

FOCUS on South Plains Agriculture

Texas AgriLife Research and Extension Center at Lubbock
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Cotton Insects

Bt or Non-Bt Cotton

Undoubtedly the most effective means for controlling pink bollworms, bollworms, beet armyworms and fall armyworms is to plant a cotton variety containing Bt genes. These include those varieties containing Bollgard 2 (Cry1Ac + Cry2Ab), and Widestrike (Cry1Ac + Cry1F) technologies. The registration of Bollgard varieties (Cry1Ac) expired on Sept 20, 2009, although planting of existing supplies will be allowed in 2010. Bollgard is weaker than Bollgard II and Widestrike, especially relative to bollworms, beet armyworms and fall armyworms.

Depending on the circumstances, a grower may opt to not plant a Bt cotton variety. Reasons for this decision vary but include not wanting to pay the tech fee, no recent history with troublesome worm populations, choosing a non-Bt variety based on desired agronomic characteristics, or resistance to disease or nematodes. Regardless of the reason, there are many growers who do not plant much Bt cotton.

Is the cost of the tech fee worth it? Based on the Seed Cost Comparison Worksheet provided by PCG, (The 2010 Seed Cost Comparison Worksheet is available at [Plains Cotton Growers](#)), and a 52,272 seed/acre seeding rate, the tech fee for Bollgard II is \$17.51 per acre while Widestrike is \$9.09 per acre. The cost for treating for bollworms runs about \$8.00 per acre per application, while armyworms will cost about \$13.00 per acre per application. Do the math. However, when treating for bollworms with a pyrethroid, which is the most common treatment, you stand the chance of flaring aphids and possibly mites. Aphids and mites will usually cost about \$7.00 and \$18.00 per



acre to treat, respectively. Also, there is the “nickel and diming” damage low populations of worms cause. In most years we can get by without treating or may have to only make a single application for bollworms on non-Bt cotton; but there is no guarantee. In 2009, most of our non-Bt cotton escaped with very little bollworm damage, but there were some fields that required as many as six applications for bollworms/fall armyworms.

In addition to direct costs associated with spraying for worms in cotton there is the peace of mind factor and getting a good night’s sleep not having to worry about worms. In essence, it’s all a gamble and depends on how much risk you are willing to take to gain whatever benefit you see by planting a non-Bt variety.

Thrips

Preventive or foliar treatments for thrips

Deciding on whether or not to use a preventive thrips control product, and which one to use, can be a difficult decision, and the benefit of these treatments is dependent on the weather and thrips pressure, neither of which is predictable. However, you can make reasonable assumptions and guesses based on historical data and long-range forecasts.

Thrips build up populations primarily in small grains, flowering weeds and wild grasses; with wheat being the largest source of thrips, particularly during dry conditions. Once the wheat begins to mature and dry down, thrips will disperse out of the wheat in extremely high numbers, and will go to pretty much whatever is green in the area; notably newly emerging cotton. Thus, if you are growing cotton in area where a lot of small grains are produced, using preventive thrips treatments may be justified.

Another consideration when deciding on whether or not to use a preventive treatment for thrips is the weather. In 2007 we had a thrips test where cotton treated with Temik at 3.5 lbs/ac yielded 350 lbs-lint/ac more than an untreated check, but in 2008 similar studies saw no benefit

from using Temik. Why the difference? Primarily temperature. During the 21 days post emergence in 2007, the average daily high and low was 82 and 54 °F, respectively; while in 2008 the average daily high and low was 94 and 58 °F, respectively. At the 2008 test location, we noticed that area cotton that had been planted 10 to 14 days earlier appeared to suffer significant thrips damage when growing under cooler conditions. Under warmer conditions, the cotton is simply able to outgrow some thrips damage. Thus, if you are growing cotton in an area that typically experiences cool temperatures and thrips commonly exist, then using a preventive treatment may be justified. However, if you are in an area where thrips populations are not normally severe and temperatures are relatively warm, you may opt for foregoing preventive thrips treatments and use curative foliar sprays as needed instead.



Thrips damaged plant

If you have decided that a preventive thrips treatment is a good option for you, there are a number of preventive thrips treatments to choose from including seed treatments and in-furrow insecticides.

Seed treatments for thrips

The good thing about seed treatments is that they are easy to use, require no special

equipment, and are fairly safe to handle. Seed treatment options for thrips control include Orthene, Gaucho Grande, Cruiser, Avicta Complete Cotton, Avicta Duo Cotton, and Aeris. The length of thrips control will vary by product, soil moisture, precipitation, and thrips pressure. Additionally, your choice of a seed treatment should consider nematode and disease potential as well.

Prior to the release of the newer seed treatments, Orthene was the standard base seed treatment targeting thrips, but this treatment performs erratically and is usually short lived; typically provides only 3 to 5 days post emergence thrips suppression. Gaucho Grande is a widely used thrips control product in many parts of the cotton belt, but tends to be weak against western flower thrips which is the predominant thrips in the Texas High Plains. For us, Gaucho Grande will usually provide about 7 days post emergence thrips control.

For us, the better thrips control seed treatments include the Cruiser, the Avicta products and Aeris. Cruiser contains the single active ingredient thiamethoxam, and is in the same insecticide class imidacloprid. However, Cruiser is more active towards western flower thrips than Gaucho Grande and will provide 18 to 21 days post emergence thrips control.

Aeris is a combination of imidacloprid and thiodicarb. Imidacloprid is the same active ingredient as Gaucho Grande, but the inclusion of thiodicarb significantly increases the length of control of Aeris over Gaucho Grande to 18 to 21 days post emergence control. Thiodicarb also has some nematode activity (see nematode section for details). Prior to 2009, Aeris seed treatments automatically included the inclusion of the premium fungicide Trilex Advanced, but now Aeris can be applied separately.

Avicta seed treatments are available in two options, Avicta Complete Cotton and Avicta Duo Cotton. As far as thrips are concerned, these products are identical and are the same as Cruiser. They have the same active ingredient as Cruiser for thrips (thiamethoxam), and like Cruiser, will provide 18 to 21 days of post emergence thrips

control. The differences among Cruiser, Avicta Complete Cotton and Avicta Duo Cotton are the other active ingredients. Both of the Avicta products, in addition to thiamethoxam, include abamectin for nematode management (see nematode section for details), and Avicta Complete Cotton also includes the premium fungicide treatment Dynasty CST (see disease section for details).

Regardless of the seed treatment utilized, keep in mind that effective control will usually not last more than 21 days under constant thrips pressure, and follow-up foliar sprays may be necessary to protect the crop once these treatments wear off.

Temik in-furrow for thrips

In addition to the seed treatments as a preventive approach to thrips management, an in-furrow application of Temik is an option. Temik is the “Cadillac” treatment when it comes to preventing thrips damage in cotton. For thrips control, no more than 3.5 lbs/ac of Temik should be required to control western flower thrips. Little of the data we have collected over the years shows a benefit from using 5 lbs/ac of Temik over the 3.5 lbs rate; although the higher rate may provide 3 to 5 days of additional control. However, this additional control for thrips is rarely justified, but the 5 lbs rate may be considered when trying to manage nematodes (see nematode section). Temik at 3.5 lbs/ac will generally provide 24 to 30 days thrips control post emergence. Similar to the seed treatments, the length of control achieved with Temik is dependent on soil moisture, precipitation and thrips pressure. And like the seed treatments, follow-up foliar sprays may be necessary to protect the crop once the treatment wears off.

Where Temik outperforms the seed treatments in length of control, it does tend to be less convenient than the seed treatments and is highly toxic. Fortunately, the added safety provided by “Lock-and-Load” application system does alleviate some of the concerns of handling this product. [Click here to view a summary of commonly used](#)

[preventive thrips control options in cotton](#). Other preventive treatment choices do exist, including Thimet and Orthene applied using a seed box option, the treatments described in this text tend to be the ones most commonly used.

Using foliar treatments for thrips management

If you are going to opt to manage thrips using solely foliar sprays, there are some important points to remember.

Timing can be critical. Controlling thrips during the first 2 weeks post crop emergence appears to be the most important period; especially under cool conditions. You need to be “Johnny on the spot” with these applications when thrips are numerous; even a few days delay can be detrimental.

Avoid automatic treatments. Automatically adding a foliar thrips material in with a Roundup application may not be necessary or may be poorly timed. Often either the weeds aren’t present when the thrips are or vice versa.

Scout for thrips. Go out and visually assess if thrips are present. Pull up plants and thoroughly search them or beat the plants inside a plastic cup.

Don’t spray based on damage. The damage you see today happened 3 to 5 days earlier and you may have already suffered yield loss. Spraying based on damage is essentially a revenge treatment.

Spray based on thresholds. Use an accepted action threshold to help you determine whether or not you should treat. [Click here to view current thrips thresholds for the High Plains](#).

Common foliar insecticides for thrips control include Orthene/Acephate, Dimethoate, and Bidrin, with Acephate being most widely used. Under constant thrips pressure you will not get a full week’s worth of control out of any of these products. Orthene/Acephate will generally provide about 5 days control while Dimethoate will provide 3 to 4 days. I haven’t evaluated Bidrin’s residual activity yet.

Wireworms

Coming into this season there maybe concern regarding the potential for wireworm problems when planting into fields with high residues of wheat, corn and primarily sorghum. Wireworms have been occasionally troublesome in cotton north of Lubbock where more grain crops are produced, but in 2009 appeared to be plaguing some areas of Dawson County.

When we are discussing wireworms, we are usually talking about the larvae of both true wireworms and false wireworms; however, false wireworms tend to be more of a problem in our area. Beneath the soil surface, the larvae of these beetles typically feed on the roots, terminal, and hypocotyl of germinating cotton. This result in stand loss, loss of the dominate terminal, or weak plants prone to water stress. [Click here to view wireworm damage](#). Conditions that adversely affect wireworms are cold winters, irrigations or rainfall during the winter or early spring that flood fields. Prevention of damage is the best method for controlling this pest. Planting shallow and under warm conditions often will allow seeds to germinate rapidly and for plants to outgrow wireworms. Currently there is no recognized action threshold for wireworms in cotton, and we have no efficacy data to support the recommendation of various insecticide treatments. However, there is substantial evidence based on observations, that some insecticides can effectively manage wireworms. Seeds treated with Cruiser, Avicta Complete Cotton or Avicta Duo Cotton should be protected from substantial damage. Other seed treatments may also be effective. Gaucho Grande and Aeris, although wireworms are not listed on the labels for controlling wireworms in cotton, appear to be effective. The active ingredient in these products, imidacloprid, is labeled for use against wireworms in other crops. Temik does not have wireworms on its label and based on observations appears to not be all that effective.

Cotton Insect Pest Management Reports for the Texas High Plains – 2009 Report

[The Cotton Insect Pest Management Reports for the Texas High Plains – 2009 Report](#) is available for download. This report contains 2009 insecticide efficacy data for thrips, cotton fleahoppers, aphids, Lygus, beet armyworms, bollworms and saltmarsh caterpillar. DLK

Cotton Agronomy

Recap of 2009 Crop

According to recent National Agricultural Statistics Service data (NASS), cotton producers in the High Plains region planted around 3.288 million acres in 2009. About 597,000 acres were in District 1N and 2.691 million acres were in District 1S. Estimated harvested acres were 502,000 for 1N, 1.973 million for 1S, with a total of 2.475 million for the region. The January estimate for total production was 3.78 million bales (930,000 in 1N and 2.850 million in 1S). Many believe the January estimate was overly optimistic based on classing office data. The 2009 crop year in the High Plains was a very mixed bag. Some producers did very well with irrigated cotton, some was below par, and the dryland acreage where we had a crop experienced difficulty. The Lubbock and Lamesa Classing Office results reflected this. We ended up with around 56% color grades 11 or 21, substantially higher than the 40% observed in 2008. Average leaf was somewhat improved compared to last year, while length and strength were down somewhat from the records set in 2009. Average micronaire, an indirect measure of maturity, was slightly higher than last year. However, due to the difficult fall, and the lateness of much of our remaining dryland and some irrigated fields, we encountered significant maturity issues in some areas. As of February 15, average micronaire weighted for both Lubbock and Lamesa Classing Offices was 3.72, with 31.3% at 3.4 or below, and 22.9% at 3.2 or below. Uniformity was also down somewhat compared to

2008. Bark contamination was also high at 32%, but substantially down compared to the 60% encountered in the 2008 due to the early freeze and high September rainfall that year.

Winter precipitation in the High Plains has been higher than normal, and we are optimistic that 2010 will be a great year. In my opinion, cotton production is a complicated job. Just make sure that you do your homework and spend input money wisely. With that said, producers need to be aware especially in District 1N that managing for earliness should be the major focus during the growing season. For several years now we have produced crops with substantial amounts of long, immature fiber for which is generally difficult to obtain good prices in the global market. However, in 2009, many producers with low micronaire cotton were saved by an active market. Although we cannot control weather impacts, selection of varieties which tend to be somewhat earlier in maturity and managing those varieties for earliness should help. Excessive irrigation amounts, especially late, can push a lot of late set bolls (which contain much immature fiber with poor length distribution) to the point of providing some pounds of yield at the sacrifice of overall maturity. This is a difficult box that we need to find a way out of in order to improve crop quality for global markets. If producers have specific Verticillium wilt or Fusarium wilt disease issues with which they are dealing, results from trials conducted under high disease pressure are available. It is important for growers to consider managing individual fields based on the specific disease presence or absence and overall goals.

Variety Selection Process

Selecting productive cotton varieties is not an easy task especially in the Texas High Plains, an area where weather can literally “make or break” a crop. Producers need to do their homework by comparing several characteristics among many different varieties, and then keying these characteristics to typical growing conditions. We can’t control our growing environment from year

to year, but we can select the varieties we plant based on desired attributes. It is very important to select and plant varieties that fit specific fields on your operation. Don't plant the farm to a single variety, and try relatively small acreages of new ones before extensive planting. **Don't forget to target specific diseased fields with the best varieties under those conditions.**

Variety Testing Publications

If disease issues are not concerning, then scrutinize all possible university trial data that are available to see how a specific variety has performed across a series of environments, and if possible, across years. It is best to consider multi-year and multi-site performance averages when they are available. However, due to the rate of varietal release, many new varieties are sold which have not undergone multi-year university testing, or perhaps no university testing at all.

Dr. Jane Dever has published the [Cotton Performance Tests in the Texas High Plains and Trans Pecos Areas of Texas 2009](#). This report contains data on numerous entries in some 13 small plot trials. Small plot trials enable producers to observe results from a large number of entries at multiple locations. These trials are normally conducted under uniform, disease-free conditions, unless a test is specifically targeted toward a certain disease. Dr. Dever has included summaries over locations for some sets of trials. This is an outstanding resource and provides much information on variety performance, including lint turnout, fiber quality, earliness, plant height, and storm resistance. Results from locations with Verticillium wilt, Root-knot nematode, and Bacterial blight are also available in this publication.

The [Extension 2009 Systems Agronomic and Economic Evaluation of Cotton Varieties Report](#) is also available. This report contains 23 locations of replicated cotton demonstrations conducted by Extension agents in producer-cooperator fields across the region. Since these

trials are planted and harvested with producer-cooperator equipment, the number of entries per site is generally less than 15, and many times less than 10. However, these trials reflect a wide range of cultural practices, locations, irrigation types, etc. **The absence or degree of presence of disease is affecting results of some Extension variety demonstrations, and taking the time to read the site descriptions is becoming as important as looking at the results tables.** There are tables that summarize data for yield, micronaire, staple, uniformity, and strength across locations. These tables provide a quick glance at the performance of each entry at the respective locations.

Also included in this report are results from the 2009 picker vs. stripper harvester comparisons. Dr. John Wanjura with the USDA-ARS Cotton Production and Processing Research Unit at Lubbock provided the picker harvester and expertise for harvesting these trials. Picker vs. stripper harvester comparisons were conducted at 3 producer-cooperator sites in 2009 and at one site in cooperation with Dr. John Wanjura with the USDA-ARS.

Variety Selection

When it comes to variety selection in the High Plains, several factors are important to consider.

Maturity (Earliness)

We can't predict the weather, but producers should recognize that 2001, 2002, and 2003 were record high micronaire years in the High Plains and things have changed a lot since then. More recently, we have experienced higher yielding crops with lower maturity as seen in lower average micronaire. **Producers should be looking very hard at the relative maturity and micronaire values of the new varieties.** Scrutinizing the relative maturity rankings provided by seed companies will be beneficial. Don't expect a mid-full season cotton variety to perform well in a short season environment where an early or early-

mid might generally work best. Many longer season cotton varieties are better adapted to areas with longer growing seasons, although significant gains in yield may sometimes be obtained in years with warm September and October temperatures. In years such as 2009, with a difficult finish due to poor maturing weather at the end, many fields planted to some of these varieties had somewhat lower yield and more immature fiber resulting in lower micronaire. Dr. Dever's cotton performance test report contains an earliness evaluation (expressed as percent open bolls on a given date). These results are provided across all locations.

Pounds

Yield potential is probably the single most important agronomic characteristic, because pounds do drive profitability and provides for the safety net of higher actual production history (APH) in case of catastrophic loss of acres. The benefit this can provide from the crop insurance perspective is important in our high risk area. Yield stability across environments is going to be important, and basically what we want to find is a variety that has the ability to provide high yield across varying water inputs.

Fiber Quality

Producers should also consider lint quality. We have made a lot of progress in terms of fiber quality over the last several years, but we still have a long way to go to address maturity. A lot of things can affect crop micronaire. These factors can include overall environment, planting date, variety, early season fruit loss with later compensation, excessive late season irrigation or rainfall, seedling disease, early season set backs due to hail damage, blowing sand, thrips, etc. Verticillium wilt disease incidence can also be a contributing factor. This in turn can be aggravated by excessive nitrogen fertilization and/or soil residual nitrogen. There is good evidence that excessive nitrogen fertilization may also play a

role in immaturity. There are comments below concerning testing for residual nitrogen.

Storm Resistance

Storm resistance is still a concern for growers in our area. Even though we have adopted less storm resistant cotton varieties over the last several years, and generally done well with those, the overall management system the producer adopts can be important. Producers planning to execute a sound harvest aid program as soon as the crop is mature can probably grow some fields of less storm resistant cotton. However, having large acreages of low storm resistant varieties might be a prescription for disaster if the right environmental conditions align at harvest. Do not plan to leave looser open-boll cottons in the field until a freeze conditions the plants for harvest. Unacceptable pre-harvest lint loss is likely to result. More storm resistant varieties are better adapted to our harvesting conditions and they are more likely to survive damaging weather prior to harvest without considerable lint loss. Inquire about the storm resistance of any variety on your potential planting list. If you do choose an open-boll variety, plan and budget ahead for a good harvest aid program that will let you achieve an early harvest. Good storm resistance data are now being provided by most companies and results from Dr. Dever's cotton performance testing program are valuable for looking at several varieties across location. With some growing interest in picker harvesting, excessive storm resistance can be a negative and possibly result in reduced picker harvesting efficiency.

Disease and Nematode Resistance/Tolerance

Producers should likely not plant the farm to one cotton variety. A question should be "do I have plant diseases or nematodes in this specific field?" One thing to consider is whether you know which disease is present. If you have a problem with a wilt disease and don't know what it is, then you need to have the problem identified.

If known Verticillium wilt pressure is present, then take a look at Dr. Terry Wheeler and Dr. Jason Woodward's data from several locations investigating variety performance under constraints from this particular disease. The same thing should be considered for Fusarium wilt/Root-knot nematode issues. Many times varieties which do well under Verticillium wilt pressure may not be the same ones which rise to the top with Fusarium or Root-knot nematode pressure. Bacterial blight is an occasional problem in the region. There are several varieties out there that can provide high levels of resistance/immunity. See below for Dr. Jason Woodward's information relative to disease and nematode issues.

Biotech Trait Types

Producers need to ask themselves several questions. Do I want a herbicide-tolerant variety, if so, which system? Weed control has been catapulted forward by the advent of transgenic Roundup Ready Flex and Liberty Link cotton varieties. The agronomic capabilities of Roundup Ready Flex cotton varieties continue to improve. The Liberty Link system has been more widely adopted in other areas, perhaps due to our tough early season environment in some years. Good to excellent varieties with these herbicide traits are out there. The widely anticipated GlyTol glyphosate tolerance trait from Bayer CropScience (BCS) has yet to be approved by some regulatory agencies in other trading-partner countries. It was anticipated that his technology could be sold in our region in 2010, however, BCS decided to delay the launch until full regulatory approval has been obtained in these Ex-US countries. As for insect protection, the Bollgard 2 and Widestrike technologies have provided outstanding lepidopteran pest control. Based on our local pricing, these technologies should be considered, especially for irrigated farms.

Conventional Varieties

Some offerings of conventional varieties are still being made by a few seed companies. The companies of which I am aware include All-Tex Seed in Levelland. They are selling some new conventional variety in 2010, identified as 1203, A102, LA122, and OL220. Older conventional varieties such as Xpress, Excess, Atlas, and Top-Pick are also available. Additional conventional varieties are being sold by Seed Source Genetics located in Bishop, TX. Some of these varieties have been tested in Dr. Jane Dever's performance trials.

Ease of Management

Plant type should be considered because of substantial variation in available water input across the region. Under high water inputs, some varieties can get "growthy" and require diligence with regard to plant growth regulator (mepiquat chloride) application. Other varieties may be more compact and not as large. Some growers like the challenge of managing some of these "growthy" types, and some do not. Smaller plant types are generally easier to manage and require less plant growth regulator expense for growth control.

Seed and Technology Cost

Cost should not necessarily be the primary reason for selecting a variety, but it is important. The value of a high yielding cotton variety with biotech traits to ease management requirements across a large number of acres is a serious consideration. Over the last several years, we have seen significant producer gravitation to transgenic varieties. Based on the USDA Cotton Varieties Planted 2009 Crop report, Bollgard 2 was planted on approximately 45% of the acres served by the Lamesa and Lubbock Classing Offices. Approximately 85% and 60% respectively for the Lubbock and Lamesa Classing Office territory was planted to Roundup Ready Flex. We have a

large number of commercial varieties from several companies being sold in our region in 2010. About 110 varieties are available. Many of these contain Roundup Ready Flex technology, many contain Bollgard 2/Roundup Ready stacked traits, some with Liberty Link and Liberty Link/Bollgard 2 stacked, some with Widestrike/Roundup Ready Flex stacked, etc. There is still some overlap of Widestrike/Roundup Ready out there, but with the recent producer gravitation to Roundup Ready Flex technology, these varieties are diminishing.

Whether a producer chooses to plant a conventional or a transgenic variety, the Plains Cotton Growers 2010 Seed Cost Comparison Worksheet can certainly be useful. Shawn Wade developed the Microsoft Excel spreadsheet which can be used within your Web browser, or downloaded and saved to your computer. There are about 110 varieties of many types in the spreadsheet. The user can select up to 9 varieties to simultaneously compare total seed and technology fee costs based on a specific seeding rate. The row spacing and seed per row-ft can be entered by the user. This then calculates a seed drop on a per acre basis. Then, based on published pricing for the various seed varieties and technology fees, the cost per acre is automatically calculated.

The 2010 Seed Cost Comparison Worksheet is available at www.plainscotton.org

Deep Soil Sampling for Residual Nitrates

With fertilizer prices skyrocketing in 2008, special emphasis is being placed on reminding producers about proper soil sampling and testing techniques. One of the most costly fertilizers is nitrogen (N). Nitrogen is important for producing protein in plants and crop demand is very much yield driven. Establishing a realistic yield goal is the first task. Producers shouldn't take the attitude that cotton is like a grain crop. The more nitrogen applied when given high water doesn't necessarily translate into higher yield. Many times we can retain the fruit in a high water input field but not have time to mature that fruit. This results in a

large number of pounds of lint, but can significantly reduce maturity because the late-set bolls do not have adequate time to mature. Excess N can aggravate the problem by delaying crop maturity, especially if poor maturity weather is encountered in September and October as was the case in many fields in 2009. There is a fine line between obtaining an adequate yield and having good maturity in the crop, especially north of Lubbock. Excessive N can result in 1) Unwanted crop growth which in turn will require plant growth regulator (such as mepiquat chloride) application - especially on varieties that are inherently "growthy", 2) Increased Verticillium wilt problems, 3) Increased aphid problems, and 4) More harvest aid challenges at the end of the season.

Over the last several years agronomists across the state working in cotton have been surveying residual N in the soil profile in producer fields. What many fields are exhibiting is a considerable amount of N that should be accounted for when determining how much N fertilizer to apply. In our region, many fields may encounter this deep N somewhat later in the season resulting in a surge of green at a time when we would like for the fields to become more N deficient. Based on research projects this is likely a contributing factor to lower micronaire in some fields in years with poor maturing conditions.

The basic formula for success is this: 1) Determine the yield goal in bales per acre for the field based on irrigation capacity, varietal performance, early season profile moisture, etc. 2) Multiply this yield goal times 50 pounds of N per bale of production. 3) Deep sample for residual soil N down to the 18-24 inch depth. 4) Submit the samples to a soil testing laboratory, fully recognizing the depth that the sample represents. 5) Use the appropriate conversion factor based on the depth of sampling to convert the nitrate-N test results from the laboratory to pounds of N per acre IF the laboratory does not provide this service. 6) Subtract the amount of residual N found from the N fertilizer needed based on the yield goal. If high nitrate-N irrigation water is used,

then additional steps must be made to compensate for N delivery during the growing season. Based on 10 ppm nitrate-N concentration in irrigation water, application of an acre-ft (12 acre-inches) during the growing season will result in about 27 pounds of N being simultaneously applied. Few High Plains wells will have nitrate-N concentrations of that magnitude. However, with high fertilizer prices, the water should be checked and credits made for this against overall N fertilizer application. There is a publication which deals with this issue entitled "[Nitrogen Management in Cotton - SCS-2009-2](#)". It discusses in an in-depth manner much of the information in the previous paragraph. RKB

Preplant Control of Winter and Spring Annual Weeds

Producers in the Texas Southern High Plains and across the Cotton Belt have adopted conservation tillage practices including small-grain cover crops to conserve moisture and reduce soil erosion. Due to the lack of tillage in these systems, many producers experience an increase in winter and spring annual weed problems including horseweed, Russian thistle and kochia. Consequently, preplant burndown herbicides are essential to replace tillage as the primary weed management tool in conservation tillage systems. Two of the most troublesome weeds present in conservation tillage fields in the Southern High Plains are Russian thistle and horseweed.

Weed management research conducted in the High Plains has focused on evaluation of different products for control of Russian thistle and horseweed. Paraquat has excellent activity in Russian thistle, but is not effective on horseweed. Control with glyphosate of both species can be inconsistent especially with larger weeds. 2,4-D provides very effective control of these weeds. Specific label instructions for 2,4-D use in fallow land and crop stubble state "**do not plant any crop for 3 months after treatment or until chemical has disappeared from the soil.**" Trials conducted over a 3-year period showed no crop

injury or yield loss when 2,4-D was applied 4 weeks before planting (WBP) at the 32 oz/acre rate.



Russian thistle and horseweed are troublesome weeds in conservation tillage systems

Current Best Management Practices: These studies indicate that 2,4-D applied at least 4 WBP is a safe and effective means of controlling winter weeds such as Russian thistle, horseweed, and kochia in conservation tillage systems in the Southern High Plains. If herbicide applications are needed closer to planting, glyphosate or paraquat would be safer options. However, in some cases rod weeding or plowing may be the most effective option.

New for 2010 - Sharpen Herbicide

Sharpen, a new herbicide from BASF, when applied at 1 oz/acre has controlled horseweed, Russian thistle and kochia very effectively in trials conducted over the last two years. **Sharpen must be applied at least 42 days before planting to avoid cotton injury. An accumulation of at least one inch of rainfall or irrigation during this interval is necessary.** Sharpen activity is enhanced with the addition of a methylated seed oil (MSO) adjuvant. Consult the Sharpen label or contact your local BASF representative for other restrictions and limitations. The label states: 1) DO NOT apply to coarse soils with less than 1.5% organic matter or cotton injury may occur. 2) DO NOT apply Sharpen

where an at-planting application of an organo-phosphate or carbamate insecticide(s) is planned because severe injury may result. A [copy of the Sharpen label](#) is reprinted here. WK

We have unused space so here are a few photos from 2009.



wheat harvest at the Clovis Research Station



solitary bee on sunflower



Russ Wallace during tomato harvest

FOCUS on South Plains Agriculture

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