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# Ag News

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## Off the Top...

### Pesticide Credit Opportunities

#### Cotton and Soybean Scouting School...

A Cotton and Soybean Scouting School will be held on **Friday, July 18, 1:30 p.m.** The class will meet in the auditorium of the J. W. Faison Building. After slides and discussion, the group will move to the field.

Two hours of Pesticide credit will be available for Ag-Pest plant, Research and Demonstration, Dealer and Private Applicators. **'N O D X' credits available.**

The mention of brand names does not imply endorsement, nor discrimination against similar products not listed. Users are responsible for complying with regulations and label instructions.

## Upcoming Events...

**July 18 - Pesticide Credit Opportunity**  
**J W Faison Auditorium**  
**1:30 p.m. "N O D & X"**

**August 26 – Pesticide Recertification**  
**J W Faison Auditorium**  
**10:00 a.m. – 12:00 Noon; and**  
**1:00 p.m. – 3:00 p.m.**  
**Two hours of pesticide credits "V"**  
**for private pesticide applicators**

Persons with disabilities and persons with limited English proficiency may request accommodations to participate by contacting R. Craig Ellison, County Extension Director, at telephone # 252-534-2711, craig\_ellison@ncsu.edu, fax # 252 534-1827, or in person at the County Extension Office at least seven (7) days prior to the event.

## Stink Bugs on Cotton....



Upcoming quarter-sized boll assessments for internal damage from stink bugs should ideally begin within a week or so of bloom initiation. Pre-blooming cotton should not be in need of protection from stink bugs, and sprays during the first two weeks of bloom should be the exception. Be sure to place an emphasis on weeks three through six of bloom, as research conducted here and in South Carolina and Georgia suggests that this may be the period of maximum exposure to possible yield losses from stink bugs. Generally, earlier planted cotton fields tend to have higher initial stink bug levels than later planted, less mature cotton fields. The reverse is true later in the season when the later planted, less mature cotton fields, are more vulnerable.

### Suggested threshold based on most recent research

First week of bloom	50% damage bolls
Second week of bloom	30% damages bolls
Third – fifth week of bloom	10% damage bolls
Sixth – week of bloom	20% damage bolls
Seventh week of bloom	30% damage bolls
Eighth week of bloom	50% damage bolls

### Thresholds – Plant Bugs...

**Pre-bloom:** Plant bug sweeping advised where retention of young terminal and lateral squares is less than 80 percent.

- 8\* plant bugs per 100 sweep (from initiation of squaring until the first or second week of blooming).
- *The sweep net threshold may be raised to 10 if fruiting begins on node 4 through 6, or lowered to 6 or 7 if fruiting has begun on node 8 or higher. Thresholds also may be*

*lowered somewhat in stressed cotton.*

**Post-bloom:** 0 to 6 percent dirty blooms – no additional scouting for plant bugs is indicated for 5 to 7 days. Count any brown anthers as damaged. These “thresholds” should be used along with other assessments, if indicated. Higher dirty bloom levels indicate need for additional assessments (ground cloth).

10 to 50 percent initial internal damage to quarter-sized bolls based on week of bloom, as part of stink bug sampling.

2.3 to 3 adults and medium to large nymphs/5 row feet with a beat cloth (ground cloth).

## Herbicide Resistant Weeds 2014....

Go ahead and officially add glyphosate resistant **common ragweed** to your list of weeds that we need to pay special attention to. Reports of poor or no control have been coming from all areas of Northampton County, so be more attentive as you drive across your field in the coming weeks. To avoid further selection for glyphosate resistance go to the 2014 NC Agricultural Chemical Manual <http://ipm.ncsu.edu/agchem/agchem.html> to select an alternative chemistry that will give control of common ragweed in the crop you are growing.

This does not mean we can forget about **palmer amaranth**. If you have not seen it yet you will so don't drop your guard. Be on the look out for those weeds that just keep hanging around. One of the most effective ways of dealing with the resistant weed is to physically pull and remove the entire plant from the field. This decreases the chances of seed causing a greater problem next year. Like last year the rain did a good job of activating our pre-emerge chemicals. Make sure you stick with your weed management plan. We have had a lot of rain so we may see a quicker break down of our residual chemicals.

## Using Tissue Analysis to Monitor Cotton Nutrition....

The NC Department of Agriculture & Consumer Sciences encourages growers to use tissue analysis to optimize cotton yields. Tissue analysis can be used to fine-tune fertilizer application rates and to detect hidden hunger. Because it is difficult to get nutrients into cotton plants after the 3<sup>rd</sup> to 5<sup>th</sup> week of bloom, we recommend collecting a total of three samples: one the week before first bloom, one at first week of bloom and a final one at third week of bloom. This schedule allows time for fertilizer adjustments to be completed at least by the 4<sup>th</sup> week of bloom. Further, we recommend submitting tissue samples any time a problem is observed to determine if poor nutritional status is involved.

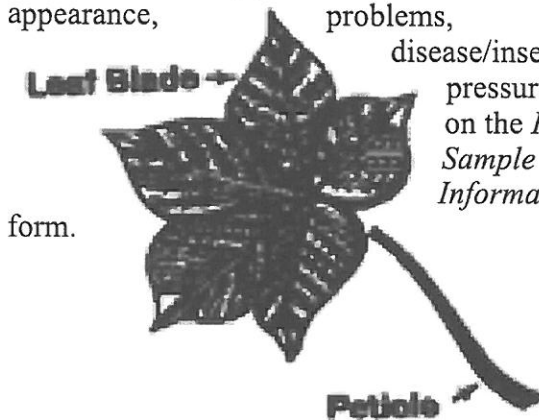
### Collecting Predictive Tissue Samples

***Cotton tissue samples should include both leaf blades and petioles.*** Petioles should be separated from the blades in the field. The analysis this year will include concentrations of NO<sub>3</sub>-N, P, K, Ca, Mg, S, Fe, Mn, Zn, Cu, B in the petiole and concentrations of total-N, P, K, Ca, Mg, S, Fe, Mn, Zn, Cu, B in the leaf blade. ***The total fee for analysis of leaves and petioles is \$7 per sample.***

Accurate recommendations from tissue analysis depend on good sampling technique, including 1) collecting samples at the same time of day preferably between 9 a.m. and 1 p.m.; 2) selecting the proper plant part (the most recent mature leave, which is usually the 4<sup>th</sup> leaf from the growing point on the *main stem only*); 3) submitting sufficient material (25-30 leaf blades and petioles per sample); 4)

separating the entire petiole from leaf blade at sampling; and 5) providing all details – growth stage and week, planting date, fertilization history, environmental conditions, appearance, problems,

disease/insect pressure – on the *Plant Sample Information* form.



# Corn Kernels

## Corn Information for North Carolina Corn Growers

Vernon G. James Research and Extension Center, Plymouth, NC 27962

### Alert: Potential for Southern Rust on Corn in North Carolina

Dr. Steve Koenning – Plant Pathology Extension Corn Specialist and

Dr. Ronnie Heiniger – Crop Science Extension Corn Specialist  
North Carolina State University.

#### What is Southern Rust?

Southern Rust (*Puccinia polysora*) is a particularly aggressive fungal disease of corn that is well adapted to warm, humid or wet environments. Since the fungus cannot survive cold conditions it is commonly found in areas around the equator (Columbia, Venezuela, and the Caribbean) where it can survive the winter. During the summer the disease moves via wind-blown spores to the northern latitudes where corn is more commonly grown. Southern Rust can be recognized by the bright orange or golden brown, circular to oval pustules that give leaves a rusty appearance (Figure 1). The pustules are about the size of a pin head and are filled with powdery masses of orange spores that are readily dislodged and blown in the wind. Thanks to these spores, Southern Rust can spread quickly. Ordinarily Southern Rust of corn is of little concern to North Carolina growers because spores arrive so late in the season that little or no impact on yield occurs. However, every few years a perfect set of conditions allows the disease to develop earlier than normal. Such was the case in 2003 when unusually wet weather and a late planted corn crop resulted in widespread infestation of Southern Rust in North Carolina in mid to late July. Early warm weather and moist conditions have helped set the stage for an early infestation in North Carolina. Already Southern Rust has been found in several fields in Lenior and Wayne Counties.

#### What Makes Southern Rust such a Concern this Year?

There are several factors that make Southern Rust a real concern for corn growers in 2014. First, the early



**Fig. 1. Southern Rust on ear leaf in North Carolina in 2003.**

warm temperatures have helped the disease move toward North Carolina earlier than usual. This movement has been aided by hurricane Arthur. Second, the moist conditions as of July have created an ideal environment for the disease in North Carolina. Any spores that are blown northward will find a home in

## NC STATE UNIVERSITY

North Carolina corn fields. Finally, an early infection of corn just after silking would do serious harm to the North Carolina corn crop. Southern rust is very aggressive. It only takes 5 to 10 days to go from the first signs of rust on the leaves such as shown in Figure 1 to complete leaf loss shown in Figure 2



**Fig. 2. Loss of corn leaves caused by an infestation of Southern Rust in North Carolina in 2003.**

Needless to say leaf losses shown in Figure 2 would result in SEVERE yield declines (or complete crop loss) if this disease infects a corn field just after silking.

### **How Effective are Fungicides Against Southern Rust?**

Experiences fighting Southern Rust in 2003 showed that once the fungus infects the leaf and starts producing large numbers of spores it is very difficult to stop this disease with fungicides. Maximum rates of Tilt and Quadris only slowed the infestation down for a few days. While the number of fungicides for corn have increased substantially since 2003 there is no evidence that these newer fungicides will be any more

effective at stopping or reversing an infestation that has already begun. The key to control of Southern Rust is to prevent the early spores from infecting the leaf thus avoiding further producing of spores. In other words the same strategies that are being promoted for Soybean Rust apply to Southern Rust in corn. It is important to treat PRIOR TO the first spores reaching the field.

### **What Should North Carolina Corn Growers do to Prevent Southern Rust from Damaging the Corn Crop in 2014?**

Corn growers should do the following:

1. For growers who have already applied a fungicide from V10 to R1, keep a sharp eye on your corn crop and the neighbors corn. Scout your fields for Southern Rust. Southern Rust differs from Common Rust in that pustules are found on the upper sides of the leaf rather than on both sides as found in Common Rust (Figure 3) and the pustules are more orange compared with the reddish pustules found in Common Rust. If growers see southern rust in their field or nearby fields they should IMMEDIATELY arrange to spray corn with a trizole (Tilt, Folicur, etc.) or combination strobilurin and trizole (Twinline, Quilt, Quadris, Stratego etc.)
2. For growers in the coastal plain from Whiteville to Williamston who have not applied a fungicide yet they should arrange to apply a fungicide as soon as possible. Since it is virtually impossible to treat the entire statewide corn crop in a timely manner given the aerial and ground resources in North Carolina growers are encouraged to take proactive steps to protect their crop as much as possible. This means spraying a strobilurin fungicide at R1 (50% of corn ears with brown silks) to R3 (milk stage). This is a good strategy because it provides ten days to two weeks of protection which would at least get the crop close to the dent stage at which time the loss of leaf area would have less impact. With the excellent corn crop that most growers have treating with a fungicide at this stage has other benefits (better light utilization

and protection from other diseases) which would pay for the treatment. In other words you get the insurance benefit of early protection against Southern Rust while having it paid for by increases in yield. Since when have you bought insurance and had it pay for itself?

3. We will be alerting extension agents of potentially hazardous conditions and they will help pass information along to you in advance. The current status of Southern rust in the U.S. can found at <http://sbr.ipmPIPE.org/cgi-bin/sbr/public.cgi>.
4. If Southern Rust does get into a field prior to the dent stage (R5) growers should treat aggressively with the best fungicides available at the highest rates. Contact your extension agent for help in recognizing Southern Rust, information on recommended fungicides and rates for treating an infestation of Southern Rust. However, if Southern Rust is found after R5 (dent) then treatment is no longer recommended as the crop should be able to reach maximum kernel weight even under severe leaf loss.



Fig 3. Pustules of Southern Rust on the upper surface of a corn leaf.

It is important that growers recognize the seriousness of this situation and take all precautions to avoid early infestation of Southern Rust. This is a year when a little prevention will go a long way and given the fact that fungicides can be beneficial to a good or excellent crop the use of a fungicide at R1 to R3 is recommended.

#### **What if a Grower has Already Applied a Fungicide Prior to R1?**

There is no known data about the efficacy of fungicides applied prior to R1 (V5 to VT) on Southern Rust. Given the nature of this disease and the persistence of fungicides in the plant it is doubtful that applications of fungicides prior to R1 will be effective against Southern Rust. Therefore, the recommendation is that growers either consider a second fungicide application after R1 or be especially aware of the potential for infestation and take steps to apply a second application of a fungicide if the conditions warrant. While it may cost more to make a second fungicide application the cost is well worth the protection. In 2003, as many as three applications of different fungicides were used to slow the spread of Southern Rust. Harvest data indicated that the yield saved paid for all three of the applications. This just shows how important it is to prevent this disease from gaining a foothold in your field.