

# FOCUS on South Plains Agriculture

Texas AgriLife Research and Extension Center at Lubbock  
1102 E. FM 1294, Lubbock, Texas 79403

## Cotton Insects

Lygus

Aphids

Cotton pests around the State

## Cotton Agronomy

Overview of the week

Plant monitoring

## Cotton Disease Update

Verticillium wilt

## Corn and Sorghum Insects

Mites and fall armyworms

Insect trap captures

## Grain Sorghum Agronomy

Is it too late to plant?

Nitrate and prussic acid poisoning

Regional testing labs

Safflower field day in Lubbock County

## Cotton Insects

Currently, we are pretty much at a lull when it comes to cotton insect pests; there is just not that much out there. We are picking up a few bollworms and beet armyworms here and there, but at very low numbers. Cotton fleahoppers numbers are low throughout the region. I have found a few in weeds but very few in cotton. With the rains that we have had those few fleahoppers that we do have seem to be content sticking to the white weed or silver-leaf nightshade. However, if things dry out we need to watch for these to move into cotton. This may be most troublesome in our late-planted cotton.

## Lygus

Similar to cotton fleahopper, Lygus have not yet made much of an appearance, although I have picked up some fairly high Lygus numbers in area alfalfa. One should pay close attention to cotton fields located near recently cut alfalfa. One thing we need to make sure of is that what we are seeing are actually Lygus, and if they are Lygus, that they are causing damage. It is not uncommon during this time of year for Lygus to move into cotton but not cause damage. Lygus appear to not like to colonize small, open canopied cotton and will often simply move through the field causing little to no damage. Thus, if you detect Lygus populations approaching or exceeding the action threshold for insecticide application, be sure to check the square set as well. If the square set appears stable and acceptable, hold off spraying and re-check the field in a couple of days. At that point you will usually be able to determine if the Lygus were simply passing through or actively feeding. With all the predators we currently have inhabiting our fields it

would be a shame to kill them off with unwarranted insecticide applications. [Lygus treatment thresholds](#) are presented as a separate graphic.

Prior to peak bloom, research has demonstrated that the sweep net is the most efficient method for sampling Lygus. However, sweeping can be extremely variable depending on the technique used. If you are using a sweep net do not use a butterfly net. These are not sturdy enough for vigorous sweeping. Use a 15-inch diameter heavy duty canvas sweep net. Sweep a single row as you walk between the rows, making sure to hit the plants low down and making a full arc. Just hitting the tops of the plants is inadequate. Remember, larger Lygus prefer the larger squares, and will thus most often be lower in the plant canopy. The sweeping technique should be fairly vigorous, and you should probably be able to take only 20-25 sweeps per set due to the accumulation of leaves in the net. When counting Lygus avoid mistakenly counting scentless plant bugs as Lygus. Lygus can be distinguished from scentless plant bugs in that Lygus tend to be golden to yellowish-green in color while most of the scentless plant bugs currently found in cotton tend to be light brown to gray in color and have a silvery tint. Also, the scentless plant bug has a more pronounced and wider head relative to its thorax than does Lygus. Scentless plant bugs are not known to cause damage in cotton, but little information is available for this insect.

Once the cotton reaches peak bloom, research has indicated that beat sheets or drop cloths are a more efficient sampling technique. This is not to say that sweep nets can't be used, but that drop cloths tend to be more reliable. The drop cloth method uses an off-white or black cloth measuring 36 x 42 inches (on 40-inch rows). Small insects are usually better seen on a black drop cloth than a white one. Select a random site in the field and unroll the cloth from one row over to the next row. Mark off 18 inches on each row bordering the cloth and vigorously shake all the plants within that area.



*Adult scentless plant bug (top) and adult Lygus (bottom)*

Thus, two 1.5-row-foot sections (3 feet total) will be sampled simultaneously for insects. Then it's just a matter of counting the number of Lygus on the cloth being careful to account for those that take flight. Our website has a [video of using a sweepnet, drop cloth or bucket to sample for Lygus](#).

## Aphids

I have been picking up aphids in low numbers throughout much of the South Plains. None of the populations observed thus far pose an immediate threat, but should be closely monitored. Along with the aphids we are picking up quite a few predators so hopefully none of these aphid populations will be able to develop to damaging levels. However, that can quickly change following insecticide applications targeting fleahoppers or Lygus. If you need to treat for fleahoppers or Lygus you

may consider using an insecticide that is softer on beneficial insects to avoid flaring aphids, especially if there are a few aphids in the field. Insecticides that should be avoided include pyrethroids have been implicated in flaring aphids in the past, and to a lesser extent Orthene or Acephate, and Vydate. The neonicotinoids such as Trimax, Centric and Intruder may be good alternatives since these are less disruptive towards most beneficials and have aphid activity, but these products are somewhat harsh to lady beetles and have been implicated in flaring spider mites under some conditions. Carbine is another product that should be fairly soft on beneficials, has aphid activity, and is active towards both fleahoppers and Lygus. Thus far, I have not observed or read where Carbine has been implicated in flaring any secondary pests, and our data suggests that it is pretty safe towards lady beetles. DLK

### **Cotton Pests Around the State**

#### **Rio Grande Valley (reported by LeeRoy Rock, IPM Agent, Cameron, Hidalgo, and Willacy counties)**

For Valley growers committed to planting cotton this year have faced several challenges in order to maintain a healthy crop. Now another potential pest has infiltrated Valley cotton fields which have caused heavy cotton damage. It was first observed on June 23rd on dryland cotton west of Lyford, TX and is being found in few cotton fields in LRGV. The common name is the bean thrips and is of the genus *Caliothrips* spp.

#### **Upper Coastal Bend (reported by Clyde Crumley, IPM Agent, Matagorda, Wharton, and Jackson counties)**

The hot, dry weather pattern that has settled in over this part of southeastern Texas is continuing. The balance of cotton is at physiological cutout. Now, it appears that our cotton crop is at least 6-7 days ahead of normal when it comes to average heat units for

this year. Treatable levels of stink bugs are continuing to be found in numerous fields in the area. We are continuing to find treatable numbers of Creontiades in Matagorda County. Bollworm egg lays are variable across the area with some program fields in the El Maton, Pierce, Crescent and El Campo areas having up to 48%. Damaged squares and bolls were between 0-12% and small worms (0-8%) as well as medium to large worms (0-2%) are being detected in program fields. Spider mites are continuing to be found at in a handful of cotton fields in the area.

#### **Middle Coastal Bend (reported by Stephen Biles, IPM Agent, Calhoun, Refugio, and Victoria counties)**

The primary pest being found in cotton fields are seed feeding stink bugs and Creontiades. We are finding that many fields have more than 20% bolls with evidence of internal feeding by these pests and should be treated for stink bugs.

#### **Southern Blacklands (reported by Marty Jungman, IPM Agent, Hill and McLennan counties)**

Rain totals from July 6 range from 1.25 to 2.25 inches. Cotton growth stage is ranging from 1/3 grown squares to full grown bolls. The majority of the cotton ranges from half grown to 2/3 grown bolls. Cotton aphids are light to moderate. I have seen one field with moderate numbers of aphids. Spider mites are being seen in several fields at low levels. Bollworm eggs are ranging from 0-36 per 100 plants. Bollworm larvae are ranging from 0-2 per 100 plants.

#### **Northern Blacklands (reported by Glen Moore, IPM Agent, Ellis and Navarro counties)**

Thunderstorms fell over parts of southern Ellis and Navarro Counties during mid-week benefiting cotton, soybeans and some fields of late sorghum. Unfortunately, much of the area missed out on the rain. Cot-

ton varies from 1/3 rd grown square to fields supporting bolls the size of a quarter dollar. Bollworm egg-laying sharply increased over the past week. Egg numbers have ranged from 14 to 34 per 100 plants. Larval numbers have ranged from 0 to 2 in Bollgard, Bollgard II and Widestrike cotton.

### **Southern Rolling Plains (reported by Richard Minzenmayer, IPM Agent, Runnels and Tom Green counties)**

As of July 2, widely scattered thunderstorms blessed some areas in the Concho Valley, dropping up to 6-inches of rainfall in a small area in Northeastern Runnels county. Most of the area remains dry and is in need of a good general 2-inch rain. Irrigated cotton is at one-third grown square and will be blooming within the next ten days. Dryland cotton is up and ranges in growth from 2nd true leaf to matchhead square. The cotton pest situation remains quiet at this time. Fleahopper numbers this week ranged from 0 to 14 fleahoppers per 100 terminals and square sets ranged from 92 to 99 percent. Reniform nematodes have increased and are becoming a severe problem in some fields.

### **St. Lawrence Valley (reported by Warren Multer, IPM Agent, Glasscock, Reagan, and Upton Counties)**

Cotton ranges from 3 true leaves to bloom. Rainfall over the weekend amounted to 0.3-2" with most receiving the lower amount. The heavier rainfall was northwest of Midkiff. Bollworm egg-lay has been fairly heavy this past week and worms are present in non-Bt cotton in economic numbers. Eggs ranged from 0-18,000 per acre or 0-40 per 100 plants. Small worms ranged from 0-13,000 or 0-27 per 100 plants. Medium worms ranged from 0-3,500 per acre or 0-3 per 100 plants. Fleahoppers ranged from 0-23 per 100 terminals and square sets ranged from 86%-100%. All cotton is squaring well at this time. I would be most concerned about the latter fields since we have little time to spare in those. They will not be squaring for another week to 10 days.

## **Cotton Agronomy**

### **Overview of Week**

Weather conditions across the region have recently been very hot. Additional rainfall around the 4th of July has certainly helped a lot of fields in some areas. Dryland crop prospects have somewhat improved with some additional rains, but a lot of producers are going to be rolling the dice with a very late dryland crop. After touring several counties this week with Dr. Gaylon Morgan (our new State Extension Cotton Specialist based on campus in College Station), it is apparent that "timeliness" has been everything with this crop. This definition changes as you move from location to location. Some dryland fields are blank and others may have cotyledon cotton across the turnrow. A bit further down the road and some dryland fields may actually look pretty good. This was all a function of spotty rainfall events and whether seed was in the ground or the field was yet to be planted. We have a real mixed bag out there as far as the dryland crop goes. There is pretty good consensus among producers, ginners and crop watchers that we are nowhere near the dryland crop losses we experience in 2008. The question remains for much of the dryland cotton that has emerged late - what will the remainder of the season bring? The irrigated crop is moving forward in a good manner. We had some advanced fields around Lubbock blooming earlier in the week. That however, is not the "norm" and it will be another week to two weeks before some of these irrigated fields begin to bloom. We still believe that we probably planted about 3.4 million acres, and perhaps have around 2.8 to 2.9 million acres standing. But the question now becomes - just how productive will the dryland be? Sounds to me like another High Plains cliff hanger. Many producers are in the process of cultivating and performing spraying operations in fields. There are definitely plenty of weeds out there in locations where rainfall has been obtained since around June 20.

Outside of a cool spell around the 4th of July, daytime highs have been running above normal, with July 9th tying an all time record high. Lows are somewhat above normal. ([Click here to view July temperatures.](#)) July heat units are now just about 11% above normal for the month. For the season, we are running about 10% above normal (for a May 1 planting date) at this time. This has been a roller coaster year, with hot and cool spells interspersed, and the higher than normal heat unit accumulation from May 1 is not necessarily reflected in crop development, especially in areas that have been savaged by environmental damage.

### Plant Monitoring

Monitoring fruiting is an important management consideration. First position fruit is very quickly counted, and is generally adequate for “getting a handle on the crop” ([see Figure 1](#)). At early bloom, up to 80% of the harvestable crop will be on the plant in the form of squares and blooms. We like to see 85% square retention going into the first week of bloom. Many times, High Plains fields will enter blooming with square retention greater than that. Plant mapping can be used to help monitor the progress of the crop and determine some important crop factors.

Important plant mapping data at early bloom are:

1. Total 1st position squares present and missing =  
(retained squares / total square sites = % square retention)

Square retention goal is 75 - 85% 14 days after early bloom

2. Total 1st position bolls present and missing = (retained bolls / total boll sites = % boll retention)

3. Nodes above white flower (NAWF). To determine NAWF see [Figure 2](#).

Nodes above white flower **at first bloom** gives an indication of crop vigor and yield potential. Typically, NAWF should be high at first bloom and then decrease as the boll load ties down the plant, and mainstem node production rate slows or ceases. For the High Plains region, greater than 8 NAWF could be considered excellent, 6-7 – reduced yield potential possible unless adequate irrigation is quickly initiated or rainfall obtained, 4-5 or less - cutout imminent on determinate varieties. Of course with so many varieties and many of the picker types being more indeterminate than many of our older stripper types, their ability to hang in there without cutting out is certainly worth consideration. Water (rainfall, irrigation) is the key with these variety types. In many years, we can enter bloom in irrigated fields at 8 or so. In 2007, due to good early growing conditions and excellent rainfall distribution, many fields – even dry-land fields entered first bloom with around 10 NAWF and thus the record crop production. Many fields that are stressed for moisture may have a short bloom period due to few NAWF at early bloom, unless timely rainfall or irrigation is obtained. RKB

---

### Cotton Disease Update

I have seen several fields exhibiting symptoms of Verticillium wilt, caused by *Verticillium dahliae*. The disease is most evident in fields that are beginning to bloom. Initial infections occur early in the season, and are favored by cool temperatures. Symptoms of Verticillium wilt can occur on plants as soon as 35 days after emergence, and consist of stunting, chlorosis or necrosis on the margins of leaves, and interveinal chlorosis. Under heavy disease pressure, premature defoliation can occur. Disease development may subside with the onset of hotter temperatures. Symptom expression is a result of systemic infections that lead to the vascular system of the plant becoming plugged by the fungus. This is characterized by dark, necrotic flecks in the vascular tissue. More pronounced symptoms can be ob-

served during boll fill, as the plant cannot adequately transport water and nutrients from the roots. Plants will have a mosaic appearance, and premature defoliation may occur. Significant reductions in lint yield and seed fiber quality can result from severe infections.



*Foliar symptoms of Verticillium wilt*



*Healthy cotton plant (left) and stunting due to Verticillium wilt (right)*

Disease severity is closely connected to the population density of the fungus in the soil. You should examine the integrity and color of stems if you think you are dealing with Verticillium wilt. Assays can also be conducted to determine populations of the fungus in the soil. Laboratory confirmation may be required to differentiate from Fusarium wilt.



*Discoloration of cotton stem caused by Verticillium wilt*

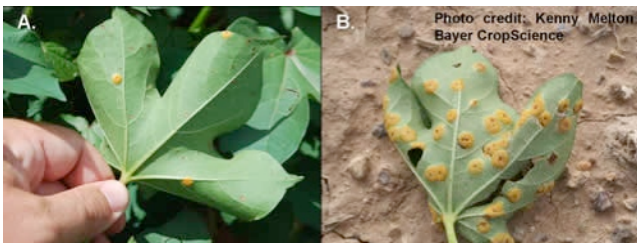
Management of Verticillium wilt is achieved primarily through variety selection. Varieties with improved resistant or tolerant, and good agronomic packages are critical in maximizing profitability. Dr. Terry Wheeler is conducting field trials evaluating commercially available varieties in fields with a history of Verticillium wilt. [You can access the 2008 High Plains Verticillium wilt trial results here.](#) The effect of cultural practices such as seeding rate, irrigation rate, and crop rotation are also being investigated. Information from those studies will be published as soon as they become available.

In addition to Verticillium wilt, isolated occurrences of Southwestern rust, caused by *Puccinia cacabata*, have been reported from fields in Gaines Co. by IPM-EA Manda Cattaneo. Symptoms of Southwestern rust include bright yellow to orange colored delineated with a maroon border on the upper leaf surface. Raised, yellow to orange structures (aecia) containing spores can be found on the lower leaf surface.



*Southwestern rust lesions on the upper leaf surface (photo is from Gaines County)*

This disease is more common in the Trans Pecos area; however, it has never been seen on the Southern High Plains. Disease incidence is rather low in Gaines Co. < 1%; however, it is much more severe in areas around Coyanosa.



*Southwestern rust lesions on the lower leaf surface from A. Gaines Co. and B. Pecos Co.*

[Click here for a larger image.](#)

Unlike other plant rusts (i.e. common rust of corn), **the spores produced on infected cotton leaves cannot re-infect cotton.** The epidemiology of Southwestern rust is complicated; however, the presence of an alternate host, specifically grama grasses (*Bouteloua* spp.), are required for disease development in cotton. Efforts at locating in-

fectured grama grasses near fields exhibiting rust symptoms in Gaines Co. were unsuccessful. Close attention should be paid to ditches, fallow areas, and CRP fields adjacent to cotton fields if secondary infections do occur. This may be likely if we experience timely showers later in the growing season. Severe yield losses associated with this disease has been reported, but are sporadic in nature. The forecasted weather conditions (hot and dry) will help to slow the spread of this disease. While fungicides have been effective at controlling this disease in other cotton production areas, **it is unlikely that fungicide applications will be warranted in this case.** Trials are currently being conducted to investigate the use of fungicides in this situation. If you have any questions regarding these or any other cotton disease issues, please contact Jason Woodward @ 806-632-0762, or via e-mail [jewoodward@ag.tamu.edu](mailto:jewoodward@ag.tamu.edu). JEW

## Corn and Sorghum Insects

### Mites and Fall Armyworms

Weather this hot is not good for corn or sorghum. But it will really help spider mites. Mite populations often undergo dramatic increase as corn reaches tassel stage, and drought stressed corn is even more likely to develop large populations. Monti Vandiver, IPM Agent in Parmer and Bailey counties, is reporting increasing mite populations there. I'm seeing the same thing in Lubbock county. We have not found any treatable populations yet but this could change quickly if the hot weather persists.

Brant Baugh, IPM Agent in Lubbock Co., is reporting severe fall armyworm damage to some whorl stage corn, and it seems that corn is taking the brunt of the attack at this time - leaving sorghum relatively unaffected. This week's fall armyworm trap captures are down a bit. We usually see increased egg laying a week or two after high trap captures, so expect egg laying to continue. Control in whorl stage corn or sorghum is usually ineffective except

by chemigation. However, it is important to protect tasseling and silking non-Bt corn from fall armyworm, so watch closely from tasseling onward. Control after tasseling can be quite effective if properly timed. Insecticides should target hatching eggs and small larvae. Larger larvae are difficult to kill. Bt corn is not immune from fall armyworm damage. However, it has been my observation that on Bt corn, fall armyworm does not do the typical shank damage and feeding through the sides of the ears that is typical in non-Bt corn. Rather, fall armyworm on Bt corn tends to act like corn earworm; they enter the ear through the silk channel and tend to leave the shanks and green tissue on the sides of ears alone. So while Bt corn might not kill fall armyworm (although it can and does to some extent), it does eliminate the most yield-robbing aspects of the insect's behavior.

Sorghum is pretty much the same when it comes to fall armyworm; control is difficult in the whorl stage and gets easier after panicle exertion. In sorghum, fall armyworm is part of the headworm complex. The other common member of the complex is corn earworm. We are running traps for both species. RPP

### Trap Captures Through July 8th

#### Lubbock County

- [Cotton bollworm \(corn earworm\)](#)
- [Beet armyworm](#)
- [Fall armyworm](#)
- [Southwestern corn borer](#)

#### Hale County

- [Fall armyworm](#)
- [Southwestern corn borer](#)

---

## Grain Sorghum Agronomy

### Is it too late to plant?

As of July 10<sup>th</sup> many producers are still planting or waiting for soils to dry. For the Central South Plains, Extension's 'safe' dates for early maturity hybrids are closing. If you

are still planting in Yoakum, Terry, Lubbock, Crosby and counties north then you should be planting only early maturity hybrids, and seedling needs to be completed as quickly as possible. As we learned from the 2008 cropping season, "Planting date really matters!" else lack of maturity, low test weights, etc. occur if we have cooler fall temperatures and a freeze earlier than the historical average.

Lynn, Garza, Gaines, Dawson, Howard, and Martin Counties have reached the point that ideally all medium-early maturity grain sorghum plantings should be about completed, then wrap up in the next week with early maturity hybrids. Our last recommended planting date for early maturity grain sorghum is July 15 for this southern area though later plantings still have limited potential. Planted July 15, an early maturity grain sorghum—which has lower yield potential—at ~85 days to maturity in typical summer/fall weather, will obtain half-bloom by about Sept. 10-15, and is pushing it in the cooler weather of mid October to obtain full maturity.

### Grain Sorghum Late-Planting 'Rule of Thumb'

As a rule of thumb for late plantings in July in the South Plains consider this:

- For a fall with typical weather, sorghum maturity is delayed by about 2 days for each 1 day delay in planting
- For a fall with cooler than normal weather, sorghum maturity is delayed by about 3 days for each 1 day delay in planting

### Nitrate & Prussic Acid Poisoning in Summer Forages

Recent rains have sprung some sorghum/sudan back to life. Crops that were languishing in the drought can hyper-accumulate nitrate posing potential problems to grazing livestock or if the hay is baled. Furthermore, once drought-stricken forages in the sorghum family spring back to life due to a rain, prussic acid potential is high for the first 7-10 days of regrowth. If you have a weedy



field—pigweed anybody?—then be careful as pigweed is a notorious accumulator of nitrate, which can cause problems with hay. On the other hand, prussic acid potential is confined to sorghum family forages (and which hybrid pearl millet is not, hence doesn't have the acid potential and can be grazed safely at all times).

Management tips for either nitrate or prussic acid

The good news is that both of these toxic substances in forage can be managed. Harvested forage high in nitrate can still be fed so as to limit animal intake by also feeding forage with low nitrate levels. Standing forage with high nitrate (usually on dryland) will usually grow out of high nitrate levels once moisture is available; or if you must hay or graze either, raise the cutter bar a few inches (nitrate is higher at the base of the plant) or limit grazing so cattle don't eat much of the stalk. Prussic acid dissipates in standing hay with time and in any cut forage in about the time it takes to properly cure.

Extension guide for nitrate and prussic acid

For further information on nitrate and prussic acid in Texas forage crops consult Extension's "Nitrate and Prussic Acid Poisoning," obtained from your Texas AgriLife Extension Service county office or view/download from the web at

<http://publications.tamu.edu/publications/Forages/>, then select publication L-5231.

### **Regional Testing Labs Serving Specific Producer Needs**

Texas Veterinary Medical Diagnostic Lab, Amarillo

Since I mentioned nitrate and prussic acid poisoning, this Texas A&M System agency lab, which deals almost exclusively with animal health issues, also offers commercial testing for nitrate and prussic acid in forages. Nitrate testing is routine and is conducted by many labs, but testing for prussic acid is tricky

and the results depend heavily on how the sample is collected, transported, and the amount of time since collecting the sample. TVDML will advise on how to deliver a sample to their lab (even if overnighted) to minimize the changes in prussic acid. Other commercial labs also offer prussic acid testing, however, the animal health experts at TVMDL are particularly interested in ensuring a valid test.

Texas Veterinary Medical Diagnostic Laboratory

Amarillo Laboratory

PO Box 3200

Amarillo, TX 79116-3200

Phone (806) 353-7478, Toll Free (888) 646-5624

{Courier address: 6610 Amarillo Blvd. West, Amarillo, TX 79106}

Texas Dept. of Agriculture Seed Lab, Lubbock

The Texas Department of Agriculture operates three seed laboratories in Texas, including one in Lubbock at 4502 Englewood Ave., (806) 799-0017. The seed lab conducts purity and germination tests on seed samples submitted by producers and industry as well as TDA's own inspectors. Tests requested by producers are most frequently for wheat (especially since wheat farmers often save their own seed) and possibly the cold germ test for cotton seed. For more information, contact the Lubbock TDA lab.

**Safflower Production Field Day, Lubbock**

The Texas Tech Plant & Soil Sciences and the Texas AgriLife Center at Lubbock invite interested producers to a Safflower Production Field Day, 10 AM, Tuesday, July 21<sup>st</sup> at the Lubbock TTU campus research farm on North Quaker Ave., about ¼ mile north of 4<sup>th</sup> Street. The program will include comments by researchers, private seed companies, growers, and processors. There will be the opportunity to visit commercial production fields later that same day. For further information, contact Dr. Dick Auld, (806) 742-5704, [dick.auld@ttu.edu](mailto:dick.auld@ttu.edu) CT

# FOCUS on South Plains Agriculture

## Fair use policy

We do not mind if others use the information in FOCUS for their own purposes, but please give the appropriate credit to FOCUS on South Plains Agriculture when you do. Images may or may not be copyrighted by the photographer or an institution. They may not be reproduced without permission. Call 806-746-6101 to determine the copyright status of images.

## Editors

David Kerns and Patrick Porter, Co-editors

[SEND US A COMMENT BY E-MAIL](#)

## Contributing Authors

Randy Boman, Extension Agronomist  
David Kerns, Extension Entomologist  
Patrick Porter, Extension Entomologist  
Calvin Trostle, Extension Agronomist  
Jason Woodward, Extension Plant Pathologist

## Useful Web Links

[Applied Research Reports \(Goldmine\)](#)  
[Texas High Plains ET Network](#)  
[Irrigation at Lubbock](#)  
[Pest Management How-To Videos](#)  
[Lubbock Center Homepage](#)  
[Texas Agricultural Experiment Station Home](#)  
[Texas Cooperative Extension Home](#)  
[Plains Cotton Growers](#)

## County IPM Newsletters

[Castro/Lamb](#)  
[Dawson/Lynn](#)  
[Crosby/Floyd](#)  
[Gaines](#)  
[Hale/Swisher](#)  
[Hockley/Cochran](#)  
[Lubbock](#)  
[Moore](#)  
[Nolan/Scurry/Mitchell/Jones](#)  
[Parmer/Bailey](#)  
[Terry/Yoakum](#)

