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FOCUS on Entomology

For South Plains Agriculture

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EDITOR'S COMMENTS

I'm back from retirement to edit and write for FOCUS until my vacated position is filled this fall. This is the first of a biweekly series of newsletters that will continue through mid September. There will be seven total issues. The area covered by FOCUS is mainly the southern High Plains but will also sometimes include other areas of Texas. As such, specific geographical information pertaining to pest problems will not be possible. Readers should subscribe to one or more newsletters produced by the several County Extension IPM agents residing across the area and in other parts of Texas. FOCUS will address management issues in more depth than is generally possible in the more localized newsletters. FOCUS will also have a number of contributors as needed addressing agronomy, weed science, diseases and irrigation issues across many of the area's crops. While much of the newsletter will usually emphasize cotton issues, other crops will often be very important to many readers. Readers are reminded that several publications have been produced in the FOCUS Crop Production Guide Series that provide more in-depth management information in the areas of insect management, cotton agronomy, diseases, weeds, etc. Make sure you visit the Lubbock Center site and the FOCUS web page for these guides and other information. FOCUS again will rely heavily on links to other sites or publications in an often-losing battle to keep each newsletter at a reasonable length. This will be especially difficult this year with issues released on a two-week schedule. **JFL**

IN THIS ISSUE

NEWSLETTER CONTRIBUTORS

James F. Leser, Retired Extension Entomologist
Pat Porter, Extension Entomologist
Randy Boman, Extension Agronomist
Terry Wheeler, Research Plant Pathologist
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COTTON INSECTS

The cotton situation is highly variable across the region with most fields planted. But, and this is a big but---the moisture situation is causing much of the dryland and limited irrigated crop to suffer. High temperatures (multiple 100^{o}F days) and windy conditions are stressing plants in many fields resulting in skippy stands and slowed development. We refer to these plants as "parked"—not moving along. There has been very little weather damage (rain, hail, high winds, etc.) but then these conditions are associated with thunderstorms, which have been a rare sight this year. We won't dwell on the acres of dryland cotton that were dry planted for insurance purposes. These fields may or may not end up facing future pest problems. What we need is rain, lots of it and without the associated hail. Without sufficient rainfall, most farmers with dryland or limited irrigated fields will not be concerned with pest management.

Thrips numbers are very high this year in spite of the absence of a healthy wheat crop to provide most of the early source for this pest. As you already know, most of our thrips problems are from western flower thrips (WFT) that move in mass from maturing winter wheat to emerging cotton. With a poor wheat crop this year, I had earlier thought we would have less of a problem with this pest. However, continuing dry conditions appear to have resulted in other thrips host sources to release their populations into nearby cotton. So, CRP, bar ditches and other weedy areas that are moisture stressed have become the major thrips source this year. At any rate, thrips numbers are high and higher by far than in 2005.

Where preventative treatments were used, thrips numbers have been low. There will be some winged adults present even in "protected" cotton because thrips must feed on the treated plants to be killed. If insecticide products are working, you should see very few if any wingless immatures. Our best at-planting treatments based on several tests over the years are in order of declining performance: Temik, Cruiser (or Avicta Complete Pak, which contains Cruiser, Avicta and Dynasty), Thimet and Gaucho Grande. Temik in most instances will provide control for 3-4 weeks after planting, Cruiser or Avicta Complete Pak about 6 days less residual control than Temik, Thimet about 3 weeks control and Gaucho Grande about 2 weeks control (Gaucho just doesn't control WFT as well as other products). We're talking about 3.5 pounds of formulated Temik versus 5 pounds of formulated Thimet per acre. Thimet does a pretty good job of controlling thrips at a lower cost than Temik but in so doing "hurts" the plant. The outcome---Temik out yields and nets much more money than Thimet. There are some fields out there with a long history of Temik use, especially those with severe nematode problems. Temik effectiveness against thrips and nematodes in a limited number of these fields may have declined to the point where alternative strategies should be considered. This is based on studies conducted by Dr. Terry Wheeler (Lubbock based plant pathologist).

Thrips damage

Weather in the form of rains, wind, blowing sand and hail can keep thrips numbers reduced (especially immatures) but can also cause "thrips look-alike damage". If the undersides of the cotyledons appear more "whitish" than "silvered" you are probably dealing more with wind or sand damage. Silvered cotyledons (seed leaves), crinkled true leaves and blackened terminals are all symptoms of thrips damage.

Seedling cotton is vulnerable to thrips damage the second it pokes its terminal above ground. Usually it takes more than the winged adults to cause sufficient damage to produce a significant yield loss. Once wingless immature thrips appear, you have already lost the first round to thrips. Treatments made at planting do play out sometimes before thrips pressure is released or before plants reach a less vulnerable 5-7 true leaf stage. This is where foliar insecticides come in and the need for scouting fields. Scouting requires carefully pulling up the seedling and either visually inspecting the plant for winged adults and wingless immatures or by beating plants into a white surfaced container like a cigar box or deep pie plate and counting dislodged thrips. You will still need to dissect the terminal area to locate thrips in small folded leaves.

Checking terminal for thrips

Prior to any insecticide treatment, when thrips numbers equal or exceed the number of true leaves present, a foliar treatment may be warranted. Cotyledon cotton will also use the one thrips per plant treatment level. If an at-planting preventative treatment or a foliar treatment has already been made, then it is the failure of the original treatment to prevent reproduction that keys follow-up treatments.

The standard total thrips per true leaf present is still used but an additional measurement of reproduction is required before a decision is made. If you are averaging one thrips per true leaf present and wingless immatures represent 30% of the total, spraying is justified.

Effective foliar insecticides most often used include Bidrin and Orthene (acephate), although dimethoate and dimate are still good choices. These insecticides are so cheap; it is hard to resist applying these with the early Roundup applications. On the one hand I like this approach, even where at-planting treatments were used because in most years money will be made. On the other hand, wholesale, indiscriminant use of insecticides is where we encourage resistance. You call the shot, but I do advise adhering to our thresholds. Do not use drift control nozzles if piggy backing on a Roundup application. Reports from the Delta indicate coverage problems for thrips control using these nozzles. See Thrips Control Critical for Irrigated Cotton for more management information.

One last note about thrips control---it will be awfully hard to get excited about thrips control in dryland or limited irrigated cotton. Where fields are moisture short and heavily dependent on rainfall between now and the end of July for any decent yield prospects, I can't in good conscience recommend thrips control. Earlier studies conducted by me showed where pre-August moisture was limiting; early fruit gains due to thrips control were lost to fruit shedding later in the year.

Watch out for cotton fleahoppers once cotton has 5 true leaves. I don't have any reports of problems with this pest at this time but this small square thief damages squares pinhead size or smaller. Problems

Adult fleahopper

can sneak up on you if square set monitoring and insect counts don't start soon enough. Usually it takes a reproductive cycle in the infested cotton field to produce enough numbers to be a problem. Therefore it is usually the 2nd or 3rd week of squaring before any appreciable numbers develop. For more management information on this important pest, go to: Cotton Fleahopper Management Tips.

Boll weevil eradication watch. While boll weevil adults have been trickling out of overwintering sites for a few weeks in the High Plains and St. Lawrence areas, their numbers have been way down compared to last year. Very little cotton is hostable at this time so that any weevils that do appear will not trigger very many treated acres. I believe the dry winter we experienced probably was very detrimental to their overwintering survival. Other areas of the state look good as well. Eradication of the boll weevil from Texas is succeeding!


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Average number of boll weevils caught per trap inspection and sprayed acreage through June 5. Number of boll weevils caught for the week ending June 4, 2006

High Plains Zone	Average for 2005	Average for 2006	Accu-mulative Sprayed acres	Total weevils caught this week
Permian Basin	0.0155	0.0008	0	21
Western High Plains	0	0.00002	0	0
Southern High Plains	0.00001	0	0	0
Northern High Plains	0	0	0	0
Northwest Plains	0	0	0	0
Panhandle	0	0	0	0
St. Lawrence	0.6731	0.0026	563	37

Pink bollworm moths are emerging from their overwintering sites in soil and cotton harvest residue. Scott Russell (IPM Agent for Terry and Yoakum counties) is the 2006 pink bollworm project leader and quarterbacking an area-wide trapping program and an emergence cage trial located in southern Terry County. He picked up the first emerged moths (3) on the May 19 check date and a second batch (6) on June 9. This total emergence compares to 48 from last year for the same time period or a 5-fold decrease. If emergence has not been delayed this year, the observed reduction will be good news for producers and consultants. I believe the dry winter probably significantly decreased survival this year.


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The area trapped this year is the same as in 2005 and includes 16 counties in the High Plains Tom Green, Runnels, Reagan, Upton and Glasscock counties to the south. Traps have been out in most locations since the first of May. All counties reporting have trapped emerging moths, including Cochran and Hockley counties, which didn't catch any until June 27 last year. There are no reports from Lubbock, Hale or Swisher counties to date. Some county's traps caught pinkies the first week of May (mostly the southern counties where numbers have been running the highest). The more northern counties didn't catch pinkie moths until late May or early June. It is too early to discuss trends now but trapped numbers appear to be running much higher than last year for this time period. I know much of the southern acreage is planted to a Bollgard variety (I hope so), and this will go a long way in allaying concern about this important pest. But if you planted a non-Bollgard variety, you may be facing a potential problem with these

levels of moth catches being reported. See, Pink Bollworm Management Tips I for more information. **JFL**

CORN INSECTS

Banks grass mites have been present in very high numbers in wheat, and are moving to corn. Some fields or field margins have been treated. Early treatment is always a guessing game, especially since mites reproduce relatively slowly on young corn and only reach the "explosive" stage as we approach tassel. Additionally, wind, rain, and predators can reduce these early infestations under the right conditions. If a miticide is necessary, Onager (Section 18), Oberon, and Comite II are viable choices. We have been conducting research trials on these miticides for several years, and Onager and Oberon have proven to be superb performers. Like Comite II, they should be used before populations really begin to explode near the tassel stage. Oberon has some activity on adult mites but Onager and Comite II do not. Therefore, if a rescue treatment is needed later in the season, Oberon would make the most sense at that time.

EPA has approved a Section 18 Emergency Specific Exemption for the use of Onager on corn for control of spider mites. Application can be by ground or air at 10 – 16 oz per acre and should be made before mite populations begin to build. I would like to thank Ed Gage at TDA in Austin for his extra work in obtaining both the initial Section 18 and then petitioning EPA to add aerial application when it became apparent that we could be in for a very rough spider mite year. Specifics of the Section 18 can be found on TDA's website (http://www.agr.state.tx.us/pesticide/exemptions/pes_18crops.htm).

New corn publications. The revised version of "Managing Insect and Mite Pests of Texas Corn", which lists suggested insecticides for corn pests, is due out any day. This time it will be an "electronic only" publication and not available in print. The new version can be found at http://tcebookstore.org/ just any time now. Additionally you can buy the new publication, "Texas Corn Production Emphasizing Pest Management and Irrigation" from the TCE bookstore for $5, but we have provided some free chapters that cover major High Plains pests at our corn IPM website (http://lubbock.tamu.edu/cornIPM). The website also contains scouting videos for many pests, photo galleries of insects and disease, and other items of interest in corn production. **PP**

Emergence hampered by dry conditions

COTTON AGRONOMY

Crop progress overview. The 2006 crop season is upon us and we are "out of the gate" once again. After having the record-shattering production season of 2005, it appears we are going to have considerable difficulty with the 2006 crop. The dry 2005 harvest period resulted in a record cotton crop size (about 5.6 million bales classed at Lubbock and Lamesa off of about 3.4 million standing acres out of 3.7 million planted) and record cotton quality (highest percentage of bales with 11 and 21 color; longest average staple; highest percentage of bales 34 staple or longer; highest percentage of bales 35 staple or longer; highest percentage of bales 36 staple or longer; among the lowest for percentage of bark contamination). We had an extreme "celestial alignment" of production factors last year with minimal abandonment, good to excellent genetics, timely rainfall, dry harvest period, etc. Congratulations to everyone for that!

In 2006, we have not had the privilege of obtaining timely rainfall across much of the Southern High Plains. The dry fall carried over into a dry spring over most of the region, although we did receive some substantial rainfall in March. April was fairly devoid of precipitation in most areas, and May has been very dry across most acreage from Lubbock south. Spotty thunderstorms have produced good localized rainfall in some areas, and some excellent rainfall was obtained over the last 10 days or so from Lubbock north in many areas. We can currently draw a diagonal line from about Morton in Cochran County down to Brownfield in Terry County, down to north of Lamesa in Dawson County. South of this line lies extensive dryland acreage which received minimal rainfall thus far this year. There have perhaps been a few localized areas that received some precipitation. We have had a few thousand acres knocked out by various thunderstorms (hail, high wind, high intensity rainfall, etc.) but much of this has been replanted. The replanted fields may struggle with stand establishment due to hot desiccating winds.

The cotton planting window is closing rapidly for most of the region and final planting dates for insurance purposes have passed for the northern and central Southern High Plains counties, and nearly all of the crop has been planted – whether in moisture or dry planted. Irrigated acres were planted very timely, but producers have struggled to obtain stands in fields with marginal moisture. Due to high energy costs for pumping, many producers opted to wait until the last minute to pre-irrigate, hoping for badly needed precipitation. Some areas did receive some badly needed rainfall, while others did not. By my math, we have already encountered 7 days of at least 100 degrees at Lubbock since May 1, with a total of 16 days 95 degrees or greater. Combine this with high winds and low humidity, and we have probably encountered the most difficult stand establishment situation since 1998 in many fields. Heat unit accumulation since May 1 at Lubbock through May 31 was 426 DD60s. Our long-term average for May is about 293. This means that for the month of May we had 45% above normal DD60 accumulation.

Checking seed placement

Currently we have a high pressure ridge sitting on top of the region, and we have a very hot and dry extended forecast. Of course this means that we will have substantial dryland cotton production at risk this year. Perhaps close to 1 million acres of dryland have been dry planted or planted into sub-optimal moisture. Many of these sub-moisture fields have dried out rapidly and have poor stands. To add to the producer stress level, some dry-planted fields east of Lubbock received only about 0.6 inch of rainfall a couple of weeks ago and have emerged with little if any moisture below the seed zone.

According to a USDA-Risk Management Agency rule change there is a 16-day waiting period after the final planting date before non-emerged cotton can be adjusted. Based on my math, we may first begin releasing non-emerged dryland acres about June 17 (for May 31 counties). After that, the next waves of counties (which will include a large amount of dryland acres) will be June 22 (for June 5 counties) and June 27 (for June 10 counties). Of course a few timely rainfall events and lower temperatures can change this picture. It appears that we are in for another High Plains cliff hanger.

Assessing storm damaged stands. For those who are interested in information concerning replant decisions, there are two publications dealing with this issue available. Making

Replant Decisions and Effects of Stand Loss and Skips on Cotton Yields.

Cotton Root Disorder Guide. A guide to cotton root disorders has been published by Cotton Incorporated. This publication was generated by several workers across the Cotton Belt and was funded by the Texas and Arkansas State Support Committees. Cotton root disorders detailed in the publication include: herbicide injury from amino acid synthesis inhibitors, photosynthetic inhibitors, and seedling growth inhibitors; pathogens including fungi and nematodes; fertilizer injury; chilling injury; and soil compaction. The guide is available on the Web at: http://pestdata.ncsu.edu/cottonpickin/disorders/
RB

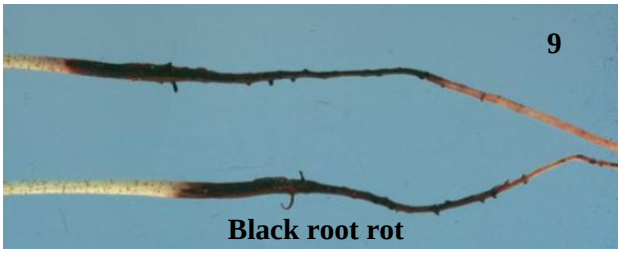
COTTON DISEASES

A number of cases of suspected seedling disease have crossed my desk so far. In about 80% of the cases, the culprit was planting seed too deep. If the hypocotyl is 2 inches long or longer, then that seed was planted too deep. Even if there are lesions present on the hypocotyl, the problem is the depth of the seed.

There has been sufficient water through irrigation to trigger *Rhizoctonia* seed rot and hypocotyl damage. Make sure your seed treatment package has a good *Rhizoctonia* fungicide. I very much like products like Baytan 30, Dynasty, and Vitavax-PCNB. If you have questions about how specific fungicide combinations perform, I have years of test data on every labeled fungicide. I am happy to share my experiences.

Pythium has not been a problem at all this year. Even so, make sure you have a *Pythium* fungicide included on your seed. Recommended products would include Allegiance, Apron TL, Apron XL, and Dynasty.

Black root rot, which is caused by the fungus *Thielaviopsis basicola,* is also presenting problems this year. The cool early season temperatures allowed this fungus to colonize roots. Generally the roots will slough off the black tissue once the temperature warms up,



Black root rot

and then lateral roots can develop and the plant can grow more rapidly. Unfortunately, this year with the extremely high temperatures, the roots are unable to grow fast enough to slough off the black tissue. This means a further delay before plants outgrow the problem. In fact, some of the very small plants are dying because they cannot develop a sufficient root system to survive these hot, dry conditions. The only recommendations are to put 1 oz of Baytan 30 per 100 lbs of seed, rather than the 0.5 oz rate that is usually used, or to use 1.75 oz of Nuflow M/100 lbs on seed. Even those products will only be partial fixes, but in some years they do increase yields by approximately 12%.

The final problem that is developing in some fields is seedling death by Fusarium wilt. This disease will generally be present on cotton a bit later than damage caused by *Rhizoctonia*. The symptoms on the hypocotyl are similar to *Rhizoctonia* and I cannot tell the difference until I isolate the true pathogen in my laboratory. Root-knot nematode will also be a problem in these fields. This disease kills plants and the plant deaths will continue for another month at least. There are no fungicide seed treatments that can control this disease. The best control is to go after the root-knot nematode with 5 lbs of Temik 15G/acre. This is one situation where I do not recommend using the Avicta complete pack, since it is not as effective as Temik 15G. You can expect Temik 15G to increase yields by 15 to 25% in a Fusarium wilt field, because of improved plant

survival. The other control tactic is to plant a variety that is not highly susceptible to Fusarium wilt. The stripper type cottons as a group are more resistant to Fusarium wilt than picker type cotton varieties. Within the picker cottons, I am still testing varieties to determine which are the least susceptible and will be presenting more information as the season progresses. **TW**

COTTON HERBICIDE UPDATE

A number of old and/or new issues revolving around cotton herbicides and herbicide programs are important to producers as they involve formulation changes, new rates, program qualifications criteria, etc. Here they are:

Monsanto Roundup Rewards and Drought Relief Programs. Many glyphosate herbicide brands are available today (including Roundup WeatherMax, Touchdown, Glyphos, etc). Be careful to check the label to make sure they contain the same active ingredient. Generally, only the salt formulation and surfactants are different. The differences in the efficacy of these materials for weed control are generally very minimal according to various weed scientists.

Producers should consult the information provided by Monsanto relative to using approved Monsanto brand Roundup formulations for burndown or in-crop applications, as the Roundup Rewards Program may be voided. Contact your local Monsanto representative concerning these issues. With the current drought conditions prevailing across the region, it becomes imperative that producers follow the Monsanto requirement to the letter in order to not jeopardize participation in the important Monsanto Drought Relief Program for 2006. The Monsanto Drought Relief Program components include the Trait Drought Relief Program which can refund technology fees for all Monsanto trait acres planted. This provides 100% refund of the published cotton technology fees. To qualify, the text reads as follows: *Qualifying growers are eligible to receive cotton technology refunds when a crop loss is experienced due to severe drought conditions on acres planted with cotton varieties containing Monsanto traits. In the event your crop is lost or yields less than 150 lbs of lint PER LAND ACRE due to drought.*

Shielded sprayer

In addition to the trait refund, the Stoneville/NexGen Seed Drought Relief Program will also provide a refund of 100% of the suggested retail price of seed planted. To qualify, the text reads as follows: *In the event your Stoneville and/or NexGen cotton crop is lost or yields less than 150 lbs of lint PER LAND ACRES due to drought.* Most seed companies have followed suit with some version this program. For information concerning various company policies, go to the Plains Cotton Growers web site at: http://www.plainscotton.org/SeedDroughtRelief.html.

Producers are required to use Monsanto Roundup brands of glyphosate to qualify for the 2006 Drought Relief Program**.** As stated on the second page of the Drought Relief Program literature, *"To qualify for the Trait Drought Relief Program growers are required to use a Roundup brand product for all preplant and in-crop applications across all technology acres (as per the 2006 Roundup Rewards Program)."* A PDF copy of this publication is available.

The latter part of that statement is in reference to the 2006 Roundup Rewards Program, bullet #4 on the Roundup Rewards Requirements page: *"Only labeled Roundup*

agricultural herbicides must be used for all systemic non-selective herbicide burndown or in-crop applications on any Monsanto trait crop on a grower's farm." A PDF copy of this publication is available.

Roundup Ready Flex varieties launched. A substantial amount of the new Roundup Ready Flex technology-containing varieties has been planted across the region. This new technology will undoubtedly provide extensive benefit to our producers. An overview of the Roundup Ready Flex technology is available. Many of these new varieties performed very well in tests in West Texas in 2005. Of course that was a record-shattering year. We have worked with numerous Extension agents across the area and have planted multiple locations with many of these varieties under various on-farm conditions, including dryland, center pivot and sub-surface drip irrigation. It will be interesting to observe performance of these leading edge Roundup Ready Flex varieties in 2006, where we will apparently have a much different type of season compared to 2005.

Some of the management changes available with the Roundup Ready Flex varieties include delayed glyphosate over-the-top applications. With the Roundup Ready Flex system, producers have the option of making glyphosate applications essentially full season more or less, and at higher rates to target more difficult to control weeds. Since the 4th leaf stage window of the older Roundup Ready technology is now moot with the new Roundup Ready Flex technology, many producers may opt to wait for larger crop/weed size to spray for the first time. Caution should be taken here to not allow the larger weed size to cause competition losses in the cotton. A good Monsanto graphic that outlines the glyhosate spraying options for Roundup Ready Flex is available. An excellent new publication generated by team of Texas A&M personnel headed up by Dr. Peter Dotray answering the question "How will Roundup Ready Flex cotton change my weed management decisions" is now available in the Crop Production Guide Series.

Roundup Ready Cotton. Up to two 22 oz/acre of Roundup WeatherMax over-the-top (OT) applications can be made to Roundup Ready varieties. At least 10 days between applications and two additional mainstem nodes of growth are required. No single application may exceed 22 oz/acre. Once past the four-leaf stage, two post-directed or shielded sprayer applications can also be made, at a maximum 22 oz/acre per application. Ten days and two additional mainstem nodes of growth are also required between these applications. Post-directed equipment should be adjusted to direct the spray to the bottom of the plants and spray contact onto leaves should be minimized. Use less than 30 psi spray pressure. Salvage treatments of Roundup WeatherMax may be applied OT after the 5th leaf reaches 1 inch in diameter at 22 oz/acre when weed competition may threaten to cause crop loss. These treatments can result significant boll loss, delayed maturity and/or yield loss. No more than one salvage treatment should be made during the growing season. Follow up applications of up to 44 oz/acre can be made OT again once 20 percent boll crack has occurred to control late season or perennial weeds.

Watch for Roundup Ready over-the-top window closure. Some earlier planted Roundup Ready fields are nearing the end of the over the top window for glyphosate applications. Cotton that was planted around May 1 that has had no environmental damage is probably getting near the cutoff stage at this time. In some places, considerable thrips and wind/sand damage has “ragged up the plants” and resulted in severe stress, stacked nodes and has made staging the seedling plants more difficult. Where leaves have been lost or badly damaged, it is imperative that mainstem nodes be counted in order to properly stage the cotton.

If late applications are made, then significant yield losses can be encountered. Field research

conducted at the Lubbock Center indicated that when Roundup was applied OT after window closure, lint yields were decreased 5 to 19% in 2 out of 3 years. Plant condition, as affected by environmental factors, appeared to influence potential yield loss.

Roundup Original Max and Weather Max label issues. Monsanto's brands of glyphosate including Roundup Original Max and WeatherMax are formulated as potassium salts. Roundup Weather Max has quicker rainfastness (only 30 minutes required as per the sales literature). In 2006, the Roundup Weather Max and Original Max formulations have been "tweaked" for Roundup Ready Flex cotton. The label for Roundup Ready and Roundup Ready Flex cotton are contained in the Original Max and Weather Max labels. Only the glyphosate formulations with the orange "starburst seal" on the label should be used in Roundup Ready Flex cotton due to the potential of experiencing leaf burn with other formulations. Read and follow the label, as it has much critical information. Remember that the Roundup Original Max and Weather Max have a higher acid equivalent (a.e.) per gallon (at 4.5 lb per gallon) than many other glyphosate products. Best control is generally obtained from Roundup Original Max and Weather Max when most weeds are small (less than 3 inches). Ammonium sulfate is generally necessary when preparing glyphosate spray mixtures in West Texas due to "hard" water and "tough" weeds. The general recommendation for glyphosate spray mixtures is to add 17 lb of spray grade ammonium sulfate/100 gallons of spray mix.

Glyphosate/Staple tank mixes for Roundup Ready varieties. DuPont has recently reformulated Staple herbicide from the older Staple 85 SP (dry product) to the new Staple LX (liquid product). Formulation comparison trials conducted in 2005 showed similar weed control with Staple LX compared to Staple 85 SP. The addition of Staple LX herbicide at 1.3-1.7 oz/acre to the first OT application of glyphosate may enhance control of several annual weed species and also provide some residual control. Improved control of some morning glory species and Palmer amaranth is stated. Rainfall or sprinkler irrigation (0.5 to 1") after application is required for residual control. For more information contact your DuPont representative. A copy of the new Staple LX label is available. A formulation conversion chart (from Staple 85 SP rates to corresponding Staple LX rates) was provided by DuPont in Staple LX sales literature.

DuPont Staple 85 SP to Staple LX Use-Rate Conversion

Commonly used rates of Staple 85 SP (oz product/acre)	Equivalent rates of Staple LX (fluid oz/acre)
0.4	0.85
0.6	1.3
0.8	1.7
1.0	2.0
1.2	2.5
1.8	4.0
2.4	5.0

Dual Magnum/Glyphosate tank mixes for Roundup Ready cotton. Dual Magnum has a label for Touchdown or Roundup/Dual Magnum tank mixes for use on Roundup Ready cotton. Dual Magnum should be tank mixed with the supported glyphosate material for residual control of pigweed, annual grasses and yellow nutsedge at 1 to 1.33 pt/acre. According to Syngenta personnel, for over-the-top tank mixes of Dual with glyphosate (Touchdown and Roundup) in Roundup Ready cotton plants should be at least 3 inches tall, but not larger than 4 leaf stage (where the 5th leaf is

quarter-sized). For Dual alone, a 100 day preharvest interval (PHI) for postemergence for over-the-top applications or 80 day PHI for post-directed applications is required. Dual plus glyphosate may be post directed anytime up to the PHI. It is also suggested that ammonium sulfate, spray adjuvants, surfactants, fertilizer additives, or other pesticides NOT be included in the spray mix as phytotoxicity/crop injury may occur with the Dual formulation. The label states that "postemergence OT applications of this tank mixture may cause temporary injury in the form of necrotic spotting to exposed cotton leaves which will not affect normal plant development. Do not apply Touchdown or Roundup postemergence OT to cotton past the growth stage limit specified on their respective labels. Do not use on sand or loamy sand soils in Gaines County, TX." Potential for reduced weed control from supported glyphosate materials could exist in extremely hard water areas due to the exclusion of ammonium sulfate. Best results are obtained when the Dual is incorporated 24 hours after application using 0.5 to 1 inch of irrigation water. There is a premix formulation of glyphosate and metolachlor (Dual) available called Sequence. For specific questions concerning this application contact your Syngenta representative. A Dual Magnum or Dual II Magnum label is available.

Shielded sprayer

Issues surrounding some Syngenta herbicide products. Envoke and Suprend herbicides are currently not registered for use in West Texas due to potential for crop injury and negative residual carryover effects on rotational crops. Syngenta personnel and university researchers are currently evaluating these issues and investigating the possibility of obtaining a label for this region in the future.

Ignite 280 SL herbicide on Liberty Link cotton. We have more cotton varieties this year with the transgenic glufosinate herbicide tolerant cotton system. These are the Liberty Link varieties from FiberMax (Bayer CropScience). As usual, we will need to learn how to most effectively use this new tool in the weed control arsenal. Ignite 280 SL herbicide (glufosinate-ammonium) is the formulation now labeled for Liberty Link cotton. Liberty Link cotton varieties have excellent full-season tolerance (both crop size and rate) to the labeled herbicide, but applications must cease at 70 days prior to harvest to comply with the designated PHI. More information on this system is available. A PDF for early postemergence weed control options is available.

The original Ignite formulation used for the last two growing seasons contained 18.19% or 1.67 lb active ingredient/gallon. A reformulation of this herbicide was made for the 2006 growing season. Glufosinate approved for use in Liberty Link cotton will now be marketed as Ignite 280 SL (a higher concentration of active ingredient at 24.5% or 2.34 lb active ingredient/gallon). Ignite 280 SL has a supplemental 24C label for Texas which will allow higher rates for each application, as well as higher total in-season application rates for the glufosinate active ingredient. The new Ignite 280 SL formulation will be red in color, whereas the older Ignite formulation was blue. All of the older Ignite formulation has been replaced by Ignite 280 SL at the dealer-distributor level. Some producers may have carryover of the older Ignite formulation in storage and they need to be aware of the formulation change. Over the last several years, the older Ignite formulation was labeled at 32 to 40 oz product/acre per application (or at 0.4175 lb a.i/acre, to 0.5219 lb a.i./acre),

with a seasonal maximum of 80 oz/acre (1.044 lb a.i./acre). The new Ignite 280 SL supplemental label for Texas will allow producers to apply up to 43 oz/acre in a single application (or 0.786 lb a.i./acre) of herbicide, up to a total of 87 oz/acre/season (or up to 1.59 lb a.i./acre), with noted rotational restrictions. The equivalent of the old Ignite formulation's 40 oz/acre single application will now be 29 oz/acre using Ignite 280 SL. Always read and follow label directions. A copy of the original Ignite label and of the new Ignite 280 SL label are available.

This herbicide works very well against many problem weeds including morningglory. Ignite 280 SL herbicide typical rates are 23 to 29 oz/acre. The label suggests that the 29 oz/acre rate be used when weeds exceed specific heights, and a higher single application rate of 43 oz/acre is now allowed under the Texas 24C label. When the single 43 oz/acre rate is used, then the maximum seasonal total application rate per acre should not exceed 72 oz/acre. When a field has a mixture of weed species, use the highest rate required to control all targeted species.

There are two critical issues surrounding this herbicide system. One such issue is weed size. Typically, most weeds should be targeted at very small size (see label for 65 plus specific broadleaf species and 20 plus grass species and size restrictions). An additional 25 species can be either controlled or suppressed with the 29 oz/acre rate (see label for specifics). The other critical issue is thorough spray coverage. Since this is a contact material, it is critical that outstanding spray coverage be obtained. The label states that *"Uniform, thorough spray coverage is important to achieve consistent weed control. Select nozzles and pressure that deliver MEDIUM spray droplets as indicated in the nozzle manufacturer's catalogs and in accordance with ASAE Standard S-572."* Bayer personnel suggest using flat fan nozzles, or Turbo-TeeJet types (if 60 psi pressure is used). At this time, it is not recommended to use air induction, raindrop nozzles, or flood-jet tips. **A minimum total spray volume of 15 gallons/acre is required.** For dense weed/crop canopies, a spray volume of 20 to 40 gallons/acre is required for thorough coverage. Also, ground speeds should not exceed 10 mph. Ammonium sulfate at 17 lb/100 gallons of spray mix is also recommended.

The label also states that *"For cotton tolerant to Ignite 280 SL herbicide, Syngenta's Dual II Magnum or DuPont's Staple herbicide may be tank-mixed with Ignite 280 SL herbicide and applied over-the-top post-emergence to enhance weed control and/or provide residual control."*

Roundup or Ignite/insecticide tank mixes. Some questions have been asked concerning the use of glyphosate or Ignite/insecticide tank mixes. Generally Orthene (acephate), dimethoate, and Bidrin have been the tank-mix partners mentioned for thrips control. No problems with cotton phytotoxicity or product efficacy have generally been noted. **RB**

PEANUT AGRONOMY

Time to Assess *Rhizobium* Nodulation in Peanut. Good nodulation on peanut is essential to reaching your peanut yield potential. Despite the widespread use of nitrogen (N) fertilizer in West Texas peanut, good *Rhizobium* nodulation remains the most economical means to supply N needs in the plant. Planting practices, inoculant choice (liquids usually nodulate better than granular; seedbox powders have never worked in our Extension trials), planting at least 1.5" deep, soil moisture at planting, and subsequent irrigation will affect the degree of nodulation a farmer achieves.

Extension recommends that producers assess nodulation about 6 weeks after planting in advance of mid-season N applications. High early season N applications at planting can greatly reduce nodulation as peanut plants are

'lazy' and will not nodulate as much if ample N fertilizer is available instead.

An early season assessment, however, in the High Plains may provide guidance for adjusting mid-season N targets. Producers may sample nodulation by digging plants (don't pull them) at 3 to 4 locations around a field, about 10 plants per location. Determine the nodules per plant. Nodules may still be white inside (not yet fixing N), but once the pink and red color forms then the nodules are supplying N to the plant.

Here's our simple West Texas index to help gauge your nodulation at 5-6 weeks after planting:

Nodules per plant	Rating
0-5	Poor
6-10	Fair
11-15	Good
16-20	Very good
21 or more	Excellent

If nodulation is good early on it will likely continue to increase toward peak nodulation in August. If nodulation is low, however, our experience suggests that it is not going to improve much. Farmers with high nodulation early on can probably reduce mid-season N applications. For example, if you have 20 nodules per plant, and you planned to apply 80 lbs. of N per acre mid-season, you may be justified in reducing mid-season N fertilizer levels by 20-40%.

What if I have little nodulation? This is the second reason of why Extension recommends you scout your nodules. If early season nodulation is low, we would want to know this immediately rather than find out in August. It is too late then to adjust management. The later in the season N applications are made the more likely pod rot may occur. For poorly nodulated fields, knowing this early on means we have an opportunity to ensure N can be added to the field. Mid-season use of liquid inoculant through the pivot is not expected to enhance nodulation for peanut. So pursue N fertilization of poorly nodulated peanut. Once that's done ask yourself what might have happened to contribute to minimal nodulation and see if you can minimize that potential problem in next year's peanut. **CT**

INSECTICIDE NEWS

MSR Spray Concentrate (Gowan Company, a product similar to Metasystox R) received a Section 2 (ee) label for squash bug control in summer squash and watermelons.

Defcon 2.1 G from Helena (tebupirimfos + cyfluthrin, the same product as Bayer's Aztec) is now labeled in field corn, sweet corn, popcorn, seed corn and silage corn.

EPA has announced the Reregistration Eligibility Decision (RED) for the botanical insecticide, sabadilla alkaloids. Sabadilla alkaloids are obtained from the ground extract of the sabadilla plant. Formulations of sabadilla alkaloid pesticides are currently available as an approximately 0.2% wettable powder. This should be good news for organic farmers and gardeners.

EPA has approved Elector Bait (spinosyn) for the control of house flies in dairy, beef, poultry, and other livestock operations. It can also be used indoors, but only where animals cannot eat the granules. The bait is attractive to houseflies but not to blood feeding flies. **PP**

50TH ANNUAL LIVESTOCK INSECT WORKERS CONFERENCE

The LIWC will be held from June 25 – 28 at the Ambassador Hotel in Amarillo. Further details can be found at http://www.wtamu.edu/~gschuster/insect%20workers'/insect.html, or you can call Dr. Greta Schuster at (806) 651-2280 for more information.

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