

TURN ROWS

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Topics:

- Regional Turn Rows
- Cotton Management Going Forward
- Kudzu Bug Scouting
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- Wet Soils Affecting Corn
- Recommendations for July Planted Soybeans

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Turn Rows is going Regional!

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

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The Turn Rows publication encompassing the Southern Piedmont region of the state has now expanded to cover more southeastern counties. The newsletter will now encompass the entire Southern Region of North Carolina. We will start publication every other month beginning in July. The newsletter will combine knowledge of agents from Anson, Cumberland, Hoke, Robeson, Scotland, Stanly and Union Counties. We would like to thank Jessica Anderson, Colby Lambert, Keith Walters, Mac Malloy, David Morrison and Andrew Baucom for their support in this venture. Our goal is to provide an even wider array of articles that will assist in production and management of agricultural crops. Local county news (pesticide classes, field days, etc) will still continue to be reported. This information will be located at the back of the publication. If you have any questions or suggestions for articles please do not hesitate to contact your local extension agent. Again, thank you for your continued support of Turn Rows and of Cooperative Extension.

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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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Cotton Management Going Forward

David Morrisison---Scotland County

Our cotton crop is almost the exact opposite from last year. Many of our better soils have little oxygen for proper growth of the cotton plant and have resulted in stunting and delayed development in the lower areas of the fields. We have seen some cotton that will start blooming the end of July. This will only give us one week of effective blooming to set a crop.

If you have bought up insurance you will probably want to slow down or stop the flow of money into inputs depending on estimated yields. We have many fields that unless we have perfect weather from this point on, will struggle to make a bale per acre. With that in mind, here are a few suggestions going forward.

1. Talk to your insurance agent to determine what your options are, and how much you are guaranteed.
 2. Try to access what potential yield you can expect, your insurance agent can have a crop adjuster to help you with this. If adjusted yields are low enough you may want to abandon the cotton and use gramoxone and/or mowing to keep weeds from seeding out.
 3. Limit resources to fields or parts of fields that can be reasonably expected to give you a return on your investment.
 4. Control weeds and get nitrogen out as soon as possible.
 5. Don't fertilize for a 2-bale crop if you only have potential for 500 pounds, defoliating over fertilized crops can be difficult.
 6. Use economic thresholds to reduce plant/stink bug to a minimum. Remember that saturated soils can cause cotton squares to abort in a similar fashion to plant bugs. Scouting for plant bugs will determine if they are the problem.
 7. This crop is late. The use of mepiquat (Pix) can be more important with a late crop than a "normal" crop. This is because mepiquat can make cotton mature earlier. This could be important this fall since the crop is averaging being about 2 weeks behind. Determine the last date that you can effectively make a bloom, weather it is August 25 (old timers date) or September 1 (under ideal conditions).
 8. Since it takes 21 days for a recently developed square to bloom, back up 21 days and any growth that develops after this date will most likely not be harvested. In this case it would be August 4 or at latest August 11.
 9. Make growth regulator applications to limit any growth after these dates if possible.
 10. Cotton growth is all over the board this year from cotton that is 30 inches tall and a ways away from blooming to very stunted from saturated soils in lower areas of fields. The cotton that is 30 inches tall prior to bloom obviously could use some mepiquat as soon as the weather allows. I would wait on the stunted cotton to resume normal growth if/when things dry out. We would like to see cotton get some fruiting sites (nodes) before we risk decreasing growth.
 11. Of course there is often some of each of the cotton described above in the same field. This would be a great place to use a wick applicator if you have one, otherwise you are stuck trying to cut the sprayer on and off. Where this is not feasible, I would tend to go ahead and put 3/4 the rate suitable to the taller cotton on the entire field and be ready to treat again soon.
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Kudzu Bug: scout before you spray or beneficials could be lost

Jessica Anderson---Anson County

It is very important to properly scout soybean fields before spraying for kudzu bugs. Remember that kudzu bug reduces the number of seed and seed size but does not effect pod number. If sprayed during R2 or R3 with a pyrethroid, the spray will work on kudzu bugs but will also kill beneficial insects, probably flaring a worm population. The first major corn earworm moth flight and egg lay into soybeans typically happens around the end of July to the beginning of August. **Do not tank mix an insecticide for kudzu bugs just because you think you need to without assessing the situation.** All that will do is kill what's there and set up a potential bigger problem later (corn earworms).

Kudzu nymphs of one nymph per sweep is the threshold to spray. These nymphs are small, green, round and are less likely to land in the net except in dense populations. Many times you find nymphs clustered around the stem and think "there is no way those are going to end up in a sweep net." But that's the point. Entomologists know that the sweep net does not take a representative sample of what's on the stem. As the nymphs begin to get larger, they will begin to move around more, ultimately ending up in a sweep net. Even if you can see the insects when you peel back the canopy, it might not be at a threshold level yet. As the nymphs get older, they will end up in a sweep net. Be patient, kudzu bugs do not develop as fast as other insects, so they will not shoot up overnight.

Some tips when using a sweep net:

- Kudzu bugs congregates on field edges. Treatment decisions should be based on field interiors of average sized plants. Start sampling 50 feet into the field.
- Take 15-20 sweeps per sample. Keep the same number of sweeps per sample and per field to compare them.
- Try to get the net to hit the middle portion of the plant, low into the canopy. Kudzu bugs congregate on the mid section of the plant.
- Sweep at a comfortable pace that you can maintain throughout sampling.
- Kudzu bug is active from 11AM to 2PM, scout during this time to get the best sampling since kudzu bug stays low to the ground at other times.
- Check the bottom of the sweep net at the end because nymphs might cluster there.



As always, if you have questions about scouting procedures contact your local Extension Agent.

Tobacco Management in Wet Conditions

Colby Lambert---Cumberland County

Tobacco Nitrogen Management

The excessive rains in June have many tobacco growers scratching their heads about how much more, if any, nitrogen they should apply to their tobacco crop. The biggest question is: "Can I get in the field to put out additional nitrogen?" The problem with the crop at this point in many cases is the tobacco is too tall to cultivate and apply additional dry nutrients to the row. However, you can still apply liquid N over the top or dry materials with a large rotary spreader. The next question is how much to apply? In most cases, depending on the type of soil, 15-20 units of additional N should be the maximum applied to avoid getting the crop too rank. Liquid N should be applied at a rate of 3 gallons of 24S in 50 gallons of water in the same manner as a contact application. If you plan on applying dry fertilizer, plan on applying 50% more than the target N needed to account for row middles and additional rain. On very sandy soils, where little sulfur was applied up front, adding KMag with the dry fertilizer material will be needed. Additional nitrogen will not green up the crop if sulfur is deficient. I want to caution growers not to put out too much N with this shallow rooted crop because if/when this wet pattern breaks, the roots will begin to explore the soil and pick some N that growers thought they had lost and make for an ill handling and curing crop. Topping should help the crop to green back up somewhat as well, and if the bottom primings look to be lost cause, knocking them off could also help the crop and should help with target spot as well.

Target Spot

In many areas, tobacco that is yellow or has been in standing water for any length of time has developed target spot. In some fields, target spot is more of a concern than the lack of nitrogen. The current weather conditions have been conducive for target spot to move rapidly up the plant and threaten the middle and upper stalk leaves. The bottom leaves should be removed as soon as possible if they are severely damaged by target spot. This will help to get air circulation to the bottom of the plant and help to keep the disease inoculum from splashing up on the plant from the rain. Quadris should be applied as soon as you can stand up in the field with the sprayer.

Drop nozzles should be used to get the best coverage on the lower and middle stalk positions. If you do not have drop nozzles, change the direction of the outside nozzles to the opposite rows to get more coverage. Make sure to use high pressure and high volume to get as much coverage on the plant as possible. Concentrate on the fields that are yellow in the mid to lower stalk. Green, healthier tobacco seems to be less affected by target spot at this point, but could develop the disease as time, and the rain, continues.



Tobacco Management Continued..

Sucker Control Options*

The main advantages of applying contacts are controlling suckers until the upper leaves are large enough for MH (or flumetralin) and extending the total length of time of sucker control through the season. MH (systemics in general) only holds suckers for a fixed amount of time and every week that contacts are used to control suckers adds to the total length of time suckers are controlled. The second point is sometimes overlooked but can be very important.

In addition, even though the upper leaves are growing quickly they are thin in many cases, and additional time before application of systemic sucker control products can allow them to “fill out”. It would also allow for additional root development knowing that much of the crop has a poor root system.

*Information provided by Loren Fisher

Plant Bugs in Cotton

Andrew Baucom---Stanly & Union County

With some cotton fields nearing squaring, retention monitoring should be getting underway. Weekly checks of upper square retention is the most efficient way to determine if plant bugs can be ruled out as an economic concern or if sweeping is necessary. A retention rate of 80% or more usually indicates that damaging levels have not been reached. If less than 80%, sweeping is recommended in 6-8 locations throughout the field away from the edge. A threshold of 8 plant bugs per 100 sweep usually indicates that a spray is needed at that time.



Generally the neonicotinoid-class insecticides perform well early in the season before flowering and often at lower rates. Examples of these products are: Admire Pro, Belay, Centric, Intruder and Trimax Pro. Another advantage to these products is that they generally do not destroy beneficials which keep secondary flare ups at bay.

If plant bugs are a concern later on, or require a second spray, first check to see that aphids are not common in the field. If they are, you should not use a neonicotinoid product again. Continued use of these products in seed treatments and premixes are beginning to show pockets of insect resistance and should be avoided at all costs. Switch to a product like Carbine or Transform. If aphids are not a concern, you should still switch to a premix and not a stand alone such as Bidrin, Orthene or Vydate. Many of these products are also effective against stink bugs. The downside to these products is that they will kill off beneficial organisms putting you at risk for bollworm and spider mites.

Wet Conditions Affecting Corn

Keith Walters---Hoke County

While getting rainfall in June and July is certainly preferable to getting little or none, standing water and wet soils can badly damage a corn crop. With the crop planted late and developing slowly under cool temperatures, standing water results in serious and irreparable damage to root systems. This lowers yields in low-lying fields and parts of fields where flooding occurs.

When soils remain saturated for more than a day or two, the lack of oxygen causes nutrient uptake to slow quickly, and root tips start to die off. It helps that temperatures have not been above normal; cooler water carries more dissolved oxygen, and also slows growth and nutrient uptake. Plants during vegetative growth have much better ability to grow back damaged root systems once soils drain than do plants during or after pollination.

These factors, along with the very good crop color (which indicates good root activity and adequate supplies of soil N) before the rains in late June, point to good chances for recovery of crop yield potential in fields and parts of fields where the water is no longer standing. In the short run, plants may lose some of their green color before roots are fully functional again, but this will likely be a temporary condition. While many worry that any stress during mid-vegetative growth will lower yield potential, there's not much evidence that a few days with reduced photosynthetic rates has much effect on yields, at least if this occurs more than a week before tasseling.

Regardless of how quickly the crop returns to normal after an event like temporary flooding, questions will remain about how standing water might affect the amount of nitrogen left in the soil to meet the needs of the crop. Warm, saturated soils lose nitrogen (as gas back into the air) through the process of denitrification. We do not think that such losses have been very large in most fields, given the temperatures and the fact that most flooding was temporary. In better-drained fields, denitrification would be less, but percolating water has probably moved some of the nitrate-nitrogen deeper, perhaps below the root system.

By the time corn accumulates 1,000 GDD, reaching about stage V13, it has accumulated about 20 percent of its dry weight and about 40 percent its season-long nitrogen accumulation. (Abendroth et al., 2011) During this period the crop takes up 3 to 3.5 lb of N per acre per day, and by the time of pollination, it will have taken up about 60 percent of its nitrogen and produced about 40 percent of its dry weight.



Wet Conditions Continued..

At the time the crop reaches stage V13 (about head-high), it still has to take up 110 to 120 lb of N, and in years when June is wet, a common question is whether or not the crop might run out of nitrogen, leaving the crop short. While the need for 20 or more lb of N per week would seem to raise the possibility of a shortage, the production of plant-available N from soil organic matter through the process of mineralization is also at its maximum rate in mid-season.

For a crop with a good root system growing in a soil with 3 percent organic matter, mineralization at mid-season likely provides at least half the N needed by the crop on a daily basis. This means that normal amounts of fertilizer N, even if there has been some loss, should be adequate to supply the crop.

Though we could measure soil N present or apply urea by air on the wetter field or parts of fields where the crop shows deficiency, it would seem prudent to wait to see if the crop recovers its green color before going to this expense. The loss of crop color in wet soils is due mostly to loss of root function, and roots will need to recover before the canopy does. Even without adding more N, odds are good that the crop will recover and thrive in the coming weeks, providing the weather remains favorable.

References:

Abendroth, L.J., R.W. Elmore, M.J. Boyer, and S.K. Marley. 2011. Corn growth and development. PMR 1009, Iowa State University Extension, Ames, Iowa, Nafziger, E.D. 2013. Corn Roots, Wet Soils, and Nitrogen. University of Illinois at Urbana-Champaign.

Recommendations for July Planted Soybeans

Mac Malloy---Robeson County

Wet field conditions have nearly halted field activities, creating delays in the harvest of small grains and preventing planting of double-cropped soybeans. According to the North Carolina Crop Weather Report, as of July 8, an estimated 200,000 acres of wheat have yet to be harvested across North Carolina. Farmers are facing a critical decision of how late to plant soybeans in July. There are many factors to consider such as return on investment, crop insurance coverage, and weather. Other factors – like weed management, contracts to fulfill, or the thought of having a highly visible field left fallow that has always been farmed – might keep you awake at night.

Normally, July 4 is near the end of the planting window to produce profitable double-cropped soybeans. This is due to the likelihood of unfavorable weather conditions North Carolina experiences during July, August, and September. Dr. Jim Dunphy, Extension soybean specialist at North Carolina State University, suggests with recent prices for soybeans that date could be moved to July 10. Realistically, given current field conditions growers will be forced to consider planting outside the recommended planting window.

Recommendations Continued..

Soybean growth is controlled by the amount of day length through a process of photoperiod sensitivity. Soybeans have a unique mechanism whereby substances are converted from inactive forms to active forms in the dark. Light makes the substances revert back to the inactive form. Flowering begins once nights are long enough to accumulate a given amount of active forms. Warm temperatures at night will speed up this process while artificial light sources, such as security lights, will interfere and delay flowering (Nafziger, E.). According to Dr. Dunphy, as a rule of thumb, a variety planted on July 15 would flower and mature about 10 days later than the same variety planted on June 15.

The theme for late-planted soybeans will be, "Get the plants as big as possible to get the job done." This may be a bigger challenge than beating a frost. A soybean doesn't have to be out of the field before a frost. It just has to be physiologically mature before a killing frost, which is typically 7 to 10 days or more after the first frost. Planting a later-maturing variety (VI or VII) will allow more time for vegetative growth creating more leaf area. Use seeding rates and row widths that will form a complete crop canopy during this shorter growing period that will intercept the maximum amount of sunlight needed to produce the most yields. Late-planted soybeans more than likely will not reach three feet tall and yield will be significantly reduced. It is difficult to predict how much yield will be reduced, because weather will play such an important role. Yield could potentially be reduced by 50 percent or more of what the same variety would have produced if planted in May.

Reduce competition early for water and nutrients by good weed control management. Only consider starter fertilizer on soils you know had poor nutrition levels previously (i.e. land that you just started farming) to reduce the amount of investment in a low-yielding crop. Hopefully, as root systems develop, they will reach nutrients that have been moved downward in the soil profile by excessive rainfall. Tissue samples can be taken as needed to address in-season nutritional deficiencies.

Below is a recommended seeding rate chart to use for soybeans planted in July.

Suggested Soybean Plant Populations for North Carolina (rev.)

Row Width	Planting in May			Planting in June			Planting in July		
	Plants per Foot *	Seeds per Foot **	Pounds of Seed per Acre ***	Plants per Foot *	Seeds per Foot **	Pounds of Seed per Acre ***	Plants per Foot *	Seeds per Foot **	Pounds of Seed per Acre ***
7"	2	2.2	47 - 66	2.25	2.5	53 - 75	2.5	2.8	60 - 84
15"	3.9	4.3	43 - 60	4.6	5.1	51 - 71	5.3	5.9	58 - 81
20"	4.9	5.4	40 - 56	5.9	6.6	49 - 69	6.9	7.7	57 - 80
30"	6.4	7.1	35 - 49	8.3	9.2	46 - 64	10.1	11.3	56 - 79
36"	7	7.8	32 - 45	9.5	10.6	44 - 62	12	13.3	55 - 77

* Assumes determinate varieties. For indeterminate varieties, increase target populations by 20%.

** Assumes 90% emergence. If 85% emergence is anticipated, increase planting rate by 5%.

If 80% emergence is anticipated, increase planting rate by 10%.

*** Range is pounds of seed per acre with seed lots averaging 3,500 seeds per pound (first number in range) to 2,500 seeds per pound (second number in range).

Reference:

Nafziger, Emerson, Illinois Agronomy Handbook, PP 27-36, Department of Crop Science, University of Illinois at Urbana-Champaign.