

TURN ROWS

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A NEWSLETTER COVERING THE SOUTHERN PIEDMONT REGION OF NORTH CAROLINA



Topics:

- Farm Bill Meetings
- Potassium Fertility in Tobacco
- Factors in Cotton Planting
- Tank Mixing on Wheat
- Herbicide update on Cotton

Anson County Center, 501 McLaurin St., Wadesboro NC 28170, 704-694-2915

Cumberland County Center, 301 E. Mountain Drive, Fayetteville NC 28306, 910-321-6860

Hoke County Center, 116 W. Prospect Ave., Raeford NC, 28376, 910-875-3461

Richmond County Center, 123 Caroline Street Suite 100, Rockingham NC 28380, 910-997-8255

Robeson County Center, 455 Caton Rd., Lumberton NC 28360, 910-671-3276

Scotland County Center, 231 E. Cronly St. Suite 800, Laurinburg NC 28352, 910-277-2422

Stanly County Center, 26032 E. Newt Rd., Albemarle NC 28001, 704-983-3987

Union County Center, 3230-D Presson Rd. Monroe NC 28112, 704-283-3801

Cotton Farm Bill Meetings

Farm bill educational meetings will be conducted for Southeast cotton growers by the National Cotton Council. The NCC staff was pivotal in guiding the new farm bill cotton policy, and no one knows more about it now. Cotton farmers need to take advantage of these opportunities and soak up as much information as they can as planting season nears.

CAUTION: Information & recommendations presented are applicable in the Southern Region of NC & may not apply in your area. Consult your local extension agent.

Recommendations for the use of chemicals are included in this publication as a convenience to the reader. Mention or display of a trademark, proprietary product, or firm in text or figures does not constitute an endorsement or imply approval to the exclusion of other suitable products or firms by NCSU, NCA&T, or NCCE nor discrimination against similar products or services not mentioned. Individuals who use chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Be sure to obtain current information about usage regulations and examine a current product label before applying any chemical.

North Carolina:

Fayetteville --- March 18, 9:00am. DoubleTree Hotel --- Garden Room
Greenville --- March 17, 3:00pm. Hilton Hotel --- Carolina Ballroom A

South Carolina:

Florence --- March 18, 3:00pm. Pee Dee Research Center
Matthews --- March 19, 9:00am. Tri-County Electric Cooperative



ADA Accommodation Statement

For accommodations for persons with disabilities, contact Andrew Baucom at 704-283-3739, no later than five business days before the event.

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Potassium Fertility: Overview in Tobacco

Adopted by Mac Malloy---Robeson County. From an article written by Matthew Vann, Extension Tobacco Associate at North Carolina State University

Potassium (K) is an essential plant nutrient for the production of high-yielding, high-quality flue-cured tobacco with a healthy crop requiring about 90 pounds per acre for optimum growth. The tobacco plant is an extensive consumer of K, and as a result, potassium application has historically occurred at rates 2-3 times that needed for maximum yield. Excessive application rates of K_2O have long been justified as means to prevent K deficiencies; however, deficiencies are still common in tobacco production and occur across a wide range of soil types and growing environments (see photo).



Potassium is highly leachable and nutrient reserves are often deficient or very low in coarse soil types.

The common flue-cured tobacco-producing soils of North Carolina are characterized by having a medium to coarse soil texture, low natural fertility, very good drainage, and less than one percent organic matter - all characteristics that lead to an increased need for supplemental fertilizers. Recommendations for K fertilization rates vary based on soil type, residual soil potassium, application timing, and application method. The current minimum recommendation for flue-cured tobacco production in North Carolina is 90 pounds per acre. Consider a split application with $\frac{1}{2}$ rate at transplant and $\frac{1}{2}$ rate at layby on coarse textured soils to avoid early-season leaching.

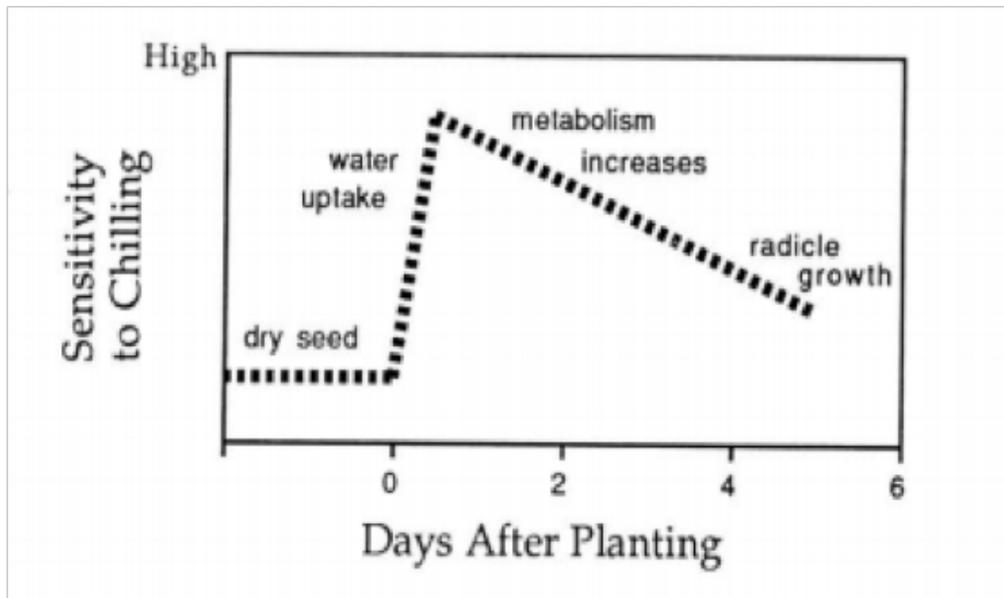
Potassium Chloride (Muriate of Potash, 0-0-60) should be avoided as a potassium source in tobacco due to high chlorine content (40 percent). Chlorine can be beneficial to tobacco but is toxic at rates above 30 pounds per acre. The rate of potassium chloride required to provide sufficient K would also provide far too much chlorine and plants would suffer. Furthermore, producers utilizing soil fumigants receive chlorine from these products, which could elevate the toxic effects of the nutrient. Typically, there is enough chlorine present from fertilizers used in previous crops or from fumigants to supply what is needed during the growing season. The two most common sources of K fertilizer are Sulfate of Potash (0-0-50, 17 percent sulfur) and Sulfate of Potash Magnesia or KMag (0-0-22, 11 percent magnesium, 22 percent sulfur). Both materials supply sulfur, which is needed at a rate of about 30 pounds per acre, but KMag also provides magnesium, which can be in low supply on coarse soil textures. Ultimately, when choosing a K fertilizer source, cost of material and nutritional needs should be considered.

Many producers have over applied K for decades, but with increasing input costs and growing environmental concerns, new considerations of rates and application method must be made. Recent studies at North Carolina State University indicate the targeted application rate can be reduced on specific soil types under certain conditions. Consider reducing your K rates if your soil reports show high K index, your soil is medium to fine textured (loamy sand to clay), and depth to clay is relatively shallow (<10"). Avoiding excessive K rates could help save money and increase your profit margins without reducing yield or quality.

Cotton Planting: *Weather and Seed Quality*

Jessica Morgan---Anson County

Cotton is a tropical plant and therefore has an increased sensitivity to chilling compared to other row crops planted in North Carolina. The key to seed germination is water uptake, which is conducted through good soil to seed contact. This seed-to-soil contact is especially critical in sandy soils, regardless of the moisture content of the soil. Once the seed starts to soak in moisture from the surrounding soil, it transforms to a growing state. When the seed is soaking up moisture is the phase of growth that is most susceptible to chilling injury. Soil temperatures of less than 50 F can cause a chilling injury to cotton. This often leads to plant death after the root tip or radicle has pushed out a half inch or leads to abnormal tap root development. Chilling within the first five days of life generally results in weak plants with delayed maturity and/or reduced yield. The following graph represents the sensitivity of cotton to a chilling injury.



Because the best soil temperature for cotton growth is very high, producers find that soil temperatures of 60-65 F can lead to stand failures. These general rules describe soil warming and provide guidance for improving when to plant based on soil temperature.

- Sandy soils warm up faster due to lower water content. Soil water has a high heat capacity and acts as a thermal buffer.
 - Surface soils that are well drained warm faster than waterlogged soils.
 - Dark colored soils tend to warm up faster because they are more efficient absorbers of sunlight.
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Cotton Continued..

When planting into cold soils, it is imperative to use the highest quality seed to ensure good stand quality through high germination rates. The ideal seed bed for cotton is warm and moist, with firm seed-to-soil contact. However, that's not always possible with the weather patterns in NC. Planting high quality seed should be standard practice. When adverse weather is likely in the next five days, planting only the highest quality seed will increase chance of obtaining a good stand. When looking at seed quality the standard germination test (warm germ) is seen on the seed bag as "Percent Germination." This test is performed either at a constant 86F or alternating day/night at 86/68 F. The minimum acceptable germination in most cases is 80%. These conditions are very favorable to germination and typically are not seen in planting season in North Carolina. The cool germination test is conducted at 64.5 F, the lower germination temperature for cotton. This percentage is reported as "Percentage Cool Test Germination," with a minimum of 50%. A higher quality seed will have a higher cool germ percentage.

To utilize these germ tests:

- Adjust seeding rates upward when planting low cool germ seed under less favorable conditions.
- Avoid planting low cool germ seed if the forecast is calling for cool weather for the next five days.
- Avoid purchasing low germ seed.

Utilize weather patterns and seed quality to make the most favorable conditions possible to optimize moisture and seed-to-soil contact for a quality cotton stand this year.

Tank Mixing an Insecticide in Wheat: *and reasons you may lose money in 2014*

Keith Walters---Hoke County. originally written by Dr. Dominic Reisig, NCSU

Recent research from North Carolina has suggested that there are times where tank mixing an insecticide with your nitrogen can be cheaper than using scouting and thresholds for cereal leaf beetle. The biggest reason for this is because there is a yield penalty for driving over wheat after jointing and because scouting costs money. However, there are a number of reasons why **I do not recommend this for 2014.**

1. When wheat is \$6 per bushel, you can save on average \$2 an acre using the tank mix approach. However, when wheat is \$4 a bushel, you **lose \$2 an acre using the tank mix approach.** This includes the cost of paying a scout, as well as the yield penalty incurred from drive down over the wheat. **You can save even more money by doing the scouting yourself** (a simple trip to the field in mid-April is better than nothing!), **paying a scout and treating at threshold, or by applying by airplane** if needed (something you may want to do anyway if it continues to remain wet).

Tank Mixed Continued..

2. Cereal leaf beetle tend to be worse in thin stands. Contrary to common opinion, this is not because cereal leaf beetle prefer thin wheat (they actually prefer thick and healthy wheat), but because there are simply more beetles per tiller in thin stands compared to thick ones. We have a lot of thin wheat this year and cereal leaf beetle could be more of a problem than in the recent past.

3. Cereal leaf beetle doesn't leave overwintering sites until daily high temperatures are consistently above around 60 degrees F. This means that on following a cold winter/ spring, we might expect cereal leaf beetle to take longer to leave overwintering. NCCE recommendations are to apply nitrogen before the middle of March and before jointing. This means your insecticide will be applied much to early to do any good against the beetle if you tank mix with much-needed nitrogen over your field.

4. Even in a good year, you can still lose to cereal leaf beetle. Although, on average, you can save by tank mixing when wheat prices are \$6 a bushel and higher, cereal leaf beetle can still overwhelm your field if they invade in high densities. The residual of the insecticide runs out after a month. Hence, the tank mixing approach is much riskier than scouting and using thresholds.



Brake F2: Section 18 Emergency Exemption for Cotton

Adopted by Andrew Baucom---Stanly, Union County. Originally written by Dr. Alan York, NCSU

Last week, North Carolina and three other states were granted a section 18 emergency exemption for use of Brake F2 herbicide on cotton. This product can only be used in those counties specifically designated on the label. All of the counties that receive this newsletter are eligible for use of this product based on the exemption. We can treat up to 45,000 acres in North Carolina.

Brake F2 contains two active ingredients and is formulated as a 2.6lb ai/gal product. It contains 1.6lb ai/gal of fluridone and 1.0lb/gal of fomesafen. Some of you may be familiar with fluridone as the active ingredient in the aquatic herbicide Sonar. Fomesafen is the active ingredient in Reflex.

This section 18 is specifically for control of glyphosate-resistant Palmer amaranth. A section 18 exemption is typically based upon a pest causing significant financial losses and for which there is no currently registered product that adequately controls it. That is not the case with Palmer amaranth: although it has been expensive, we have been able to control Palmer with currently registered herbicides. This particular section 18 was justified on the basis of resistance management. Fluridone is a PDS inhibitor with a group 12 mode of action. There is currently no other group 12 herbicide being used on agronomic or horticultural crops except apples, peaches, and pecans. Hence, Brake F2 brings us a "new" mode of action.

Brake Continued..

Brake F2 would be applied at 1pt/acre on most of our soils; the label does allow 1.5pt on medium and fine textured soils. At 1pt/acre, Brake F2 gives 0.2lb ai/acre of fluridone and 0.125lb ai/acre of fomesafen. That amount of fomesafen is equivalent to 0.5 pt/acre of Reflex, or one-half the typical rate.

Our research on Brake F2 has been limited to a few trials in 2013. Based upon that, it appears that the following statements can be made:

1. There is good cotton tolerance to Brake F2. Cotton is extremely tolerant of fluridone. If there is injury from Brake F2, it would come from the fomesafen. However, there should be minimal injury from that half rate of fomesafen.
 2. Palmer amaranth control is good. It is hard to say control is better than what we can achieve with standards such as Warrant plus Relfex or Reflex plus Direx, but certainly control is good.
 3. Brake F2 may last a little longer than our current standards. Nevertheless, appropriate postemergence applications will be needed.
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