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COTTON INSECTS

The return of hot, dry weather is having a positive impact on our potential insect problems. Only a few fields have needed treatment for fleahoppers or *Lygus*, and none for bollworms to my knowledge. There have been several non-Bollgard fields treated one or more times with preventative insecticide applications, but all in all we have reached this point in the season with little trouble from cotton pests.

Fleahoppers are rapidly becoming a non-issue for most fields. Cotton is either within 7-10 days of bloom or as much as three weeks into bloom in most cases. There are some later developing fields but these are becoming fewer and fewer as we move through July. Fleahoppers can still be a concern even 2-3 weeks after flowers are found, especially in the

high yielding situations. But three weeks of squaring is more than enough for 1-2 bale cotton. We are finding more fleahopper nymphs than previous weeks, indicating their successful establishment and reproduction. But only a few fields have needed treatment. Paymaster 2326 appears to be one of those cultivars favored by fleahoppers, at least at the Lubbock Center. Remember that the threshold is about 25-30 fleahoppers per 100 plants checked. If you are using a beat bucket, you will be successful in capturing the nymphs but will underestimate the adult population level. We have been using Orthene although there are several other insecticides available that work just fine ([see cotton insect management guides](#)).

***Lygus* are being found in increasing numbers in some areas** with reproduction producing more nymphs. Again, beat bucket sampling appears to be very good with collecting nymphs but not so good for estimating adults. We treated our Bollgard test plots at Idalou on Thursday because we were finding 16 bugs per 100 plants through visual whole plant sampling or 22 per 100 plants through beat bucket sampling (two weeks into bloom). We recorded equal numbers of nymphs and adults through visual monitoring but 4 to 1 ratio of nymphs to adults with the beat bucket sampling method. This only goes to show that there are differences between these and other sampling methods which must be understood in order to make correct management decisions. Also, remember that our thresholds are based on beat sheet sampling for *Lygus*, not beat bucket, not visual whole plant inspections, and not sweep nets. The threshold on beat sheet sampling would come to about 16 per 100 plants on 52,000 plants per acre (threshold once cotton is blooming). Our infested field certainly qualified for treatment.

There can be a number of factors affecting what we see in the field when it comes to *Lygus*. Andy Zink and Jay A. Rosenheim from the UC Davis Entomology Department did an excellent job of discussing some of the issues



surrounding *Lygus hesperus* (western tarnished plant bug—WTPB) in the June, 2004 issue of *California Cotton Review*.

WTPB problems in California are mainly from square damage while ours would be a combination of square and small boll damage (same species though). Their bugs move out of desert alternate hosts when they mature or dry up and into cotton when it is early in the fruiting cycle. Our build-up is generally less sudden and WTPB numbers rarely reach damaging levels until after blooms are present. California samples WTPB with the sweep net, catching mostly adults and late instar nymphs and very few 1st-3rd instar nymphs. Their plants are mostly smaller than ours at

the time of most damaging infestations. So sampling method is going to be a big factor in determining how many WTPB are collected and the determination of adult to nymph ratio. This is important because it is possible to have two fields with similar adult numbers but vary disparate nymphal numbers. Adult numbers may be below the treatment level but adding nymphs in the field that has a lot of them could throw this field above the threshold. But a sampling method that is poor at picking up nymphs would not detect differences between these two field situations. Something to ponder, huh?

The California entomologists also found that 1st through 3rd instar nymphs were far less

damaging than both adults and 4th-5th instar nymphs. This could mean that we only need to sample early instar nymphs to determine damage potential but immediate control decisions could be based only on adults and late instar nymphs. Obviously, sampling methods works into this equation as well.

These same California entomologists also reported that some cotton cultivars shed more than others in response to the same amount of damage. We have noticed this as well. Remember that a WTPB doesn't actually "kill" a square, but rather injects chemicals into the fruit that initiates a chemical response by the plant. Plants from different varieties may respond differently to these attacks and shed more or less fruit. When it comes to bolls though, I don't think this comes into play.



One final area that Dr. Megha Parajulee and I have discussed as relevant is the preferences of WTPB for various cultivated and non-cultivated hosts. If some hosts are much more attractive than cotton (Alfalfa is probably one of these) then only catastrophic loss of these host plants (mowing of roadside weeds, drying down of weeds, etc.) might be the only cause of significant movement of WTPB into cotton. Studies are planned to test preferences as well as biological performance of WTPB on the various host plants available in the High Plains.

Most early bollworm activity is winding down with egg numbers dropping off and most larvae in the medium to large size categories. Very few eggs or small larvae survived our natural enemies and hot, dry weather. I am not aware of any fields that were sprayed during this latest flurry of activity. The next cycle will not be as light. We should see the development of economic infestations from the next wave



but the number of fields that will be involved is unknown at this time.

When the next wave begins just remember that we treat Bollgard cotton a little differently than non-Bollgard cotton. We don't treat Bollgard cotton until enough worms 3/8 inch or larger reach economic threshold levels. Once worms are this size, most mortality is over including that caused by weather, predators and the Bollgard endotoxin. What you see is what you get—these worms established are going to make a run through your squares and bolls. Worm numbers on non-Bollgard cotton can be deceiving. If they are all small (i.e. 1/16", 1/8", 1/4" long—1-3 days old) then expect a significant number to “disappear” before causing much damage. I would expect that 10,000 small worms per acre could begin to cause trouble on non-Bollgard cotton but only 5,000 larger worms per acre would be a problem on Bollgard cotton.

There are problems developing in controlling bollworms in the south Texas-Winter Garden areas. Some of this is probably a coverage issue but I am not going to say that increased pyrethroid tolerance isn't playing a part in all this. Many are using insecticide combinations, mixing different chemistries in attempt to get desire control. I sure hope this problem doesn't move north.

Pink bollworm larval infestations have been found in some fields south of Lubbock. Even fields treated up to 8 times with preventative applications! These are of course on non-Bollgard cotton varieties. Most cotton in the higher pinkie risk areas are the Bollgard varieties, as well they should be. You were

warned! Unfortunately, there is some acreage that had to be planted to non-Bollgard varieties as a mandated refuge for resistance management.

Moth [trap catches](#) continue, indicating to me that we have to be catching 1st summer generation

pinkies. Surely we can't still be catching overwintered pinkies? Anyway, if non-Bollgard cotton is blooming and has small bolls, you should be looking for rosetted blooms and cutting bolls for management decisions. Any applications at this point should not be preventative---but rather curative. Rosetted blooms will quickly tell you that pinkie larvae are present in the field but are not useful in making control decisions. Likewise, trap catches tell you moths are in the area but not necessarily whether a particular field is experiencing an infestation problem. But trap catches do tell you when moths are flying and available to target moth-killing insecticide applications. Infested boll counts are the way to go. A representative sample of bolls the size of a quarter should be pulled and examined for small bumps or warts on the inside of the boll wall. Early instar worms will be white. Later on these will take on their characteristic pink color. Infested bolls in the 10-15% range would indicate the need for an application, but only if traps indicate that moths are flying.

For more pink bollworm information see [Pink Bollworm Management Tips I](#) and [II](#) in the



COTTON AGRONOMY

Summer generation boll weevils are emerging, adding to the overwintered boll weevil stragglers being caught in Texas Boll Weevil Eradication Foundation (TBWEF) traps. There is not much going on in most of the High Plains area but trap numbers did pop up in the Permian Basin zone as more red weevils were being caught. This of course is necessitating more insecticide treatments to beat back this latest wave of activity. The TBWEF is taking a slightly more conservative approach to spraying in the Permian Basin zone in an effort to maintain the limited number of natural enemies as lush cotton fields are exposed to the first bollworm egg lay of the season. Larval infestations are not especially high right now but with the reduction of beneficial insects and spiders from recent multiple boll weevil insecticide applications, our hot, dry weather may not be enough to curb these chronic infestations. **JFL**



Lot's of cotton is now blooming across the region. [Temperatures](#) during the past week have hovered in the low to high 90s for highs and upper 60s and lower 70s for lows. Not bad cotton growing weather. At least at this stage of the game we're not into oppressive 100 degree plus high temperatures. Cotton continues to make good growth and water demand in blooming fields is increasing. We have some dryland that will be getting stressed pretty quickly unless we get fortunate to obtain some timely rainfall over the next week or so. Looking at the forecast, we do have some chances forecast for next week. During the July 1-14 period, we accumulated 314 heat units at Lubbock vs. 279 for the long-term average. We are still about 11% above normal for total [accumulated heat units](#) for a May 1 planting.

Average number of boll weevils caught per trap inspection and sprayed acreage through July 11. Number of boll weevils caught for the week ending July 11, 2004

High Plains Zone	2004	2003	Sprayed acres	Weevils caught the previous week
Permian Basin	0.011	0.0033	83,710	1,300
Western High Plains	0.00001	0.0001	1,167	1
Southern High Plains	0.00003	0.00004	10,088	0
Northern High Plains	0.00001	0.0001	1,972	0
Northwest Plains	0	0.00001	0	0



The significant dry, warming trend we are now into should moderate plant growth. Hopefully, we can continue the high fruit retention in many fields and pick up some badly needed rainfall for the dryland fields. Most producers who are not now irrigating should seriously consider "cranking up." During the past three weeks at Lubbock, the total rainfall received has been around 0.41 inches. Some places have certainly received higher amounts, but the moisture stored in the soil will soon be running out in many areas. Irrigated fields which were planted around May 1 are now using around

0.27-0.37 inches per day based on the South Plains ET Network daily fax information available at:

<http://lubbock.tamu.edu/irrigate/weatherdata.php>

Late over-the-top Roundup WeatherMax applications revisited.

We are still getting some questions concerning late Roundup applications on Roundup Ready cotton. Over-the-top post-emergence glyphosate applications made to Roundup Ready cotton past the 4th leaf stage can cause fruit loss and yield reduction. A salvage treatment should be considered only when significant crop loss due to



Monitoring plants for COTMAN

weeds is expected. Up to 22 oz./acre of Roundup WeatherMax may be applied either as an over-the-top application or as a post-directed treatment sprayed higher on the cotton plants and over the weeds. NOTE: SALVAGE TREATMENTS WILL RESULT IN SIGNIFICANT BOLL LOSS, DELAYED

MATURITY AND/OR YIELD LOSS. NO MORE THAN ONE SALVAGE TREATMENT SHOULD BE USED PER GROWING SEASON. We have other comments concerning this in past issues of [FOCUS](#). **RB**

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