Turn Rows

A newsletter covering the Southern Region of North Carolina

September 2013

Volume 7: Issue 7

Topics:

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.

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.

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

Yield Contests

With an overall above average yield for corn, there has been increased interest in this years county, state, and national corn contest. Entries can be made through your local extension agent as well as any other governmental employee with agricultural responsibilities in your specific county. National entries will need to be entered within seven days of harvest with state entries due by November 29. We encourage all growers to participate in the event with entries over 200 bushels invited for recognition to the yearly commodity classic in Raleigh.

We will have both the soybean yield and Most Efficient Yield (MEY) contests again this year. The same rules from last year will again apply to this years contestants. The NC Soybean Producers Assn. still has a bonus of $2,500 (doubled to $5,000 if the grower is a member of the ASA) for the first producer to have a documented yield of 100 Bu/A or higher. For counties without a soybean agent, its OK for an agent in a nearby county to measure the field. The entries are due by Christmas.

GOOD LUCK!!!

NC State University
A&T State University
COOPERATIVE EXTENSION
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Fall Soil Sampling (Sampling now can save you money!)

Colby Lambert---Cumberland County

Soil Sampling

With the corn harvest winding down and many wheat fields laying out this fall from the delayed harvest, now is a great time to take soil samples for the upcoming wheat planting season and for next spring's crops. Taking the time before soybean harvest to sample these fields will save time by getting your results back quicker and saving you money.

The North Carolina legislature has implemented a sampling fee of $4 for samples received from Dec. 1 to April 1 of each year starting in December of 2013. In order to ensure that samples are NOT accessed a fee in 2013; you must have those samples to the soil lab by November 27, 2013. Growers are also encouraged to set up escrow accounts with the soil lab to pay for peak-season samples instead of sending in a check or cash with the samples. The grower will need to contact the Agronomic Division at (919) 733-2655 to set up an account.

Nematode Sampling

Nematodes are by far the most costly pest farmers' deal with year in and year out. Nematodes can rob yields in crops affected worse than any other insect or disease. A nematode assay is the best way to identify the type and severity of nematodes in a field. The fall is the best season to take samples to determine the potential of nematode problems you may face in the spring crop season. Sampling for nematodes is very similar to soil sampling and can be done simultaneously to save time in the field. For soybean crops, nematode sampling early can help growers to choose varieties that have nematode resistance and whether or not a seed treatment is warranted. In corn crops, stubby root nematodes can be a problem often unseen and unnoticed until it's too late. In tobacco crops, a nematode assay can help you decide on whether to fumigate the field and help with matching varieties to those particular fields.

Sampling supplies are available at your local County Extension Offices as well as resources to help you put those sample results to work for you.

NOTE: This year, December 1st falls on a Sunday and is preceded by the Thanksgiving holidays. Wednesday, November 27th, will be the last business day of the month for the soil testing lab. Any soil samples arriving after 6 p.m. on November 27th will be subject to the peak-season fee because they will not be logged in and processed until December 2nd.

Sample drop offs must take place during business hours (6 a.m.–6 p.m., Mon.–Fri.). A locked gate will prevent access to the loading dock area after hours and on weekends. This change will help increase the security of samples and improve customers' access to Agronomic Division personnel.

Payment should not be placed inside shippers. By late Fall 2013, clients will have the convenience of entering sample and payment (credit card) information online in the PALS website. Cash and checks will be accepted for peak-season samples only if deposited in advance in an escrow account.

Cotton Defoliation

David Morrison---Scotland County

To say that there is variability in this year's cotton crop would be an understatement. Not only is there field-to-field variability there is within field variability as well. Lower spots or swags have suffered from excessive rainfall and shallow root systems. Also brown roots means that there have been some diseases involved and plants have been slow to recover in these areas. We have been surprised with the recovery of the crop in the past few months, however we need rainfall to continue to improve on this year's crop.

Pulling the trigger to defoliate cotton this year will be a difficult decision. In most years we tend to defoliate cotton when it is more in the range of 70 to 80 percent open, rather than the recommended 60% to 70% (the 65% open rule is only a guide and can result in problems if the crop has fruiting gaps as a result of insect damage or wet soils). Other guides are Nodes above cracked boll. With this strategy you count the harvestable bolls above cracked boll and if the forth boll is hard to cut with a knife and the cotyledons are folded and seed coat is dark it is O.K. to defoliate. Low plant populations may necessitate harvesting at a nodes above cracked boll of 3 because more fruit is set on vegetative branches.

Hal Lewis method uses the first position bolls on the bottom four fruiting branches. If micronair is in the discount range (high mike) then you may want to defoliate earlier than the 60-70 % to reduce micronair and drop you into the recommended range. I, however, am not a cotton grader so don't ask me how this is done.

It is difficult to estimate what type of crop we will have this year and when it will be ready to defoliate, but for the most part it seems pretty late. The recent hot dry weather may result in small bolls aborting and if it continues could make the crop a little earlier. I am writing this on September 9 so by the time you receive this conditions may have changed drastically, hopefully for the better.

Weather conditions at, and 3 to 5 days after defoliation determine how successful you will be. Sunny days, high humidity and warm night temperatures above 60 degrees will result in much quicker defoliation than cloudy days. Low humidity is often correlated with lower temperatures, especially at night.

Depending on the crop I would use a minimum of 15 gallons of water per acre with cone nozzles. I would not use the A.I. nozzles since the droplets will be too large to get good coverage. If you like fan nozzles I would tend to use the turbo teejet nozzles and make sure the pressure is such that you are breaking up the droplets. Don't spray when there is heavy dew on the plants, as this will dilute the concentration and it may just run off the plant.

Cotton Continued..

The use of adjuvants may result in more desiccation during hot weather, but can be of benefit under cool conditions. The use of adjuvants with hormonal type defoliants such as Thidiazuron on drought stress cotton will be of benefit in getting this defoliant through the cuticle of the leaves that are thickened and waxy as a result of drought stress. Do not use adjuvants with Ginstar under high temperature conditions, as it can result in more dessication. Boll openers can be applied at least 3 days before freezing temperatures to assist with boll opening, however 5 days would be much better.

Don't get too caught up on waiting for the later areas in the field to reach the desired opening. If you do this and cotton is falling out on the ground in the better areas then you are spinning you wheels, and may actually be going in reverse. Look at the big picture and don't get tunnel vision on the wet spots.

Activity of Defoliants

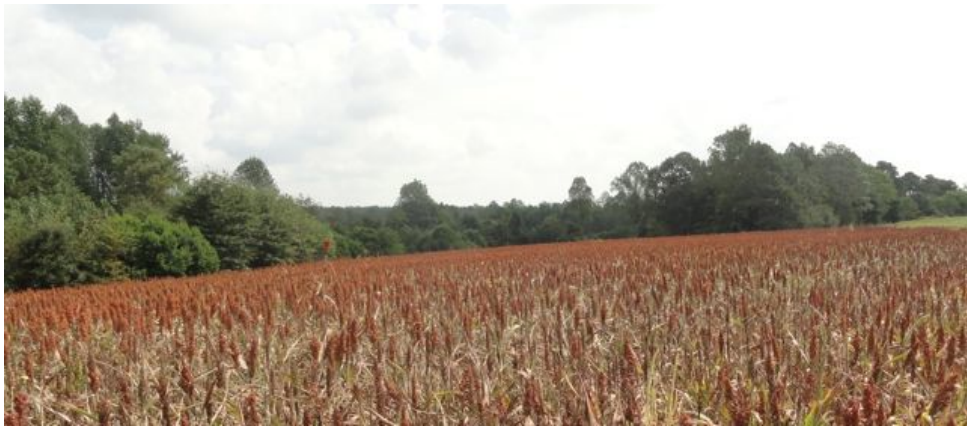
Harvest Aid	Rate/ Acre	Rain Free Hr.	Min. Temp.	Mature Leaves	Re-Growth	Boll Opening
Thidiazuron SC	1.6-6.4 oz	24	65	Excellent	Excellent	None
Ginstar	6.4-16 oz	12	60	Excellent	Excellent	None
Folex 6	16-24 oz	1	60	Excellent	Poor	None
Aim	0.5-1.6 oz	8	55	Excellent	Poor	None
ET	1.5-2.75 oz	1	55	Excellent	Poor	None
Ethephon	21-42 oz	6	60	Fair	Poor	Excellent
Finish 6 Pro	21-42 oz	6	60	Excellent	Fair	Excellent

Sorghum Harvest Guidelines

Paige Burns---Richmond County

It is important to remember that grain sorghum is a perennial crop, unlike corn or soybeans. Given good weather (rain and no killing frost) the plant will stay green and continue to tiller even as the head matures. The first task is to determine if the grain is mature and ready to harvest. Remove a grain from the middle of the bottom third of the panicle: if mature, it will have a black tip on the base; this is called the black layer stage. Because of differing factors, such as varying field conditions, not all grain heads in the field will be mature and ready for harvest at the same time. As a rule of thumb when 2/3 of the grain is mature the field should be harvested.

The other challenge is moisture levels. Since it is a perennial, milo does not dry down just because the grain is maturing. Waiting for the grain to dry in the field (after a killing frost) will often lead to the conditions listed above which result in loss of quality and quantity (bird predation, bad weather, etc.). Therefore one should have a plan to dry down the grain or have a buyer who is able to take the crop and dry it down for a reasonable cost. Moisture levels should be around 14% for most buyers, or 13.5% for storage. To reduce the cost of drying down, harvest should begin when grain moisture is between 18-19% (about 10 days to two weeks after maturity). Dry weather conditions with temperatures 80 degrees or above should bring moisture levels to this target or better.



You may wish to consider using a dessicant to hasten the drying process. Using a dessicant also has the added benefit of improving harvest conditions by reducing interference from green leaves and stalks. It also reduces stickiness of the crop during harvest which can be a problem. Glyphosate (Roundup or a generic) and sodium chlorate (Defol) are two materials labeled for this use (see labels for rate). Gramoxone is not labeled as a dessicant because of concern for residues on the grain. Either labeled product works well; the choice on which to use may be based on the presence of round up resistant pigweed in the field. If resistant pigweed is present, Aim may be added to the Defol to address pigweed as well as morning glory. Timing is important in the application of the dessicant: apply when mature grain is found in the lower third of the panicle; applying dessicant past this point may actually increase the time it takes to dry down the grain.

Sorghum Continued..

Once the dessicant has been applied, plan to harvest within 14 days if using glyphosate and between 5 and 21 days for Defol. The glyphosate will kill the plant, so harvest should be timed to prevent potential interference from plant lodging. Defol does not kill the plant, so it can continue to tiller if the harvest does not occur within the 5-21 day timeframe.

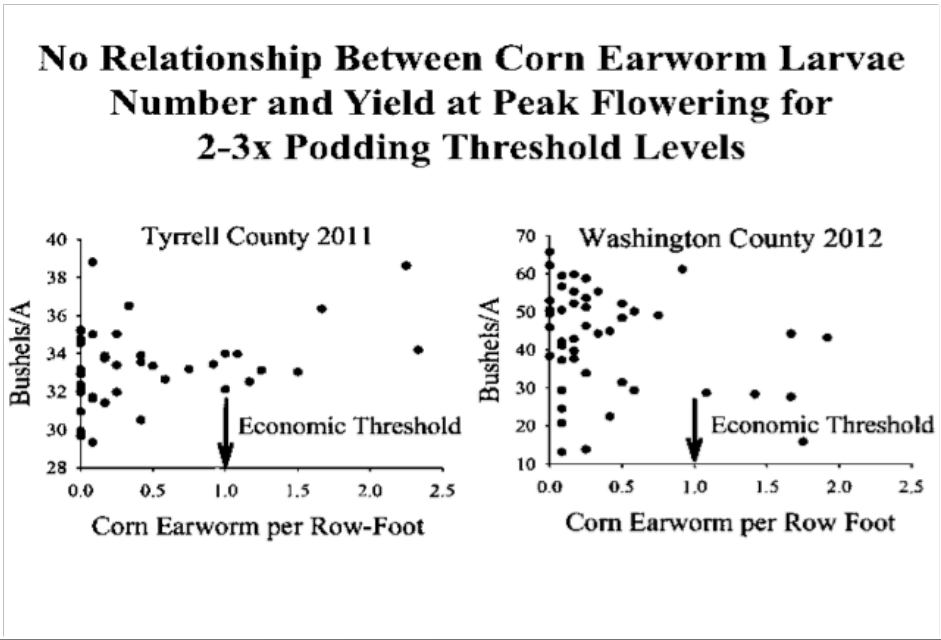
By understanding how grain sorghum matures, and the importance of timeliness in managing the harvest aspects of the crop, you can ensure a harvest for optimum quality and quantity.

Soybean Insect Update

Keith Walters---Hoke County

Should I spray insecticide over flowering beans? The short answer is no. You should only spray if you've reached 15% defoliation throughout the canopy or are at one kudzu bug nymph per sweep of the net. This means that the vast majority of our fields do not need an insecticide at flowering. We understand the temptation to tank mix in a cheap pyrethroid when you're already spraying a field. However, even at $2 an acre, your money is likely wasted and can cause problems later in the season.

Can corn earworm eat flowers? Yes, but the plant can shed 80-90% of the flowers without impacting yield. The North Carolina Soybean Producers Association recently funded a student to work on this and she showed that earworm larvae would eat flowers. However, even at levels that were 2-3 times the podding threshold, we did not see a yield impact. Most fields won't have levels these high.



The arrows in the charts above depict the threshold level for podding soybeans. If there were a relationship between corn earworm numbers and yield, we would expect yield to decrease as earworm levels increase. There is no such relationship.

Insects Continued..

Should I spray a pyrethroid to clean up insects that are already out there? Put another way, "I'm killing something", right? Pyrethroids are broad-spectrum insecticides and you will likely kill a lot of things. The trouble is that you will also kill natural enemies. In the middle of August a broad-spectrum insecticide was sprayed on flowering soybeans to ENCOURAGE insect populations in a research test plot. Often when this is done, you can flare worm pest levels (which is how we got the numbers in the flowering studies above). It's better to wait and spray once the soybeans are podding. A lot can happen between flowering and podding to kill those worms.

View from the sweep net after 10 sweeps. The photo was taken three weeks after an automatic spray at flowering.

Many people say they sprayed last year at flowering and didn't have any insect problems. Someone once said that insecticides work great in the absence of insects. Generally you can follow up your spray and see that you did a decent job on cleaning up. Resurgence is the problem here. The major problems last year occurred with corn earworm, loopers and beet armyworms that were following automatic sprays. Natural enemies were killed and he worms had a heyday.

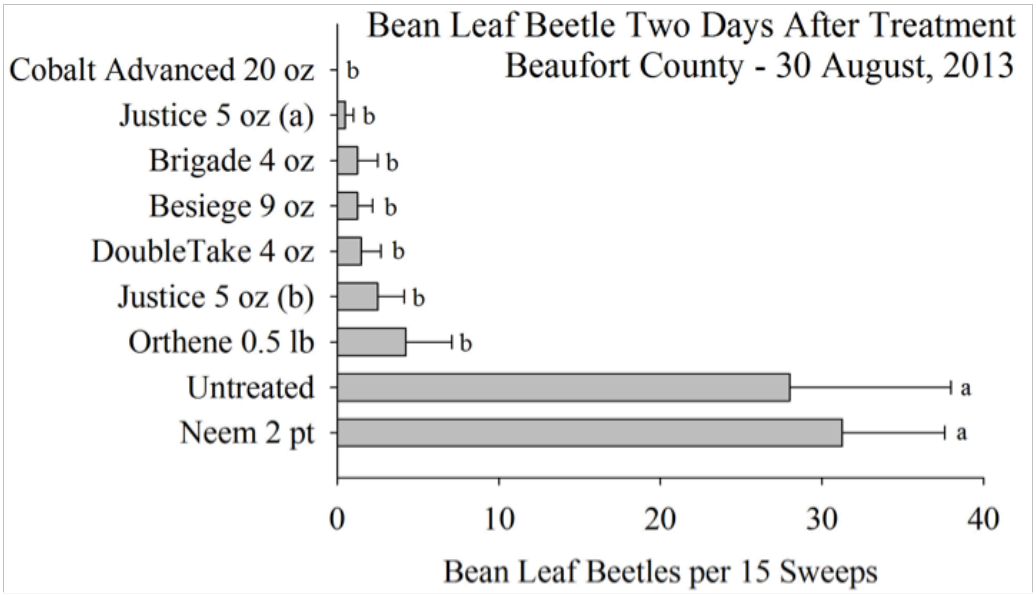
When and what should I spray for soybean loopers?

Soybean loopers are a migratory pest that we sometimes see in soybeans late in the season. Numbers really picked up in the research plots in the Sandhills region of the state and picked up more in the Blacklands region. Remember that the threshold for soybean loopers (and all defoliating pests) is 15% defoliation throughout the canopy. Loopers generally defoliate from the bottom of the canopy up so peel back those plants when you scout.

Although pyrethroids will knock loopers back initially, they will often resurge because they are tolerant to these chemicals and because natural enemies are removed. Some top choices for soybean looper control are Belt, Prevathon and Steward. There are premix products that will also work, such as Besiege, but these should only be used if you need the non-worm portion of the premix (such as stink bugs or kudzu bugs at threshold). Remember that you want to preserve natural enemies if possible. Tracer/Blackhawk and Intrepid are also good effective chemicals for loopers.

Insects Continued..

What is the threshold for bean leaf beetles and should I rotate the chemistry used for control?



Bean leaf beetles should only be treated if the canopy reaches 15% defoliation throughout, during the reproductive stages to R7 (flowering to one brown pod anywhere on the plant) or 30% defoliation during the vegetative stages. Pyrethroids and organophosphates generally provide good control, but you should rotate chemistry. In the first trial, Cobalt Advance, Justice, Brigade, Besiege and DoubleTake all contain pyrethroids. Cobalt Advanced and Orthene both contain organophosphates. These are broad-spectrum insecticides, killing natural enemies, which sometimes leads to secondary pest flare-ups. Besiege contains a pyrethroid + chlorantraniliprole, which is active on caterpillars that are tough to kill with pyrethroids, such as loopers, fall armyworm, and beet armyworm. Neem is a certified organic material. Bean leaf beetle can develop a tolerance so a rotation of chemistries should be used for control.

Late Season Soybean Diseases

Jessica Anderson---Anson County

Soybean Rust

Asiatic soybean rust has been confirmed in two samples from Cleveland County. This is in addition to the confirmed sample from Scotland County on September 5. Consider spraying a fungicide for soybeans that have started blooming and do not yet have full sized seeds in the top four nodes of the plant.

With soybeans planted late, the need for a fungicide has increased significantly. Rust has been confirmed this year in eight states including Louisiana, Florida, Alabama, Mississippi, Georgia, North Carolina, South Carolina, and Arkansas. Rust is progressing faster than years in the past. We do not recommend spraying soybeans that have not started blooming. The recommendation is to spray if rust has been confirmed within 100 miles of the field and if soybeans are blooming.

What to look for?

Rust causes superficial, tan to reddish brown lesions that appear on plant tissues. Lesions will contain one to three rust pustules which are raised on the leaf surface. Rust pustules may appear on cotyledons, leaves, petioles, stems, or pods but are typically seen as raised pustules on the under side of the leaf. A hand lens may help in seeing the pustule. Placing leaves in a bag with a moist paper towel for twenty four hours may cause the pustules to erupt, making I.D. easier.

Windblown spores infect susceptible tissue at temperatures of 45to 83 degrees. Leaves must be wet for infection to occur. Pustules will develop within a week to ten days after infection, and spores are produced after about three weeks. This is why this year has been exceptionally susceptible due to the wet weather.

Because the tissues are infected with windblown spores, it is important to take note of cases in the area around your farm. Preventative sprayings are recommended if soybeans are 100 miles from a confirmed case and in the R1-R3 stage. Fungicides labeled for rust include: Strobilurins such as Quadris, Evito, and Headline. Triazoles such as Alto, Topguard, Caramba, and Proline. Or combinations such as Quilt, Stratego, and Quaris Xtra.

Sudden Death Syndrome (SDS)

Sudden Death Syndrome was first detected in NC in 2001, although it is commonly found in Midwestern States. The name “sudden death” refers to early defoliation and death of the plant. SDS is most severe when soybeans are planted into cool, wet soils and when heavy midsummer rains saturate the soil. SDS is caused by a soil-inhabiting fungus that can live in the soil for many years. The conditions we have had this year, have been perfect for early-planted soybeans to contract SDS.

Diseases Continued..

The first noticeable symptom of SDS is yellowing and defoliation of upper leaves. This will first appear in a few small areas or strips in the field. Over the next few weeks, affected areas may enlarge. Foliar symptoms typically do not appear prior to soybean flowering. As the plant progresses to pod formation yellow spots on leaves may coalesce, becoming yellow between the veins, which remain green. As the disease progresses, the tissue in the leaves actually die, changing from yellow to brown in color. Roots will show an obvious root rot and plants can be pulled from the ground easily. Splitting the stem will reveal a dark brown to reddish-brown discoloration of the lower stem and root.

A number of different pathogens cause symptoms that resemble SDS. Red crown rot, in particular, has almost identical symptoms. It is necessary to take samples to accurately diagnose SDS. Please contact your local Extension Agent for assistance.

There are soybean varieties with moderate to high levels of resistance to SDS are available. Because it is a soil borne disease, varieties resistant to SDS should be considered in fields known to have this disease. Crop rotation does not seem to affect disease severity. Cases have been found following both corn or cotton crops. Suppression of soybean cyst or root-knot nematode through crop rotation or the use of soybean varieties resistance to the species and races of plant-parasitic nematode present may limit yield loss from SDS. Sudden death syndrome tends to be more severe in fields under reduced or no-till management. Late planting and double cropping or the use of early maturing varieties may also suppress disease development.

Keys For Successful Wheat

Mac Malloy---Robeson County

Dr. Randy Weisz, Extension Small Grain Specialist at North Carolina State University, has identified four keys to high-yielding wheat that I would like to highlight as growers draw closer to planting. You will note many of the recommendations occur before you get to the field, so be prepared to plan ahead. This is easier said than done when late-season management and harvesting of other crops coincides with early planning of wheat. Hopefully, highlighting the four keys will at least help identify what is most important.

Key #1 - Get Right with Your Soil

With the excessive rainfall that N.C. experienced so far in the 2013 growing season, this will be more important than before. Many mobile nutrients may have been lost within the effective rooting zone. Take soil samples now and apply lime and other nutrients as needed. This will reduce the chance of nutrient deficiencies during the growing season, which helps avoid crop stress. If nutrient deficiencies do occur in season, take diagnostic soil samples and plant tissue samples to correct fertility problems.

Wheat Continued..

Key #2 - Plant Timely

North Carolina State University studies have shown yield losses occur when planting is delayed. According to 2012 results in Robeson County, a yield loss of 32 bushels per acre was measured when planting November 21 compared to wheat planted timely on October 26. Similar results were found in Rowan County with about 15 bushels per acre difference. It is important to note that neither increased seeding rates or the use of pop-up fertilizer could make up the yield difference from planting late. Use Figure 1 to determine the optimum starting date for your area. Seeding rates should be increased by 4 - 5 percent for each week planting is delayed.

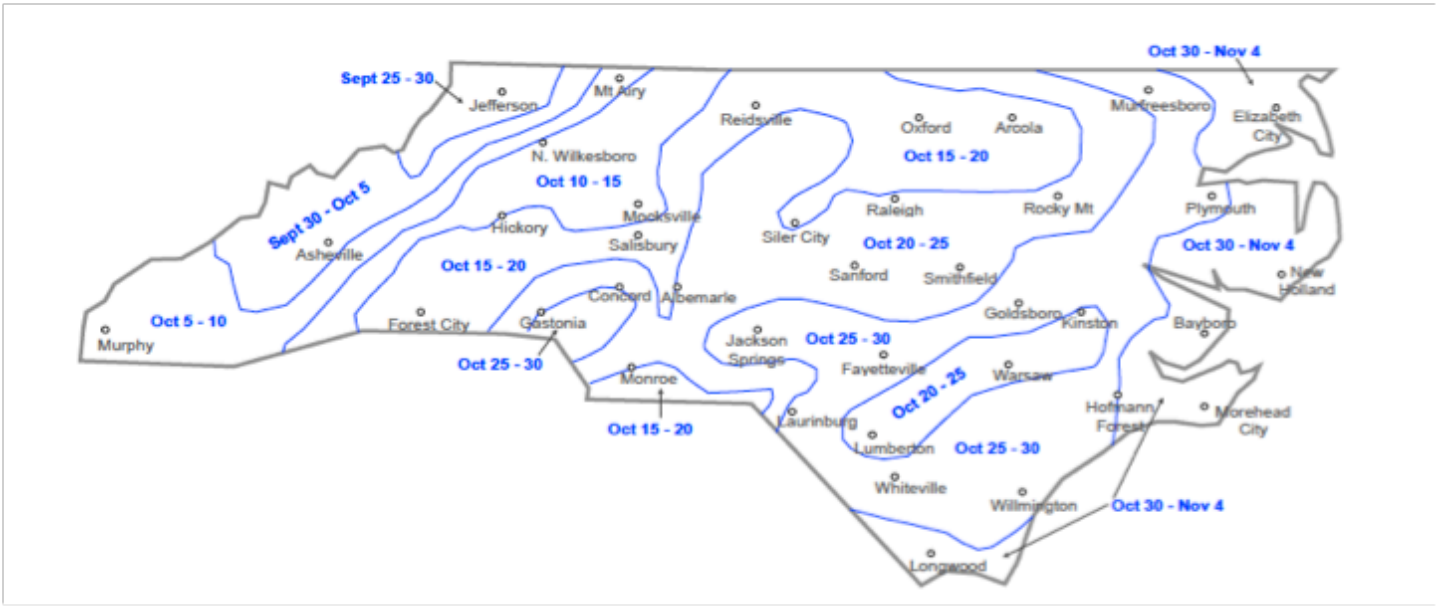


Figure 1 - From page 15 of the 2013 Small Grain Production Guide, North Carolina State University.

North Carolina State University recommends 1.3 - 1.5 million seeds per acre in a conventional till setting. Table 7.1 from the 2013 Small Grain Production Guide shows the variance of seeding rates depending on seed size. This is a very useful chart when calibrating your drill. Calibrate your drill for each variety that you will plant. It is also important to calibrate the drill for any seed used with different seed treatments. Drill settings may have to be changed even for the same variety to compensate for seed treatments compared to untreated seed.

Successful Continued..

Table 7-1. Wheat, triticale, and hulled barley seeding rates for conventionally tilled seed beds planted on time using a target of 1.31 to 1.52 million seeds per acre with 90 percent germination as a standard. These rates need to be increased by 20 percent for no-till.

Million seeds per acre:	1.31	1.52
Seeds per square foot:	30	35
Seed size (seeds per pound)	**Pounds of seed per acre**	
10,000	131	152
11,000	119	138
12,000	109	127
12,500	105	122
13,000	101	117
14,000	94	109
15,000	87	101
Drill row spacing (inches)	**Seed per drill-row foot**	
6	15	17
7	18	20
7.5	19	22
8	20	23

Table 7.1 - From page 21 of the 2013 Small Grain Production Guide, North Carolina State University.

Key #3 - Disease Control

According to the 2013 Small Grain Production Guide, the best way to minimize disease management cost and to maximize yield potential is to include disease control in every stage of small grain management. This includes variety selection, choice of seed source, seed treatment, planting date, seeding rate, fertility, and all aspects of spring pest control. It is important to know your common diseases, which can be broken down into region:

South Central	Leaf Rust, Powdery Mildew, Head Scab, Soil Viruses
Piedmont	Barley Yellow Dwarf Virus, Head Scab, SNB
Tidewater	Leaf Rust, Head Scab, SNB, Soil Viruses

Successful Continued..

Special selection of varieties with moderate resistance to soil viruses should be used in fields with known problems. If you notice problems in your wheat, contact your local Extension agent to get proper identification.

Should a fungicide be appropriate, selection of products is provided within the N.C. Agricultural Chemicals Manual at: http://ipm.ncsu.edu/agchem/agchem.html. Additionally, scouting methods, specific economic thresholds, and other disease management information appropriate for North Carolina can be found at the NCSU Small Grains Production website at: http://www.smallgrains.ncsu.edu/.

Key #4 - Variety Selection
Variety selection is probably the most important key to producing high-yielding wheat. You can find the latest 2013 Wheat Variety Performance and Recommendation online as well at: http://www.smallgrains.ncsu.edu/. This recommendation has valuable information including yield performance, heading date, and ratings for pest resistance. Plant at least three varieties, keeping in mind yield potential, pest resistance, and heading date. To reduce possible spring freeze injury, avoid planting more than one early-heading variety and at least one late-heading variety. Early-heading varieties should be planted last and late-heading varieties should be planted first.

Implementing these four keys should get your wheat crop off to a great start with the potential to reach high yields in a way that will reduce your risks using sound management strategies. Best of luck and let's all hope 2014 harvest will go smoother than it did last year from all the rain.

Nitrogen Management in Wheat

Andrew Baucom---Stanly & Union County

When Planting Near the Recommended Dates:

1. 15 to 30 pounds preplant N are generally sufficient to promote growth and tillering.
2. When planting behind soybeans or corn, carryover N is impossible to predict. So putting a small amount of preplant N is still recommended.

When Planting Later than Recommended:

1. Research has shown the late-planted wheat may not respond to preplant N applications.
2. Even when applied at high rates, the low temperatures will not allow the N to be taken up to promote tillering.

Wheat Continued..

Winter Rescue Applications:

1. Indications of a N deficiency include pale green color, thin and poorly developing stands, and leaching rains after planting.
2. An application of 15 to 30 pounds N per acre can help to green up the crop to help reduce yield lose. Applications need to be made when daytime temperatures exceed 50 degrees.

Growth Stage 30: (the most important time to apply N)

1. Lack of N at this stage when the plant begins reproduction growth will severely reduce yield. The majority of N needs to be applied to the plant at this stage.
2. An application between 80 and 120 pounds N per acre (minus any that was applied in January or early February).
3. We highly recommend tissue sampling at this stage to determine exact rates of N to determine variance from field to field, winter weather condition, and crops yield potential.