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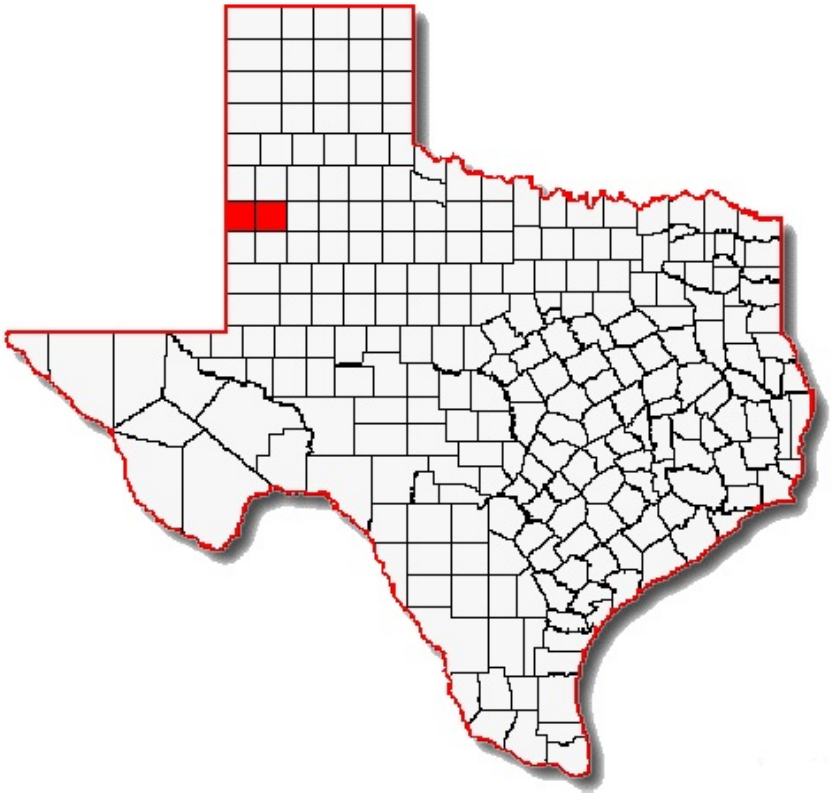
INTEGRATED PEST MANAGEMENT



Hockley & Cochran
IPM Program
2011

TEXAS IPM
Partners with Nature

Hockley and Cochran Counties Pest Management Program

2011 Annual Report

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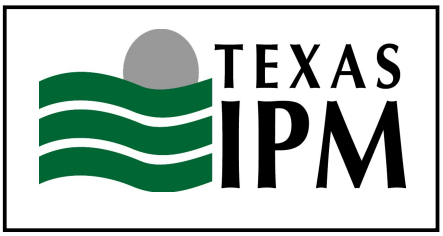

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Sherri Clements, TPMA State Vice President
Ricky Davidson
Duane Cookston
Wes Bradshaw
Sammy Harris
Bruce Lawrence
Gene Polasek
Tony Streety
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2011 HOCKLEY - COCHRAN IPM PROGRAM HIGHLIGHTS WITH PEST AND CROP SUMMARY

The Hockley - Cochran IPM Steering Committee functions as a program area committee for both counties. There are representatives on the committee from each county as well as a crop consultant representative which has a customer base in both counties. The committee met in 2011 to organize and conduct the Extension IPM Program, field scouting program, provide direction for applied research and other educational efforts as IPM applies. The committee also gave direction to for long-term plans and evaluation. The scouting program at times dominates the business of the committee as they are responsible for determining program size and scope, associated fees, and details for employing scouts.

Eleven individuals farms with 34 fields were involved with the scouting program in 2011. A total of 2707 acres were scouted. This acreage included irrigated cotton, grain sorghum, peanuts, and corn. The scouting program participants were assessed a scouting fee of $5.50 for irrigated land per acre. Fields were visited every week by the IPM Agent and a verbal scouting report was provided to producers the same day. The field inspections included: insect pest and beneficial populations; weed and disease's noted; and crop stage and growing conditions. Discussions also included irrigation and fertility management; growth regulator use; and other agronomic considerations.
Mr. Layton Hinson was employed as summer IPM Intern. He assisted with all research and demonstration projects from spring planting until fall harvest.

2011 Pest and Crop Summary

The 2011 crop production year will be remembered for the most extreme growing season in recorded history. For all of 2011 there was 5.86" of rainfall. Late winter through mid summer was plagued with high wind events. The average daily high temperature was also well above normal. Following are excerpts from the ***West Plains IPM Update*** newsletter which describe the conditions throughout the season.

May 11, 2011

Most all areas of Hockley and Cochran Counties are in need of a good soaking rain. Though some areas received rainfall early this morning (0.14"), most like the Levelland area have not had measurable precipitation over 0.5 inch since last fall. Fire danger remains high on rangeland and other areas with dry grass and other fuels. However, spring is here and planting season is upon us. Pre-irrigation continues on many acres while some land preparation still needs to be completed. The non-stop winds combined with dry conditions has really made this a challenging start. These are challenging times with high input costs, loss of Temik, dry conditions and other issues. Things are still in our favor because the sun will shine, it will rain some day and we have the best farmers in the world on the job.

June 10, 2011

Cotton ranges from seed in the ground waiting on a rain to 5 true leaf cotton. A look back to

last year at this same time we were averaging 8 true leaves and squaring cotton.

As of scouting today I am still not seeing thrips as a major player this year. Do not turn your back on them until a field has reached at least 4-5 true leaf stage. So keep checking and spray as needed. The winds have laid down over the past few days allowing us to maybe change our attention to weeds, nematodes, and fertility real soon. Those are the issues which should become priority. You noticed I did not mention plant growth regulators. I would recommend a wait and see attitude on PGR's for a few more days. Even on the varieties which typically need them.

In my inspection of fields with a history of southern root-knot nematode I am seeing root cyst damage from this soil borne pest. This would indicate either no use of at-plant nematicide or that those products used at-plant are no longer providing protection. Vydate C-LV at 17 oz per acre has provided excellent protection against yield loss especially following the use of Temik. Timing is critical though. An application should be made on the heals of when Temik's effectiveness is lessening. If you have questions about the use of Vydate give me a call.

Weed control has been put on the back burner while the wind has been blowing. The larger weeds combined with stressed weeds, dusty weeds, low humidity etc. may make it difficult to achieve excellent results. So pay attention to rates, calibration, and time of day when any humidity might help. Remember with systemic herbicides such as glyphosate coverage is not the key, that would be key with contact herbicides such as glufosinate. So with systemics higher gallons of water per acre are not necessarily a good thing, in fact just the opposite. You just have to be careful with physical drift.

Peanuts are doing well were not damaged from blowing sand. Little thrips damage but nothing which one should be concerned. No blooms yet.

Grain sorghum is doing well also were not exposed to blowing sand. Weeds are a top priority right now. I have seen a few corn leaf aphids for beneficials to feed on. No worm feeding noted.

June 17, 2011

Cotton ranges from still dry seed in the ground to squaring 8 leaf cotton plants. The hot, dry, and at times windy conditions are making it difficult to make much progress with the crop, irrigation, weeds, and nematodes. Still no relief in sight in terms of rain and the wind laying down. A week ago I thought the winds had laid until this last weekend. I retract the wind laying down statement. So as Wes Bradshaw reminded me "until this weather pattern changes the winds are going to blow." This cotton crop is so variable from field to field and even within fields. This makes it very difficult to discuss management in general. As it looks right now we can say that irrigation capacity will separate the haves and have nots. This has not necessarily been the case in many situations for a couple of years.

I am finding very few insect pest this week. Thrips are still not an issue. Most cotton is 3-5 leaf cotton and should be at or near being out of the susceptible stage. Many millers are being seen both in the field and near homes. The primary one which I have seen the past few weeks has orange markings and is about one inch wide. This is the mesquite cutworm. It is a nuisance around the home and of no consequence in cotton.

I have examined most all scouting fields for root galling from root-knot nematodes this week. I am seeing many galls where I can recover feeder roots in the hard dry soil surface. Needless to say the susceptible cotton varieties need further protection beyond what was provided at-plant. I would encourage you to dig several plants and carefully remove as much root mass as possible from the soil. Look for the galls of the nematode. If you have several you may want to consider a foliar **Vydate** treatment. We have many years of data which supports this. We are looking at the need on the resistant variety such as Phytogen 367. Vydate tank mixes with glyphosate. Just use the same commons sense you use when applying glyphosate to an application of Vydate in terms of making it an effective application. Limit dust, spray early in morning to maybe have some humidity, after an irrigation etc. Vydate is systemic and needs to enter into the plant.

The comment about heat units being the positive thing this year keeps popping up. Well true we are accumulating heat units at a rapid pace. However, the thing which we must consider along with these heat units is how effective or efficient they were. What I mean is that we have a very small plant right now which has a difficult time cooling itself. Especially with the extreme ambient temperatures blowing across a very hot soil surface. So when the internal temperature of the plant exceeds a temperature of somewhere in the 95-98 F the plant shuts down, making little or no progress. Hence the slow progress of many fields.

June 24, 2011

Hot, dry, windy conditions continue to be the primary factor determining the fate of our crops. Forecasts call for +100°F temperatures through next Thursday with no chance of precipitation. With these conditions it is impossible to keep up with crop water demands. If you consider that the average squaring cotton plant will use approximately 0.22" daily and our evapotranspiration rate can be well over 0.25" daily. So figure needing just shy of 0.50" every day per acre coming out of your irrigation system or any stored from prewatering. The use curve goes up dramatically as we go into bloom and boll development.

So the point now is to make any water you apply count. As an example watering last Sunday and Monday (19-20) was a losing proposition unless it was drip or drop hoses. Yet, on Tuesday and Wednesday we made some headway in many respects to watering, spraying etc. So any modifications you can easily and affordably make to a system to be less vulnerable to water losses “Get R Done”.

I will be glad to visit with you and see if there is anything I can offer as management suggestions to squeeze just another tenth or two of efficiency out of your water. I understand the gravity of the situation we are in and that it is you who has to make the hard decisions.

On the insect pest front it is mostly quiet other than whorl feeding from armyworms in grain sorghum. In fact, other than hooded beetles in cotton I am not seeing anything in cotton. Peanuts are also void of insect pests. Weeds on the other hand continue to be a concern across most crops. Do what you can when you can.

Cotton, as represented by the IPM Scouting Program, ranges from cotyledons to 10 true leaves (TL) with an average of 7 TL. I am finding pinhead to matchead squares at nodes 5-10, with an average first sqaure at the 7th node. Retention is running about 65%, with losses due to wind. Internode length is 0.3". I would suggest any additional fertilizer you plan on going out with begin now. For one thing this may be just the necessary lift your cotton needs to make some progress. Also, combine this with the fact that we have needed to water so much that a good part of the fertility may be somewhat out of reach of the current root system.

Peanuts are mostly at 5 weeks since emergence. Nodulation is fair with an average of 7 per plant,

range 0-20.
Flowers have developed rapidly over the last 7 days. Pegging will occur very soon. I would suggest getting started now rather than later on any practical fertility plans. Any delay can be detrimental to the heath and development of the plant and goobers.

July 1, 2011

Generally crops are making progress. The days when the wind is blowing, not as much progress is made as should. So, the wind has been our biggest pest. In cotton it is the cause of any square losses. I am not finding insects which damage squares.
Let us look at a snap-shot of a typical cotton plant from the scouting program: 9.5 total nodes; 1st square at 7.2 node; 6.8" height giving us a 0.7 height to node ratio; 3 1st position squares @ positions 7-9 with a 92% retention. In reality we are making normal physiological progress compared to last weeks data. As with all averages it is made up of extremes. So hopefully your fields are at or ahead of this average. We normally go into bloom with 8-9 nodes above white flower. I will use 8 for this year. There are 3 squares now; will need to develop 6 more; one every 3 days; so that is 18 days from now. Okay, this average field should see first bloom on or around July 18. Not bad. That allows for a good month of bloom period. So just a few will be ahead of this time line and others will not see 1st bloom until late July even 1st of August. That late 1st bloom really cuts into the time which cotton can set a bloom to make a harvestable boll. If the weather trend would change soon (July 15-20) for more moderate temperatures (95 degrees F), wind speeds less than 15mph, and general soaking rains then prospects improve markedly.
As I mentioned in the opening paragraph that I was not finding insects which damage squares, I am finding spider mites (Carmen) which damage the leaves. Not to sound an alarm cause this was in just a few fields in the southeast part of Hockley on Tuesday. In fact, the source of one of the fields infestation most likely came from a landscape situation. I will keep an eye on the situation and let you know if it expands in area and severity.
Peanuts are making progress, almost too fast of progress. Flowering really took off about 2 weeks ago. This was concerning in that it may cause two crops to develop. One early and then late, complicating timing of digging at harvest. However, it does seem that flowering has slowed a bit and pegging has not begun. We need a change in weather trend here as well to allow for an environment in the plant canopy to be more conducive to peg penetration.

July 11, 2011

Peanuts continue to bloom with pegging beginning or going strong. Irrigation is critical at this point in peanuts. It is critical not only for the plant to grow but also it creates an environment which is conducive for peg penetration of soil. If soil surface is too hot and dry pegs will not develop properly, and hence no pod. No insect pests have been noted in peanuts. I have not seen much in the way of pathogens either. The dry environment will help reduce the incidence of foliar diseases. Weeds continue to be challenging. There are excellent herbicides labeled for peanuts. Just remember though that the options become fewer and more costly as the season progresses.
Cotton ranges from 4 leaf stage to 15 true leaves with 8-9 squares. I am seeing more and more blooms every day. Generally, it will be after July 20 or so before we see most cotton beginning to bloom.
Cotton insect pests remain very quiet. In the IPM Scouting Program I have noted only a hand full of fleahoppers and Lygus. Spider mites are being found in some fields near the triangle of

Ropes, Clauene, and Arnett. To-date none of these infestations have reached a threshold to justify treatment. Beneficials are extremely light in numbers. Trap catches indicate that we should anticipate a fairly normal cotton bollworm year - some chronic numbers scattered across the area from now through first part of August then an acute run from mid to late August. Weeds seem to be the most dominate pest at this time. A long varied list of weed species noted throughout both counties. If you need help identifying a weed and coming up with a control plan give me a call. Remember, these weeds serve as host to many of our cotton pests.
Cotton has made excellent progress over the last few weeks. Obviously there have been some major hurdles and most likely some of those will continue. Many acres are just now nearing bloom. These fields will be going into bloom with an average of 8.75 nodes above white bloom. This is a fairly typical value for our more recent cotton varieties. Back ten years ago this could indicate some concern for potential vegetative growth. With the square sets generally being in the 90% range I still have an optimistic outlook for most area cotton production. As long as the water holds up or we receive some good measurable precipitation I will remain optimistic.

July 15, 2011

Since the last issue of *West Plains IPM Update* there have been some parts of Hockley and Cochran counties which have received rainfall in the amount of just 0.01" up to 1.75". In general though we are in need of good soaking rains. Best I can tell no hail damage from these rains. Last Sunday afternoon there was some hail damage up around the Anton area.

COTTON

Let us look at what the average cotton plant looks like based on what I am finding in the scouting program:

Average number of total nodes is 14 (range 8 to 16)
1st fruiting branch at node 7.8 (range 5-10)
Square retention of 1st positions is 92% (range 82-99%)
Node length is 0.75" (range of 0.5"-1.6")
Plant populations average 42,500 per acre (range 28,000 to 58,000)
Nodes Above White Flower 7.5 (range of 4 to 10)

I am seeing a few more blooms and small bolls daily. My projections for going into bloom have been off slightly. The average has been 7.8 vs. 9. Which may not seem like a huge factor to most. But when I anticipate a field blooming and it occurs 3-6 days sooner I must understand why and explain to producer the potential up or down sides. Basically the fewer the nodes above white flower (NAWF) the greater likelihood of a short bloom period, or not taking advantage of time to set harvestable bolls. When you reach 5 NAWF technically you are at physiological cut-out. Potentially the plant will be blooming out the top in two weeks. In two weeks that places us on July 29. There is the problem, you still have two more weeks of effective bloom period. The plant will not capture the full season. Why is this happening? Well first it is happening in fields with short water supply. So it is a direct relationship to water availability and the ability of the plant to grow a sufficient plant to produce a respectable yield. So those fields which are going to blow through the bloom period in just a couple of weeks is exactly how dryland cotton is produced. I mention this so that if it happens in some of your fields be careful two or three things can happen: first- it is a short crop and you continue to spend money on a big crop; two- you back off to soon on water in fear that you will have a short crop and it forces it to be a short crop; and finally the best possible scenario is that though you have too few NAWF now it holds there for a couple of weeks producing more fruiting nodes, the bloom does not catch up with the top and it produces a very respectable yield. As I always preach on this, that is why knowing

what that NAWF value is so very important. For many which were blessed with the recent rain this may be the boost which the plant needed to keep that NAWF value holding or even increasing for a few weeks.
Insects in cotton have not gotten any more interesting this week. Spider mites in southeast Hockley have declined considerably. Pheremone trap counts for cotton bollworms have increased this past week, however I am not seeing activity in conventional or Bt cotton varieties. I would not be concerned about fleahoppers now that we are going into bloom with very good square retention.
Peanuts continue to make excellent progress in peg and pod development. Flowering continues and prospects remain good as long as water demands are met. Seeing some foliage feeding from larvae pests, but does not warrant action.

July 25, 2011
COTTON
Let us look at what the average cotton plant looks like based on what I am finding in the scouting program:

Average number of total nodes is 15 (range 9 to 17)
1st fruiting branch at node 7.8 (range 5-10)
Square retention of 1st positions is 91% (range 80-99%)
Node length is 0.8" (range of 0.5"-1.7")
Plant populations average 42,500 per acre (range 28,000 to 58,000)
Nodes Above White Flower 6.5 (range of 3 to 9)
Average 1st position bolls per plant 1.3

I continue to see more blooms and small bolls daily. However, I am also seeing way too many fields blooming out the top. I know this may be unavoidable in some fields. On the other hand if you can prevent it from happening for a few more weeks your yield potential will improve greatly. So available moisture or the lack thereof is driving this thing. If you have adjacent fields sharing water resources and one or both fields are closing in on 5 or fewer nodes above white flower (NAWF), I would suggest diverting more water to one of the fields. Yes, this will sacrifice potential on one but maximize on the other. Many other situations are occurring out there were water is not going solely to the cotton crop (i.e. trying to get a sorghum crop established at least for cover). This diversion of water is really going to hurt your cotton prospects. Do Not Do It!
Keep the water on the cotton as best you can for as long as you can.
We are going into the cotton crops greatest water consumptive period and it is showing in this drought.
No insect pests to speak of this week.
Any fertilizer applications need to be wrapped up soon if not already.
PEANUTS
Peanuts are still making good progress where water demands are being meet. Flowering, pegging and pod development are continuing to do well. Little or no disease issues have been noted in area fields.
GRAIN SORGHUM
Sorghum is not fairing well in terms of the early planted developing a head. Weeds are providing some challenges. Dr. Trostle provided the following article on a new herbicide mix.

July 29, 2011

COTTON IRRIGATION MANAGEMENT

Most years it seems as though irrigation management here in our neck of the High Plains is pretty simple - you turn it on and you do not shut it off. Unless of course it rains or it is August 25th then you may shut it off. However, this is a terribly unusual year and many are wondering when they can start backing off or just shut the water off. So first, before I give my annual example of when to stop irrigating, let me say that I understand the desperation that many are in and literally can not water any longer. Also, you are the owner of your farming enterprise and it is your prerogative to make any decision you feel necessary.

Again, the NAWF measurement can be helpful. This will let you know where your current top boll position is and how old previously set bolls are. As an example if we have a white bloom three nodes down from the top I would say you have 2 NAWF. Now I am only referring to first position fruit. So just below that white flower should be a small boll which would be approximately 3 days old. The boll directly below it was formed 60 heat units before this small boll. Which on average this year is 3 days. So if there are a total of 4 first position bolls we can estimate that the oldest boll is somewhere around 12 days old right now (the only boll which may not come off). The oldest boll would have been a bloom around July 17th. Okay, now that you know how to judge the age of a boll you should consider which of the uppermost bolls you can realistically take to harvest. Let us say that the current white bloom up near the top is the last one we think we can hold based on the drought. Okay then, this flower will be a boll in a day or so. This boll cannot be water stressed for about twenty days. So this plant needs good water through August 20th. Now this moisture may come from irrigation or rain. After August 21st this boll can take moderate stress, meaning that it can wilt down on a hot afternoon as long as it completely recovers the next morning. By September 15th or when this last boll is about 45 days old it can take severe water stress and it should not cause quality or yield loss. Remember also, that until a small boll is 7-10 days old it can easily be shed when the plant is put under stress.

So, there you have it, with the drought we will already suffer yield and quality reduction. However, if you turn the water off too soon you are guaranteed to cause additional if not total loss of yield and quality. I would much rather see you try and keep up with portions of a field rather than shutting a whole field off. Unless of course it is a scenario such as in the last newsletter where irrigation water is being shared with another field. Then it may be the right thing to sacrifice one field for another.

Another point about irrigation now. We are not capable of storing water at this time of the season. No matter what, we are in a deficit mode. So best thing for any plant whether it is cotton, peanuts etc. is to reduce the interval at which it is receiving moisture. So in other words let us say you are putting out 1.5" in 6 days on a full circle of cotton and it is really wilting in front of the pivot. My suggestion would be to speed up the pivot to only put out 1-1.25" on a 4-5 day interval. Should help alleviate some stress in the short term. On peanuts this would be a must to maintain that environment which is conducive to flowering and pegging. On peanuts if you are using drag hoses, which is ideal for water application efficiency, change to sprinkler. This helps in-canopy conditions for making this environment friendly to flowers and pegs.

No change on pest activity at the end of this week. Very quiet.

<u>August 5, 2011</u>

There are a few pockets of cotton aphids, spider mites, and a new species of thrips in Hockley and Cochran counties. However, in the scope of things we could say that insects are a very low priority. Weeds may still be on a list of concerns for some, but are also fairly low priority. This

would also apply to peanuts right now or for that matter any crop. I am just not seeing insect, disease or weed issues which come close to the concern about WATER.

The past several weeks the attempt has been made in this newsletter to help give some management suggestions on irrigation. Discussions about use of nodes above white flower, knowing when a boll can take a certain amount of stress based on boll age, and even encouraging the diversion of water to a fewer acres. Here we are on August 5 and many producers are up against the wall in not being able to provide the necessary amount of moisture to finish out this crop. Some are faced with still having some water but do not want to make a bad investment in applying irrigation water to a crop which will not return that investment.

If irrigation water is not there you have no choice, shut it off for the season. If you are still able to pump water here is a suggestion that I will throw out there based on average number of bolls per row foot. If you have 5 or less bolls per foot (approx. 165 lbs lint/ac) shut the water off. If you have 10 bolls per foot (approx. 330 lbs lint/ac) shut the water off around August 10th. If you have 15 bolls per foot (approx. 495 lbs lint/ac) shut the water off around August 15th. If you have 20 bolls per foot (approx. 660 lbs lint/ac) shut the water off around August 20th. And finally, if you have +25 bolls per foot (approx. +825 lbs lint/ac) shut the water off around August 25th. So I simply throw this out there based on what I see in the field. The relation of number of bolls on plants to the ability of an irrigation system to get it to this point in the season is important. Knowing also that the fewer bolls per foot of row will require less time and water to mature out but most importantly will return less. In all of these scenarios you may not be able to continue watering as long as I suggested because the wells may not hold up. No choice, shut it down. On the other hand, and especially as you get over the 1 bale potential, the longer you can go until those bolls are of sufficient maturity (use the knife method of cutting bolls and find seed coat) the better off you are. I will be glad to come look at a field with you on these decisions. And lastly, know that once you turn the water off these fields will most likely go into permanent wilt. Hopefully temperatures will moderate and rains will be received. Good luck.

August 17, 2011

NEW PEST ALERT: THRIPS

As of today, Wednesday 17th of August, I have seen my first Kurtomathrips in Hockley County. Therefore, I wanted to put out a newsletter with as much information as I could with what we know today. The following is from Dr. David Kerns, Extension Cotton Entomologist, Lubbock.

A new thrips has been observed feeding on and causing extensive damage to cotton in Gaines County. This thrips has been tentatively identified as Kurtomathrips morrilli. This species was originally described in Arizona and has been collected in California, Arizona, New Mexico, Nevada, Texas, Florida, Hawaii, Jamaica and India. It can feed and damage a number of crops including cotton, eggplants, beans and chrysanthemums. Reports of it damaging cotton are quite old, dating back to the 1920-50's, and little information pertaining to these infestations exists. This species is very small, about the size of a mite, and are very difficult to see with the naked eye. They tend to be found on both upper and lower leaf surfaces although initial infestations appear to begin on the underside of the leaf. They seem to prefer to rest and initially feed along the leaf veins, but will spread their damage throughout the leaf surface.

The wingless adults are tan in color while the winged ones are more amber. The immatures are creamy white. The adults are mostly wingless although winged were originally reported in Hawaii in 1965. We found several with wings in Gaines Co.

Damage can easily be mistaken for mite damage, but tends to be more silvery in appearance and without webbing. There does not appear to be a preference for terminal growth or blooms as we see with most other thrips species infesting cotton.

Although we have observed severe damage from these thrips in one field, we have no tseen other infestations. However, I suspect that there are other infestations out there and we need to be watching for these. The field where this infestation was observed was highly stressed cotton (drought stress and nematode) which may have set the plants up for infestation by these thrips. Whether or not they will heavily infest less stressed plants is not certain, but we are watching this infestation to see if it moves to a less stressed area of the field.

I would treat these thrips similar to spider mites as far as determining when to treat. If damage is readily evident and thrips are present, an insecticide application may be warranted.

Control of these thrips is not certain and there are no insecticide efficacy data for this thrips species. We initiated a test to determine what products may offer control, but we have no data yet.

Last week I alerted you to a new pest identified as Kurtomathrips morrilli that has been found infesting cotton in Gaines, Yoakum and Lubbock counties. I suspect it is in other areas as well, but at very low numbers. See the July 27 issue of FOCUS for more information of Kurtomathrips. This thrips appears to especially prefer infesting highly stressed cotton where it can cause severe damage. However, thus far it has not posed a major problem for area growers. The damage this pest causes is similar to spider mites causing desiccation to the leaves. This type of damage is primarily a concern in regard to boll filling. If the leaves supplying energy to the developing bolls are damaged, then boll size and yield may be compromised.

We initiated an insecticide test to determine what might work in controlling these thrips and it appears that higher rates of neonicotinoids and acephate at 0.5 lbs/ac appear to be effective.

September 9, 2011

Well the weather finally changed course since Labor Day weekend. Some scattered rain and cooler temperatures. For most of us this was what we needed to get a bit more stride in our step after this long hot summer. The change in weather has also brought most progress in cotton to a screeching halt. The color, the overall health of the plant has changed dramatically. This is not necessarily a bad thing just a reflection of the growing season and mostly maturity.

Many acres are now ready for harvest aids. I would definitely be spraying cotton which is better than 80% open or which has less than 2 nodes above cracked/open bolls. These fields would be good candidates for a paraquat type product. An example would be Gramoxone at 16-32 oz w/ 90% non-ionic surfactant (0.5 % v/v).

For cotton which has still some good health about it and has 4 or fewer nodes above cracked boll (>60% open), and decent yield potential over 450 lbs, I would go with what ever has worked for you in the past. An example would be ethephon at 24-32 oz + Aim 1 oz w/ crop oil (1% v/v).

For more information on cotton harvest aids go to:

http://lubbock.tamu.edu/cotton/pdf/2011HarvestAidGuide.pdf

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2011 Siders IPM Activity Report	
Educational Activities	Y-T-D
Newsletters	
No. Issues Written	14
No. Non-Extension Recipients	5807
No. Extension Recipients	655
Total Newsletter Recipients	19092
Radio Programs	53
Articles in State/National Trade Journals	2
No. Subscribers	100000
Published Abstracts & Preceedings	4
Newspaper Articles	21
Circulation	19850
No. Newspapers Carrying	12
Farm, School or Site Visits	602
Scouts or Practitioners Trained	13
Agricultural Consultants Trained	8
TDA Ag CEU Credits Offered	20
No. of People Trained	374
Non-Ag or Non-TDA CEU Credits Offered	1
No. of people trained	175
IPM Steering Committee Meetings	2
No. of Committee Memebers Present	19
Presentations Made:	
County Meetings	27
Field Days/Tours	3
Multi-County/Regional Meetings	3
Schools	21
4-H Clubs & Youth Groups	6
Oral and Poster at Professional Meetings	3
Extension Volunteers Trained	15
No. Research/Demo. Proj. Initiated	12
No. Direct Ag Contacts (incl phone & e-mail)	10124
Other Direct Contacts (includes phone & e-mail)	15703

Making a Difference 2011

IPM Education in Hockley and Cochran Counties

Kerry Siders, Extension Agent – Integrated Pest Management, Hockley and Cochran Counties

Relevance

Cotton is important to both Hockley and Cochran Counties with 400,000 acres planted annually and accounting for an average of $160 million in agriculture income from 2008-2010. The IPM Steering Committee in Hockley and Cochran Counties has determined that it is important that educational efforts continue to be applied to assist cotton producers with the management technologies for insect, weed, and disease pests, and other production issues.

Response

The Cotton IPM Education efforts are directed by the Hockley and Cochran Counties IPM Steering Committee. This committee has been responsible for the review of past efforts, future needs as they apply to cotton IPM, prioritize efforts, plan efforts, implement efforts, and assist with evaluation of efforts. Texas AgriLife Extension Service has delivered the following educational opportunities to address this relevant issue:

- Contributor to both oral and poster presentations at the 2011 Beltwide Cotton Conferences in Atlanta, GA
- Invited to give oral presentation on "The Impact of Temik 15G on the Southern High Plains of Texas" at the 2011 Beltwide Cotton Conferences in Atlanta, GA
- West Plains Cotton Conference in January, gave presentations on cotton pests and pesticide laws and regulations, 87 in attendance
- West Plains IPM Update Newsletter from April through October, 16 issues to 402 recipients via e-mail
- Radio reports with High Plains Radio Network Levelland (KLVT) and Fox Radio Ag Talk 950 Lubbock on cotton issues year round, 56 programs
- Cotton Harvest Aid meetings at Buster's Gin and All-Tex Field Day with 381 in attendance in September
- Established 7 cotton variety trials which demonstrated new experimental lines
- Evaluated 36 cotton lines for verticillium wilt tolerance with Dr. T. Wheeler, TAES
- Evaluated cotton variety for cotton root-knot nematode management
- Evaluated new seed treatment and foliar products for cotton root-knot nematode
- Identify new cotton pests species in Hockley County, Kurtomathrips

- Provided daily IPM education to 12 cotton producers through scouting, scouting report, report interpretation, management suggestions, and management evaluation for insects, weeds, disease, and other agronomic consideration from April through November
- Soil sampling for cotton root-knot nematode in scouting fields for management recommendations
- Invited to give oral presentation on "Current IPM Issues on Southern High Plains of Texas" at the 2011 Texas Ag Industries Association Annual Meeting with 173 in attendance, Lubbock

The Texas Pest Management Association, Plains Cotton Growers Association, Texas AgriLife Research, Texas Tech University, Texas Department of Agriculture, Texas Boll Weevil Eradication Foundation, US Department of Agriculture NRCS, Levelland Chamber of Commerce, National Weather Service, and many supporters from the local agricultural industry contributed greatly to these educational endeavors.

A post evaluation of the standard Cotton IPM Evaluation was used. The evaluation was sent out on November 4 via e-mail to 12 participants of the scouting program and 75 newsletter recipients, for a total of 87. The evaluation was due November 18. Nine responded from the scouting participants and 23 from the newsletter recipients. The response was 32 of 87, or 37 percent.

Results

1. The AgriLife Extension IPM Program works with growers to develop promote and implement pest management strategies which reduce the use of pesticides. Some of the strategies used are:
    - thresholds to conserve beneficial insects
    - resistant/tolerant crop varieties/hybrids (including transgenics)
    - crop rotation, use of appropriate planting dates, post harvest residue destruction, etc. to reduce pest pressure
    - pesticide effectiveness and resistance management information dissemination - growers maximize benefits from pesticide use, reduce ineffective and repeat applications.

    Has IPM program demonstration and educational activities in these areas resulted in lower pesticide use in your operation in recent years? YES- 100% (32 of 32) NO- 0% (0 of 32)

    If you answered YES, please estimate your percentage reduction in pesticide use? 30 %

2. The IPM Program works to improve grower profitability by 1. Reducing input costs, and 2. Increasing yields and economic returns. The programs focus on improvements in the following areas:
    - Variety/Hybrid adaptability to area farms
    - Pest scouting, economic thresholds, management strategies and tactics
    - Crop disease management
    - Crop water management
    - Weed management
    - Fertility management
    - Tillage and soil conservation strategies.

    With this in mind, please enter your acreage of each crop and estimate the value/acre the IPM Program has had in recent years on crop production on your farm or in your area?

Cotton	55,330 AC	39.31 $/AC	Sunflower	300 AC	20.00 $/AC
Grain Sorghum	2675 AC	27.78 $/AC	Wheat	715 AC	17.00 $/AC
Peanuts	920 AC	72.50 $/AC	Cowpeas	115 AC	50.00 $/AC
Pecans	100 AC	3.00 $/AC			

3. **Across your farm operations, all crops, what would you estimate the value of the IPM program on your farm? 58,230 (total); 1820 (average/producer) AC; $43.69 (average) $/AC (Total impact on those responding = $2,680,010)**

Key Points

- **100% of respondents indicated that on average the IPM Program reduced their pesticide use by 30%**
- **Respondents representing 58,230 acres of crop land indicated that the average value of the IPM Program was $43.69 per acre or a total economic impact of $2,680,010**

In summary, and based on the above points, it is apparent that the IPM Program has had a positive impact on the production system, the profitability of the producers and the economic and environmental viability of the area served.

The Cochran/Hockley IPM Steering Committee members are: Chris Locke, Sherri Clements, Duane Cookston, Sammy Harris, Wes Bradshaw, Bruce Lawrence, Tony Streety, and Ricky Davidson. Thank you to each one of these folks for their valuable input and direction into the IPM program.

Plans are to continue this long-term educational program for cotton producers in Hockley and Cochran Counties. Current and future technologies based on Integrated Pest Management principles to improve profitability and sustainability, as well as protect the environment will benefit all Texans.

These efforts will be interpreted to the IPM Committee, the Commissioners Courts, local media, Chambers of Commerce, agricultural industry personnel, and elected officials.

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Making a Difference 2011

2011 Southern High Plains Integrated Pest Management Program

Manda Anderson, Extension Agent – Integrated Pest Management, Gaines County
Brant Baugh, former Extension Agent – Integrated Pest Management Lubbock County
Tommy Doederlein, Extension Agent – Integrated Pest Management, Lynn and Dawson Counties
Dustin Patman, Extension Agent – Integrated Pest Management, Crosby and Floyd Counties
Scott Russell, Extension Agent – Integrated Pest Management, Terry and Yoakum Counties
Kerry Siders, Extension Agent – Integrated Pest Management, Hockley and Cochran Counties
Monti Vandiver, Extension Agent – Integrated Pest Management, Parmer and Bailey Counties

Relevance

Agriculture is the foundation of the economy in Southern High Plains; cropland is intensively managed for maximum production and profitability. Integrated Pest Management (IPM) is a systematic, information-intensive approach which depends on an understanding of the entire production system. It strives to use several complimentary tactics or control methods to manage pests which makes the system more stable and subject to fewer production risks. The Texas AgriLife Extension IPM program is an educational program designed to promote a pest management strategy that will meet an individual's production goals in the most economically and environmentally sound manner possible. Programs are educational by design and focus on informing producers about IPM techniques to control weeds, diseases and insects, as well as agronomic management practices such as varietal selection, irrigation and fertility management.

Response

The IPM Programs are directed by program area committees (7) which include agriculture producers, consultants, commodity group and agriculture business representatives. The committees actively participate in the identification of the targeted audience, planning, and implementation of the program. IPM Programs operate in cooperation with the Texas Pest Management Association, whose membership includes representatives from the local committees, producers and commodity organizations from across the State. Educational activities included:

- 6,014 field visits, 86 producers, 19,200 acres
- Newsletters: 83 issues, 24,580 individual newsletters distributed (also published on numerous websites)
- 107 applied research and demonstration projects initiated, 6 pest monitoring projects
- Mass media: Weekly radio show on Fox Talk 950, 31other radio, 88 newspaper articles
- Group meetings: 261 presentations at producer and professional meetings reaching 9,696 people directly
- 147 CEUs offered via group and individual methods
- 26 peer reviewed and/or proceedings publications
- 56 scouts and 203 consultants trained
- 58,213 total direct ag contacts
- 13 local IPM Steering Committee Meetings

Numbers of Research and Demonstration Trials Initiated in 2011*

Insect/Mite Management	Disease Management	Weed Management	Variety/Hybrid Testing	Agronomic Trials	Other Trials
39	20	2	33	6	7

**These trials were conducted in cotton, corn, grain sorghum, wheat and peanuts*

Results

Retrospective post evaluation instruments were administered to clientele to determine the relevance, quality and value of the IPM program. The survey was completed by 156 producers, consultants, ag retailers and ag industry representatives who were either directly or indirectly involved in the IPM Program. Those respondents which answered acreage questions reported 179,443 acres of crop production.

- The AgriLife Extension IPM Program works with growers and consultants to develop, promote and implement pest management strategies which reduce the use of pesticides. **Eighty nine percent (89%)** of respondents indicate that IPM program educational activities have resulted in reduced pesticide use by an average of **27.5%** in recent years.

- If only 10% of the 3.5 million acres of cotton planted in the High Plains eliminated only one pesticide application potential savings to producers could exceed **2.8 million** dollars and could potentially reduce pesticide load on the environment by **87,500** lbs.

- The average estimated Extension IPM Program value provided by survey respondents in dollars per acre considering all crops is **$46/acre**

Summary

It is apparent that the Texas South Plains IPM Program is not only a valuable program to Texas agriculture but is an essential part of it. Using producer provided IPM Program values for various crops and only acreage reported in the surveys for those crops the cumulative IPM program value is **8.2 million** dollars for those operations. In an attempt to quantify the economic impact of total South Plains IPM Program, if the total program value assigned by producers, consultants, ag retailers and ag industry representatives of $46/acre were applied to South Plains cotton acreage alone the potential economic impact of the IPM Program would exceed **80 million** dollars. This does not account for any economic benefit which may come from other crops such as corn, grain sorghum, peanuts, and wheat. For any production system to be sustainable it must be profitable and it is clear that the Texas IPM Program enhances sustainable agriculture in the South Plains of Texas.

For more information on the individual IPM programs you visit the following web pages and click on the desired publication to view additional program summaries.

http://bailey.agrilife.org/publications
http://crosby.agrilife.org/publications
http://dawson.agrilife.org/publications
http://gaines.agrilife.org/publications
http://hockley.agrilife.org/publications
http://lubbock.agrilife.org/publications
http://terry.agrilife.org/publications

Effect of Nematicides and Varieties on Root-knot Nematode Control, Cotton Yield, and Profitability

Terry Wheeler[1], Kerry Siders[2], and Manda Anderson[3]

[1]Texas AgriLife Research, Lubbock, TX

[2]Texas AgriLife Extension Service, IPM Extension Agent, Hockley and Cochran Co., Levelland, TX

[3]Texas AgriLife Extension Service, IPM Extension Agent, Gaines Co., Seminole, TX

The loss of Temik 15G for nematode and thrips management in cotton will be costly to the Southern High Plains of Texas, where root-knot nematode infests over 40% of the acreage, primarily in the lighter textured soils (Wheeler et al. 2000, Starr et al., 1993). Cotton lint losses for this region, in the absence of nematode control, are estimated at 26% (Orr and Robinson, 1984).

Existing tools for managing root-knot nematodes include:

1. Varieties with partial resistance to root-knot nematodes (Stoneville (ST) 5458B2F, ST 4288B2F, Phytogen (PHY) 367WRF, and Deltapine 174RF).

2. Chemical

1. Fumigation with Telone (Dow AgroSciences) and Vapam (AMVAC);

2. Seed treatment nematicides (Aeris (Bayer CropScience), Avicta Complete Cotton or Duo (Syngenta), Poncho/Votivo (Bayer CropScience), and N-Hibit (Plant Health Care Inc.)).

3. Post-emergence, banded applications: Vydate CLV (Dupont)

The problem is that producers could use Temik 15G in almost any situation with root-knot nematode and improve their profitability. It is likely that in the absence of Temik 15G, a combination of other tools will be necessary. On the plus side, it may be possible to improve profitability in the presence of root-knot nematode, using some other options, which up to now had not been greatly tested. On the negative side, we know very little about many of the combination of varieties with seed treatment nematicides and/or Vydate CLV. The objective of this project was to explore combinations of tools to manage root-knot nematode.

<u>Seminole Site:</u>

Susceptible variety: Fibermax (FM) 9160B2F; Partially resistant variety: ST 5458B2F
Cost of each variety: $82.61/acre to plant 58,080 seed/acre.
Fumigation date: 4 May
Planting date: 9 May, replanted test on 31 May

Plot size: 35 ft. long, 4-rows wide, 36 inch centers, with 6 replications/variety-chemical combination.
Chemical treatments and cost: None; Cruiser ($8.10/acre); Avicta complete cotton ($17.95/acre); Cruiser + Vydate CLV at 17 oz/acre banded ($14.41/acre); Avicta Complete Cotton + Vydate CLV at 17 oz/acre banded ($24.26/acre); Temik 15G at 5 lbs/acre ($21.25/acre); Cruiser + Telone II at 3 gal/acre ($82.80).
Vydate application: 22 June
Stand counts: 23 June
Dig roots for gall rating: 5 July
Sample soil to determine root-knot nematode density: 22 August
Harvest: 11 November

Whiteface Site:

Susceptible variety: Fibermax (FM) 9160B2F; Partially resistant variety: PHY 367WRF
Cost of each variety: $74.35/acre and $73.59 to plant 52,272 seed/acre of FM 9160B2F and PHY 367WRF, respectively.
Fumigation date: 13 May
Planting date: 13 May
Plot size: 35 ft. long, 4-rows wide, 40 inch centers, with 6 replications/variety-chemical combination.
Chemical treatments and cost: None; Cruiser ($8.10/acre); Avicta complete cotton ($16.20/acre); Cruiser + Vydate CLV at 17 oz/acre banded ($13.65/acre); Avicta Complete Cotton + Vydate CLV at 17 oz/acre banded ($21.75/acre); Temik 15G at 5 lbs/acre ($17.50/acre); Cruiser + Telone II at 3 gal/acre ($82.80).
Vydate application: 9 June
Stand counts: 17 June
Dig roots for gall rating: 27 June
Sample soil to determine root-knot nematode density: 18 August
Harvest: 25 October

At the Seminole site, Temik 15G and Telone II both appeared to have superior nematode control compared with the nematicide seed treatments, based on root galling (Table 1). Vydate CLV applications would have been applied after the initiation of root galling, so root galling is not an effective measure of Vydate efficacy. The partial resistance to root-knot nematode associated with ST 5458B2F appeared to be effective, based on the nematode population density in late August (8,147 root-knot/500 cm^3 soil) relative to that of the susceptible variety FM 9160B2F (23,777 root-knot/500 cm^3 soil). Though root-knot nematode reproduction was reduced on ST 5458B2F, the root-knot nematode density is still considered high for cotton and likely resulted in some loss of yield. The early season advantage of reduced galling caused by Temik 15G and Telone II applications was lost by late August, where root-knot nematode density was similar across all chemical treatments (Table 1). This is typical for Temik 15G, since its effects are temporary and it does not necessarily kill the nematodes, but more likely causes a temporary paralysis that is overcome as the concentration of aldicarb diminishes. However, Telone II should kill a substantial number of nematodes if application is done under good environmental conditions, and reduction of nematode density throughout the summer would have been expected. The recovery of the nematode population density in Telone treated plots, indicates that application was not overally successful. It is likely that the irrigation being applied at that time of year did not allow good movement of the fumigant throughout the bed profile. The dry conditions this spring meant that

sufficient soil moisture did not exist to make applications until just before planting when the center pivot was running extensively. More successful applications are typically done when rainfall or irrigation is used, then the soil is allowed to dry for several days to a week, and then the application made, then a light irrigation to seal the soil, and then dry conditions for around one wk. to maximize the gas movement of the product. This spring was very difficult to get good applications of Telone II from a watering standpoint.

The lint yield weight was multiplied by the loan value plus $0.35, which more adequately reflects the equity of cotton prices at this time. Then the cost of the variety (same for both at Seminole) and chemicals were subtracted from this value. Using ST 5458B2F resulted in an average of $144/acre more than planting FM 9160B2F. If planting the susceptible variety FM 9160B2F, then the most profitable treatment was using Cruiser treated seed and making an application of Vydate CLV at 17 oz/acre banded. When planting ST 5458B2F, the most profitable treatment was using AVICTA Complete Cotton with an application of Vydate CLV at 17 oz/acre, banded. Using Vydate CLV with Cruiser treated seed (i.e. no at-plant nematicide) resulted in the second most profitable situation with ST 5458B2F. So, in general, using ST 5458B2F and Vydate CLV made the most money at the Seminole site. The use of Avicta Complete Cotton without Vydate CLV, Temik 15G, or Telone II did not significantly improve profitability in ST 5458B2F over the nontreated check. With the susceptible cultivar FM 9160B2F, none of the chemical treatments significantly improved yield over the nontreated check.

Table 1. Effect of chemical treatments on root galls caused by root-knot nematode, nematode population density, yield, and value/acre at a field near Seminole in 2011.

Chemical Treatment[1]	Galls/ Root	RK[2]/500 cm[3] soil	Yield Lbs of lint/acre		Yield x Loan value[4] - (Chemical+Variety Costs ($/sacre))	
			FM[3]	ST	FM	ST
None	13.8 a	17,385 a	835 abZ[5]	880 cZ	671 abZ	657 bZ
Cruiser (C))	12.8 a	12,315 a	760 bY	1,015 abcZ	603 bY	815 aZ
Avicta (A)	11.6 a	21,330 a	782 abZ	918 bcZ	597 bZ	678 bZ
C+Vydate	13.2 a	16,095 a	913 aZ	1,048 abZ	736 aZ	829 aZ
A+Vydate	13.1 a	18,240 a	742 bY	1,111 aZ	561 bY	848 aZ
Temik 15G	6.1 b	14,670 a	756 bY	1,016 abcZ	562 bY	760 aZ
Telone II	5.3 b	11,700 a	839 abY	1,029abcZ	568 bY	719 bZ

[1]Vydate CLV was applied at 17 oz/acre banded around the 3-4 leaf stage; Temik 15G was applied at planting at 5 lbs/acre; Telone II was applied 4 days before planting at 3 gal/acre.

[2]RK is root-knot nematode, sampled on 22 August.

[3]FM is FIbermax 9160B2F and ST is Stoneville 5458B2F.

[4]Loan value was increased by $35/lb to reflect current prices more accurately.

[5]The letters a,b,c were used to indicate which chemical treatments were significantly different ($P \leq 0.05$),

within a column. The letters Z and Y were used to indicate which varieties were significantly different, within a chemical treatment.

The Whiteface site was planted with PHY 367WRF as the partially resistant variety and FM 9160B2F was the susceptible variety. Plant stands were higher for plots treated with the fumigant Telone II than for most other treatments (Table 2). The two varieties had very similar stands (FM 9160B2F averaged 2.28 plants/ft. row and PHY 367WRF averaged 2.30 plants/ft. row). Root galling was not affected by most treatments, though plots treated with Telone II had the lowest number of galls/plant (Table 2) nor did varieties differ much in galling (FM 9160B2F averaged 5.2 galls/plant and PHY 367WRF averaged 4.0 galls/plant). The roots were fairly difficult to dig, given the rapid drying behind the pivot, so many fine roots with galls could have been lost in the digging process. Root-knot nematode produced more eggs with the susceptible variety FM 9160B2F (9,517 eggs/500 cm3 soil) than with the partially resistant PHY 367WRF (1,077 eggs/500 cm3 soil). There were also significantly fewer eggs in soil treated with Telone II than for all other chemical treatments (Table 2). Lint yield was higher for PHY 367WRF (1,241 lbs/acre) than for FM 9160B2F (1,115 lbs of lint/acre). Lint yield was higher for plots treated with the fumigant Telone II than for plots treated with Temik 15G orthe combination of AVICTA complete cotton and Vydate CLV (Table 2). However, when the lint yield was multiplied by the loan value and then chemical costs were subtracted, the overall value of the chemical treatments were all similar (Table 2). PHY 367WRF had a higher value ($1,034/acre) than did FM 9160B2F ($928/acre).

Table 2. Effect of chemical treatments on root galls caused by root-knot nematode, nematode population density, yield, and value/acre for a site near Whiteface.

Chemical Treatment[1]	Plants/ Ft. row	Galls	RK[2]	Yield Lbs of lint/acre			Yield x Loan value[4] -(Chemical+Variety Costs ($/sacre))		
				FM[3]	PHY	Average	FM	PHY	Average
None	1.94 c	4.6	10,390 a	1,044	1,271	1,158	886	1,084	985
Cruiser (C))	2.21 bc	4.8	5,240 a	1,099	1,173	1,136	928	986	957
Avicta (A)	2.29 bc	5.5	4,190 a	1,053	1,348	1,201	878	1,138	1,008
C+Vydate	2.75 a	1.2	150 b	1,131	1,298	1,214	952	1,095	1,023
A+Vydate	2.21 bc	4.7	6,480 a	1,078	1,184	1,131	896	983	939
Temik 15G	2.43 ab	7.1	5,350 a	1,133	1,112	1,123	951	922	936
Telone II	2.19 bc	4.2	5,280 a	1,265	1,304	1,285	1,007	1,031	1,019

[1]Vydate CLV was applied at 17 oz/acre banded around the 3-4 leaf stage; Temik 15G was applied at planting at 5 lbs/acre; Telone II was applied on the same day as planting at 3 gal/acre.

[2]RK is root-knot nematode eggs/500 cm3 soil, sampled on 22 August. Mean separation is based on a LOG10 transformation of nematode eggs.

[3]FM is FIbermax 9160B2F and PHY is Phytogen 367WRF.

[4]Loan value was increased by $35/lb to reflect current prices more accurately.

[5]The letters a,b,c were used to indicate which chemical treatments were significantly different ($P \leq 0.05$), within a column.

SUMMARY

At both Seminole and Whiteface there was an economic advantage to using a partially resistant variety (ST 5458B2F or PHY 367WRF) over a susceptible variety (FM 9160B2F). The combination of the partially resistant variety and Vydate CLV application resulted in the highest yields and profitability. The fumigant Telone II did appear to be effective at reducing galls at Seminole and reducing the reproduction of the nematode at Whiteface. However, the higher yields associated with this product were not enough to offset the high cost of the product in 2011.

Literature Cited

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AgriLIFE EXTENSION
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EVALUATION OF COTTON SEED TREATMENTS FOR EARLY SEASON INSECTS AND SOUTHERN ROOT-KNOT NEMATODE

COOPERATOR

Duane Cookston

COORDINATOR

Kerry Siders, Extension Agent - IPM, Hockley and Cochran Counties

Cochran County

OBJECTIVE

To evaluate and compare six treatments against thrips and any other early season insects; and against southern root-knot nematode. Also, are the treatments safe to the cotton seed, and what impact on yield?

MATERIALS AND METHODS

Six seed treatments including: Baytan 30, Gaucho 600FS + Baytan 30, Gaucho 600FS + Baytan + Poncho Votivo, Aeris + Ponco Votivo, Aeris + Ponco Votivo + Baytan 30, or Avicta CP + Baytan30 . See Table 1 for more details on treatments. The plots were 16.7' by 60', replicated 6 times in a random complete block design, and were planted on May 13th at the Duane Cookston Farm southeast of Morton near Whiteface. Approximately 43,700 seed per acre were planted. The test was harvested on 25 October 2011.

Table 1. Cotton seed treatments for insect and nematode evaluation. Cookston Farm, Whiteface, Texas. 2011.

Entry No.	Entry/Trt. Description	Form. Type	AI Conc.	AI Conc. Unit	Dosage	Dosage Unit	Appl. Timing	Appl. Code
1	VORTEX FL	FS	448.2	GA/L	.08555	OZ/CWT	SEETRE	A
	BAYTAN 30	FS	318	GA/L	0.4823	OZ/CWT	SEETRE	A
	ALLEGIANCE FL	FS	318	GA/L	0.7524	OZ/CWT	SEETRE	A
	PRO-IZED BLUE COLORANT	FS		GA/L	1.04	OZ/CWT	SEETRE	A
	CALCIUM CARBONATE	WP		%AW/W	6	OZ/CWT	SEETRE	A
	COLOR COAT WHITE	FS		GA/L	1	OZ/CWT	SEETRE	A
	SECURE PLUS SEED GLOSS 661	FS		GA/L	10	OZ/CWT	SEETRE	A
	SUSPENDING AGENT	WP		%AW/W	0.4	OZ/CWT	SEETRE	A
2	GAUCHO 600 FS	FS	600	GA/L	9.49	OZ/CWT	SEETRE	A
	VORTEX FL	FS	448.2	GA/L	.08555	OZ/CWT	SEETRE	A
	BAYTAN 30	FS	318	GA/L	0.4823	OZ/CWT	SEETRE	A
	ALLEGIANCE FL	FS	318	GA/L	0.7524	OZ/CWT	SEETRE	A
	PRO-IZED BLUE COLORANT	FS		GA/L	1.04	OZ/CWT	SEETRE	A
	CALCIUM CARBONATE	WP		%AW/W	6	OZ/CWT	SEETRE	A
	COLOR COAT WHITE	FS		GA/L	1	OZ/CWT	SEETRE	A
	SECURE PLUS SEED GLOSS 661	FS		GA/L	10	OZ/CWT	SEETRE	A
	SUSPENDING AGENT	WP		%AW/W	0.4	OZ/CWT	SEETRE	A
	BAYTAN 30	FS	318	GA/L	0.4823	OZ/CWT	SEETRE	A
3	GAUCHO 600 FS	FS	600	GA/L	9.49	OZ/CWT	SEETRE	A
	PONCHO VOTIVO	FS	600	GA/L	10.76	OZ/CWT	SEETRE	A
	VORTEX FL	FS	448.2	GA/L	.08555	OZ/CWT	SEETRE	A
	ALLEGIANCE FL	FS	318	GA/L	0.7524	OZ/CWT	SEETRE	A
	PRO-IZED BLUE COLORANT	FS		GA/L	1.04	OZ/CWT	SEETRE	A
	CALCIUM CARBONATE	WP		%AW/W	6	OZ/CWT	SEETRE	A
	COLOR COAT WHITE	FS		GA/L	1	OZ/CWT	SEETRE	A
	SECURE PLUS SEED GLOSS 661	FS		GA/L	10	OZ/CWT	SEETRE	A
	SUSPENDING AGENT	WP		%AW/W	0.4	OZ/CWT	SEETRE	A
	BAYTAN 30	FS	318	GA/L	0.4823	OZ/CWT	SEETRE	A
4	AERIS SEED APPLIED SYSTEM	FS	600	GA/L	18.98	OZ/CWT	SEETRE	A
	PONCHO VOTIVO	FS	600	GA/L	10.76	OZ/CWT	SEETRE	A
	VORTEX FL	FS	448.2	GA/L	.08555	OZ/CWT	SEETRE	A
	ALLEGIANCE FL	FS	318	GA/L	0.7524	OZ/CWT	SEETRE	A
	PRO-IZED BLUE COLORANT	FS		GA/L	1.04	OZ/CWT	SEETRE	A
	CALCIUM CARBONATE	WP		%AW/W	6	OZ/CWT	SEETRE	A
	COLOR COAT WHITE	FS		GA/L	1	OZ/CWT	SEETRE	A
	SECURE PLUS SEED GLOSS 661	FS		GA/L	10	OZ/CWT	SEETRE	A
	SUSPENDING AGENT	WP		%AW/W	0.4	OZ/CWT	SEETRE	A
5	AERIS SEED APPLIED SYSTEM	FS	600	GA/L	18.98	OZ/CWT	SEETRE	A
	PONCHO VOTIVO	FS	600	GA/L	10.76	OZ/CWT	SEETRE	A
	BAYTAN 30	FS	318	GA/L	0.4823	OZ/CWT	SEETRE	A
	VORTEX FL	FS	448.2	GA/L	.08555	OZ/CWT	SEETRE	A
	ALLEGIANCE FL	FS	318	GA/L	0.7524	OZ/CWT	SEETRE	A
	BYF14182	FS	240	GA/L	0.3195	OZ/CWT	SEETRE	A
	PRO-IZED BLUE COLORANT	FS		GA/L	1.04	OZ/CWT	SEETRE	A
	CALCIUM CARBONATE	WP		%AW/W	6	OZ/CWT	SEETRE	A
	COLOR COAT WHITE	FS		GA/L	1	OZ/CWT	SEETRE	A
	SECURE PLUS SEED GLOSS 661	FS		GA/L	10	OZ/CWT	SEETRE	A
	SUSPENDING AGENT	WP		%AW/W	0.4	OZ/CWT	SEETRE	A
6	VORTEX FL	FS	448.2	GA/L	.08555	OZ/CWT	SEETRE	A
	BAYTAN 30	FS	318	GA/L	0.4823	OZ/CWT	SEETRE	A
	ALLEGIANCE FL	FS	318	GA/L	0.7524	OZ/CWT	SEETRE	A
	PRO-IZED BLUE COLORANT	FS		GA/L	1.04	OZ/CWT	SEETRE	A
	CALCIUM CARBONATE	WP		%AW/W	6	OZ/CWT	SEETRE	A
	COLOR COAT WHITE	FS		GA/L	1	OZ/CWT	SEETRE	A
	SECURE PLUS SEED GLOSS 661	FS		GA/L	10	OZ/CWT	SEETRE	A
	SUSPENDING AGENT	WP		%AW/W	0.4	OZ/CWT	SEETRE	A
	AVICTA COMPLETE PAK - AVICTA	FS	500.4	GA/L			SEETRE	A
	AVICTA COMPLETE PAK - CRUISER	FS	600	GA/L			SEETRE	A

Table 2. Cotton responses to seed treatments, Cookston Farm, Whiteface, Texas. 2011.

Entry No.	Entry/Trt. Description	Stand 1/1000 ac 5/23	Stand 1/1000 ac 6/02	Stand 1/1000 ac 6/27	Thrips/ leaf	Galls #/plant	Lint Yield Lbs/acre
1	VORTEX FL BAYTAN 30 ALLEGIANCE FL PRO-IZED BLUE COLORANT CALCIUM CARBONATE COLOR COAT WHITE SECURE PLUS SEED GLOSS 661 SUSPENDING AGENT	9.8 a	35 a	34 a	0	1.6 ab	544 b
2	GAUCHO 600 FS VORTEX FL BAYTAN 30 ALLEGIANCE FL PRO-IZED BLUE COLORANT CALCIUM CARBONATE COLOR COAT WHITE SECURE PLUS SEED GLOSS 661 SUSPENDING AGENT BAYTAN 30	7.7 ab	32 ab	31 ab	0	1.4 ab	559 b
3	GAUCHO 600 FS PONCHO VOTIVO VORTEX FL ALLEGIANCE FL PRO-IZED BLUE COLORANT CALCIUM CARBONATE COLOR COAT WHITE SECURE PLUS SEED GLOSS 661 SUSPENDING AGENT BAYTAN 30	9.3 ab	28 b	29 ab	0	2.5 ab	640 a
4	AERIS SEED APPLIED SYSTEM PONCHO VOTIVO VORTEX FL ALLEGIANCE FL PRO-IZED BLUE COLORANT CALCIUM CARBONATE COLOR COAT WHITE SECURE PLUS SEED GLOSS 661 SUSPENDING AGENT	6.0 b	27 b	26 b	0	0.7 b	621 ab
5	AERIS SEED APPLIED SYSTEM PONCHO VOTIVO BAYTAN 30 VORTEX FL ALLEGIANCE FL BYF14182 PRO-IZED BLUE COLORANT CALCIUM CARBONATE COLOR COAT WHITE SECURE PLUS SEED GLOSS 661 SUSPENDING AGENT	9.8 a	29 b	30 ab	0	3.5 a	667 a
6	VORTEX FL BAYTAN 30 ALLEGIANCE FL PRO-IZED BLUE COLORANT CALCIUM CARBONATE COLOR COAT WHITE SECURE PLUS SEED GLOSS 661 SUSPENDING AGENT AVICTA COMPLETE PAK - AVICTA AVICTA COMPLETE PAK - CRUISER	7.5 ab	28 b	31 ab	0	1.8 ab	617 ab

Means followed by the same letter do not significantly differ (P=0.05 LSD)

RESULTS AND DISCUSSION

Initial emergence stand count on May 23 indicated that the Baytan 30 treatment (1-3, 5, and 6) achieved a slightly better stand than treatment 4 without Baytan 30. However, only Trt 1 and 5 were significantly better. By June 2 Trt 1 was a significantly higher stand count (35 plants per 1/1000 acre) than all other trts (<29 plants per 1/1000 acre) except trt 2 (32 plants per 1/1000 acre) which was not significantly different. Final stand count on June 27 indicate a similar trend to initial emergence. Only trts 1 (34 plants per 1/1000 acre) and trt 4 (26 plants per 1/1000 acre) were significantly different. All treatment stands were in an acceptable range (26,000-47,000 plants per acre) for moderate irrigation level in study field.

No thrips or other insect pests were a factor in this study. Cotton root-knot nematodes were a factor in this study field. However, the highest yields from Trt 3 and 5 (640-667 lbs cotton lint per acre) was achieved on the two highest gall ratings (2.5-3.5 galls per plant). These two highest yielding Trts (640-667 lbs cotton lint per acre) were significantly different from Trts 1 and 2 (544-559 lbs cotton lint per acre) . These were the only two treatments not containing either Poncho Votivo, Aeris, or Avicta alone or in combination.

ACKNOWLEDGMENTS

I want to thank Duane Cookston for his cooperation with this project. Thank you to Dr. Terry Wheeler and her crew for assistance in harvest and data analysis. This projects was sponsored by Bayer Crop Science.

EVALUATION OF COTTON SEED AND FOLIAR TREATMENTS FOR SOUTHERN ROOT-KNOT NEMATODE

COOPERATOR: Duane Cookston

COORDINATOR: Kerry Siders, Extension Agent - IPM, Hockley and Cochran Counties

Cochran County

OBJECTIVE

To evaluate the efficacy and application timing of CMT 4586 for reduction in nematode populations alone or in combination with seed treatments.

MATERIALS AND METHODS

See Table 1 for seed and foliar treatments. The plots were 16.7' by 60', replicated 6 times in a random complete block design, and were planted on May 13th at the Duane Cookston Farm southeast of Morton near Whiteface. Approximately 43,700 seed per acre were planted. The foliar applications were as follows:

	1st Application	2nd Application	3rd Application
Treatments	2, 4, and 6	2, 3, 4, 5, and 6	3, 5, and 6
Date	June 13	June 20	July 1
Days from emergence	21	28	39
Plant Stage	4 True leaf (TL)	5.5 TL, pinhead	8.5 TL,1/3 grown sq

Added to the CMT 4586 treatments was 2.5% v/v UAN 28% and 0.25% v/v Dyne-Amic. Treatments were applied using a Lee Spider Sprayer set to deliver 17 gal/ac broadcast over the top. The test was harvested on 25 October 2011 by a John Deere 2 row stripper.

Table 1. Cotton seed and foliar treatments for nematode evaluation. Cookston Farm, Whiteface, Texas. 2011.

Trt No.	Entry/Trt. Description	Form Type	AI Conc	Dosage	Dosage Unit	Transfrm Dosage	Transform Dose Unit	Appl. Timing	Appl Code
1	UNTREATED							SEETRE	A
	GAUCHO 600 FS	FS	600	0.375	MG A/SEED	9.59	OZ/CWT	SEETRE	A
	BAYTAN 30	FS	318	10	G A/100 KG	0.4823	OZ/CWT	SEETRE	A
	VORTEX FL	FS	448	2.5	G A/100 KG	.08555	OZ/CWT	SEETRE	A
	ALLEGIANCE FL	FS	318	15.6	G A/100 KG	0.7524	OZ/CWT	SEETRE	A
2	GAUCHO 600 FS	FS	600	0.375	MG A/SEED	9.59	OZ/CWT	SEETRE	A
	BAYTAN 30	FS	318	10	G A/100 KG	0.4823	OZ/CWT	SEETRE	A
	VORTEX FL	FS	448	2.5	G A/100 KG	.08555	OZ/CWT	SEETRE	A
	ALLEGIANCE FL	FS	318	15.6	G A/100 KG	0.7524	OZ/CWT	SEETRE	A
	CMT4586	SC	240	140	G A/HA	7.98	OZ/A	Foliar	BC
	DYNE-AMIC	SL	99	0.25	% V/V	0.25	% V/V	Foliar	BC
	UAN 28%	SL	28	2.5	% V/V	2.5	% V/V	Foliar	BC
3	GAUCHO 600 FS	FS	600	0.375	MG A/SEED	9.59	OZ/CWT	SEETRE	A
	BAYTAN 30	FS	318	10	G A/100 KG	0.4823	OZ/CWT	SEETRE	A
	VORTEX FL	FS	448	2.5	G A/100 KG	.08555	OZ/CWT	SEETRE	A
	ALLEGIANCE FL	FS	318	15.6	G A/100 KG	0.7524	OZ/CWT	SEETRE	A
	CMT4586	SC	240	140	G A/HA	8	OZ/A	Foliar	CD
	DYNE-AMIC	SL	99	0.25	% V/V	0.25	% V/V	Foliar	CD
	UAN 28%	SL	28	2.5	% V/V	2.5	% V/V	Foliar	CD
4	AERIS SEED APPLIED SYSTEM	FS	600	0.75	MG A/SEED	19.17	OZ/CWT	SEETRE	A
	PONCHO VOTIVO	FS	600	0.425	MG A/SEED	10.86	OZ/CWT	SEETRE	A
	BAYTAN 30	FS	318	10	G A/100 KG	0.4823	OZ/CWT	SEETRE	A
	VORTEX FL	FS	448	2.5	G A/100 KG	.08555	OZ/CWT	SEETRE	A
	ALLEGIANCE FL	FS	318	15.6	G A/100 KG	0.7524	OZ/CWT	SEETRE	A
	CMT4586	SC	240	140	G A/HA	8	OZ/A	Foliar	BC
	DYNE-AMIC	SL	99	0.25	% V/V	0.25	% V/V	Foliar	BC
	UAN 28%	SL	28	2.5	% V/V	2.5	% V/V	Foliar	BC
5	AERIS SEED APPLIED SYSTEM	FS	600	0.75	MG A/SEED	19.17	OZ/CWT	SEETRE	A
	PONCHO VOTIVO	FS	600	0.425	MG A/SEED	10.86	OZ/CWT	SEETRE	A
	BAYTAN 30	FS	318	10	G A/100 KG	0.4823	OZ/CWT	SEETRE	A
	VORTEX FL	FS	448	2.5	G A/100 KG	.08555	OZ/CWT	SEETRE	A
	ALLEGIANCE FL	FS	318	15.6	G A/100 KG	0.7524	OZ/CWT	SEETRE	A
	CMT4586	SC	240	140	G A/HA	8	OZ/A	Foliar	CD
	DYNE-AMIC	SL	99	0.25	% V/V	0.25	% V/V	Foliar	CD
	UAN 28%	SL	28	2.5	% V/V	2.5	% V/V	Foliar	CD
6	Vydate CL-V -STANDARD					17	Oz/ac	Foliar	

Table 2. Cotton responses to seed and foliar treatments, Cookston Farm, Whiteface, Texas. 2011.

Trt No.	Entry/Trt. Description	Stand 1/1000 ac 6/02	Stand 1/1000 ac 6/27	Galls #/plant	Lint Yield Lbs/acre
1	UNTREATED GAUCHO 600 FS BAYTAN 30 VORTEX FL ALLEGIANCE FL	34 a	35 ab	2.45 a	475 c
2	GAUCHO 600 FS BAYTAN 30 VORTEX FL ALLEGIANCE FL CMT4586 DYNE-AMIC UAN 28%	33 ab	36 ab	2.2 a	548 bc
3	GAUCHO 600 FS BAYTAN 30 VORTEX FL ALLEGIANCE FL CMT4586 DYNE-AMIC UAN 28%	35 a	38 a	1.25 a	636 ab
4	AERIS SEED APPLIED SYSTEM PONCHO VOTIVO BAYTAN 30 VORTEX FL ALLEGIANCE FL CMT4586 DYNE-AMIC UAN 28%	25 c	27 c	1.25 a	654 a
5	AERIS SEED APPLIED SYSTEM PONCHO VOTIVO BAYTAN 30 VORTEX FL ALLEGIANCE FL CMT4586 DYNE-AMIC UAN 28%	29 bc	31 bc	1.27 a	674 a
6	Vydate CL-V -STANDARD	29 bc	34 ab	0.9 a	644 a

Means followed by the same letter do not significantly differ (P=0.05 LSD)

RESULTS AND DISCUSSION

Though initial stand counts indicated some significant differences among a few of the treatments, no long term impact on yield occurred from those differences. The gall ratings were not significantly different from each other. However, numerically the Vydate did hold galls to less than one per plant. Whereas, all other treatments were above 1.25 galls per plant. The four best yielding treatments, which were not significantly different from each other, were Trts 3-6 (636-674 lint lbs/acre). These treatments contained either Vydate, Aeris, or the foliar CMT 4586 applied at pinhead + 11 days later. Of those only treatment 3 (636 lbs/acre) with no Vydate or Aeris but only the foliar CMT 4586 applied at pinhead + 11 days later was not significantly different from Trt 2 (548 lbs/acre) having no Vydate or Aeris but only the foliar CMT 4586 applied at 21 days from emergence + 7 days later at pinhead. All treatments were significantly better than Trt 1 untreated check (475 lbs/acre) except Trt 2 (548 lbs/acre) having no Vydate or Aeris but only the foliar CMT 4586 applied at 21 days from emergence + 7 days later at pinhead. In summary, the CMT 4586 seem to perform better when timed at the pinhead + 11 days vs. the 21 days after emergence + pinhead. Then when combined with Aeris Seed System it performs that much better yet; still with the trend of the later application of CMT4586 performing slightly and numerically better.

ACKNOWLEDGMENTS

I want to thank Duane Cookston for his cooperation with this project. Thank you to Dr. Terry Wheeler and her crew for assistance in harvest and data analysis. This projects was sponsored by Bayer Crop Science.

EVALUATION OF VYDATE CL-V ON NEMATODE TOLERANT COTTON

COOPERATOR: David Pearson

COORDINATOR: Kerry Siders, Extension Agent - IPM, Hockley and Cochran Counties

Hockley County

OBJECTIVE

To evaluate the efficacy and necessity of Vydate CL-V on cotton which is tolerant to nematodes.

MATERIALS AND METHODS

See Table 1 for the eight cotton variety treatments, and 2 for all combined treatments of Vydate and Variety. The plots were 26.6' by 50', replicated 4 times in a random complete block design, and were planted on May 12th at the David Pearson Farm east southeast of Sundown. The foliar Vydate applications were as follows:

	1st Application	2nd Application
Vydate 17 oz/ac Treatments	1 and 2	2
Date	June 8	June 15
Days from emergence	20	27
Plant Stage	4 True leaf (TL)	6 TL, pinhead

Treatments were applied using a Lee Spider Sprayer set to deliver 17 gal/ac broadcast over the top. The three Vydate treatments were overlaid onto eight cotton varieties. The test was harvested on 26 October 2011 by an International 2 row stripper.

Table 1. The eight cotton varieties used to evaluate Vydate for nematode management. Pearson Farm, Sundown, Texas. 2011.

1	PHY 367 WRF M+BION
2	PHY 375 WRF ACC
3	PHY 367 WRF M
4	PHY 499 WRF ACC
5	PHY 367 WRF ACC
6	FM 9170 B2RF AERIS TRILEX
7	PHY 367 WRF ACC+BION
8	DP 1032 B2RF ACCELERON

X

1 Vydate 1APP
2 Vydate 2APP
3 Untreated Check

Table 2. Combined treatments of Vydate and cotton variety, Pearson Farm, Sundown, Texas. 2011.

1 Phy367MB 1 Vydate 1APP	1 Phy367MB 2 Vydate 2APP	1 Phy367MB 3 Untreated Check
2 Phy375AV 1 Vydate 1APP	2 Phy375AV 2 Vydate 2APP	2 Phy375AV 3 Untreated Check
3 Phy367B 1 Vydate 1APP	3 Phy367B 2 Vydate 2APP	3 Phy367B 3 Untreated Check
4 Phy499AV 1 Vydate 1APP	4 Phy499AV 2 Vydate 2APP	4 Phy499AV 3 Untreated Check
5 Phy367AV 1 Vydate 1APP	5 Phy367AV 2 Vydate 2APP	5 Phy367AV 3 Untreated Check
6 FM9170AR 1 Vydate 1APP	6 FM9170AR 2 Vydate 2APP	6 FM9170AR 3 Untreated Check
7 Phy367ACB 1 Vydate 1APP	7 Phy367ACB 2 Vydate 2APP	7 Phy367ACB 3 Untreated Check
8 DP1032AC 1 Vydate 1APP	8 DP1032AC 2 Vydate 2APP	8 DP1032AC 3 Untreated Check

Table 3. Cotton yield results lbs/acre, Pearson Farm, Sundown, Texas. 2011.

TABLE OF R MEANS		
Replicate 1	924.5	a
Replicate 2	1037.2	b
Replicate 3	957.0	c
Replicate 4	943.4	c
TABLE OF A MEANS		
1 Phy367MB	934.7	a-c
2 Phy375AV	977.1	b-e
3 Phy367B	1066.7	f
4 Phy499AV	951.5	a-d
5 Phy367AV	1004.0	c-f
6 FM9170AR	900.8	ab
7 Phy367ACB	890.3	a
8 DP1032AC	999.2	c-f
TABLE OF B MEANS		
1 Vydate 1APP	985.7	b
2 Vydate 2APP	1115.8	c
3 Untreated Check	795.1	a

Table 3 continued. Cotton yield results lbs/acre, Pearson Farm, Sundown, Texas. 2011.

TABLE OF AB MEANS		
1 Phy367MB 1 Vydate 1APP	978.0	f-h
2 Phy375AV 1 Vydate 1APP	983.8	f-h
3 Phy367B 1 Vydate 1APP	1097.0	h-k
4 Phy499AV 1 Vydate 1APP	986.0	f-h
5 Phy367AV 1 Vydate 1APP	984.3	f-h
6 FM9170AR 1 Vydate 1APP	932.0	e-g
7 Phy367ACB 1 Vydate 1APP	917.8	d-f
8 DP1032AC 1 Vydate 1APP	1006.8	f-i
1 Phy367MB 2 Vydate 2APP	1057.8	g-j
2 Phy375AV 2 Vydate 2APP	1109.0	h-k
3 Phy367B 2 Vydate 2APP	1196.8	k
4 Phy499AV 2 Vydate 2APP	1076.3	h-k
5 Phy367AV 2 Vydate 2APP	1135.5	i-k
6 FM9170AR 2 Vydate 2APP	1095.0	h-k
7 Phy367ACB 2 Vydate 2APP	1103.8	h-k
8 DP1032AC 2 Vydate 2APP	1152.0	jk
1 Phy367MB 3 Untreated Check	768.3	a-c
2 Phy375AV 3 Untreated Check	838.5	c-e
3 Phy367B 3 Untreated Check	906.3	d-f
4 Phy499AV 3 Untreated Check	792.3	b-d
5 Phy367AV 3 Untreated Check	892.3	c-f
6 FM9170AR 3 Untreated Check	675.5	ab
7 Phy367ACB 3 Untreated Check	649.3	a
8 DP1032AC 3 Untreated Check	838.8	c-e

Table 4. Complete factorial design analysis for yield, Pearson Farm, Sundown, Texas. 2011.

COMPLETE FACTORIAL AOV For Yield (Data Column 1)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F	Prob(F)	LSD (.05)
Total	95	2833917.958333				
R	3	177301.458333	59100.486111	9.227	0.0001	46.7
A	7	287707.125000	41101.017857	2.627	0.0408	106.2
RA	21	328575.375000	15646.446429	2.443	0.0068	132.1
B	2	1664327.583333	832163.791667	483.141	0.0001	25.4
RB	6	10334.416667	1722.402778	0.269	0.9484	80.9
AB	14	96665.750000	6904.696429	1.078	0.4034	114.4
RAB	42	269006.250000	6404.910714			

FACTORIAL/POOLED ERROR AOV For Yield (Data Column 1)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F	Prob(F)	LSD (.05)
Total	95	2833917.958333				
R	3	177301.458333	59100.486111	6.708	0.0005	54.2
A	7	287707.125000	41101.017857	4.665	0.0003	76.6
B	2	1664327.583333	832163.791667	94.453	0.0001	46.9
AB	14	96665.750000	6904.696429	0.784	0.6828	132.7
ERROR	69	607916.041667	8810.377415			

DISCUSSION

This study would indicate that the addition of even one application of Vydate CL-V at 17 oz/acre, even to a nematode tolerant cotton variety, will protect from yield loss significantly from nematodes compared to the untreated check. Also, two applications was significantly better than the single application.

ACKNOWLEDGMENTS

I want to thank David Pearson for his cooperation with this project. This projects was sponsored by DuPont Chemical. Thank you to the Phytogen Seed for providing the study cottonseed.

AgriLIFE EXTENSION
Texas A&M System

Replicated LESA Irrigated RACE Variety Demonstration,

Ropesville, TX - 2011

Cooperator: Mike Henson

Robert Scott, Kerry Siders, Mark Kelley

and Chris Ashbrook

CEA-ANR Hockley County, EA-IPM Cochran/Hockley Counties,

Extension Agronomist - Cotton,

and Extension Assistant - Cotton

Hockley County

Summary: Significant differences were observed for most yield and economic parameters measured. Differences in lint turnout from grab samples were not significant and averaged 31.3% across varieties. Lint yields varied with a low of 564 lb/acre (Deltapine 1032B2RF) and a high of 738 lb/acre (Dyna-Gro 2570B2RF). Lint loan values ranged from a low of $0.5242/lb (Stoneville 5458B2RF) to a high of $0.5705/lb (FiberMax 9170B2F). When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $435.62/acre (Dyna-Gro 2570B2RF) to a low of $330.61/acre (Deltapine 1032B2RF), a difference of $105.01. Significant differences were observed among varieties for all HVI parameters measured. Micronaire ranged from a low of 4.4 for Deltapine 1032B2RF to a high of 5.0 for Stoneville 5458B2RF. Staple averaged 35.0 across all varieties and percent uniformity averaged 80.7%. Strength values (alpha 0.10) averaged 31.4 g/tex with a high of 32.1 g/tex for FiberMax 9170B2F and PhytoGen 499WRF, and a low of 30.2 g/tex for Croplan Genetics 3787B2RF. Elongation averaged 9.3 with a high of 10.7 for PhytoGen 499WRF and a low of 8.0 FiberMax 9170B2F. Leaf grades were mostly 1 and 2

at this location. Color grades of 11 and 21 were observed for most varieties. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

Objective: The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton varieties under LESA irrigated production in the Texas High Plains.

Materials and Methods:

Varieties:	All-Tex Edge B2RF, Croplan Genetics 3787B2RF, Deltapine 1032B2RF, Dyna-Gro 2570B2RF, FiberMax 9170B2F, NexGen 4012B2RF, PhytoGen 499WRF, and Stoneville 5458B2F
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	3.4 seed/row-ft in 40 inch row spacings. (John Deere XP Vacuum planter)
Plot size:	8 rows by variable length of field (straight rows under center pivot)
Planting date:	1-June
Weed management:	Trifuralin was applied preplant incorporated at 1.5 pt/acre across all varieties. Roundup PowerMax was applied over-the-top at 24 oz/acre on 25-July, and at 32 oz/acre on 20-August with AMS.
Irrigation:	6” of preplant irrigation were applied via LESA irrigation with 12” of irrigation applied during the growing season for a total of 18” applied irrigation.

Rainfall: Based on the nearest Texas Tech University-West Texas Mesonet station at Levelland, rainfall amounts were:

April:	0.00	August:	0.06
May:	0.35	September:	0.32
June:	0.23	October:	1.03
July:	0.01		

Total rainfall: 2.00”

Insecticides: No insecticides were applied by the producer at this site. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Fertilizer management: 75 lbs NO_3-N/acre were applied during the growing season. Also, 75 lbs P_2O_5/acre were applied preplant.

Harvest aids: Harvest aids included 48 oz/acre of Ethephon applied by producer on 25-October followed by 32 oz/acre Gramoxone Inteon with 0.25% v/v non-ionic surfactant on 7-November.

Harvest: Plots were harvested on 14-November using a commercial John Deere 7460 with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to record individual plot weights. Plot weights were subsequently converted to lb/acre basis.

Gin turnout: Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.

Fiber analysis: Lint samples were submitted to the Texas Tech University – Fiber and Biopolymer Research Institute for HVI analysis, and USDA Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.

Ginning cost and seed values: Ginning cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $300/ton. Ginning cost did not include check-off.

Seed and Technology fees: Seed and technology costs were calculated using the appropriate seeding rate (3.4 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at:

http://www.plainscotton.org/Seed/PCGseed11.xls .

Results and Discussion:

No significant differences were observed among varieties for plant population (15-June) or nodes above white flower (4-August) provided in Table 1. NAWF values reported represent averages from 10 plants per plot or 30 plants per variety. Just prior to harvest on 14-November, a visual observation for storm resistance was recorded for each variety in all three replications. The ratings were on a scale of 1-9 where 1 represents the least storm resistance. Significant differences were observed among varieties and values ranged from a high of 7.3 (FiberMax 9170B2F and NexGen 4012B2RF) to a low of 4.3 (Deltapine 1032B2RF).

For final plant map parameters measured on 11-October, significant differences were observed for all but open boll percent (Table 2). Plant height averaged 15.9 with a high of 17.8 (PhytoGen 499WRF) and a low of 13.7 (Stoneville 5458B2RF). Node of first fruiting branch was highest for FiberMax 9170B2F (10.6) and lowest for Croplan Genetics 3787B2RF (6.7). Total mainstem nodes

averaged 17.7 across all varieties and ranged from a high of 20.1 for NexGen 4012B2RF to a low of 15.2 for Croplan Genetics 3787B2RF. Height to node ratio averaged 0.9. Total fruiting branches was highest for NexGen 4012B2RF (12.2) and lowest for FiberMax 9170B2F (9.3) with a test average of 10.4. Significant differences were observed at the 0.10 level for 1st position retention percent on 11-October (Table 3). 1st position retention percent was highest for Phytogen 499WRF (43.9) and lowest for NexGen 4012B2RF (27.4) and averaged 33.3.

Significant differences were observed for most yield and economic parameters measured (Table 4). However, lint turnout from grab samples was not significant and averaged 31.3%. Bur cotton yields averaged 2099 lb/acre with a high of 2425 lb/acre for Stoneville 5458B2RF, and a low of 1776 lb/acre for Deltapine 1032B2RF. Lint yields varied from a low of 564 lb/acre (Deltapine 1032B2RF) to a high of 738 lb/acre (Dyna-Gro 2570B2RF). Lint loan values ranged from a low of $0.5242/lb (Stoneville 5458B2RF) to a high of $0.5705/lb (FiberMax 9170B2F). Resulting lint values ($/acre) averaged $364.69 across varieties with a high of $411.18/acre for PhytoGen 499WRF to a low of $320.58/acre for Deltapine 1032B2RF. After adding lint and seed value, total value/acre ranged from a low of $447.15/acre for Deltapine 1032B2RF to a high of $565.01/acre for PhytoGen 499WRF. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $435.62/acre (Dyna-Gro 2570B2RF) to a low of $330.61/acre (Deltapine 1032B2RF), a difference of $105.01.

Significant differences were observed among varieties for all HVI parameters measured. Micronaire ranged from a low of 4.4 for Deltapine 1032B2RF to a high of 5.0 for Stoneville 5458B2RF. Staple averaged 35.0 across all varieties with a high of 35.9 for Croplan Genetics 3787B2RF and a low of 34.3 for PhytoGen 499WRF. Percent uniformity ranged from a high of 81.9% for Croplan Genetics 3787B2RF to a low of 80.0% for All-Tex Edge B2RF with a test average of 80.7%. Strength values (alpha=0.10) averaged 31.4 g/tex with a high of 32.1 g/tex for FiberMax 9170B2F and PhytoGen 499WRF, and a low of 30.2 g/tex for Croplan Genetics 3787B2RF. Elongation averaged 9.3 with a high of 10.7 for PhytoGen 499WRF and a low of 8.0 FiberMax 9170B2F. Leaf grades were mostly 1 and 2 at this location. Color grades of mostly 21 were observed across varieties.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. Additional multi-site and

multi-year applied research is needed to evaluate varieties and technology across a series of environments.

Acknowledgments:

Appreciation is expressed to Mike Henson for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by Dr. Jane Dever - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

Disclaimer Clause:

Trade names of commercial products used in this report are included only for better understanding and clarity. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas A&M System is implied. Readers should realize that results from one experiment do not represent conclusive evidence that the same response would occur where conditions vary.

Table 1. Inseason plant measurement results from the Hockley County LESA irrigated RACE variety demonstration, Mike Henson Farm, Ropesville, TX, 2011.

Entry	Plant population		Nodes Above White Flower (NAWF) for week of	Storm resistance
	15-Jun		4-Aug	14-Nov
	plants/row ft	plants/acre	avg/plant	rating (1-9)
Dyna-Gro 2570B2RF	3.0	38,534	5.5	5.7
PhytoGen 499WRF	3.3	43,895	5.5	6.7
Stoneville 5458B2RF	3.0	38,869	4.7	6.7
FiberMax 9170B2F	3.2	42,052	5.1	7.3
Croplan Genetics 37B7B2RF	3.3	43,058	5.2	5.3
NexGen 4012B2RF	3.1	40,879	5.4	7.3
All-Tex Edge B2RF	3.5	46,408	5.3	6.3
Deltapine 1032B2RF	2.8	36,021	5.8	4.3
Test average	3.2	41,214	5.3	6.2
CV, %	11.1	10.8	9.3	8.9
OSL	0.2740	0.1882	0.3587	0.0001
LSD	NS	NS	NS	1.0

For NAWF, numbers represent an average of 10 plants per variety per rep (30 plants per variety)
For Storm resistance, ratings based on a scale of 0-9 where 9 represents maximum storm resistance.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, NS - not significant

Table 2. Final plant map results from the Hockley County LESA irrigated RACE variety demonstration, Mike Henson Farm, Ropesville, TX, 2011.

Entry	Final plant map 11-Oct					
	plant height (inches)	node of first fruiting branch	total mainstem nodes	height to node ratio	total fruiting branches	open boll (%)
Dyna-Gro 2570B2RF	15.7	8.7	18.0	0.9	10.3	78.7
PhytoGen 499WRF	17.8	8.9	17.6	1.0	9.6	77.3
Stoneville 5458B2RF	13.7	7.9	17.2	0.8	10.3	69.9
FiberMax 9170B2F	15.2	10.6	18.9	0.8	9.3	72.8
Croplan Genetics 37B7B2RF	15.3	6.7	15.2	1.0	9.5	80.7
NexGen 4012B2RF	16.1	8.8	20.1	0.8	12.2	82.7
All-Tex Edge B2RF	16.3	8.0	18.3	0.9	11.3	67.9
Deltapine 1032B2RF	17.0	7.3	16.6	1.0	10.3	83.7
Test average	15.9	8.4	17.7	0.9	10.4	76.7
CV, %	5.6	6.9	4.0	6.2	6.3	11.3
OSL	0.0028	<0.0001	<0.0001	0.0002	0.0011	0.2807
LSD	1.6	1.0	1.3	0.1	1.1	NS

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, NS - not significant

Table 3. Final plant map results from the Hockley County LESA Irrigated RACE variety demonstration, Mike Henson Farm, Ropesville, TX, 2011.

Entry	Fruiting and retention 11-Oct					
	% of fruit from 1st position	% of fruit from 2nd position	total fruit	1st position retention (%)	2nd position retention (%)	total retention (%)
Dyna-Gro 2570B2RF	92.3	6.9	3.6	31.4	7.1	25.8
PhytoGen 499WRF	92.1	7.9	4.7	43.9	16.2	37.3
Stoneville 5458B2RF	90.2	5.6	3.6	29.6	8.7	25.3
FiberMax 9170B2F	85.3	6.7	3.7	33.5	11.2	29.9
Croplan Genetics 3787B2RF	91.0	7.9	3.6	33.1	8.1	25.5
NexGen 4012B2RF	89.7	8.2	3.8	27.4	13.9	25.3
All-Tex Edge B2RF	82.7	15.7	4.7	33.1	24.5	29.9
Deltapine 1032B2RF	90.5	8.1	4.0	34.6	10.9	28.4
Test average	89.2	8.4	4.0	33.3	12.6	28.4
CV, %	8.5	73.5	17.2	15.5	77.3	17.9
OSL	0.7408	0.6311	0.2085	0.0556†	0.4527	0.1350
LSD	NS	NS	NS	7.4	NS	NS

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 4. Harvest results from the Hockley County LESA Irrigated RACE variety demonstration, Mike Henson Farm, Ropesville, TX, 2011.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/tech nology cost	Net value
	—— % ——		——— lb/acre ———			$/lb	——————————— $/acre ———————————					
Dyna-Gro 2570B2RF	33.2	48.6	2221	738	1078	0.5442	401.64	161.71	563.24	88.64	60.99	435.62 a
PhytoGen 499WRF	32.4	45.2	2288	736	1028	0.5588	411.18	153.83	565.01	88.04	61.84	435.02 a
Stoneville 5458B2RF	30.0	45.7	2425	727	1107	0.5242	381.02	166.10	547.12	72.76	62.58	411.78 a
FiberMax 9170B2F	31.7	47.3	2128	674	1006	0.5705	384.88	150.88	535.55	63.78	62.58	409.18 a
Croplan Genetics 3787B2RF	31.8	47.3	1954	621	924	0.5892	363.67	138.86	492.22	58.82	59.86	373.86 b
NexGen 4012B2RF	29.8	48.1	2000	596	921	0.5848	338.26	138.20	474.45	60.01	56.06	358.38 bc
All-Tex Edge B2RF	29.8	48.8	2020	588	841	0.5483	328.88	141.18	469.88	60.58	58.38	350.81 bc
Deltapine 1032B2RF	31.8	47.6	1778	564	844	0.5683	320.68	126.67	447.16	53.29	53.26	330.61 c
Test average	31.3	46.8	2099	657	981	0.5582	364.89	147.14	511.83	62.97	60.66	388.31
CV, %	6.1	3.4	4.3	4.4	4.4	2.2	4.6	4.4	4.6	4.3	–	5.2
OSL	0.1128	0.2573	<0.0001	<0.0001	<0.0001	0.0048	<0.0001	<0.0001	<0.0001	<0.0001	–	<0.0001
LSD	NS	NS	160	60	78	0.0217	28.68	11.36	39.82	4.79	–	35.13

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, NS - not significant.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$300/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 5. HVI fiber property results from the Hockley County LESA irrigated RACE variety demonstration, Mike Henson Farm, Ropesville, TX, 2011.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32nds inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Dyna-Gro 2570B2RF	4.8	34.7	81.1	31.3	10.3	1.0	78.7	9.3	2.0	1.0
PhytoGen 499WRF	4.8	34.3	80.7	32.1	10.7	1.0	77.6	9.2	2.0	1.0
Stoneville 5458B2RF	5.0	34.8	80.4	31.3	9.1	2.0	75.5	9.5	3.0	1.7
FiberMax 9170B2F	4.5	35.8	80.2	32.1	8.0	1.0	79.9	8.8	2.0	1.0
Croplan Genetics 3787 B2RF	4.6	35.9	81.9	30.2	10.4	1.0	80.2	9.2	1.3	1.0
NexGen 4012B2RF	4.6	34.7	80.9	31.6	8.1	2.0	79.3	9.1	1.7	1.0
All-Tex Edge B2RF	4.9	34.6	80.0	31.4	9.2	2.3	78.3	8.1	3.0	1.0
Deltapine 1032B2RF	4.4	35.3	80.7	30.9	8.8	1.0	80.2	9.0	1.3	1.0
Test average	4.7	35.0	80.7	31.4	9.3	1.4	78.7	9.0	2.0	1.1
CV, %	3.8	1.5	0.7	2.3	4.3	28.8	1.3	3.4	–	–
OSL	0.0097	0.0122	0.0140	0.0908†	<0.0001	0.0020	0.0007	0.0026	–	–
LSD	0.3	0.9	0.9	1.0	0.7	0.7	1.7	0.5	–	–

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level.

AgriLIFE EXTENSION
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EVALUATION OF COTTON VARIETIES

COOPERATOR: David Pearson and Larry Smith

COORDINATOR: Kerry Siders, Extension Agent - IPM, Hockley and Cochran Counties

Hockley and Cochran Counties

OBJECTIVE

To evaluate the cotton varieties which are or could potentially be commercially available to producers.

MATERIALS AND METHODS

Cotton varieties are provided from the major seed companies to evaluate for yield in our production area. These projects are planted, monitored during growing season, and then harvested for yield data.

RESULTS & DISCUSSION

The following pages contain two variety demonstrations. The first is known as a CAPS Trial, which is a cooperative effort with Bayer Crop Science/FiberMax Cottonseed. The other is an Innovation Plot, which is a cooperative effort with Dow/Phytogen Cottonseed.

ACKNOWLEDGMENTS

Thank you to both the cooperators Larry Smith and David Pearson; and to Bayer and Dow for providing the seed and financial support.

2011 CAP Trial

Larry Smith Farm – Levelland, TX

Conducted by Kerry Siders, EA-IPM

Planted – 05/19/2011
Harvested – 10/26/2011
Drip Irrigated Trial
Sales Rep – Keith Waters, 806-778-8339
Regional Agronomist – Kenny Melton, 806-786-5088

CAP TRIAL
COTTON AGRONOMIC PERFORMANCE TRIAL

Variety	Lint Yield	Turnout	Mic	Staple	Stren	Unif	Loan Value	Value/A
FM 2484B2F	1,751	0.384	4.30	39	29.50	83.90	57.55	$1,008
FM 9101GT	1,685	0.373	4.50	38	29.60	83.20	57.45	$968
FM 2989GLB2	1,681	0.379	4.30	37	28.40	82.00	57.00	$958
FM 9103GT	1,649	0.359	4.10	39	26.90	82.80	57.35	$946
BX 1262B2F	1,646	0.376	4.40	38	29.60	83.60	57.55	$947
BX 1264B2F	1,638	0.362	4.20	38	25.20	84.30	56.10	$919
ST 5458B2RF	1,629	0.376	4.60	37	27.70	82.90	57.20	$932
FM 9170B2F	1,623	0.384	4.00	38	29.50	82.50	57.60	$935
FM 9250GL	1,574	0.363	4.10	37	29.30	83.00	57.35	$903
FM 1740B2F-PV	1,571	0.401	4.50	36	28.10	82.70	57.05	$896
FM 9160B2F	1,570	0.368	4.00	37	27.00	80.60	57.15	$897
ST 4288B2F	1,563	0.350	4.50	37	25.20	82.40	55.65	$870
FM 1740B2F	1,526	0.388	4.40	37	26.50	83.90	57.30	$875
FM 2011GT	1,504	0.387	4.60	38	28.30	83.50	57.30	$862
FM 9180B2F	1,287	0.348	4.20	37	29.70	82.50	57.60	$741
FM 9058F	1,264	0.355	4.10	38	26.70	81.50	57.15	$723

Loan Value calculated from 2011 CCC Loan Schedule using uniform color grade of 21 and uniform leaf grade of 2. PV= Poncho®/VOTiVO®

2011 Phytogen Innovation Plots

Cooperator: David Pearson, East-southeast of Sundown
Conducted by Kerry Siders, EA-IPM
Planted May 12, 2011
Four replicates
Harvested October 26, 2011
Plots 8 rows by 1632' to 3989' on circle rows of pivot

Variety	Turn Out	Lint Yield	Mic	Length	Unif.	Strength	Leaf	Loan	Crop Value
PHY 375 WRF ACC	0.297	809	4.8	1.07	81.35	30.4	2.8	0.528	$393
FM 9170 B2RF AERIS TRILEX	0.323	778	4.8	1.05	81.00	29.0	3.0	0.511	$415
PHY 499 WRF ACC	0.303	773	4.8	1.04	80.67	28.8	3.3	0.507	$309
PHY 367 WRF M+BION	0.330	757	4.9	1.05	81.55	31.2	4.5	0.513	$396
PHY 367 WRF ACC	0.319	741	4.8	1.07	81.58	30.4	2.5	0.522	$388
DP 1032 B2RF ACCELERON	0.327	701	4.8	1.09	81.00	30.9	2.7	0.534	$415
PHY 367 WRF ACC+BION	0.312	659	4.8	1.06	81.05	30.1	2.5	0.521	$344
PHY 367 WRF M	0.336	610	4.9	1.06	81.35	28.9	2.3	0.517	$363

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SURVEY OF SOUTHERN ROOT-KNOT NEMATODES IN HOCKLEY AND COCHRAN COUNTIES' IPM SCOUTING PROGRAM FIELDS

COOPERATORS
IPM Scouting Program Participants

COORDINATORS
Kerry Siders, Extension Agent-IPM, Hockley and Cochran Counties

Hockley and Cochran Counties

SUMMARY: Nematodes are soil-borne organisms which attack plant roots (in this case, cotton roots) and have a parasitic relationship with their hosts. The southern root-knot nematode enters the feeder roots, taps into the vascular system of the cotton roots, and feeds on the nutrients in the plant, hence acting as a sink for soil nutrients. This process also inhibits or 'clogs" the plant's vascular root tissues, preventing even excess flow. Nematodes are more important pests in irrigated fields and are more noticeable in dry years. Nematodes are also connected to increased incidence of seedling and plant vascular diseases. Treatment of nematodes can be costly if high populations exist. The alternative is rotation with non-host crops (ie. Peanuts), which may or may not be economical. A survey was initiated in September for detecting infestations of soil nematodes in cotton. Twenty-nine samples were taken from 14 fields enrolled in the IPM scouting program. Random soil samples were processed at the Texas AgriLife Research Station in Lubbock, results indicated that all of the 29 samples contained some level of nematodes. The range of root-knot nematode counts per 500 cm3 of soil was 100 root-knot juveniles to a high of 17,760 eggs and 5,600 root-knot juveniles. A level of +200 root-knot nematodes per 500 cm3 is considered the treatment threshold.

OBJECTIVE: To demonstrate the presence or absence of root-knot nematodes in Hockley and Cochran Counties' IPM Program fields, as well as to demonstrate the process of sampling and making treatment recommendations for management.

MATERIALS AND METHODS: Fourteen of the IPM-program fields were selected. One to 3 composite samples (depending on field size) were made from 20 core samples collected from each field. The samples were protected from heat and light so as not to deteriorate the sample material. The samples were then processed at the Texas AgriLife Research Station in Lubbock.

Nematodes were extracted from the samples by a rinse method and collected from a known volume. The nematode samples were then counted under a microscope, noting type of nematode (root-knot) and number. Management plans were then developed for each field, based on the composite samples.

RESULTS AND DISCUSSION: All 14 fields or 29 samples had some level of cotton root-knot nematode population. Losses from root-knot nematodes in Hockley and Cochran Counties are difficult to estimate because of various factors which influence infestations. We can say that nematodes are widespread, require treatment with soil-applied nematicides, and can lead to other costly concerns, such as diseases and non-host rotation which may not provide the economic returns of cotton. In order to be sure what level of infestation is present in individual fields, and to make treatment recommendations, producers must take soil samples and submit them to a soil lab for analysis. See Table 1 for the incidence of root-knot nematode infestations over the last several years in Hockley and Cochran Counties.

ACKNOWLEDGMENTS: Thanks to Layton Hinson and Zach Bradshaw for their assistance in soil collection. Thanks to the IPM Scouting Program participants for their cooperation. Most importantly, thank you to Dr. Wheeler for running the lab analysis of the soil samples.

Table 1. Results of cotton root-knot nematodes sampling in Hockley and Cochran Counties, Texas 1997-2011.

Year	Percent of fields sampled with cotton root-knot nematode
1997	82%
1998	82%
1999	74%
2000	88%
2001	63%
2002	83%
2003	92%
2004	64%
2005	82%
2006	77%
2007	88%
2008	72%
2009	89%
2010	91%
2011	100
Average	82%

Variety testing in Verticillium wilt and Root-knot Nematode fields for 2011

Terry Wheeler, Texas AgriLife Research, Lubbock

Verticillium wilt levels were low to none at all of the test sites in 2011, so this is in effect a variety trial in the absence of significant levels of wilt. Sites for testing from north to south were Plainview, Littlefield, Ropesville, Brownfield, Lamesa, and Garden City. All the sites except for Garden City were irrigated with a center pivot system. Garden City was irrigated with drip tape under every bed. Plainview was planted on 5 May, though some varieties within the test were hand seeded around 1 June where stands were poor. Littlefield was planted on 11 May and had excellent emergence. Ropesville was planted on 16 May and some areas were hand seeded in early June where stands were poor. These areas did not emerge timely, so skips were a problem at this site. Brownfield was also planted on 16 May, and emergence was generally good. Lamesa was planted on 4 May and then replanted on 1 June. Stands were poor in much of the test, and since the producer did not have to replant, the test cotton was still immature when the field was killed for harvest. This is seen in the overall low yields and low micronaire at this site. Garden City was planted on 2 May and then replanted on 25 May. The producer did not have to replant, so again the cotton was somewhat immature when harvested.

Root-knot nematode was present at the Brownfield, Lamesa, Littlefield, and Ropesville sites. Plots were sampled at all sites, but the Lamesa and Ropesville sites were sampled during a time of maximum nematode reproduction (August), while Littlefield and Brownfield were sampled late in the year for root-knot nematode, after nematode counts had already begun to decline.

Americot 1550B2RF, Deltapine 0912B2F, Fibermax 9180B2F, and Fibermax 9160B2F were planted across all test sites for reference. Table 1 is looking at the relative yield of all sites that a variety or experimental line was planted at. Relative yield is the yield of each variety at a site divided by the highest average yield of a variety at that site. Table 1 also includes what sites were tested. Adjusted relative yield, is similar to relative yield, except that the yields were adjusted to account for the skips within certain plots, so yields were increased for plots with a lot of skips due to poor emergence. Table 2 and 3 are the same type of information, but averaging varieties by northern (Plainview, Littlefield, and Ropesville) or southern (Brownfield, Lamesa, Garden City) locations. Table 4 is for the root-knot nematode reproduction at the four Verticillium wilt sites (Brownfield, Lamesa, Littlefield, and Ropesville) and at an additional site in Lamesa. Tables 5 – 16 include yield, wilt, stands, loan values, and fiber properties for each individual test site.

Table 1. Relative yield comparisons for 62 cultivars planted in Verticillium wilt fields in 2011.

Cultivars[1]	Average Relative Yield[2]	Rank For yield	Average adjusted relative yield[3]	Rank For Adj. yield	Sites Tested[4]
BCSX 1262B2F	0.9543	1	0.9557	1	B, Li, P
Fibermax 2011GT	0.9516	2	0.9428	2	Li, P, R
Deltapine 0935B2RF	0.9370	3	0.9174	4	B, La, R
Stoneville 4288B2F	0.9077	4	0.9286	3	La, Li, R
Fibermax 2484B2F	0.9028	5	0.8961	7	Li, P, R
BCSX 1264B2F	0.8943	6	0.8748	10	Li, P, R
AMX 001B2RF	0.8883	7	0.9097	5	G, Li, P
Croplan Genetics 3035RF	0.8689	8	0.8564	13	P
Deltapine 0912B2RF	0.8630	9	0.8620	11	all
DP 11R124B2R2	0.8623	10	0.9001	6	Li, P, R
Fibermax 1944GLB2	0.8584	11	0.8773	9	P, Li
Fibermax 9170B2F	0.8562	12	0.8569	12	Li, P, R
Deltapine 0949B2RF	0.8280	13	0.8538	14	La, Li, P
NexGen 4111RF	0.8162	14	0.8409	15	B, P, R
Fibermax 9101GT	0.8122	15	0.8868	8	Li, P, R
All-Tex Dinero B2RF	0.8098	16	0.7756	30	La, Li, R
Deltapine 1044B2RF	0.8096	17	0.8255	16	B, G, La
Phytogen 519WRF	0.8077	18	0.8224	17	B, G, La
Americot 1550B2RF	0.8021	19	0.8079	20	all
Phytogen 499WRF	0.7948	20	0.7974	22	B, G, R
BCSX 1150B2F	0.7944	21	0.7843	27	Li, P, R
NexGen 4012B2RF	0.7919	22	0.7623	37	B, G, La
Fibermax 9180B2F	0.7765	23	0.7693	33	all
Phytogen 367WRF	0.7746	24	0.8134	18	La, Li, R
Fibermax 9250GL	0.7643	25	0.7720	32	B, Li, P
Deltapine 104B2RF	0.7617	26	0.7671	35	Li, P, R
Fibermax 9058F	0.7582	27	0.7939	23	Li, P
BCSX 1261B2F	0.7551	28	0.7555	39	G, La
DP 11R154B2R2	0.7506	29	0.7742	31	B, G, La
AMX 003B2RF	0.7503	30	0.7853	26	G, Li, P
Fibermax 9103GT	0.7475	31	0.7889	25	B, P, R
Fibermax 8270GLB2	0.7460	32	0.8108	19	B, G, La
Stoneville 5288B2F	0.7357	33	0.7661	36	B, G, R
NexGen 3410RF	0.7348	34	0.7549	40	Li, P, R
Phytogen 375WRF	0.7319	35	0.7894	24	Li, P
DP 11R112B2R2	0.7286	36	0.7586	38	Li, P, R
Fibermax 9160B2F	0.7286	37	0.7412	43	all
Fibermax 2989GLB2	0.7271	38	0.7382	44	B, G, La
DP 11R159B2R2	0.7255	39	0.7674	34	B, G, La
Alll-Tex Edge B2RF	0.7166	40	0.7809	28	G, Li, P
Phytogen 565WRF	0.6993	41	0.7415	42	B, G, La
NexGen 3348B2RF	0.6945	42	0.7227	46	Li, P, R
			Average	**Rank**	

Cultivars[1]	Average Relative Yield[2]	Rank For yield	adjusted relative yield[3]	For Adj. yield	Sites Tested[4]
Fibermax 1880B2F	0.6888	43	0.7131	49	B, G, La
DP 11R136B2R2	0.6879	44	0.7778	29	B, G, La
BCSX 1223GL	0.6854	45	0.6789	55	B, G, La
Croplan Genetics 3787B2RF	0.6680	46	0.7548	41	La, Li
Deltapine 1032B2RF	0.6650	47	0.7378	45	B, R
Deltapine 1137B2RF	0.6518	48	0.6968	51	G, La, R
Deltapine 1048B2RF	0.6429	49	0.7156	47	G, La
NexGen 4010B2RF	0.6400	50	0.7055	50	B, P, R
All-Tex 81158RF	0.6344	51	0.6549	59	G, La, R
DP 11R135B2R2	0.6317	52	0.7998	21	B, G, La
DP 11R115B2R2	0.6224	53	0.6816	54	Li, P, R
NexGen 2051B2RF	0.6190	54	0.6589	58	Li, P, R
DP 11R142B2R2	0.6027	55	0.6621	57	B, G, La
Deltapine 1028B2RF	0.6015	56	0.6501	60	Li, P, R
DP 11R150B2R2	0.6012	57	0.7134	48	B, G, La
Croplan Genetics 3006B2RF	0.6007	58	0.6042	62	B, Li, P
Deltapine 1050B2RF	0.5980	59	0.6855	53	G, La
DP 11R140B2R2	0.5779	60	0.6642	56	B, G, La
All-Tex 65207B2RF	0.5682	61	0.6178	61	G, La, R
Deltapine 1133B2RF	0.5578	62	0.6941	52	G, La, R

[1]AMX= and experimental line from Americot; BCSX = an experimental line from Bayer CropScience; DP = an experimental line from Deltapine (Monsanto).

[2]Relative yield is the yield for a cultivar at each site, divided by the highest average yield for a cultivar at that site, so relative yields are generally between 0 and 1.

[3]Adjusted relative yield is yield adjusted for skips within a plot, divided by the highest average yield for a site.

[4]B=Brownfield, G=Garden City, La=Lamesa, Li=Littlefield, P=Plainview, R= Ropesville. All indicates that the variety was tested at all six locations.

Table 2. Relative yield comparisons for cultivars planted in northern (Plainview, Littlefield, and Ropesville) sites with Verticillium wilt in 2011. Littlefield and Ropesville also had root-knot nematodes.

Cultivars[1]	Average Relative Yield[2]	Rank For yield	Average adjusted relative yield[3]	Rank For Adj. yield
Deltapine 0935B2RF	0.9675	1	0.9792	1
Fibermax 2011GT	0.9506	2	0.9457	2
BCSX 1262B2F	0.9337	3	0.9400	3
AMX 001B2RF	0.9091	4	0.9242	5
Fibermax 2484B2F	0.9019	5	0.8990	7
NexGen 4111RF	0.8967	6	0.9344	4
Phytogen 499WRF	0.8934	7	0.8625	14
BCSX 1264B2F	0.8933	8	0.8777	10
Croplan Genetics 3035RF	0.8746	9	0.8663	12
Stoneville 4288B2F	0.8632	10	0.8651	13
DP 11R124B2R2	0.8614	11	0.9030	6
Fibermax 1944GLB2	0.8598	12	0.8826	9
Fibermax 9170B2F	0.8552	13	0.8598	15
Deltapine 0912B2RF	0.8204	14	0.8112	19
Americot 1550B2RF	0.8193	15	0.8338	16
Deltapine 0949B2RF	0.8188	16	0.8772	11
Fibermax 9101GT	0.8112	17	0.8896	8
Fibermax 9250GL	0.8110	18	0.8195	18
Croplan Genetics 3787B2RF	0.7949	19	0.8210	17
BCSX 1150B2F	0.7935	20	0.7872	25
Fibermax 9160B2F	0.7711	21	0.8049	21
Deltapine 104B2RF	0.7607	22	0.7700	28
Fibermax 9058F	0.7596	23	0.7992	22
Phytogen 367WRF	0.7554	24	0.7977	23
AMX 003B2RF	0.7490	25	0.7845	27
Fibermax 9103GT	0.7442	26	0.7860	26
Fibermax 9180B2F	0.7436	27	0.7534	32
NexGen 3410RF	0.7338	28	0.7578	31
Phytogen 375WRF	0.7333	29	0.7947	24
DP 11R112B2R2	0.7277	30	0.7615	30
All-Tex Dinero B2RF	0.7256	31	0.8050	20
All-Tex Edge B2RF	0.7193	32	0.7206	35
Stoneville 5288B2F	0.7076	33	0.7689	29
NexGen 3348B2RF	0.6936	34	0.7256	34
NexGen 4010B2RF	0.6614	35	0.7275	33
All-Tex 81158RF	0.6388	36	0.6592	40
Croplan Genetics 3006B2RF	0.6238	37	0.6254	42
DP 11R115B2R2	0.6214	38	0.6845	37
NexGen 2051B2RF	0.6180	39	0.6618	39
All-Tex 65207B2RF	0.6113	40	0.6937	36
Deltapine 1028B2RF	0.6006	41	0.6529	41
Deltapine 1032B2RF	0.5830	42	0.6789	38

Cultivars[1]	Average Relative Yield[2]	Rank For yield	Average adjusted relative yield[3]	Rank For Adj. yield
Deltapine 1137B2RF	0.4867	43	0.5446	43
Deltapine 1133B2RF	0.4790	44	0.5186	44

[1]AMX= and experimental line from Americot; BCSX = an experimental line from Bayer CropScience; DP = an experimental line from Deltapine (Monsanto).

[2]Relative yield is the yield for a cultivar at each site, divided by the highest average yield for a cultivar at that site, so relative yields are generally between 0 and 1.

[3]Adjusted relative yield is yield adjusted for skips within a plot, divided by the highest average yield for a site.

Table 3. Relative yield comparisons for cultivars planted in southern (Brownfield, Lamesa, Garden City) sites with Verticillium wilt in 2011. Brownfield and Lamesa also had root-knot nematodes.

Cultivars[1]	Average Relative Yield[2]	Rank For yield	Average adjusted relative yield[3]	Rank For Adj. yield
Stoneville 4288B2F	0.9982	1	1.0000	1
All-Tex Dinero B2RF	0.9922	2	0.8916	4
BCSX 1262B2F	0.9882	3	0.9831	2
Deltapine 0935B2RF	0.9188	4	0.8820	6
Deltapine 0912B2RF	0.9055	5	0.9127	3
Deltapine 0949B2RF	0.8592	6	0.8250	8
AMX 001B2RF	0.8524	7	0.8897	5
Phytogen 367WRF	0.8144	8	0.8509	7
Deltapine 1044B2RF	0.8105	9	0.8226	9
Fibermax 9180B2F	0.8094	10	0.7852	15
Phytogen 519WRF	0.8087	11	0.8195	10
NexGen 4012B2RF	0.7927	12	0.7594	22
Americot 1550B2RF	0.7850	13	0.7820	17
AMX 003B2RF	0.7587	14	0.7960	13
BCSX 1261B2F	0.7561	15	0.7526	26
DP 11R154B2R2	0.7516	16	0.7713	20
Fibermax 8270GLB2	0.7470	17	0.8079	11
Fibermax 9103GT	0.7440	18	0.7883	14
Stoneville 5288B2F	0.7433	19	0.7557	25
Phytogen 499WRF	0.7392	20	0.7559	24
Deltapine 1137B2RF	0.7380	21	0.7749	18
Fibermax 2989GLB2	0.7281	22	0.7353	29
DP 11R159B2R2	0.7265	23	0.7645	21
All-Tex Edge B2RF	0.7045	24	0.7418	27
Phytogen 565WRF	0.7002	25	0.7386	28
Deltapine 1032B2RF	0.6996	26	0.7583	23
Fibermax 1880B2F	0.6897	27	0.7102	32
DP 11R136B2R2	0.6888	28	0.7749	19
BCSX 1223GL	0.6863	29	0.6760	36
Fibermax 9160B2F	0.6860	30	0.6774	35
Fibermax 9250GL	0.6635	31	0.6731	37
NexGen 4111RF	0.6451	32	0.6472	42
Deltapine 1048B2RF	0.6438	33	0.7127	30
All-Tex 81158RF	0.6358	34	0.6547	41
DP 11R135B2R2	0.6326	35	0.7969	12
DP 11R142B2R2	0.6036	36	0.6593	39
DP 11R150B2R2	0.6021	37	0.7105	31
Deltapine 1133B2RF	0.6008	38	0.7839	16
Deltapine 1050B2RF	0.5990	39	0.6827	34
NexGen 4010B2RF	0.5870	40	0.6549	40
DP 11R140B2R2	0.5788	41	0.6613	38

Cultivars[1]	Average Relative Yield[2]	Rank For yield	Average adjusted relative yield[3]	Rank For Adj. yield
All-Tex 65207B2RF	0.5503	42	0.5818	43
Croplan Genetics 3787B2RF	0.5483	43	0.6967	33
Croplan Genetics 3006B2RF	0.5473	44	0.5579	44

[1]AMX= and experimental line from Americot; BCSX = an experimental line from Bayer CropScience; DP = an experimental line from Deltapine (Monsanto).

[2]Relative yield is the yield for a cultivar at each site, divided by the highest average yield for a cultivar at that site, so relative yields are generally between 0 and 1.
[3]Adjusted relative yield is yield adjusted for skips within a plot, divided by the highest average yield for a site.

Table 4. Average reproduction of root-knot nematode (RK) at five sites.

Variety[1]	RK/500 cm^3 soil	LOG10(RK)[2]
Stoneville 4288B2F	812	1.901
DP 11R124B2R2	2708	2.126
FiberMax 2011GT	311	2.1374
Phytogen 367WRF	1009	2.1881
DP 11R142B2R2	1923	2.2521
Deltapine 1048B2RF	1710	2.3501
DP 11R150B2R2	1925	2.3899
Americot 1550B2RF	3244	2.4012
All-Tex 65207B2RF	2394	2.479
Croplan Genetics 3787B2RF	2372	2.5492
Deltapine 1044B2RF	1345	2.5584
DP 11R136B2R2	2086	2.5642
Deltapine 1050B2RF	2308	2.5904
DP 11R159B2R2	2223	2.651
BCSX 1261B2F	1496	2.6589
FiberMax 9170B2F	2046	2.691
Deltapine 1133B2RF	1354	2.6918
Deltapine 0935B2RF	3937	2.6989
DP 11R115B2R2	2683	2.715
AMX 001B2RF	2166	2.7264
DP 11R112B2R2	1308	2.7392
AMX 003B2RF	2301	2.7901
FiberMax 9101GT	1176	2.7926
Phytogen 499WRF	754	2.8168
Stoneville 5288B2F	1647	2.821
NexGen 3348B2RF	1906	2.8223
FiberMax 9103GT	2737	2.8315
Phytogen 375WRF	3830	2.8556
Deltapine 1028B2RF	2846	2.8643
DP 11R154B2R2	3065	2.8896
Deltapine 0949B2RF	2650	2.8974
Deltapine 104B2RF	2211	2.8997
DP 11R135B2R2	2028	2.9124
All-Tex Edge B2RF	2381	2.9178
BCSX 1264B2F	4100	2.9261
FiberMax 1880B2F	2191	2.9264
Deltapine 1032B2RF	2019	2.9345
Fibermax 8270GLB2	3135	2.9351

Variety	RK/500 cm3 soil	LOG10(RK)
BCSX 1262B2F	2772	2.9428
Deltapine 1137B2RF	1869	2.9555
FiberMax 2989GLB2	3766	2.9589
All-Tex Dinero B2RF	2646	2.9754
BCSX 1150B2F	2110	2.9793
FIbermax 1944GLB2	2436	2.9997
NexGen 3410RF	2108	3.0013
Deltapine 0912B2RF	2586	3.0125
NexGen 4010B2RF	3142	3.1161
FiberMax 9180B2F	3231	3.1309
Phytogen 519WRF	2750	3.1374
DP 11R140B2R2	3331	3.1471
NexGen 2051B2RF	4256	3.1513
Croplan Genetics 3006B2RF	3690	3.2122
FiberMax 9250GL	2646	3.2123
BCSX 1223GL	2675	3.2502
Phytogen 565WRF	6325	3.2627
FiberMax 9058F	5962	3.2744
FiberMax 2484B2F	8456	3.3414
NexGen 4012B2RF	2556	3.3527
FiberMax 9160B2F	4676	3.3656
All-Tex 81158RF	4089	3.4103
NexGen 4111RF	9689	3.5365

[1]AMX= and experimental line from Americot; BCSX = an experimental line from Bayer CropScience; DP = an experimental line from Deltapine (Monsanto). ST 4288B2F and PG 367WRF are varieties with known partial resistance to root-knot nematodes.

[2]The LOG10(RK) transformation is generally a better measure of the ability of a variety to suppress root-knot nematode reproduction than the average (nontransformed) counts. A single high plot can cause the average across all sites and plots to appear artificially high. The LOG10 transformation minimizes the impact of an unusually high count in a single plot.

Table 5. Yield of cultivars in a field near Plainview with Verticillium wilt in 2011.

Cultivar[1]	Yield Lbs of Lint/a	Adj.[3] Yield Lbs of Lint/a	Turnout	Yield X Loan Value ($/acre)	Loan Value ($/lb)	Plants /ft. row	Average Incidence Wilt on 19 Aug. (%)
BCSX 1262B2F	1,491	1,515	0.3003	850	0.56975	1.98	22
FM 2011GT	1,390	1,390	0.3121	786	0.56550	1.60	25
FM 9170B2F	1,355	1,393	0.3082	768	0.56650	1.80	16
FM 2484B2F	1,352	1,405	0.3034	755	0.55800	1.81	6
AMX 001B2RF	1,326	1,374	0.3240	740	0.55825	1.85	26
BCSX 1264B2F	1,284	1,284	0.2626	719	0.55950	2.02	8
DP 11R124B2R2	1,279	1,374	0.3066	712	0.55650	1.37	9
NG 4111RF	1,275	1,310	0.2787	735	0.57700	1.42	16
CG 3035RF	1,253	1,281	0.3197	709	0.56550	1.14	27
DP 0949B2RF	1,250	1,428	0.3212	669	0.53525	1.57	12
FM 1944GLB2	1,247	1,317	0.3010	707	0.56650	1.70	19
DP 0912B2RF	1,214	1,214	0.3014	642	0.52875	1.87	17
FM 9160B2F	1,194	1,194	0.2839	680	0.56950	1.47	7
AM 1550B2RF	1,171	1,258	0.3030	609	0.52050	1.70	14
AT Edge B2RF	1,150	1,390	0.2830	641	0.55725	1.61	29
FM 9250GL	1,098	1,122	0.2841	614	0.55975	1.73	8
BCSX 1150B2F	1,066	1,083	0.2795	600	0.56350	1.66	12
FM 9058F	1,058	1,176	0.2706	599	0.56600	1.58	21
FM 9101GT	1,057	1,239	0.2769	579	0.54775	1.21	14
FM 9180B2F	1,040	1,086	0.2665	584	0.56175	1.53	10
DP 11R112B2R2	1,032	1,066	0.3013	561	0.54375	1.55	20
FM 9103GT	1,013	1,069	0.2856	564	0.55675	1.46	11
NG 3348B2RF	1,004	1,136	0.2868	564	0.56225	1.31	16
PG 375WRF	995	1,178	0.2963	541	0.54325	1.06	23
AMX 003B2RF	972	1,076	0.2913	500	0.51500	1.20	12
NG 3410RF	950	989	0.2835	536	0.56400	1.54	21
DP 104B2RF	923	943	0.2582	518	0.56125	1.62	14
CG 3006B2RF	890	890	0.2669	483	0.54250	1.79	9
NG 2051B2RF	874	1,010	0.2834	470	0.53750	1.36	22
DP 11R115B2R2	867	1,023	0.2822	500	0.57625	1.26	11
DP 1028B2RF	831	990	0.2971	470	0.56500	1.12	13
NG 4010B2RF	815	1,043	0.2644	468	0.57450	0.89	15
LSD(0.05)[2]	252	293	0.3003	139	0.04020	0.39	NS

[1]AM = Americot, AMX= and experimental line from Americot; AT = All-Tex Cotton Seed; BCSX = an experimental line from Bayer CropScience; CG=Croplan Genetics; DP = Deltapine (Monsanto); FM=Fibermax (Bayer CropScience); NG = NexGen (Americot); PG = Phytogen (Dow Agrosciences); ST=Stoneville (Bayer Cropsciences).

[2]LSD is the least significant difference with a probability of 0.05.

[3]Adjusted relative yield is yield adjusted for skips within a plot, divided by the highest average yield for a site.

Table 6. Fiber properties[3] of cultivars in a Verticillium wilt field near Plainview in 2011.

Cultivar[1]	Mic	Length	Unif	Strength	Elon	Rd	+b	Leaf
AM 1550B2RF	4.90	1.045	81.00	27.50	9.85	80.85	8.05	1 .0
AMX 001B2RF	4.75	1.090	82.55	31.50	10.90	79.35	7.85	2 .5
AMX 003B2RF	4.70	1.115	82.10	30.75	9.55	78.85	6.85	5 .5
AT Edge B2RF	4.95	1.095	79.90	30.75	8.70	79.45	6.75	2 .5
BCSX 1150B2F	4.70	1.135	82.70	34.60	10.10	77.70	8.30	3 .0
BCSX 1262B2F	4.85	1.120	82.20	32.35	10.55	79.55	8.05	2 .0
BCSX 1264B2F	4.30	1.145	82.05	32.80	9.00	79.75	7.30	2 .5
CG 3006B2RF	5.05	1.130	82.20	30.65	9.20	78.05	6.85	2 .5
CG 3035RF	4.55	1.080	82.00	31.05	10.90	80.20	8.10	1 .5
DP 0912B2RF	4.95	1.060	81.45	30.00	9.95	79.30	7.45	2 .0
DP 0949B2RF	5.25	1.100	81.75	30.90	9.75	79.85	7.45	2 .5
DP 1028B2RF	4.35	1.095	82.25	29.60	10.70	80.95	8.25	1 .5
DP 104B2RF	4.35	1.110	82.85	32.80	10.00	79.95	7.55	3 .0
DP 11R112B2R2	4.85	1.090	81.70	32.20	10.95	79.45	7.60	2 .0
DP 11R115B2R2	3.90	1.150	82.30	31.00	9.60	81.40	8.35	1 .0
DP 11R124B2R2	4.70	1.095	81.50	30.05	10.80	81.85	7.05	1 .5
FM 1944GLB2	4.75	1.155	81.50	31.10	7.95	81.80	6.70	1 .0
FM 2011GT	4.85	1.115	81.60	30.65	7.90	80.40	7.40	1 .5
FM 2484B2F	4.55	1.175	82.60	33.55	8.05	81.50	6.95	3 .0
FM 9058F	4.55	1.150	81.80	30.60	7.65	80.70	6.90	1 .0
FM 9101GT	3.90	1.145	82.00	32.05	7.25	80.10	7.40	3 .5
FM 9103GT	4.30	1.130	82.00	32.65	7.85	79.85	7.35	3 .5
FM 9160B2F	4.25	1.145	82.60	31.95	7.35	81.35	7.10	1 .5
FM 9170B2F	4.45	1.135	81.30	33.40	8.20	81.80	6.95	1 .5
FM 9180B2F	4.10	1.140	82.20	33.60	7.75	81.30	7.40	1 .5
FM 9250GL	4.45	1.105	81.10	31.10	7.90	81.35	6.95	3 .0
NG 2051B2RF	4.60	1.095	79.65	28.30	8.15	79.00	6.80	3 .0
NG 3348B2RF	4.40	1.105	81.60	30.95	8.85	79.95	7.70	1 .5
NG 3410RF	4.10	1.105	81.40	30.75	8.65	79.65	7.85	2 .0
NG 4010B2RF	4.10	1.125	81.90	32.30	8.95	80.65	8.10	1 .5
NG 4111RF	4.45	1.135	83.55	34.25	9.30	80.00	8.35	1 .5
PG 375WRF	4.50	1.080	81.50	29.25	8.65	79.10	7.45	3 .0
LSD[2] (0.05)	0.63	0.032	1.12	1.58	0.53	2.44	0.39	2 .1

[1]AM = Americot; AMX= and experimental line from Americot; AT = All-Tex Cotton Seed; BCSX = an experimental line from Bayer CropScience; CG=Croplan Genetics; DP = Deltapine (Monsanto); FM=Fibermax (Bayer CropScience); NG = NexGen (Americot); PG = Phytogen (Dow Agrosciences); ST=Stoneville (Bayer Cropsciences).

[2]LSD is the least significant difference with a probability of 0.05.

[3]Mic is micronaire, unif= uniformity, elon = elongation.

Table 7. Yield of cultivars near Littlefield with Verticillium wilt and root-knot nematodes in 2011.

Cultivar[1]	Yield Lbs of Lint/a	Turnout	Yield X Loan Value ($/acre)	Loan Value ($/lb)	Plants /ft. row	Average Incidence Wilt on 19 Aug. (%)	RK/ 500 cm^3 soil on 28 Nov.
BCSX 1264B2F	1,643	0.2930	938	0.57125	3.23	7	1,450abc
AMX 001B2RF	1,611	0.3254	885	0.54950	2.89	10	395 abc
ST 4288B2F	1,585	0.2820	894	0.56425	3.20	10	175 bc
FM 2484B2F	1,580	0.3147	909	0.57525	3.04	6	4,740 a
DP 11R124B2R2	1,579	0.3120	888	0.56225	2.21	7	155 c
FM 9101GT	1,574	0.3046	870	0.55300	2.36	7	1,770 abc
PG 367WRF	1,545	0.2859	882	0.57075	2.86	9	560 abc
FM 9250GL	1,540	0.3000	869	0.56400	3.01	7	1,760 ab
FM 1944GLB2	1,536	0.2995	880	0.57300	3.01	10	665 abc
FM 9170B2F	1,529	0.2949	879	0.57450	2.84	8	1,590 abc
FM 2011GT	1,511	0.3110	851	0.56350	2.92	11	375 bc
BCSX 1262B2F	1,510	0.2974	862	0.57050	3.08	10	205 abc
BCSX 1150B2F	1,504	0.2965	838	0.55675	2.99	7	220 bc
DP 104B2RF	1,504	0.3065	845	0.56125	2.88	8	330 abc
AM 1550B2RF	1,493	0.2934	792	0.53050	2.84	11	175 c
AMX 003B2RF	1,475	0.3080	795	0.53925	2.42	11	530 abc
CG 3787B2RF	1,447	0.3057	816	0.56375	2.50	14	245 bc
NG 3410RF	1,431	0.2885	813	0.56800	2.77	9	455 abc
FM 9058F	1,415	0.3043	804	0.56825	2.98	14	1,445 abc
DP 0949B2RF	1,398	0.3335	796	0.56925	2.63	10	720 abc
PG 375WRF	1,398	0.2920	776	0.55475	2.65	13	720 bc
NG 3348B2RF	1,389	0.2917	769	0.55400	2.63	6	380 abc
DP 0912B2RF	1,381	0.2948	755	0.54525	2.80	8	585 abc
DP 11R112B2R2	1,339	0.2931	758	0.56625	2.27	11	295 abc
FM 9160B2F	1,337	0.2775	745	0.55750	2.69	6	1,350 ab
DP 1028B2RF	1,277	0.2964	703	0.55100	2.45	16	190 bc
DP 11R115B2R2	1,251	0.2998	719	0.57450	2.06	16	885 bc
FM 9180B2F	1,228	0.2880	704	0.57300	2.58	10	1,855 ab
NG 2051B2RF	1,224	0.2721	637	0.52050	2.33	10	1,120 abc
AT Edge B2RF	1,202	0.2827	681	0.56650	2.69	9	610 abc
AT Dinero B2RF	1,175	0.2786	647	0.55075	2.35	13	310 abc
CG 3006B2RF	1,154	0.2674	635	0.55000	2.68	9	1,740 abc
LSD (0.05)[2]	141	0.035	78	0.03	0.42	5	**

[1]AM = Americot; AMX= and experimental line from Americot; AT = All-Tex Cotton Seed; BCSX = an experimental line from Bayer CropScience; CG=Croplan Genetics; DP = Deltapine (Monsanto); FM=Fibermax (Bayer CropScience); NG = NexGen (Americot); PG = Phytogen (Dow Agrosciences); ST=Stoneville (Bayer Cropsciences).

[2]LSD is the least significant difference with a probability of 0.05.
**Root-knot nematode density was LOG10 transformed to determine differences between varieties.

Table 8. Fiber properties[3] of cultivars in a Verticillium wilt field near Littlefield in 2011.

Cultivar[1]	Mic	Length	Unif	Strength	Elon	Rd	+b	Leaf
AM 1550B2RF	4.30	1.050	80.55	28.65	8.95	80.95	8.75	3 .0
AMX 001B2RF	4.60	1.085	81.60	31.50	10.4	79.35	8.60	3 .0
AMX 003B2RF	4.65	1.085	81.30	29.95	9.55	79.30	8.00	4 .5
AT Dinero B2RF	4.25	1.085	80.25	29.75	8.55	80.20	8.55	2 .0
AT Edge B2RF	4.35	1.110	80.50	31.05	8.35	80.75	8.25	3 .0
BCSX 1150B2F	4.75	1.150	82.85	34.15	9.85	77.20	9.65	3 .5
BCSX 1262B2F	4.20	1.120	81.80	32.85	9.80	79.35	9.10	2 .5
BCSX 1264B2F	4.30	1.110	81.50	31.60	8.65	79.95	8.50	2 .5
CG 3006B2RF	4.60	1.110	82.55	30.30	8.80	79.40	7.95	4 .0
CG 3787B2RF	4.25	1.085	81.75	29.80	9.95	80.70	8.80	1 .5
DP 0912B2RF	4.35	1.030	81.25	31.25	9.20	80.10	8.85	1 .5
DP 0949B2RF	4.45	1.105	81.30	32.00	9.20	80.65	8.75	1 .5
DP 1028B2RF	4.45	1.080	81.70	29.25	9.70	81.55	8.90	1 .5
DP 104B2RF	3.75	1.085	82.55	32.40	9.90	80.30	8.70	3 .0
DP 11R112B2R2	4.30	1.095	82.00	32.80	10.20	80.25	8.60	2 .5
DP 11R115B2R2	4.25	1.130	82.00	30.55	9.20	80.80	8.75	1 .5
DP 11R124B2R2	4.05	1.100	81.00	30.60	9.85	80.50	9.05	2 .0
FM 1944GLB2	4.25	1.130	80.95	30.30	7.30	82.90	7.65	1 .5
FM 2011GT	4.45	1.090	80.80	30.30	8.20	80.40	8.45	2 .0
FM 2484B2F	4.30	1.185	82.05	32.00	7.25	82.70	7.95	2 .0
FM 9058F	4.30	1.130	81.20	30.55	7.50	82.05	8.00	2 .5
FM 9101GT	4.40	1.105	81.55	30.85	6.70	79.35	8.05	3 .5
FM 9160B2F	3.90	1.100	80.95	31.20	8.70	82.40	7.85	2 .5
FM 9170B2F	4.20	1.130	81.30	31.90	7.45	82.55	7.95	1 .5
FM 9180B2F	4.40	1.120	81.15	31.65	7.80	82.50	7.90	2 .0
FM 9250GL	4.50	1.105	81.00	30.25	7.15	81.00	8.10	2 .5
NG 2051B2RF	4.25	1.085	79.65	27.65	7.80	79.70	8.10	4 .5
NG 3348B2RF	4.20	1.080	81.20	30.65	8.40	79.85	8.30	2 .5
NG 3410RF	4.00	1.120	80.60	31.30	8.40	79.20	8.50	2 .5
PG 367WRF	4.05	1.100	81.45	31.50	9.30	80.40	9.25	1 .5
PG 375WRF	4.10	1.080	80.20	29.70	8.75	80.60	8.70	2 .0
ST 4288B2F	4.75	1.090	81.50	29.80	9.15	79.55	8.90	2 .0
LSD[2] (0.05)	0.35	0.03	1.67	1.96	0.94	1.69	0.56	2 .6

[1]AM = Americot, AMX= and experimental line from Americot; AT = All-Tex Cotton Seed; BCSX = an experimental line from Bayer CropScience; CG=Croplan Genetics; DP = Deltapine (Monsanto); FM=Fibermax (Bayer CropScience); NG = NexGen (Americot); PG = Phytogen (Dow Agrosciences); ST=Stoneville (Bayer Cropsciences).

[2]LSD is the least significant difference between varieties with a probability of 0.05.
[3]Mic is micronaire, unif= uniformity, elon = elongation.

Table 9. Yield of cultivars near Ropesville with Verticillium wilt and root-knot nematode in 2011.

Cultivar[1]	Yield Lbs of Lint/a	Turn out	Adj.[3] Yield Lbs of Lint/a	Yield X Loan Value ($/acre)	Loan Value ($/lb)	Plants /ft. row	Wilt on 17 Aug. (%)	RK[2]/ 500 cm[3] soil on 30 Aug.
FM 2011GT	1,308	0.3297	1,422	716	0.54725	2.08	4	2,190 abc
DP 0935B2RF	1,198	0.3259	1,337	651	0.54300	2.05	2	6,180 abc
NG 4111RF	1,115	0.3052	1,343	637	0.57100	1.61	2	10,020 a
PG 499WRF	1,101	0.3096	1,171	616	0.55925	2.14	4	2,400 abc
FM 2484B2F	1,095	0.3270	1,149	629	0.57450	1.88	1	6,630 abc
BCSX 1264B2F	1,071	0.2888	1,117	603	0.56275	2.45	1	3,000 abc
DP 0912B2RF	1,055	0.3312	1,126	583	0.55275	2.03	3	3,780 ab
ST 4288B2F	1,041	0.2898	1,118	594	0.56775	2.08	7	60 d
FM 9180B2F	1,028	0.2858	1,132	578	0.56250	1.68	6	3,900 ab
FM 9101GT	1,003	0.3040	1,270	552	0.55050	1.34	1	2,850 abc
DP 11R124B2R2	1,001	0.3086	1,196	529	0.52900	1.67	3	4,440 abc
AM 1550B2RF	999	0.2982	1,084	554	0.55475	2.01	3	7,980 abc
AT Dinero B2RF	991	0.2957	1,062	549	0.55425	2.08	6	4,830 ab
BCSX 1150B2F	981	0.2721	1,040	534	0.54450	2.37	1	4,800 ab
DP 104B2RF	978	0.2663	1,098	500	0.51150	2.05	3	3,270 abc
FM 9170B2F	950	0.3273	1,037	543	0.57175	1.81	1	1,680 bcd
FM 9103GT	946	0.2955	1,147	504	0.53275	1.37	7	1,800 abc
FM 9160B2F	914	0.3029	1,156	526	0.57525	1.49	4	9,330 a
NG 3410RF	907	0.2920	1,066	500	0.55150	1.80	2	2,940 abc
NG 4010B2RF	903	0.2912	1,005	497	0.55050	1.63	2	4,080 abc
DP 11R112B2R2	884	0.3244	1,089	497	0.56200	1.35	4	1,500 abc
ST 5288B2F	858	0.3240	1,038	469	0.54675	1.31	3	1,710 abc
PG 367WRF	791	0.2864	961	444	0.56100	1.80	3	930 cd
AT 81158RF	768	0.2666	882	432	0.56200	1.72	4	4,410 ab
NG 3348B2RF	735	0.2930	827	402	0.54700	1.40	1	2,610 abc
AT 65207B2RF	732	0.3146	931	394	0.53825	1.17	5	3,930 ab
DP 1032B2RF	695	0.3173	910	394	0.56600	1.09	3	2,305 abc
NG 2051B2RF	684	0.2627	816	369	0.53925	1.56	2	6,570 ab
DP 11R115B2R2	682	0.2942	877	387	0.56750	1.14	2	3,660 abc
DP 1028B2RF	611	0.3072	751	342	0.56000	1.12	9	4,680 ab
DP 1137B2RF	569	0.3016	719	316	0.55525	1.32	3	1,530 abc
DP 1133B2RF	559	0.2830	682	315	0.56375	1.55	1	3,300 abc
LSD[4] (0.05)	183	0.0359	233	102	0.03040	0.46	6	*

[1]AM = Americot; AMX= and experimental line from Americot; AT = All-Tex Cotton Seed; BCSX = an experimental line from Bayer CropScience; CG=Croplan Genetics; DP = Deltapine (Monsanto); FM=Fibermax (Bayer CropScience); NG = NexGen (Americot); PG = Phytogen (Dow Agrosciences); ST=Stoneville (Bayer Cropsciences).

[2]RK is root-knot nematode, and mean separations were based on the LOG10 transformation of the nematode counts.

[3]Adjusted relative yield is yield adjusted for skips within a plot, divided by the highest average yield for a site.

[4]LSD is the least significant difference between varieties with a probability of 0.05.

Table10. Fiber properties[3] of cultivars in a Verticillium wilt field near Ropesville in 2011.

Cultivar[1]	Mic	Length	Unif	Strength	Elon	Rd	+b	Leaf
AM 1550B2RF	3.80	1.085	80.90	29.20	9.70	79.75	9.05	1 .5
AT 65207B2RF	4.00	1.075	81.60	30.25	9.70	77.60	8.75	4 .0
AT 81158RF	3.70	1.095	81.45	31.65	9.65	78.50	8.35	3 .0
AT Dinero B2RF	4.05	1.100	80.90	29.05	9.00	79.00	8.05	3 .0
BCSX 1150B2F	3.95	1.140	81.95	35.10	10.45	75.60	9.25	4 .0
BCSX 1264B2F	3.75	1.115	81.85	33.55	8.65	78.70	8.15	3 .0
DP 0912B2RF	4.35	1.080	81.80	31.15	9.80	77.90	8.70	3 .5
DP 0935B2RF	4.20	1.060	80.95	29.50	9.30	80.45	8.85	1 .5
DP 1028B2RF	3.95	1.090	81.80	29.35	9.90	79.85	9.15	2 .0
DP 1032B2RF	4.20	1.100	81.40	30.55	8.70	80.00	8.90	1 .0
DP 104B2RF	3.20	1.115	81.80	33.00	10.15	78.90	7.90	5 .0
DP 1133B2RF	3.65	1.120	83.00	33.55	10.35	79.25	8.90	2 .0
DP 1137B2RF	3.85	1.085	81.90	30.30	10.40	80.75	9.15	1 .0
DP 11R112B2R2	3.65	1.120	82.45	32.85	10.85	79.10	8.45	2 .5
DP 11R115B2R2	4.30	1.125	81.65	29.55	9.95	79.85	8.95	2 .0
DP 11R124B2R2	3.85	1.105	81.85	28.95	10.35	79.85	8.05	4 .0
FM 2011GT	4.05	1.080	80.70	31.50	8.65	79.50	8.00	3 .0
FM 2484B2F	3.85	1.140	81.50	31.75	7.70	82.20	7.85	1 .0
FM 9101GT	4.00	1.110	81.70	32.45	9.45	79.05	8.00	4 .0
FM 9103GT	3.40	1.145	80.45	30.95	8.10	79.30	8.30	4 .0
FM 9160B2F	4.05	1.130	82.10	31.15	7.20	81.90	8.30	1 .5
FM 9170B2F	3.75	1.125	82.15	32.00	8.10	81.55	7.70	1 .5
FM 9180B2F	3.85	1.140	82.60	34.45	8.55	80.40	7.85	3 .5
NG 2051B2RF	3.95	1.080	80.35	28.05	8.40	79.15	8.00	3 .0
NG 3348B2RF	3.60	1.090	81.60	30.55	9.00	77.85	8.60	3 .0
NG 3410RF	3.65	1.125	81.50	31.50	9.05	78.00	8.60	3 .0
NG 4010B2RF	4.35	1.100	81.70	31.95	9.40	78.75	9.25	3 .0
NG 4111RF	4.25	1.110	82.20	33.40	10.10	78.25	9.10	1 .5
PHY 367WRF	3.90	1.100	82.30	32.20	9.80	77.95	9.05	3 .0
PHY 499WRF	4.00	1.085	81.70	32.40	10.40	77.90	8.90	3 .0
ST 4288B2F	4.00	1.105	81.75	30.65	9.15	77.75	8.90	2 .0
ST 5288B2F	4.20	1.085	81.05	28.70	9.30	78.65	8.10	3 .5
LSD[2] (0.05)	0.57	0.051	1.47	1.62	1.13	1.42	0.43	2 .5

[1]AM = Americot; AMX= and experimental line from Americot; AT = All-Tex Cotton Seed; BCSX = an experimental line from Bayer CropScience; CG=Croplan Genetics; DP = Deltapine (Monsanto); FM=Fibermax (Bayer CropScience); NG = NexGen (Americot); PG = Phytogen (Dow Agrosciences); ST=Stoneville (Bayer Cropsciences).

[2]LSD is the least significant difference between varieties with a probability of 0.05.
[3]Mic is micronaire, unif= uniformity, elon = elongation.

Table 11. Yield of cultivars in a field near Brownfield with Root-knot nematode in 2011.

Cultivar[1]	Yield Lbs of Lint/a	Adj.[3] Yield Lbs of Lint/a	Turnout	Yield X Loan Value ($/acre)	Loan Value ($/lb)	Plants /ft. row	% Wilt	RK[4]/ 500 cm^3 Soil on 23 Nov.
BCSX 1262B2F	1,032	1,042	0.2988	583	0.56550	3.56	0	990
DP 11R154B2R2	994	1,002	0.3103	517	0.52025	3.06	0	1,890
DP 0935B2RF	937	955	0.2959	486	0.51825	3.29	0	1,050
FM 2989GLB2	855	888	0.2982	473	0.55325	2.79	0	1,470
DP 11R159B2R2	847	880	0.2982	460	0.54325	2.7	0	780
BCSX 1261B2F	837	840	0.2720	461	0.55150	3.41	0	810
DP 0912B2RF	832	832	0.2851	424	0.50900	3.33	0	705
PG 519WRF	832	850	0.2782	451	0.54225	3.35	0	2,370
AM 1550B2RF	821	821	0.3079	403	0.49025	3.07	0	1,050
DP1048B2RF	800	858	0.3068	441	0.55100	2.24	0	560
DP1050B2RF	799	857	0.3093	441	0.55225	2.56	0	870
NG 4012B2RF	799	839	0.2997	428	0.53475	2.81	0	1,560
PG 499WRF	793	802	0.2998	430	0.54225	3.60	0	890
ST 5288B2F	792	792	0.2923	406	0.51250	2.73	0	1,210
DP 11R136B2R2	789	866	0.3086	446	0.56575	2.76	0	930
PG 565WRF	786	798	0.2689	432	0.54975	2.81	0	1,455
FM 9103GT	780	839	0.2812	410	0.52575	2.73	0	1,230
DP 1044B2RF	751	909	0.2761	424	0.56450	3.09	0	1,315
DP 11R142B2R2	742	819	0.3131	409	0.55100	2.49	0	1,105
DP 11R150B2R2	701	780	0.3124	397	0.56600	2.39	0	1,080
FM 9250GL	697	719	0.2722	376	0.53950	2.83	0	1,635
DP 11R135B2R2	695	742	0.3080	377	0.54225	2.19	0	905
NG 4111RF	678	692	0.2755	377	0.55600	2.79	0	3,965
BCSX 1223GL	675	675	0.2812	374	0.55400	3.20	0	1,380
FM 1880B2F	657	674	0.2654	363	0.55175	2.88	0	1,180
DP 1032B2RF	639	734	0.2982	352	0.55100	1.96	0	1,690
FM 8270GLB2	618	739	0.2784	343	0.55500	2.66	0	1,160
NG 4010B2RF	618	700	0.2613	337	0.54550	2.24	0	1,830
FM 9160B2F	612	658	0.2910	323	0.52775	2.63	0	3,410
FM 9180B2F	607	644	0.2504	344	0.56625	2.86	0	2,100
CG 3006B2RF	577	599	0.2485	303	0.52550	2.86	0	2,545
DP 11R140B2R2	571	746	0.2922	320	0.56025	1.65	0	2,630
LSD[2] (0.05)	184	168	0.2988	103	0.03070	0.49	-	NS

[1]AM = Americot; AMX= and experimental line from Americot; AT = All-Tex Cotton Seed; BCSX = an experimental line from Bayer CropScience; CG=Croplan Genetics; DP = Deltapine (Monsanto); FM=Fibermax (Bayer CropScience); NG = NexGen (Americot); PG = Phytogen (Dow Agrosciences); ST=Stoneville (Bayer Cropsciences).

[2]LSD is the least significant difference between varieties with a probability of 0.05.

[3]Adjusted relative yield is yield adjusted for skips within a plot, divided by the highest average yield for a site.

[4]RK is root-knot nematode, and mean separations were based on the LOG10 transformation of the nematode counts.

Table 12. Fiber properties[3] of cultivars in a Root-knot nematode field near Brownfield in 2011.

Cultivar[1]	Mic	Length	Unif	Strength	Elon	Rd	+b	Leaf
AM 1550B2RF	4.65	1.005	78.30	26.05	9.25	79.40	8.90	1 .0
BCSX 1223GL	3.95	1.085	80.25	31.20	8.15	78.75	8.05	2 .5
BCSX 1261B2F	4.30	1.070	80.25	30.45	9.90	79.90	8.50	1 .5
BCSX 1262B2F	4.55	1.090	80.65	31.75	10.05	79.10	8.90	1 .5
CG 3006B2RF	4.50	1.085	81.15	29.75	9.40	75.70	7.65	4 .0
DP 0912B2RF	4.85	1.025	79.90	28.75	9.70	78.65	8.40	3 .0
DP 0935B2RF	4.75	1.035	79.45	28.30	9.35	80.70	8.60	1 .0
DP 1032B2RF	4.75	1.065	79.80	27.55	9.00	80.30	8.35	1 .0
DP 1044B2RF	4.55	1.095	80.05	30.35	10.95	80.40	8.20	2 .0
DP1048B2RF	4.45	1.070	80.75	29.15	10.00	80.55	8.65	1 .0
DP1050B2RF	4.55	1.065	81.30	28.75	10.15	80.10	8.75	1 .0
DP 11R135B2R2	4.50	1.050	80.60	29.35	10.15	80.35	8.50	1 .0
DP 11R136B2R2	4.55	1.115	80.90	31.35	9.55	79.95	8.20	2 .0
DP 11R140B2R2	4.80	1.100	81.15	30.30	10.70	79.65	8.05	2 .5
DP 11R142B2R2	4.55	1.075	80.10	28.95	8.30	79.70	8.60	1 .0
DP 11R150B2R2	4.70	1.095	81.40	29.70	9.85	79.85	8.70	1 .0
DP 11R154B2R2	4.55	1.040	78.55	29.55	8.70	79.25	8.50	1 .0
DP 11R159B2R2	4.45	1.080	79.50	29.60	8.15	79.70	8.45	2 .5
FM 1880B2F	4.15	1.065	79.85	30.55	8.80	80.60	7.95	1 .5
FM 2989GLB2	4.65	1.085	80.15	29.55	7.65	79.90	8.35	1 .0
FM 8270GLB2	4.40	1.095	81.05	31.05	8.00	79.95	8.15	2 .0
FM 9103GT	4.45	1.055	79.60	28.95	8.80	78.00	8.65	2 .0
FM 9160B2F	4.45	1.045	79.55	26.65	7.95	80.40	8.05	2 .0
FM 9180B2F	4.50	1.115	81.50	32.65	8.10	81.55	7.85	2 .5
FM 9250GL	4.00	1.065	79.20	29.45	7.40	80.30	8.15	1 .5
NG 4010B2RF	4.65	1.075	79.60	31.00	8.80	78.85	8.90	2 .0
NG 4012B2RF	4.20	1.065	79.50	28.55	7.75	78.35	8.55	1 .0
NG 4111RF	4.55	1.085	81.80	32.95	9.40	78.65	8.90	2 .5
PG 499WRF	4.50	1.055	80.70	30.45	11.05	78.40	8.55	1 .0
PG 519WRF	4.75	1.060	80.60	30.85	9.45	79.35	8.55	1 .0
PG 565WRF	4.50	1.075	81.00	32.55	10.15	77.40	8.75	2 .0
ST 5288B2F	4.75	1.050	80.35	27.75	8.80	78.25	7.65	3 .0
LSD[2] (0.05)	0.46	0.046	1.77	1.85	0.73	1.05	0.35	1 .4

[1]AM = Americot; AMX= and experimental line from Americot; AT = All-Tex Cotton Seed; BCSX = an experimental line from Bayer CropScience; CG=Croplan Genetics; DP = Deltapine (Monsanto); FM=Fibermax (Bayer CropScience); NG = NexGen (Americot); PG = Phytogen (Dow Agrosciences); ST=Stoneville (Bayer Cropsciences).

[2]LSD is the least significant difference with a probability of 0.05.

[3]Mic is micronaire, unif= uniformity, elon = elongation.

Table 13. Yield of cultivars in a field near Lamesa with Root-knot nematode in 2011.

Cultivar[1]	Yield Lbs of Lint/a	Turn out	Adj.[3] Yield Lbs of Lint/a	Yield X Loan Value ($/acre)	Loan Value ($/lb)	Plants /ft. row	Wilt	RK[2]/ 500 cm[3] soil on 9 Sept.
FM 9180B2F	669	0.2221	728	388	0.533	2.37	0	1,536
DP 0912B2RF	609	0.2367	762	379	0.49775	2.12	0	1,860
ST 4288B2F	605	0.2105	811	404	0.49775	1.70	0	129
DP 1044B2RF	603	0.2086	643	323	0.50275	2.28	0	1,590
AT Dinero B2RF	601	0.214	673	327	0.48575	2.37	0	710
FM 8270GLB2	576	0.2474	757	404	0.53425	1.82	0	2,520
DP 0935B2RF	567	0.2097	651	306	0.47000	2.24	0	2,940
NG 4012B2RF	556	0.2279	568	269	0.47350	2.49	0	2,280
PG 519WRF	553	0.2262	689	339	0.49125	2.31	0	540
AM 1550B2RF	519	0.2061	628	292	0.46475	2.18	0	360
DP 0949B2RF	512	0.2274	619	284	0.45800	1.98	0	1,576
FM 9160B2F	500	0.2222	554	260	0.47000	2.39	0	1,200
PG 367WRF	482	0.2040	640	307	0.48000	2.30	0	210
BCSX 1223GL	462	0.2109	540	285	0.52750	2.08	0	1,380
FM 1880B2F	440	0.2206	575	292	0.50725	1.78	0	489
BCSX 1261B2F	436	0.1921	524	249	0.47500	2.34	0	1,830
DP 1137B2RF	421	0.2119	566	282	0.49725	1.30	0	1,890
FM 2989GLB2	417	0.2001	504	247	0.49075	1.74	0	1,260
PG 565WRF	405	0.1974	581	263	0.45325	1.68	0	1,270
AT 81158RF	384	0.1892	492	236	0.47900	1.69	0	3,450
DP 11R154B2R2	380	0.1711	510	230	0.45175	1.98	0	1,650
DP 11R159B2R2	362	0.2144	512	244	0.47675	1.81	0	1,075
DP 11R136B2R2	313	0.2185	535	246	0.45975	1.18	0	576
CG 3787B2RF	304	0.2029	515	261	0.50700	0.88	0	1,460
DP 1048B2RF	262	0.1865	446	209	0.46900	0.93	0	270
DP 11R140B2R2	260	0.1984	384	166	0.43125	0.99	0	1,216
DP 11R135B2R2	248	0.2400	669	314	0.46975	0.57	0	560
AT 65207B2RF	241	0.2214	339	152	0.44875	1.38	0	540
DP 11R142B2R2	231	0.1795	361	154	0.42550	1.19	0	150
DP 1133B2RF	227	0.2119	568	247	0.43450	0.54	0	1,776
DP 11R150B2R2	191	0.1940	439	201	0.45950	0.74	0	180
DP 1050B2RF	158	0.1886	356	165	0.46225	0.58	0	1,176
LSD[4] (0.05)	174		158	73	0.056	0.73		NS

[1]AM = Americot; AMX= experimental line from Americot; AT = All-Tex Cotton Seed; BCSX = an experimental line from Bayer CropScience; CG=Croplan Genetics; DP = Deltapine (Monsanto); FM=Fibermax (Bayer CropScience); NG = NexGen (Americot); PG = Phytogen (Dow Agrosciences); ST=Stoneville (Bayer Cropsciences).

[2]RK is root-knot nematode.

[3]Adjusted relative yield is yield adjusted for skips within a plot, divided by the highest average yield for a site.

[4]LSD is the least significant difference between varieties with a probability of 0.05.

Table 14. Fiber properties from a variety test planted near Lamesa in 2011.

Cultivar[1]	Mic	Length	Unif	Strength	Elon	Rd	+b	Leaf
AM 1550B2RF	2.85	1.095	80.35	29.25	10.10	78.7	8.50	4 .0
AT 65207B2RF	2.50	1.080	80.10	30.10	9.15	78.1	8.60	4 .5
AT 81158RF	2.60	1.125	81.35	30.95	8.35	79.05	8.30	3 .5
AT Dinero B2RF	2.95	1.085	78.85	29.00	9.20	80.9	8.50	3 .0
BCSX 1223GL	3.15	1.145	82.25	33.70	9.00	80.4	8.30	3 .5
BCSX 1261B2F	2.50	1.140	79.85	29.55	9.30	80.05	8.55	2 .5
CG 3787B2RF	3.00	1.125	82.00	31.35	10.30	80.65	8.65	4 .0
DP 0912B2RF	3.10	1.080	81.55	31.60	8.45	78.15	8.70	4 .0
DP 0935B2RF	2.60	1.095	79.90	29.75	9.00	79.55	9.35	2 .5
DP 0949B2RF	2.65	1.085	79.55	30.10	9.75	80.25	8.65	2 .5
DP 1044B2RF	2.80	1.110	80.50	30.65	9.85	79.60	9.05	2 .5
DP 1048B2RF	2.70	1.120	80.85	30.15	10.45	78.55	8.45	4 .5
DP 1050B2RF	2.50	1.100	80.20	29.50	9.75	79.80	8.70	3 .0
DP 1133B2RF	2.50	1.125	81.40	32.35	10.10	78.80	9.05	5 .0
DP 1137B2RF	2.80	1.095	80.55	29.35	9.55	80.70	8.70	2 .5
DP 11R135B2R2	2.65	1.090	80.00	29.85	10.40	80.40	8.50	2 .5
DP 11R136B2R2	2.25	1.165	81.40	32.55	8.65	79.35	8.15	4 .0
DP 11R140B2R2	2.45	1.125	79.75	30.65	9.85	78.55	7.80	5 .0
DP 11R142B2R2	2.40	1.130	79.05	29.55	8.05	78.70	8.75	5 .0
DP 11R150B2R2	2.50	1.105	79.75	28.95	9.55	80.75	8.75	2 .0
DP 11R154B2R2	2.25	1.130	78.50	30.30	8.60	79.50	8.80	4 .0
DP 11R159B2R2	2.65	1.120	80.65	30.80	7.85	79.20	8.40	3 .5
FM 1880B2F	2.85	1.125	80.90	31.30	8.05	79.90	8.40	2 .5
FM 2989GLB2	2.90	1.115	80.30	30.70	8.10	77.10	8.25	4 .0
FM 8270GLB2	3.25	1.150	81.90	33.15	8.45	80.45	7.85	3 .0
FM 9160B2F	2.75	1.125	82.15	31.50	7.15	78.90	8.60	4 .5
FM 9180B2F	3.05	1.130	81.05	32.75	8.45	81.05	8.15	3 .0
NG 4012B2RF	2.70	1.100	79.75	30.40	7.90	79.20	8.90	4 .0
PG 367WRF	3.15	1.110	81.80	30.70	9.25	76.40	9.35	4 .5
PG 519WRF	2.90	1.095	80.50	30.90	9.40	79.40	8.70	3 .5
PG 565WRF	2.55	1.090	79.30	29.30	9.60	77.90	8.55	3 .5
ST 4288B2F	2.95	1.130	81.10	31.20	9.15	77.60	9.40	3 .5
LSD[2] (0.05)	0.49	0.038	1.33	1.84	2 .44	1 .84	0.65	NS

[1]AM = Americot, AMX= and experimental line from Americot; AT = All-Tex Cotton Seed; BCSX = an experimental line from Bayer CropScience; CG=Croplan Genetics; DP = Deltapine (Monsanto); FM=Fibermax (Bayer CropScience); NG = NexGen (Americot); PG = Phytogen (Dow Agrosciences); ST=Stoneville (Bayer Cropsciences).

[2]LSD is the least significant difference between varieties with a probability of 0.05.
[3]Mic is micronaire, unif= uniformity, elon = elongation.

Table 15. Yield of cultivars in a field near Garden City with Verticillium wilt in 2011.

Cultivar[1]	Yield Lbs of Lint/a	Turnout	Yield X Loan Value ($/acre)	Loan Value ($/lb)	Plants /ft. row	Incidence Wilt on 22 Aug. (%)
DP 0912B2RF	2,380	0.2997	1,304	0.54800	3.25	3
AMX 001B2RF	2,224	0.2919	1,212	0.54500	3.28	3
DP 01032B2RF	2,080	0.2839	1,128	0.54225	2.90	8
DP 11R135B2R2	2,032	0.2781	1,098	0.54025	3.21	5
DP 1133B2RF	2,024	0.2682	1,110	0.54900	3.12	3
DP 11R150B2R2	2,003	0.2855	1,071	0.53450	3.36	4
AMX 003B2RF	2,001	0.2796	1,072	0.53575	3.17	3
FM 9180B2F	1,999	0.2522	1,070	0.53525	3.09	3
DP 1137B2RF	1,987	0.2764	1,102	0.55475	3.22	3
DP 11R136B2R2	1,985	0.2883	1,074	0.54100	3.25	4
DP 11R159B2R2	1,946	0.2785	1,011	0.51950	3.15	3
ST 5288B2F	1,935	0.2656	1,013	0.52375	3.09	3
BCSX 1261B2F	1,917	0.2654	1,007	0.52550	3.28	2
PG 499WRF	1,913	0.2835	1,060	0.55450	3.17	4
DP 1044B2RF	1,910	0.2543	991	0.51900	3.33	1
DP 11R140B2R2	1,891	0.2746	968	0.51175	2.93	4
PG 519WRF	1,888	0.2573	965	0.51125	3.24	3
AT Edge B2RF	1,872	0.2494	885	0.47275	3.06	5
DP 1050B2RF	1,872	0.2734	938	0.50100	3.26	7
AM 1550B2RF	1,865	0.2703	980	0.52525	3.05	2
FM 8270GLB2	1,859	0.2441	937	0.50400	3.22	2
FM 1880B2F	1,844	0.2609	923	0.50075	3.28	1
NG 4012B2RF	1,839	0.2651	968	0.52650	3.02	3
DP 1048B2RF	1,820	0.2636	927	0.50925	3.24	6
DP 11R142B2R2	1,777	0.2504	826	0.46450	3.20	4
PG 565WRF	1,746	0.2481	792	0.45375	2.96	4
FM 2989GLB2	1,743	0.2426	831	0.47650	3.33	3
AT 65207B2RF	1,734	0.2541	910	0.52450	2.81	6
DP 11R154B2R2	1,722	0.2698	857	0.49800	3.14	4
FM 9160B2F	1,708	0.2575	864	0.50600	3.21	2
BCSX 1223GL	1,700	0.2309	838	0.49300	3.22	5
AT 81158RF	1,632	0.2330	816	0.50025	2.98	6
LSD[2] (0.05)	144	0.0356	73	0.0453	NS	4

[1]AM = Americot; AMX= and experimental line from Americot; AT = All-Tex Cotton Seed; BCSX = an experimental line from Bayer CropScience; CG=Croplan Genetics; DP = Deltapine (Monsanto); FM=Fibermax (Bayer CropScience); NG = NexGen (Americot); PG = Phytogen (Dow Agrosciences); ST=Stoneville (Bayer Cropsciences).

[2]LSD is the least significant difference between varieties with a probability of 0.05.

Table 16. Fiber properties[3] from a variety test planted near Garden City in 2011.

Cultivar[1]	Mic	Length	Unif	Strength	Elon	Rd	+b	Leaf
AM 1550B2RF	3.10	1.125	81.10	28.55	10.45	82.20	8.20	2 .5
AMX 001B2RF	3.60	1.145	81.95	31.55	11.85	80.45	7.85	4 .0
AMX 003B2RF	3.70	1.155	81.30	29.25	11.25	80.25	7.10	5 .0
AT 65207B2RF	3.25	1.115	81.55	30.60	10.40	80.80	8.10	3 .5
AT 81158RF	2.95	1.14	80.50	29.95	9.35	79.80	7.40	3 .5
AT Edge B2RF	3.20	1.185	80.65	31.45	10.10	79.95	7.20	6 .0
BCSX 1223GL	2.70	1.190	81.90	33.05	8.00	82.00	7.30	2 .5
BCSX 1261B2F	3.00	1.165	80.70	30.75	10.80	81.30	8.00	1 .5
DP 01032B2RF	3.35	1.165	80.35	30.65	9.95	82.40	7.75	2 .0
DP 0912B2RF	3.50	1.110	79.90	30.05	9.55	80.70	7.90	2 .5
DP 1044B2RF	3.00	1.145	80.90	30.75	11.40	81.75	7.55	2 .5
DP 1048B2RF	3.00	1.165	80.90	29.25	11.80	83.15	8.00	1 .0
DP 1050B2RF	2.85	1.135	79.95	29.25	10.70	83.55	8.15	1 .5
DP 1133B2RF	3.30	1.180	82.15	31.80	10.85	82.40	8.15	1 .5
DP 1137B2RF	3.40	1.130	81.60	29.45	11.35	82.45	8.05	1 .0
DP 11R135B2R2	3.20	1.140	81.55	29.85	11.55	82.45	7.95	1 .5
DP 11R136B2R2	3.15	1.215	81.85	31.75	10.95	82.15	7.45	2 .5
DP 11R140B2R2	3.00	1.215	80.25	31.35	11.20	79.75	7.40	4 .5
DP 11R142B2R2	2.60	1.210	80.60	31.30	7.40	82.50	7.50	4 .0
DP 11R150B2R2	3.10	1.170	81.80	30.95	11.05	82.85	8.20	1 .5
DP 11R154B2R2	2.70	1.170	80.10	32.75	9.85	81.95	8.05	1 .5
DP 11R159B2R2	3.05	1.165	80.40	30.75	10.25	82.40	8.00	1 .5
FM 1880B2F	2.90	1.185	80.05	30.70	9.70	82.90	6.95	3 .0
FM 2989GLB2	2.65	1.165	79.50	30.10	9.30	82.65	7.45	3 .0
FM 8270GLB2	2.90	1.190	81.70	31.45	10.00	82.50	7.05	3 .0
FM 9160B2F	2.85	1.160	80.60	29.30	8.60	84.05	7.00	2 .5
FM 9180B2F	3.10	1.200	81.95	32.70	9.50	82.70	6.95	2 .5
NG 4012B2RF	3.00	1.165	81.30	31.80	9.55	82.00	7.90	1 .5
PG 499WRF	3.50	1.145	81.65	32.10	10.20	80.70	8.15	2 .5
PG 519WRF	3.05	1.120	79.90	30.15	10.10	81.15	7.85	3 .5
PG 565WRF	2.70	1.165	80.70	30.70	10.30	79.85	7.60	4 .5
ST 5288B2F	3.40	1.130	79.95	28.60	10.80	80.15	7.10	4 .5
LSD (0.05)[2]	0.4	0.048	NS	1.59	1.83	1.29	0.3	2 .0

[1]AM = Americot; AMX= and experimental line from Americot; AT = All-Tex Cotton Seed; BCSX = an experimental line from Bayer CropScience; CG=Croplan Genetics; DP = Deltapine (Monsanto); FM=Fibermax (Bayer CropScience); NG = NexGen (Americot); PG = Phytogen (Dow Agrosciences); ST=Stoneville (Bayer Cropsciences).

[2]LSD is the least significant difference with a probability of 0.05.
[3]Mic is micronaire, unif= uniformity, elon = elongation.