5-10 below (from the 2022 Flue-Cured Tobacco Production Guide) to identify your base nitrogen rate and reduce nitrogen rates by 5-10 pounds per acre if the previous crop was a legume. If you choose to go with a liquid nitrogen source for sidedress applications, be sure to inject it or incorporate it with cultivation to avoid nutrient loss (translating to \$\$ loss) through runoff or volatility.

Table 5-10. Base nitrogen rates for tobacco in relation to topsoil depth

Topsoil Depth (inches)	Nitrogen Rate ^a (lb/a)
5	50
10	60
15	70
20+	80

^a Does not include leaching adjustments.

3. PROTECT N

Nitrogen is unstable in the soil and can change forms relatively fast. This is why nitrogen levels are not included in NCDA&CS soil reports; the nitrogen changes forms too quickly to give adequate application recommendations to growers. Plants can only uptake nitrogen that is in the nitrate and ammonium forms. Nitrification inhibitors and urease inhibitors are products that are made to stabilize nitrogen from liquid sources (like anhydrous ammonia, urea, and UAN) in a plant available form in the soil. Directly from Wilde's article:

"If anhydrous ammonia is applied in the early fall when soil temperatures are 50 degrees Fahrenheit and trending down, Quinn urged farmers to include



Tobacco in Person County. Photo by Mikayla Graham

a nitrification inhibitor, which slows transformation of ammonium into nitrate to reduce denitrification and leaching.

For surface-applied urea and UAN, a urease inhibitor is recommended to reduce N loss, Quinn said. A urease inhibitor can prevent volatilization for about seven to 14 days after application, whether in the spring or fall.

If urea and UAN is incorporated into the soil, Quinn said a urease inhibitor typically isn't needed."

4. CONSIDER HYBRID SELECTION?

According to Jeff DeBruin, a Corteva Agriscience researcher, different corn varieties do not consistently use N in the soil more efficiently when compared to one another. So, there is no data that consistently states that using certain corn varieties will increase nitrogen efficiency.

When it comes to tobacco, there are some varieties where it is appropriate to reduce the nitrogen rate applied by about 5-10 pounds per acre. These are varieties that are specifically known to mature late or cure poorly when overfertilized.

Below are the two sources for this article, please take a look at them for more information:

"Four Tips to Improve N Efficiency" by Matthew Wilde (www.dtnpf.com/agriculture/web/ag/crops/article/2022/02/14/economics-environment-drive-nitrogen?referrer=NLSnapshot)

"2022 Flue Cured Tobacco Guide" by NC State Extension (content.ces.ncsu.edu/flue-cured-tobacco-information)

Soybean Planting Considerations

Last year, Dr. Rachel Vann and a team of soybean specialists from across the United States released multiple *Science for Success* publications related to soybean production. These were funded by the Soybean Checkoff and provide great information for growers across the US. Here is a summary of the topics, and important messages to keep in mind when planning to plant soybeans this season (for more information, go to soybeans.ces.ncsu.edu/science-for-success/):

ROW SPACING:

- In research studies, narrow rows (7-15 inches) outyield wider rows (≥ 30 inches) 69% of the time due to early canopy closure.
- The above yield benefit is mostly seen in low-yielding environments or later-planted (double crop) situations.

SEEDING RATE

- Soybeans are a flexible plant, able to adjust to a wide range of plant populations, and therefore able to handle lower planting densities.
- In North Carolina, the desired plant population for May, June, and July-planted soybeans is 75,000, 90,000, and 100,000 plants per acre, respectively. This will need to be adjusted by your expected plant loss due to germination, emergence, and in season issues.

PLANTING DATE

- Plant after Risk Management Agency (RMA) replant crop insurance dates begin (April 11th for Person and Granville Counties).
- Earlier planted beans tend to see a yield increase, but this increase is incredibly variable across yield environments.
- Soybeans planted into soils with temperatures below 60 are at increased risk of seedling diseases and slow emergence.



Harvest ready soybeans. Photo by Mikayla Graham.



Tobacco. Photo by Mikayla Graham.

Annual GAP Training Stem Location Cancelled

Growers in this area may have planned on attending the GAP meeting that was scheduled to take place in Stem, NC. This event was cancelled due to an industry partner backing out and will not be rescheduled. There will be another opportunity to get your Annual GAP Training, as the personnel at GAP Connections let me know they plan to have a ZOOM training around the end of March as a "round up". When this occurs, I will host a local in-person event to watch this training for those without computer or internet access. Go to gapconnections.com for more information.

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 facebook.com/groups/persongranvilleextension/



UPCOMING EVENTS



Field Corn. Photo by Mikayla Graham

2022 Piedmont Grain Production Meeting

Wednesday, March 2nd, 2022 @ 9AM

- Virtual via ZOOM OR in-person at the Person County Extension Office
- Speakers: Drs. Ron Heiniger, Rachel Vann, Angela Post and Charlie Cahoon
- 2 hours N, O, D, and X NCDA&CS pesticide credit offered
- Register at go.ncsu.edu/2022piedmontgrainmeeting

NCDA X Credits (2 hours)

March 15th @ 9AM

- In-person at 2 LOCATIONS (you can attend at whichever location is more convenient for you):
 - Person County Public Library
 - Granville County Expo Center
- Register by calling (336-599-1195)

2022 Wheat Whistle Stop

March 30th @ 8AM

- 789 Johnnie Jones Road, Timberlake, NC 27583
- Speaker: Dr. Angela Post
- 1 hour N, O, D, and X NCDA&CS pesticide credit offered
- Refreshments will be provided!
- Register by calling (336-599-1195)

Auxin Training

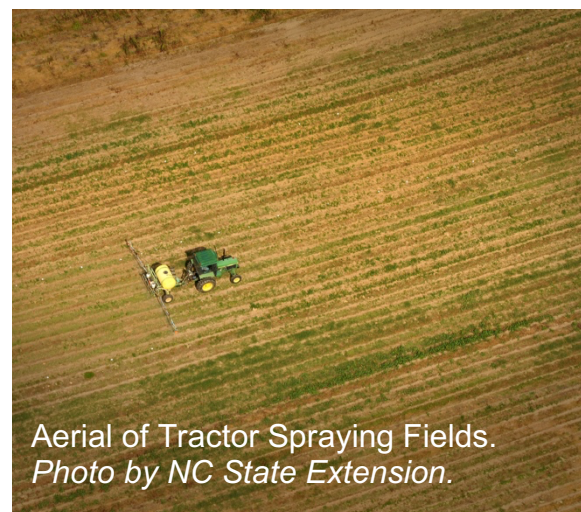
This training is REQUIRED for those applying Dicamba products and RECCOMENDED for those applying 2,4-D products

Offered via ZOOM on the dates and times in the chart below.

- **Zoom Registration Link:** go.ncsu.edu/2022_auxin_training
- **Zoom Passcode:** 028935
- For more information go to: granville.ces.ncsu.edu/field-crops-program/pesticide-continuing-education-credits/

Training will also be IN PERSON on March 1st

- In-person at 2 LOCATIONS (you can attend at whichever location is more convenient for you):
 - Person County Extension Office
 - Granville County Extension Office
- Registration Required (336-599-1195)



Aerial of Tractor Spraying Fields.
Photo by NC State Extension.

	Date	Time	Day of week
1	March 1	8:30 AM	Tuesday
2	March 15	8:30 AM	Tuesday
3	March 30	8:30 AM	Wednesday

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.

NC State University and N.C. A&T State University are collectively committed to positive action to secure equal opportunity and prohibit discrimination and harassment regardless of age, color, disability, family and marital status, gender identity, genetic information, national origin, political beliefs, race, religion, sex (including pregnancy), sexual orientation and veteran status. NC State, N.C. A&T, U.S. Department of Agriculture, and local governments cooperating.

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.