

FOCUS on South Plains Agriculture

Texas AgriLife Research and Extension Center at Lubbock
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Editors' Note

Cotton Insects

Thrips

Fleahoppers very common

Cotton Agronomy

Overview of the season

2007 cotton resource DVD

Seedling emergence issues

Cotton root disorder guide

Making replant decisions

Tank cleanout concerns

Cotton Disease Update

Seedling diseases

Corn Insects

Recent news in transgenic corn

Grain Sorghum Agronomy

Seeding rate: A common mistake

Draft production guide available

Bonus available for early delivery

Insecticide Update

Methyl Parathion and Sevin going away

Editors' Note

Associate Editor moves up

Michelle Coffman has been helping produce FOCUS for the last 14 years. She stuck with it in the old days of typing, printing and mailing, and moved to Associate Editor when we went to electronic format. As with everything else she does around here, Michelle did a superb job with FOCUS. We are happy to announce that Michelle has been promoted to Office Manager, but she has even more responsibilities now and can't continue as Associate Editor. Jim Leser, Pat Morrison and the two current Editors would like to say thank you to Michelle for all the years of tight deadlines, rewrites, e-mails, and putting up with us. We know that Entomologists are not the easiest people to work with. You will be missed. RPP and DLK

Cotton Insects

Thrips

With much of our cotton being planted towards the tail end of the planting window, one would hope for some warm temperatures to get the cotton up and growing quickly in attempt to outgrow much of the thrips damage. Thus far this hasn't been the case. Thrips have been fairly common throughout the South and High Plains. Fairly high populations have been noted in Bailey, Castro, Hale and Swisher counties as these locations are usually hot beds of thrips activity. High populations have been noted in some of our more southerly counties as well. Dawson County has seen some fairly high thrips numbers and terminal necrosis has been observed in some fields.



Adult Western Flower Thrips

Seed treatments of Aeris, Cruiser, or Avicta CC should provide 18-21 days of protection post emergence, whereas Temik at 3.5 lbs or more will typically provide 24-30 days of protection. However, if a preventive treatment was not used, fields need to be watched closely; especially during the first few weeks following emergence, which is a critical period. Don't hesitate to treat during this early window; waiting on weeds to emerge so you can apply your insecticide with glyphosate could be disastrous. You have to treat before damage occurs.

Data collected in 2007-09 suggests that under cool conditions it pays to be aggressive with thrips. When temperatures were running around a high of 80 degrees and lows in the mid-50s, it was beneficial to treat for thrips when they averaged 0.5 thrips per plant at the cotyledon to 1 true leaf stage. This is below the current recommended action threshold. Thus far, our data suggest that the [linked threshold may be more suitable](#).

All cotton, regardless of prior treatment, needs to be monitored at least weekly for thrips control determination. Thrips prefer to feed on the underside of the leaves and primarily on the newer growth. Thrips, particularly the immature stages, are somewhat cryptic and like to hide in curled leaves. Thus when scouting for thrips, it is important to tease open curled or folded leaves using a knife or pencil to find the thrips hiding within. If there was a soil applied insecticide or seed treatment used for thrips control, the presence of immature thrips will indicate that colonization is occurring and that the insecticide is playing out. When this occurs, a foliar insecticide application may be justified.



Be sure to unfold and uncurl every leaf when scouting for thrips

Fleahoppers uncommonly common this year

Cotton fleahoppers have been almost non-existent on the Texas High Plains the past two years. However, with all of the spring rain we have set loose a bumper crop of weeds, including white weed or silverleaf nightshade, a favored host of cotton fleahopper in our area. I've been sweeping weeds throughout the re-

gion and fleahoppers have been consistently common. Because we have so much late cotton this year, we need to pay more attention than normal to fleahoppers during the first 3 weeks of squaring. The importance of this intensifies as you move north and ability of the cotton to compensate fruit loss diminishes. We'll keep a close eye on it. DLK

Cotton Agronomy

Overview of 2010 Season Thus Far

Planting of the 2010 crop is moving fast and furious. Lubbock received a total of 10.69 inches over the "official rain gauge" thus far from January through the end of April. During the month of May at Lubbock we have had a total of 0.81 inches [Click here to view 2010 Lubbock rainfall.](#) Because of excellent high winter/early spring rainfall in most of the region, we generally have good to excellent sub-soil moisture. Excessive high winds have worked over the upper profile moisture in some areas, especially along the state line with New Mexico, and dryland fields will need some helpful rainfall for good establishment. May weather had its ups and downs, so to speak. During the first 25 days of May, we accumulated about 214 heat units at Lubbock, compared to the long-term average of 216. That's about 99% of normal. However, the roller-coaster temperatures and high winds have been excruciating, and for the first 12 days of May, we had 4 days with zero heat units [Click here to view Lubbock May 2010 temperatures.](#) For the entire period from May 1 to 25, we encountered 6 days with zero heat units and another 3 which had less than 1. This resulted in a lot of cotton planted during the first 10 days of May not emerging until about the 24th or so. Cotton planted since around the 11th or later has emerged pretty much in 5-10 days. Recent rainfall has been substantial in some areas, especially Floyd and Crosby counties, which received additional rainfall around the 14th, with some other areas catching rainfall on the 17th. Humidity being pumped in by high winds has

set us up for some additional thunderstorms this week.

Irrigated cotton planting is well underway at this time, and most producers probably have most of their irrigated cotton planted. Based on my tracking of the Extension agent reporting of planting progress for the last several years, we are somewhat probably close to average, with the all-county average running 60% as of May 21. With all of the producer activity this week, and generally good conditions, I suspect that we are likely headed for a timely completion of planting across most of the region, with some dryland cotton exceptions in dry areas.

We are now about a little under a week away from the Final Planting Dates for Insurance Purposes for the northern counties (May 31 dates) in the Southern High Plains region [Click here to download final planting dates publications.](#) Producers in the central and southern counties have until June 5-10 (depending upon county) before the Final Planting Date for Insurance Purposes is reached.

Reminder - 2007 Cotton Resource DVD

In December, 2007 we generated the 2007 Cotton Resource DVD (CRDVD). It is a follow-up publication that is similar to the 2005 Cotton Resource Compact Disk, and is a data DVD format (not the same format as movies on DVD). To use this DVD, one has to have a computer with a DVD reader. A progression away from CD format was required in order to have enough space for all of the publications included. This CRDVD literally has dozens of publications, across such diverse cotton production topics as 1) general production, 2) irrigation, 3) fertility, 4) insects, 5) weeds, 6) nematodes and disease, 7) harvest, fiber quality and ginning, 8) economics, 9) Internet resources, 10) photo gallery, and 11) videos. The photo gallery contains many images of insects, diseases, weeds, and herbicide symptomology. The video section has helpful information on insect scouting, irrigation, and other topics. Additionally, the entire Cotton Physiology Today Newsletter archive is on the CRDVD. The 2007 CRDVD project was funded by the Texas

Support Committee - Cotton Incorporated. To obtain a free copy of the CRDVD, call Dena Griffith at the Texas AgriLife Research and Extension Center at Lubbock at 806-746-6101. The contents of the CRDVD can be [accessed on our website](#). We hope to be able to update the CRDVD with new publications in 2011. Additional reports and other important publications are available under What's New on the Lubbock Center Web site.

Seedling Emergence Issues

I have had a few calls concerning cool temperatures and the effect on cotton seedlings. With the 40 degree lows during early May, especially up north, there may be some concern about chilling injury symptomology. There is a good [Cotton Physiology Today Newsletter publication from the National Cotton Council](#). This issue includes discussions of the following topics: Planting and Replanting Decisions, Photographs of Chilling Injury, and Cotton Stand Establishment.

Cotton Root Disorder Guide

The Cotton Root Disorder Guide might also be a useful tool. This guide was published by Cotton Incorporated a few years ago. It was generated by several workers across the Cotton Belt and was funded by the Texas and Arkansas State Support Committees. Cotton root disorders detailed in the publication include: herbicide injury from amino acid synthesis inhibitors, photosynthetic inhibitors, and seedling growth inhibitors; pathogens including fungi and nematodes; fertilizer injury; chilling injury; and soil compaction. The guide is [available on the North Carolina State University website](#).

Making Replant Decisions

Thunderstorms and assorted emergence problems have been challenging in some areas. Although I'm currently unaware of any substantial storm damage, there have been some issues with early planted crop emergence. Because of this it is important to inspect fields to determine the amount of damage in-

curred. Replanting decisions vary from producer to producer and many times county to county. Many times, it is important to get a handle on the root health of the plants, stem bruising, etc. A while back, we developed a new departmental publication concerning the difficult replant decision making process. [Making Replant Decisions in Cotton -2007 is available here](#).

Tank Cleanout Concerns

This time of year, I perennially begin to get phone calls and make field inspections concerning hormone-type herbicide damage on cotton. Typical phenoxy herbicide symptomology includes "strapping of leaves." Based on field research conducted by Dr. Wayne Keeling, the severity of yield decrease is related to the actual dose and the crop stage. Severe damage incurred when the crop begins to fruit is more likely to reduce yield than when the crop is younger with less severe damage. Doses of sufficient level to continue "strapping" of newer leaves for weeks after application will probably significantly negatively impact yield.

Producers should be aware, especially in light of the "tank and hose cleaning ability" of some of the newer herbicides, that phenoxy residue in sprayers can be a real problem. ***My suggestion for our growers is that tanks, hoses, and sprayers which are used for applying phenoxy type herbicides be dedicated SOLELY to that purpose.*** If producers are unable to purchase separate tanks, hoses and/or sprayers, then it is imperative that several issues be addressed. Do not leave herbicides in tanks for an extended period of time. It is best to use "chemical resistant" hoses. ***Replace hoses when changing out tanks or using a large sprayer which has been spraying any other products besides those labeled for cotton.*** The last thing a cotton field needs is for a phenoxy material (even at low concentrations) to get "pulled from the tank or hoses" and get sprayed on cotton – especially those fields with high yield potential (i.e. subsurface drip or high capacity pivots). If multiple herbicides are used in the sprayer, then I suggest that producers purchase various tank cleaning agents from

their dealers and follow the directions, including cleaner concentration, religiously. If a tank/sprayer is to be used on cotton, I suggest that the tank be flushed out with clean water and the appropriate tank cleaner be mixed at the appropriate concentration. The producer should then spray the cleaning solution through the booms and nozzles. Leave the booms in a horizontal position and let the cleaning solution sit in the tank at least overnight. **Replace hoses when changing out tanks or using a large sprayer which has been spraying any other products besides those labeled for cotton.** This might help reduce some anxiety over phenoxy damage later. It doesn't take very many lost bales of production to pay for an additional tank and hoses or smaller sprayer.

Here is a [great University of Missouri publication on cleaning sprayers](#). This publication has good information concerning herbicides, recommended cleaning solutions and sensitive crops. RKB

Cotton Disease Update

Based on observations made from our seedling disease trials, I would agree with Dr. Boman and say that emergence for early planted cotton has been slow. While recent rainfall may be beneficial in getting seed that was more recently planted to germinate and aid in establishment it could also lead to an increase in seedling disease. I have been made aware of several instances of seedling disease that appear to be linked with early planting. Historically, planting starts in southern counties such as Dawson and Gaines due to higher soil temperatures. Subsequently, producers to the north of Lubbock tend to wait a few weeks for temperatures to increase. The cool temperatures and rainfall we have experienced early in May have led to conditions conducive for seedling disease. I have provided a [table of soil temperatures for Lamesa, Halfway, and Farwell](#). Several soilborne pathogens are capable of causing seedling disease. In west Texas, the primary pathogens are *Rhizoctonia solani*, *Py-*

thium spp., and *Thielaviopsis basicola*. Although optimal environmental conditions exist for these pathogens, disease is generally more severe under cool, wet conditions regardless of the causal agent. Symptoms of *Pythium* or *Rhizoctonia* consist of lesions at the soil line, resulting in a girdling of the hypocotyl, as [illustrated here](#). As temperatures increase, plants that have been infected by *Pythium* or *Rhizoctonia* may be killed due to an inadequate root system.



Seedlings killed by Pythium or Rhizoctonia

In general, seedlings infected by *T. basicola* do not die; however, infections result in a severe stunting. [Here is a photo of black root rot](#), which will delay growth and development. All commercially available seed is treated with a standard seed treatment. Such treatments are very effective at managing seedling disease; however, the compounds comprising the treatment may vary in activity toward the pathogens responsible for seedling disease. More information regarding seedling disease and seed treatment fungicides can be found in [Management of Seedling Diseases of Cotton](#). If you have any questions regarding seedling disease or any other cotton diseases, contact Jason Woodward at the Lubbock Center, 806-746-4053. JW

Corn Insects

Since I last wrote there has been some news from EPA and the companies that produce transgenic corn. Here is the short list.

1. EPA has approved Pioneer's Optimum Acre-Max1 corn, and this is the first transgenic that can be sold as a seed blend for refuge. 90 percent of the seeds in the bag are Herculex XTRA, and 10 percent are Herculx 1. Herculex XTRA has a single toxin (Cry1F) for caterpillar pests and a single binary toxin (Cry34/35Ab1) for corn rootworm. Herculx 1 has the same toxin for caterpillars but no toxin for corn rootworms. Thus the 10 percent refuge requirement for corn rootworm is included in the bag. However, there is still a mandated 50 percent (in cotton growing areas) or 20 percent (north of Amarillo in non-cotton areas) structured refuge for corn borers. The corn borer refuge is not "in the bag" and must be planted separately.

2. Genuity SmartStax has been approved by EPA. This corn has three toxins for caterpillar pests (Cry1A.105 + Cry2Ab2 + Cry 1F) and two toxins for corn rootworms (Cry3Bb1 + Cry34/35Ab1). SmartStax hybrids require a 20 percent (in cotton growing areas) or 5 percent (north of Amarillo in non-cotton areas) structured refuge. Seed blends have not been approved for SmartStax corn, so a structured refuge is still required.

3. EPA approved Agrisure Viptera, hybrids based on vegetative insecticidal proteins (VIPs) that have excellent activity toward caterpillar pests. There were some U.S. sales this year, but seed will be more available next year.

A lot has changed since the commercial introduction of transgenic corn in 1996. The first generation of transgenic corn (which is still sold) contained only a single toxin for caterpillars (Lepidoptera) or corn rootworm (Coleoptera), and some hybrids had stacks of these toxins wherein the plants had one toxin for each group of pests. These hybrids were also toler-

ant to one group of herbicides. The next generation of transgenic corn such as YieldGard VT Pro, contains multiple toxins for caterpillars; a pyramid of toxins targeted at the same pest group, and Genuity VT Triple Pro additionally includes a single toxin for corn rootworms. Genuity VT Triple Pro hybrids are stacked but contain only one suite of pyramided toxins. Agrisure Viptera contains two caterpillar toxins and one corn rootworm toxin.

Another new type of transgenic corn contains toxin pyramids for both caterpillars and corn rootworms and can contain tolerance to as many as two herbicide groups. For example, Genuity SmartStax contains three toxins for caterpillars, two for corn rootworms and two for herbicide tolerance. Many seed companies are pursuing this stacked, multiple toxin pyramid approach to insect-protected transgenic crops. In addition to better insect control, there are several reasons this approach is appealing. The pyramided toxins have, for the first time, made it scientifically possible to reduce the proportion of refuge well below what is mandated for single toxin corn, while also lengthening the number of years before resistance to the toxins is projected to develop.

Yes, all of this is getting a bit complicated. Growers should consult their seed dealers to make sure they are following the correct resistance management plan for the hybrids they are planting. Seed companies are developing some nice online tools to help make refuge planning easier, and a good example is [the one for Genuity hybrids](#). The upside is that we are getting better and broader spectrum insect control with each new generation of corn. RPP

Grain Sorghum Agronomy

What is the most common grain sorghum production mistake in the South Plains?

Though individual producers may have a different experience, too high seeding rate most commonly hinders grain sorghum production in the region. Sorghum seeding rate is a classic example of "Less is more!," that is,

higher seeding rates, particularly in dryland, lead to crops that burn up and can't produce as much grain (too little moisture per head). This potential problem is not limited to dryland sorghum. In irrigated production water and fertilizer is wasted in producing unneeded leaves, stalks, etc. when plant population is higher than needed. Rather, modest populations can tolerate a little more drought, and are better positioned to pull through and yield in spite of drought.

Extension's base seeding rate for dryland grain sorghum in the Texas South Plains when soil moisture is at its highest is about 30,000-35,000 seeds per acre.

Dryland—When soil moisture is low for dryland sorghum then 2 seeds per foot on 40" rows, or 26,000 seeds/acre is a good target (or 1.5 seeds per foot on 30" rows). This reduces the risk the crop burns up in a dry year, but is still high enough that if conditions turn favorable it will deliver a good yield. An example of this is the 2009 Hockley Co. dryland sorghum trial which averaged only 13,000 plants per acre (very dry at planting), but with timely rains achieved average yields of 3,900 lbs./A.

For very dry conditions with little deep soil moisture, dryland sorghum seeding rates can drop to as little as 20,000 seeds per acre.

Limited irrigation—Fields with target levels of irrigation in the range of 6-8" irrigation, an irrigation level that is common for grain sorghum in much of the South Plains, the following general guidelines reflect the level of stored soil moisture at planting:

- If soil moisture is low, then target seeding rates at 40,000-45,000 seeds/acre
- If soil moisture is high, then target seeding rates at 50,000-55,000 seeds/acre

These are realistic targets that can deliver good yields, but they retain modest plant populations that are better equipped to handle very dry conditions should that occur.

Full irrigation—We rarely if ever recommend seeding rates over 80,000 seeds per acre (~5.0 to 5.5 lbs./A) even with the highest levels of irrigation. Even when full irrigation is planned, seeding rates may still be adjusted

downward if available soil moisture at planting is low. In the northwest South Plains producer colleagues have noted that seed drops of 55,000 to 60,000 seeds/A are adequate to achieve yields of 10,000 lbs./A.

What about grain sorghum seeding rates for narrow rows?

This question arises annually from producers who are drilling grain sorghum hoping to either increase yield potential or gain better land coverage to suppress weeds. Here are key considerations:

- First, if you are committing to narrow rows then know that you have to be on top of pigweed, grasses, and other problem weeds.
- Extension recommends that you increase the seeding rate per acre only to the extent that you anticipate establishment problems because you are using a drill rather than a planter. So this may be 10% at most.
- If you truly think that you are going to have trouble getting a stand with a drill (rough, cloddy ground, with a conventional drill; or can't get the drill in the ground very well), then you might consider increasing the target seeding rate up to 20%, but if you get a timely rain and it all comes up, then you may wish you had kept the seeding rate lower.
- Also, keep in mind that some drills, especially if they are older and may be worn out a bit, have difficulty achieving the low 25,000 to 35,000 seeds per acre targets that are agronomically desirable. So consider plugging 1 of 3 or 1 of 2 drops to ensure that you don't over-plant.
- If you are already on 30" rows (or can plant on 20" rows with something like a Kinze InterPlant planter), then I would be slow to consider using a drill and giving up the excellent placement of seed you can accomplish with your planter.

A Final Thought on Grain Sorghum Seeding Rate

If you are having doubts about whether you should increase your grain sorghum seeding rate, **don't do it**. You probably don't need to. This will help guard against the too-common too-high plant populations we routinely see in West Texas grain sorghum production.

Grain Sorghum Production Guide is Available in Draft Form

Texas AgriLife Extension Service in partnership with United Sorghum Checkoff Program has prepared production guidelines that USCP is converting to a mini-pocket production guide. The full version is loaded with basic production information and production tips for the South Plains. Contact Calvin Trostle to receive a full copy in the mail (not yet available on-line or in color).

Do you have early planted grain sorghum?

If you believe you may be able to harvest and deliver grain sorghum by mid-September, there is bonus pricing available for direct delivery to the ethanol plant at Levelland. Several farmers planted early this year for this very reason. The bonus is \$0.50/bushel (\$0.89/cwt. for delivery by mid-September) or half that for delivery by the end of September. Contact Levelland Hockley County Ethanol or Farmer's Co-op in Levelland for details. You need not have contracted your grain sorghum with either party. CT

Insecticide Update**EPA cancels Methyl Parathion**

All uses of Methyl Parathion have been cancelled. Here is the text from the EPA notification. "EPA has received requests from the registrants to voluntarily cancel all product registrations containing methyl parathion, a restricted use organophosphate insecticide and acaricide used primarily on cotton, corn, and rice, as well as on other agricultural crops. These requests would terminate the last methyl parathion products registered for use in the U.S., **effective December 31, 2012. End-use products will not be sold after August 31, 2013, and end-use products cannot legally be used after December 31, 2013.** All end use product labels will be amended to reflect the last legal use date." Additional information can be [found here](#) on The EPA website.

Bayer CropScience to Cancel Sevin

Bayer CropScience is canceling several formulations of the insecticide, Sevin. These include 80s, XLR Plus and 4F formulations. More information is available from EPA [here](#). RPP

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