FOCUS on South Plains Agriculture

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Cotton Insects

Cotton Aphids

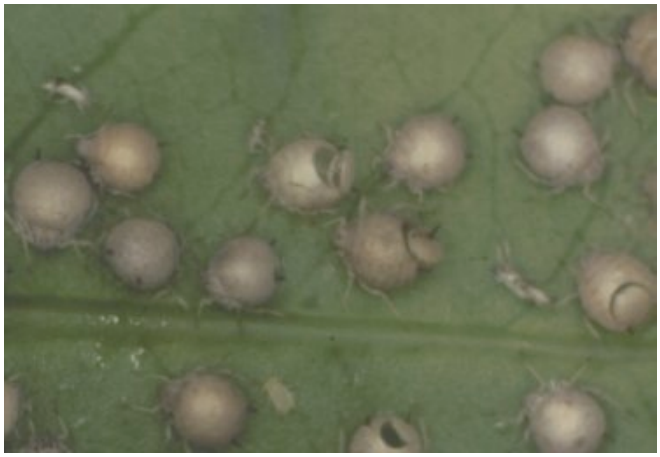
Cotton aphids continue to be problem from Lubbock north and appear to be picking up steam south of Lubbock as well. For information regarding cotton aphid biology and what factors contribute to aphid outbreaks, see last week's edition of FOCUS.

Where populations were high 10-14 days ago and not treated with insecticides, these populations appear to be declining now although many of these fields are still above the 50 aphids/leaf action threshold. Most insecticide applications targeting aphids have provided good results, although some fields have required follow up treatments. Because the aphids can infest the entire plant canopy, it is difficult to obtain spray coverage that will greatly impact the inner canopy dwelling aphids, and the resurgence of aphids is undoubtedly coming from this area of the plant. Beneficial insect populations are very high in most fields, and hopefully these will be able to prevent most resurgence problems.

The most common beneficials we are seeing at this time are lady beetles. If you are picking up ≥0.3 lady beetle adults or ≥0.2 lady beetle larvae per row-ft, and your population is below threshold, there is a good chance that you will not have to spray. Similarly, if you have a high lady beetle population but still had to spray for aphids and you used one of the "softer" insecticides such as Carbine, Centric, Intruder, or Trimax; you will probably not experience an aphid resurgence.

I am beginning to see some aphid parasitism in a lot of fields that have had high aphid

populations. Parasitized aphids are called mummies and appear as hardened, bloated aphids that are light brown to straw colored. If there is a small round hole on the back of the mummy, this indicates that the parasitoid has completed its development and has emerged from the mummy. Once you begin picking up 10-15% of the aphid population as mummies, chances are you will not have the spray and the parasitoids will reduce the aphid population to sub-damaging levels.



Mummified aphids parasitized by Lysiphlebus testaceipes

An adult aphid parasitoid, Lysiphlebus testaceipes

Steve Davis, IPM Agent for Crosby and Floyd counties is reporting that there is a general decline to the aphid populations in his area and that he is beginning to see significant aphid parasitism and the appearance of the aphid killing fungus, *Neozygites frensenii*. Mr. Davis says that he is finding most of the fungus-killed aphids on the lower portion of the plant. Aphids killed by the fungal pathogen will be covered with a dark gray fuzzy material, which are the hyphae and spores of the fungi. Once 10-15% of the aphid population is infected by this fungus one can usually expect to see a general epizootic and crash of the aphid population within 7-10 days.

Aphids killed by Neozygites fresenii fungi

When choosing an insecticide rate for aphid control, do not be too conservative. With the exception of Carbine, these products have been out in the field for a number of years now and where in previous years one could get by using very low rates, this does not necessarily appear to be the case any longer. Additionally, be patient and give the insecticides time to work. For the neonicotinoids like Centric, Intruder, and Trimax, or for Carbine, it may not look like they killed many aphids by 1 or 2 days after application; but you should start seeing significant activity by 3 to 5 days.

Remember, good insecticide coverage is essential and is often key in achieving good control. When possible, apply the insecticide by ground. When going by ground, you should shoot for a spray volume of at least 10 gal per acre and include an adjuvant such as crop oil concentrate at 1% v/v spray solution. Other spray adjuvants and non-ionic surfactants can also help with coverage, but currently crop oil concentrate

seems to be helping the most. If going out by air, coverage is more difficult. A spray volume of 3 to 5 gallons per acre is recommended. Lower volumes may result in less than adequate results. When spraying by air, the addition of an adjuvant is even more critical; the addition of crop oil concentrate at 1 pint per acre is a good choice. If you are mixing your insecticide with Roundup, you will want to substitute a non-ionic surfactant for the crop oil concentrate since the crop oil concentrate may tend to heat up the Roundup and may result in some damage. Also, remember that to maximize spray coverage with your insecticide you are better off with small, fine spray droplets, and this type of spray application may not be desirable when spraying Roundup and drift is a concern.

Tank mixing pesticides

When tank mixing pesticides, it is best to add the wettable powers and wettable granular formulations to the tank first, followed by the soluble concentrates, flowables, liquids and emulsifiable concentrates last. Make sure each chemical is completely dissolved and dispersed before adding another. Mixing with foliar fertilizers needs to be done more carefully. Remember that some fertilizers may be reactive and may cause some insecticides, the water soluble bags, and other agrichemicals to not go into solution well. Make sure you check the pesticide and fertilizer labels, or consult with the chemical company representative to make sure that the chemicals are compatible. If you do mix an insecticide, particularly a water soluble bag, wettable power or wettable granule formulation, with a fertilizer, it is usually best to add the insecticide to the tank first and make sure it is dissolved well before adding the fertilizer. However, when using ammonium sulfate as a water conditioner for Roundup, this is not the case. The ammonium sulfate should go in the tank first in this case and the Roundup should be added last. If you are unsure about the mixing compatibility of your spray ingredients; do a jar test. Add water to a pint or quart sized jar and then add the ingredients in the order you are planning on adding them to the tank at the proper concentrations. Shake the jar in between each product. After all the ingredients have been added, let it sit for 10 to 15 minutes to see if anything falls out of solution.

Lygus

Lygus are still around and are relatively plentiful in weedy areas. I have seen some adults moving into cotton, but the numbers are pretty low. As the cotton gains size and begins to cover the row, it may be more attractive to *Lygus*, and we need to keep watch for *Lygus* colonization as indicated by the presence of nymphs. Keep in mind that your small bolls can be damaged by *Lygus*, and this can result in stained lint.

Lygus feeding on bolls can result in stained lint

Cotton Bollworms

Bollworm numbers are beginning to increase in some non-Bt fields, but numbers are still relatively low. Now is the time to really start watching for bollworms, especially in areas with a large acreage of corn that is beginning to mature and become less attractive to bollworms. Treatment may be justified when counts average 10,000 or more small (1/4 inch or less) larvae per acre, or 5,000 larger larvae per acre. However, on cotton that is physiologically behind, you may consider a somewhat lower threshold. The plethora of beneficials feeding on aphids in most cot-

ton should help suppress bollworm populations. DLK

Cotton Pests Around The State

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

Cotton aphid numbers remain light in area fields. Punctured squares from boll weevil remain light ranging from 0 to 2 per 100 fruiting forms examined. Boll weevil eradication efforts have been quite successful to date. Bollworm egg numbers have ranged from 2 to 10 per 100 plants. Larval numbers ranged from 3 to 30 per 100 plants in non-Bt cotton during the past week. Bollworm larval numbers ranged from 2 to 23 per 100 plants in Bollgard cotton this past week. Considerable acreage of Bt cotton have been treated for bollworms. The synthetic pyrethroid insecticides applied at highest rates have provided good control of small (1 to 3 days old) larvae.

Rolling Plains (reported by Ed Bynum, IPM Agent, Jones, Mitchell, Nolan, and Scurry counties)

We still have cotton fields which are not blooming. Cotton bollworm moth trap catches continue to be fairly consistent in Nolan and Scurry counties, but have declined some in Jones County since July 31. Cotton aphids continue to increase in fields and are particularly troublesome in Jones County. Control has been difficult to maintain for any length of time. Fields are becoming re-infested after a short period of time (10 to 14 days) and some have needed to be re-sprayed. Fall armyworms have been found at treatable levels in Jones County and are present throughout the region.

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

Bollworm trap catches remain very high. I can not remember in recent years averaging well over 100 moths per night per trap over a three week period of time. Bollworm egg counts ranged from 46 to 128 eggs per 100 plants and larval counts ranged from 0 to 8 treatable worms per 100 plants. Bollgard, Bollgard II and the Widestrike cotton varieties seem to be holding up well but don't ignore the fact we are dealing with very high egg counts and the potential is there for some to pull through the Bollgard cotton.

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

Cotton ranges from blooming to full grown bolls. Good warm weather has returned after last week's rain and cotton in progressing well. Bollworm activity has picked up in area fields and treatments are being applied on some non-Bt fields. Cotton aphids have not increased dramatically, but they are becoming a little more common across the area.

Cotton and Peanut Disease

Verticillium wilt on the rise

We are continuing to see an increase in Verticillium wilt throughout the region in both cotton and peanut fields. The fungus causing this disease is capable of residing in the soil for an extremely long time. Initial infections take place early in the season, and development of the disease is favored by cool air and soil temperatures. As the disease progresses, the fungus blocks water channels. Infected cotton plants have a yellowing of leaves between the veins, which may result in premature defoliation. These symptoms

may be similar in appearance to Fusarium wilt (see FOCUS Volume 46, Num. 9 20 July, 2007 for more details regarding this disease).

Verticillium wilt on cotton

For peanut, the leaves of infected plants have a pale green appearance, and necrotic dead areas are visible near the leaf margin. This is a result of the pathogen clogging water channels, restricting the plants water usage. The vascular system of infected plants will have a discolored appearance.

Management options for Verticillium wilt are limited. Dr. Terry Wheeler is continuing her efforts at screening tolerant/resistant cotton varieties. A total of seven trials are being conducted across the High Plains and include many of the varieties currently available; however, a primary focus in these trials is the performance of various Flex varieties (Click here to view variety results). Additional variety trials are being conducted looking at several peanut cultivars in fields with a history of Verticillium wilt. We are hopeful that the information from these trials will give growers potential options for minimizing losses to this disease in the future. A major factor in the management of Verticillium wilt is the concentration of the pathogen (fungal inoculum) in the soil. When soil populations are low, very little (if any) disease may be present in the field; however, as the soil population increases and the disease incidence increases and severe yield losses may be experienced (click here to view data). Therefore it is important to 1) know which wilt pathogen you are dealing with, and 2) know the density of that pathogen in the soil. Within the season, Verticillium can be identified in the laboratory by examining stem sections from the bottom 2-3 inches of the stem. In order to determine soil populations, more detailed study is required.

Verticillium wilt on peanut

Composite soil samples can be collected in the fall and winter, and assayed for Verticillium. This service is available at a cost of $20 per sample. If soil populations are excessive, information generated from variety testing becomes very important. In the case of severely infested fields, crop rotation with a non-host may be necessary. If you have any questions regarding Ver-

ticillium wilt, or any other cotton or peanut diseases, please call Jason Woodward at 806-746-6101. JW

Cotton Pests

Spider mites killed by fungus

Many acres have been treated for Banks grass mite, and other fields are nearing threshold. I have also checked several fields that have only small numbers of spider mites. As I warned in an early edition of FOCUS, it looks as if the complex of beneficial species that usually helps us with mite control is not getting the job done all that well this year. The good news in some fields is that a fungus, Neozygites, has hit the mites very hard. Major fungal infection in mites is promoted when there are several days with more than 8 – 10 hours per day when the relative humidity is above 80%. This fungus is relatively more efficacious on Banks grass mite than on twospotted spider mite.

The fungus wiped out our miticide efficacy trial at the Halfway research farm, and it did it in less than a week. It takes a very good hand lens to see fungal spore forming bodies on dead mites, so the field recognition character should be lots of shriveled, brown mite bodies. Most other biocontrol agents either consume the mite and simply make it "disappear", or they leave very little behind.

Southwestern corn borer levels still appear to be below the level of concern. RPP

Sorghum Pests

Yellow sugarcane aphid

Yellow sugarcane aphids (YSA) is prevalent in many grain sorghum in fields. Yellow sugarcane aphid injects a toxin into leaves, and the toxin kills plant tissue. Yellow sugarcane aphid looks quite a bit different from the other aphids we commonly find on sorghum. It is yellow to pale green and has two rows of dark tubercles down the back, and its cornicles (stovepipes) that protrude near the back end of the body are not as prominent as those on the greenbug. Yellow sugarcane aphid can be a serious pest of young sorghum, and older plants are somewhat more tolerant.

There are no established economic thresholds for YSA on sorghum that is in the growth stages we have now. Given this, we are using the rule of thumb of the loss or yellowing of two functional leaves (or percentage of several leaves that add up to two functional leaves) justifies treatment. However, this is for when the aphids are concentrated on the lower parts of the plant. Most of the grain filling in sorghum comes from the topmost three leaves, so treat earlier when YSA is damaging these leaves.

Finally, dimethoate is a very good insecticide for YSA. Many manufacturers, including but not limited to Helena, changed their labels this year and application after heading is allowed. Check the label of the product you intend to use. RPP

Methyl parathion reddening leaves

Monti Vandiver, IPM Agent in Parmer and Bailey counties is reporting some cases where grain sorghum leaves are turning red due to drift of methyl parathion applied to sunflower fields as part of the head moth control program.

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Lygus feeding on boll, Univ. of Georgia

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