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FOCUS on Entomology

For South Plains Agriculture

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IN THIS ISSUE

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COTTON INSECTS

High Plains weather has continued to play "search and destroy" with our cotton crop.

The result of this onslaught has been the loss of thousands of acres and the reduced health and vigor of much of the remaining acreage. How is this factoring in with our insect situation? Thrips numbers have been dramatically reduced by high winds, blowing sand, hail and driving rains. But with plants suffering from leaf damage, possible root health issues and previous thrips damage, any remaining thrips infestations may be doubly troublesome.

No thrips problem here! Crop lost.

Since thrips cause most of their yield impact by feeding in the terminal, the absence or reduction of suitable feeding sites on previously expanded leaves will force thrips into the terminal area and exacerbate the situation. The return of warm weather may help the situation but plants may be slow to respond to this improved weather if their health has been diminished.

We checked our thrips control test at Lariat on Monday after being kept out of the field by weather for four days. Thrips counts were down but still above threshold in untreated plots or where at-planting treatments were playing out. Plants were putting out their 3rd

true leaf with untreated plots averaging 6 thrips per plant. The Cruiser seed treatment counts were ranging between 4.3 to 6.4 thrips per plant. Temik treated plots were averaging between 1.9 to 3.1 thrips per plant. These numbers were close to or exceeding our threshold of 1 thrips per true leaf present, but for the most part, reproductive recruitment had not become a factor.

We have two treatment entries where we will over-spray one of the Temik or Cruiser seed treatments with Orthene if the threshold is exceeded. But remember that a follow-up spray can only be triggered if immature numbers approach 30% of the total count. The 3.5 lb. rate of Temik averaged 5.5% while the Cruiser seed treatments averaged 15.0%. We sprayed the designated Cruiser plots because total thrips averaged 4.9 per plant and percent immatures averaged 17.3. We went with a lower immature percentage threshold (target threshold is about 30%) because of the reduced health of plants and previous damage. So far this test would indicate that Temik at cost competitive rates is lasting longer than the Cruiser seed treatment.

Thrips damaged plants. **Early thrips protection plays out on newest leaves.**

The foliar Orthene treatment we applied on May 25 was still holding up with total thrips averaging 2.4 per plant and only 7.2% immatures. This was down from 12.3 total thrips per plant before we treated when the threshold was 1 per plant.

Now how much has weather affected the thrips situation? Last year's test saw a 300% increase in total thrips numbers from 14 days after planting to 21 days following planting. This year's test saw a 57% decrease in total thrips numbers from 14 days after planting to 27 days after planting. Immatures were also much higher last year than this year. This should indicate the level of thrips impact that our recent severe weather has had on thrips. This would vary, depending on your location and weather situation but the Lariat site has avoided most of the really bad weather so far.

Monti Vandiver, IPM Agent, Farwell, checking terminal for thrips.

I believe that most of the thrips population reduction probably occurred with the winged adults and to a lesser extent the immatures. Wingless immature thrips tend to be "tucked away" in more protected areas of the plant than adults. Thrips have been moving from other hosts, especially maturing wheat, since April. How much of this movement remains is unclear. However, by this time in the season, the re-infestation of surviving cotton fields or those that will emerge later from replanting decisions will probably be a low risk. Most of the thrips infestation increases will be from resident populations in surviving fields.

I would not recommend using an at-planting insecticide treatment for cotton planted or replanted this late. I would instead rely on scouting and spraying those few fields that need help with Orthene, Acephate, Bidrin or Dimethoate. Base decisions on total number of

thrips per plant and the number of true leaves present (even those that have been damaged). The uppermost leaf counted must have started to unfurl. Also add percent immatures to the equation. I would be much more aggressive on surviving cotton that has suffered from previous weather and thrips damage. This would include lowering the threshold a bit and also the percent immature target.

We've seen very few other pests lately except a few beet armyworms and continuing grasshopper problems. If previous experience holds up then these early beet armyworms will fail to amount to anything. Trap catches remain low compared to historical records from bad beet armyworm years.

Beneficial insects and spiders are also scarce. I have seen a big-eyed bug or two, a few minute pirate bugs and one or two spiders---but that is it. Predator numbers are way down so far this year. I am concerned.

There are some fields that have begun to square. These need to be scouted for square retention and for both Lygus bugs and cotton fleahoppers. Nothing serious has been reported thus far. This is mostly a "heads up" for those of you that are "ahead of the curve".

The boll weevil situation has at least been a blessing. Light trap catches continue to indicate low numbers of weevils survived the winter. This was mainly due to the efforts of the Texas Boll Weevil Eradication Foundation (TBWEF) in conducting a highly successful program last year. They have yet to spray any fields in the High Plains. No weevils have been caught so far in the Northwest Plains Zone with no weevils caught in recent weeks in the Northern High Plains, Southern High Plains/Caprock and Western High Plains zones. A few weevils continue to be caught in the Permian Basin Zone, a reflection of the problems incurred last year.

Average accumulative number of boll weevils caught per trap through the week ending June 8.

Zone	2003	2002	2001	2000
Northwest Plains	0	0.0003	0.0505	0.2001
Western High Plains	0.00002	0.0006	0.0445	0.9647
Permian Basin	0.0009	0.0002	0.0349	0.2596
Northern High Plains	0.00003	0.0093	-------	-------
Southern High Plains	0.00003	0.0029	-------	-------

Recent weather has continued to dog the efforts of the TBWEF. Access to fields and traps lost to weather and sand fighters have been serious problems. I know it is imperative that producers get across their fields as quickly as possible, either to sand fight or replant, but those traps you are knocking down are taking away our ability to track the boll weevil and make any kind of sound management decision. Traps on the ground do not catch many weevils and when weevil numbers are as low as they are right now, we need every advantage we can get to detect their presence. The foundation has tried to keep traps out of the way and at lower heights so that equipment can clear them, but sometimes it just doesn't work out.

Please help us out as much as you can. The high rate of loss of traps recently is also taxing the available supply and the ability of trappers to replace traps in a timely manner. We need these traps. They are our eyes for seeing the boll weevil situation. As chair of the Technical Advisory Committee of the TBWEF, I am pleading with you to help us out. As more fields begin to square, these traps will become critical to the continued success of the program.

Failed cotton acres will pose another problem to the TBWEF. Last year trap numbers on failed acres in the Dawson County area were greatly reduced when cotton failed to emerge due to dry conditions. Unfortunately, once these fields were planted back to a grain crop and it rained, cotton emerged along with the grain crop. This was generally not detected and the reduced number of traps failed to catch the movement of weevils into these fields where they then reproduced and produced larger numbers of weevils. This cannot happen again this year. Producers must make sure that no cotton emerges in these failed fields that are not replanted to cotton. Otherwise their 2003 assessment will stay in place to cover the costs of needed spray operations. With the shortage of traps, the foundation will need to make hard decisions on how to handle these possible failed acres in the next few days. When weevil numbers are down as low as they are right now, we cannot afford any hiccups at this time. **JFL**

COTTON AGRONOMY

How much cotton is going, going, gone? Since I promised to get more information on the ongoing crop losses in last week's newsletter, I have diligently worked to get together some information. Unfortunately, to date, no firm data are available, but the disaster numbers are beginning to take shape. Of course, as they say in the military "the situation is in flux" and more cotton continues to go down on a daily basis since hot conditions have recently returned to the region.

Several highly productive counties took major hits from the meteorological events over the last two weeks. Floyd County has likely lost over 125,000 acres, with Crosby County about the same. Other significant hits include Hale County east of FM 400, about one-third of the county. Additionally, significant portions of northern and northwestern Hale County have been lost. Swisher, Parmer, Castro, Bailey, Cochran, and portions of Lamb and Lubbock counties are also in bad shape. It is very likely that a total of 500,000 acres and perhaps more are lost in all these areas.

Now, turning to the region southwest of Lubbock --- Terry and Yoakum counties have lost significant acres due to accumulative environmental effects. Also, a major high wind event occurred this week that contained a "dust cloud" which wreaked havoc from Brownfield west to the state line. One producer commented that even the sandy fields that he had "tied down" with sand fighters were lost from that event. Some seed industry estimates are in the range of 700,000 acres badly damaged or destroyed as of Wednesday.

Many producers are currently surveying their fields attempting to make replant decisions. Time is of the essence here, as the planting window north of Lubbock is squeaking closed, and the late planting period will expire for Lubbock County and south on the 20th or 25th depending upon the county. It now becomes a serious "crap shoot" as to whether to replant cotton at this late date. Over the last several years, we have been fortunate to have good September temperatures to help out with high yields. This year we may need the same situation in order to mature out an "average

crop". I guess the bottom line is this --- we have very likely lost perhaps around 1 million bales worth of production from some of the highest yielding areas in the High Plains. We will work to get better figures on this situation by next week.

Many producers are surveying their specific situations and deciding what is best for their individual operations concerning crop insurance payoffs versus the replant "crap shoot". With extremely high natural gas prices, many irrigated fields may be planted back with the intention of spending very little on irrigation water. So, while the good news is that a significant portion of the lost cotton may be replanted, the downside is that it will represent a very late and potentially risky crop situation for a lot of folks. I suspect that due to the best dryland moisture situation we have had in many years across the region, many dryland fields will be replanted to cotton. With the final cotton planting dates for insurance closing in the region, many dryland producers south of Lubbock are laboring intensively to get their crop planted. The good news here is that for most of our region, we finally have very good planting moisture, and so with all of the bleak news concerning the irrigated crop, the dryland folks are "sitting pretty" in many places.

Even the field research programs are taking serious hits this year. Seven sites that my project is actively participating in or conducting, including dryland and irrigated systems variety trials have been lost. The cotton at the Western Peanut Growers Association Research Farm near Denver city was destroyed, as well as the conventional cotton at the Lamesa AGCARES facility as reported last week. Several Experiment Station scientists' projects have encountered severe damage or actually lost trials across the region. Personnel are working lots of long hours to get as many studies as possible "nursed back to health" or replanted in a timely manner. Several of the lost systems trials will be replanted to shorter season varieties. This will help us get an idea of how a lot of the newer varieties perform under shorter season conditions. Also for the first time in many years, it appears that we will get a considerable number of dryland trials planted.

Assessing stand damage from weather events. When making replant decisions, the first rule is to not make the final judgment on the extent of damage to the crop too quickly. Cotton has a tremendous capacity to recover from adversities. It is usually best to delay the final stand evaluation until after the crop is exposed to 2 or 3 days of good growing conditions. In the meantime, it is important to protect the crop from further damage with timely tillage operations. Tilling crusted fields will minimize wind and sand damage, improve aeration, and hasten warming and drying of the soil that in turn will slow development of seedling disease.

To determine remaining plant populations, count the number of plants that are showing signs of recovery in a predetermined length of row (i.e. 50 feet). Periodically, dig up the plants in a 3 to 5 foot section of row and critically examine the root systems, stems and terminals to insure the plants are capable of

recovery. Make several stand counts at random locations in the field. In addition to plant numbers, make note of the number and length of skips in the rows being counted. Also, indicate the locations within the field where the counts were made. Sometimes, replanting may be necessary only in part of a field. Based on data reported by Dr. Levon Ray, former Lubbock cotton breeder, if 2 or more reasonably healthy plants remain per row-foot in 40 inch rows and long skips are not encountered, the stand is probably adequate for optimum lint production. Once populations drop below 1.5 plants per row-foot, then lint yields decline rapidly in a linear fashion. Our experience at AGCARES in a 1999 project confirmed this.

The effects of skippy stands on cotton yields on the Texas High Plains, 1981-1984*.

Treatment	Average stand, plants/ foot	Relative lint yield, %	Yield decrease %
Normal stand	4	100	--
25% stand loss	3	87	13
50% stand loss	2	74	26

*Tests conducted at the Texas A&M University Research and Extension Center at Lubbock by Dr. Don Wanjura, Ag Engineer, USDA-ARS, and Dr. James Supak, Extension Agronomist - Cotton.

Plant spacing uniformity is a critical consideration in replant decisions. Poor spacing uniformity, or skips, may cause significant yield reductions even though the average number of plants per acre is adequate for optimum production. Supak and Wanjura found that skips which decreased stands by 26 and 45%, respectively, lowered yields by 13 and 26%, respectively, even though final plant densities were in excess of 2 plants per foot of row.

The rate and extent of crop recovery will be largely dependent on the level of damage to the stems and leaves. Plants cut-off below the cotyledonary nodes will not survive. Likewise, those with deep stem bruises may eventually die or only partially recover. Plants that lost terminals may survive if viable buds remain on the plant and the portion of the stem below these buds is intact. Plants that are essentially defoliated can survive if stem damage is minimal. Any remaining viable leaf tissue (whole leaves, portions of damaged leaves) will increase chances for survival and hasten recovery of plants with intact stems.

Early season defoliation of young cotton seedlings can have a profound effect on crop yield potential. Severity of defoliation and crop recovery are important factors to consider. A summary of two years (1996 and 1997) of unpublished data from a seedling defoliation experiment conducted by Dr. Don Wanjura, USDA-ARS agricultural engineer at the USDA Plant Stress Lab in Lubbock is reported below. I think these data may be pertinent to the decision-making process for some environmentally damaged fields. The leaf removal technique employed mimicked leaf loss, but not stem and/or terminal bud damage.

The way I see it, it is a best case scenario for only defoliation effects since other potential yield loss effects such as poor stand, root health, stem damage, terminal loss, etc., are not included.

Seedling cotton defoliation experiment, Lubbock, 1996.

Treatment (removal conducted on June 14)	July 12 Plant height, inches	July 12 Total main stem nodes per plant	July 12 Total squares per plant	Final lint yield, lb/acre
control	8.3a	10.0a	5.9a	1130a
1 cotyledon removed	8.9a	10.3a	6.1a	1035ab
both cotyledons removed	8.5a	9.9a	5.6ab	930ab
all true leaves removed	8.2a	10.4a	4.5b	930ab
1 cotyledon and all true leaves removed	5.9b	8.8b	2.5c	830ab
both cotyledons and all true leaves removed	3.9c	7.7c	0.4d	330c

Wanjura and Upchurch unpublished data.
Means within a column followed by same letter are not statistically different at the 0.05 probability level according to the Duncan's New Multiple Range Test.

In the1996 test, Paymaster HS26 was planted on May 20 at 65,000 seeds/acre (about 16 lb/acre). Defoliation treatments were imposed on June 14, when cotton was 2.2 inches tall with 2.8 main stem nodes. Recovery data were collected on July 12. Plant survival from the most severe defoliation treatment (both cotyledons and all true leaves removed) was only 35% by July 12, whereas in the control treatment, survival was 95%. The first killing freeze was on October 22.

During the 1997 crop year, Paymaster HS26 was planted on May 16 at 58,000 seeds/acre (about 14 lb/acre). Defoliation treatments were imposed on June 11, when cotton was 2.8 inches tall with 2.3 main stem nodes. Recovery data were collected on July 11. Plant survival from the most severe defoliation treatment (both cotyledons and all true leaves removed) was only 28% by July 9, whereas in the control treatment, survival was 90%. The first killing freeze was on October 26.

Seedling cotton defoliation experiment, Lubbock, 1997.

Treatment (removal conducted on June 11)	July 11 Plant height, inches	July 11 Total main stem nodes per plant	July 11 Total squares per plant	Final lint yield, lb/acre
control	12.1a	10.5a	6.6a	575a
1 cotyledon removed	10.6ab	9.7b	5.5b	590a
both cotyledons removed	11.4ab	10.6a	7.2a	460b
all true leaves removed	9.7b	9.4b	4.6b	465b
1 cotyledon and all true leaves removed	10.5ab	9.1b	3.3c	570a
both cotyledons and all true leaves removed	3.8c	9.1b	0.4d	425b

Wanjura and Upchurch unpublished data.
Means within a column followed by same letter are not statistically different at the 0.05 probability level according to the Duncan's New Multiple Range Test.

Differences in yield effects among treatments between the two years were attributed to differences in the amount of total water available to the crop. The 1996 growing season had nearly 25 inches of moisture available (rainfall plus irrigation), whereas the 1997-year had only 16 inches. These findings indicate that seasonal yield potential should be

considered when making replant decision. Plant survival was reduced considerably by the most severe defoliation treatments.

Roundup Ready window beginning to close in some fields. Almost all cotton that was planted up to May 10 and had reasonable development is reaching the Roundup over the top window closure. Stay on point and get those fields sprayed in order to reduce yield loss potential. I know it's difficult to be timely when fighting the closing planting window and tying down erosion prone fields, but also keep it in mind that if you do have good cotton, try not to sacrifice yield due to late Roundup applications on Roundup Ready varieties. **RB**

REPLANT DECISIONS FOR ALTERNATE CROPS

With the potentially large acreage of cotton lost to recent severe weather and the likelihood that many thousands of these acres being replanted to crops other than cotton, I would expect producers would have many questions on variety selection, agronomic management issues and potential insect and disease problems they might face. Dr. Calvin Trostle, Lubbock Extension Agronomist, is an excellent source for this information but unfortunately I have not been able to tie him down long enough to write something for FOCUS. You can go to the June 21, 2002 issue of FOCUS and see what he said then and also to get his reference web site links. Likewise there will be questions pertaining to current and potential pest problems with these alternate crops. Dr. Pat Porter, Lubbock Extension Entomologist, will handle questions in this area. **JFL**

CROP WATER ISSUES

Crop water use. Evapotranspiration (ET, crop water demand) estimates for the South Plains are accessible on the South Plains ET Network website at: http://lubbock.tamu.edu/irrigate/weatherdata.html. Texas Panhandle and South Plains ET estimates are accessible on the North Plains ET Network website at: http://amarillo2.tamu.edu/nppet/station.htm. Some of these estimates are summarized below; crop water demand estimates for additional crops are available from the networks. These crop water demand estimates reflect expected maximum water use for well-watered (non-stressed) crops.

Average daily estimated crop water demand for the week of June 6 to June 11, 2003 (Inches per day)

Location	Reference ET	Corn		Cotton
		4 Leaf	10 Leaf	Emerged
Halfway	0.23	0.11	0.27	0.12
Lamesa	0.28	0.17	0.32	0.14
Lubbock	0.24	0.13	0.27	0.12

Average daily estimated crop water demand for the week of June 6 to June 11, 2003 (Inches per day)

Location	Reference ET	Peanuts	Sorghum	
		Emerged	Emerged	4 Leaf
Halfway	0.23	0.05 - 0.12	0.09	0.14
Lamesa	0.28	0.06 - 0.14	0.11	0.16
Lubbock	0.24	0.05 - 0.12	0.10	0.13

Irrigation management references. There are some very good irrigation management reference materials available from Kansas State University Irrigation Research and Extension. With the current high costs of fuel, irrigation costs are of particular concern for many growers. This is a time when pumping plant efficiency, irrigation application efficiency, and irrigation scheduling are especially important. Some useful information addressing irrigation costs is found in the following Kansas State University fact sheets: Comparing Irrigation Energy Costs http://www.oznet.ksu.edu/library/ageng2/mf2360.pdf, Evaluating Pumping Plant Efficiency Using On-Farm Fuel Bills

http://www.oznet.ksu.edu/library/ageng2/l885.pdf , Useful Conversions and Formulas http://www.oznet.ksu.edu/library/ageng2/mf1040.pdf **DP**

COTTON RESEARCH BRIEFS

Plant bug activity on roadside weed hosts. The tarnished plant bug, *Lygus lineolaris*, and western tarnished plant bug, *L. hesperus*, have been known to be key pests of cotton in several States in the Cotton Belt. In addition to these two species, a third species, *Lygus elisus*, the pale legume bug, has been identified to be an equally prevalent species of in the Texas High Plains. However, no biological information on *Lygus* bugs is available for the Texas High Plains, hindering the management of this pest in cotton. Area IPM agents, extension specialists, and crop consultants have reported the *Lygus* species complex as an emerging pest problem in High Plains cotton in recent years.

One of several current *Lygus* projects underway is a survey to identify the non-cotton host plant sequence prior to cotton planting and to establish the relationship between non-cotton host plants and *Lygus* migration to adjacent cotton. In 2002, *Lygus* surveys were conducted in mid- to late April in each of the 25 counties of the PCG service area. The standard sweep sampling method was used to survey prominent weed hosts along roadsides. A total of five locations were surveyed per county.

In an effort to establish a host plant sequence of *Lygus* movement from wild habitat to cotton, surveying was continued at a 4-week interval in Hale, Lubbock, and Gaines counties. This represented the northern, central, and southern regions of the 25-county PCG service area.

All 25 counties were again surveyed in late July to coincide with cotton blooming/fruiting. The last survey was conducted in early September, coinciding with boll maturity. A season total of 67,330 sweep samples were taken from non-cotton hosts, with a survey sequence of mid-April, mid-May, mid-June, late July, and early September.

All 25 counties were also surveyed for cotton infestations in late July. Cotton survey sites were adjacent to the non-cotton survey sites. A second survey was conducted in cotton in Hale, Lubbock, and Gaines counties in early September. A total of 33,015 sweeps were taken from cotton. We will be repeating the survey for 2003 with the same survey protocol as in 2002.

In 2002, *Lygus* bugs were recorded from 26 of 28 non-cotton host plants that were sampled along the roadside. *Lygus* species identification has not been completed, but it appears that *L. elisus* and *L. hesperus* are the two dominant species in the Texas High Plains *Lygus* complex. The mid-April survey showed that wild mustard, redstem filaree, and alfalfa were the dominant hosts that supported *Lygus* bugs. When mustard senesced and alfalfa began to bloom in mid-May; alfalfa, yellow sweetclover, woolyleaf bursage, prickly lettuce, curly dock, Russian thistle, field bindweed, broomweed, ragweed, pigweed, and gaura supported *Lygus* populations.

The mid-June survey indicated that alfalfa and yellow sweetclover were still the dominant hosts prior to cotton squaring, while Russian thistle and wild sunflower supported a significant population in areas where alfalfa was not very lush. In late July, overall *Lygus* numbers in wild hosts declined, with alfalfa, pigweed, Russian thistle, and silverleaf nightshade supporting a small number of *Lygus*.

In early September, alfalfa continued to be the most attractive host for *Lygus*. *Lygus* abundance in cotton was 0.5 adults per 100 sweeps compared with 2.5 per 100 sweeps in alfalfa in late July. *Lygus* abundance in cotton remained the same from late July to early September, when alfalfa became more attractive for *Lygus*. Preliminary data suggest that in the Texas High Plains a host sequence exists for *Lygus* to move from non-cotton hosts to cotton and back to non-cotton hosts during the year.

The 2003 survey began in late January and we have obtained and processed 35,870 sweeps as of May 30. *Lygus* numbers in the wild hosts have been relatively higher this year compared to last year across all hosts. However, we cannot predict at this time whether the high number of *Lygus* on roadside weeds will actually result in a higher number of *Lygus* in cotton this summer. **MP**

CORN AND GREEN BEAN RESEARCH UPDATE

I will discuss a few of the research projects I am involved with in the area. In a joint project with Monti Vandiver (Pest Management Agent in Parmer and Bailey counties), New Mexico State University, and West Texas A&M University, we are once again screening corn earworm (cotton bollworm) adults for increased tolerance to some insecticides. The focus of this study is for vegetable crops attacked by this pest. We did this last year in the Farwell, Oklahoma Lane, and Lazbuddie areas and found strong evidence for increased tolerance. Our local work and performance concerns from local crop consultants stimulated a large group of Extension cotton entomologists to initiate a statewide survey for pyrethroid resistance. Our concern is for control of bollworms in cotton and earworms in green beans. Incidentally, Allen Canning Company has increased the contracted acres of green beans. This year they will contract about 9,000 acres, which is a significant jump from the 7,500 acres last year. Greg Cronholm, Pest Management Agent in Hale and Swisher counties, Monti Vandiver, and I will be collecting European and southwestern corn borers for shipment to the University of Minnesota where they will be screened for possible resistance to the toxin present in Bt transgenic corn. We have done this for several years and the latest results show that some of our European corn borers have the gene that gives them resistance to Bt. Specifically, the allele (gene) frequency was shown to be 0.021 with a 95% probability of detection. I will be glad to send the scientific article to anyone who is interested, but the practical finding is that yes, we do have resistance genes present locally. Refuge rules for Bt crops are meant to slow the development of resistance, and we now know for sure that the threat of resistance on the High Plains is real.

Brad Lewis (NMSU at Las Cruces) and I will be conducting some spider mite control trials at the NMSU Research Center north of Clovis. We are looking for new miticides that could replace or augment Capture (bifenthrin). Robert Bowling, Pest Management Agent in Moore County, headed a mite-screening project last year. Many of us participated in the effort. Robert found up to a 7,000-fold increase in tolerance to Capture in some mites north of Amarillo. He also found slightly elevated levels of tolerance to dimethoate, but nothing higher than 14-fold. Both of these numbers are as compared to a susceptible strain of mites that Brad Lewis brought us from Las Cruces, NM. **PP**

NEW TEXAS IPM WEB SITE

The Texas A&M University Entomology Department and the Texas Cooperative Extension have launched a new internet web site that pulls together all web-based IPM information available through the TAMU system into one location. The site can be accessed at http://txipmnet.tamu.edu. This site will offer visitors an array of IPM topics pertaining to various agricultural commodities, ornamentals, lawn care, greenhouse and much more. The site will also provide links to other information regarding such topics as plant pests, diseases, herbicides, harvest aids, varieties, etc. **JFL**

2003 IN-SEASON COTTON MANAGEMENT MEETING SERIES

This series of concise meetings will discuss timely topics regarding High Plains cotton management, and provide hands-on

experiences for participants. These meetings, sponsored by Texas Cooperative Extension, are open to cotton producers and agri-businessmen. No pre-registration required. No registration fee. Questions? Call Mark Brown, Lubbock County Extension Agent-Ag, at 767-1190.

June 17, 2003 Integrated Pest Management - Insects and Weeds (TDA CEU's: 3 hrs IPM)
Location: Texas A&M Agricultural Research and Extension Center Classroom
1:00 p.m. Opening Remarks
1:05 p.m. In-season Insect Management Tips - Dr. Jim Leser & Brant Baugh, Extension
2:30 p.m. Break
2:45 p.m. Weed Management Practices; Weed I.D. Nursery (weather permitting) - Dr. Peter Dotray, Extension / Texas Tech
4:15 p.m. Adjourn

June 24, 2003 Drip Irrigation - Management and Maintenance (TDA CEU's: 0.75 Gen)
Location: Lorenzo Community Center
1:00 p.m. Opening Remarks
1:05 p.m. Drip Irrigation System Management - Jim Bordovsky, TAES
1:45 p.m. Revised South Plains ET Network - Dr. Dana Porter, Extension
2:00 p.m. Nutrient Management Under Drip Irrigation - Kevin Bronson, TAES
2:45 p.m. Plant Growth Regulator Use and Drip Irrigation - Dr. Randy Boman, Extension
3:30 p.m. Adjourn

July 16, 2003 Mid-Season Market Update / Cotton Plant Mapping At-Bloom for Decision-Making (TDA CEU's: 2.0 Gen)
Location: Texas A&M Agricultural Research and Extension Center Auditorium
1:00 p.m. Opening Remarks
1:05 p.m. Mid-Season Cotton Market Update- Dr. Jackie Smith, Extension
1:30 p.m. Cotton Plant Mapping for Decision-Making: Dr. Randy Boman, Extension
2:30 p.m. Break
2:45 p.m. Hands-On Plant Mapping Session - Dr. Randy Boman, Mark Brown, Steve Young, Brant Baugh, Extension
3:45 p.m. Adjourn

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