Texas Cooperative EXTENSION
The Texas A&M University System
http://lubbock.tamu.edu/focus

FOCUS on Entomology

For South Plains Agriculture

VOLUME XLII, NO. 13 September 5, 2003

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NEWSLETTER CONTRIBUTORS

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COTTON INSECTS

In spite of widespread rains last weekend, we basically remain dry. Temperatures are more seasonable now and most insect problems are winding down rapidly. Lower temperatures mean higher survival but cutout cotton generally means the end of insect problems. The few remaining late fields with adequate moisture are still vulnerable but time is running out for boll-feeding insects to have much of an impact. Pink bollworms would be the exception.

Aphids will remain a threat through boll opening as a potential sticky cotton problem, not a yield-reducing problem. Thus far, most aphid infestations have not shown much propensity to increase to sticky cotton threshold numbers. Boll weevils remain a concern only in the Permian Basin Zone. The issue here is whether Foundation efforts have been sufficient to bring this zone back to where it was before last year's blowup.

Most caterpillar problems are with bollworms and not beet armyworms. I would pretty much stop worrying about beet armyworms at this time of the year. However, there remain a few hot spots for bollworm activity scattered across the area with most of these north of Lubbock. It has been surprisingly quiet down south of Lubbock this year. Once bolls that have a reasonable chance of maturing have accumulated 450 heat units past bloom, they are reasonably safe from bollworm damage. In the more northern areas, I wouldn't waste my time on protecting a boll from a bloom on or after August 10th. This is a very generous date with high risk of not accumulating enough heat units to make a quality open boll (need heat units at least through the month of October). These bolls would have been safe by September 4th. How many mid to late August flowers have you taken to the gin and what were they worth and at what cost? You do the math!

Late instar bollworm

Lygus bugs are becoming a more visible pest in some fields lately. However, treating solely on plant bug numbers is not recommended at this time. In many instances, Lygus bugs (plant

bugs) are at or above treatment level, but may not be causing any economic damage. Immatures or (wingless bright green nymphs) are becoming quite numerous. Any squares on the plant at this time of year have no chance of being harvested. Therefore, plant bug feeding on these squares should not be a problem. Instead we should be focusing on damage to bolls.

Lygus nymph in bloom

Sample 25 to 50 medium sized bolls and check for plant bug damage. The external sunken black lesions we often see only indicate a plant bug has tried to penetrate a boll. Careful examination of these lesions will reveal a glossy, pinpoint-sized black spot at the site where the boll wall was actually punctured. A boll is considered damaged only if internal damage is evident in the form of discolored lint and/or seed, or if a callus (a rough wart-like structure as compared to the smooth wart associated with a pink bollworm damaged boll) is evident on the internal wall of the boll.

Treat for plant bugs if 20% boll damage is found. Late maturing fields seem to be the most likely to have high plant bug populations and boll damage. Most fields should be far enough along by the end of August to be safe from plant bug damage. Once a boll has accumulated 250 heat units from flower, it should be safe from plant bug feeding.

The effect of boll feeding damage appears to be dependent on both boll age and feeding intensity. Smaller bolls can be a total loss while larger, older bolls rarely are lost entirely, with seed damage, discolored lint and reduced boll weight the main effects. Most studies have shown that late damage by Lygus rarely results in significant yield losses.

Aphids are no longer a threat to our yield this year. There only threat now is if there are enough numbers to produce sufficient honeydew to cause a sticky lint problem once cotton opens. Since eradication sprays and our general pest spraying activity is down considerably this year, I would expect very few insecticide-induced aphid problems for the remainder of the season. Beneficial insects have been abundant and helping greatly in suppressing potential buildups. The treatment threshold for preventing sticky cotton is incredibly low---10 aphids per leaf. Usually we have timely rains mitigating the few problem fields that do develop sticky cotton. I am optimistic that we will dodge the sticky cotton bullet again this year.

Pink bollworms are an increasing concern for the area southwest of Lubbock. As the end of the season approaches, trap catches of pinkies and field evidence of their presence is increasing. Consultants in the Gaines, Yoakum and Terry county area have already been spraying some fields for this stealthy pest with more field infestations uncovered every day. The Texas Boll Weevil Eradication Foundation (TBWEF) has finally put out sticky pink bollworm pheromone baited traps this past week, averaging one trap per section across the state of Texas. This is a survey program contracted by USDA, which has been run previously in this area. I will tell you that all areas of the High Plains have trapped pinkies, although in most cases their number has been very low. The epicenter of activity appears to be in the Western High Plains eradication zone, most notably near the New Mexico state line.

Pink bollworm larva

Traps near Brownfield, Welch and Union are catching their fair share of moths indicating the pinkie threat has extended eastward and northward.

While traps can indicate the potential for pink bollworm problems, they are by no means a substitute for field scouting, especially at this time of year. If you are running your own traps this year and averaging around 5 moths per night, you and your cotton fields could be in danger. Since the pre-oviposition period for pinkie moths is very short (1-3 days) weekly trap checking will prove inadequate. Likewise, while the TBWEF trapping program may provide some insight to the spread and intensity of pinkies in your area, it will not be adequate for making field management decisions. I will hopefully have some information from this trapping effort by early next week.

Bad memories of boll weevils

So what are your management options? Trap catches will indicate the potential for a problem but you should be aggressively proactive by examining bolls in suspect fields once or twice a week. Bolls will not be safe until they have accumulated 600-650 heat units. A flower on August 15-20 would not make a safe boll until around September 30 and an August 20-25 flower would not be safe until around October 15. Do you really want to spray on a 5-7 day schedule to protect these late bolls?

I would recommend examining 25-50 medium bolls, looking for a smooth wart on the inside carpel wall, small clear to whitish larvae, larger pink larvae, stained and damaged lint. Since only the night-flying moth is the only available target, insecticides should be applied near dusk. Pyrethroids have been effective. Lorsban has also looked good.

What about next year? If you had any significant activity in or about your fields, I would seriously consider planting Bollgard varieties only. I would shred my plants after harvest. I would consider a winter irrigation to flood out the pinkies that are overwintering in your field either in plant debris or in the soil. December would be a good target month. Remember that okra is also a local host of pinkies. Manage your okra patch as well.

The boll weevil trap numbers remain low except in the Permian Basin Zone. Numbers of boll weevils caught in the five High Plains eradication zones remaining relatively unchanged from previous weeks with the exception of the escalating presence of boll weevils mainly south of Lamesa. Trap catches jumped from 176 the week ending August 24 to 1,132 the week ending August 31. This is a 22% reduction of 2002 numbers, not near the reduction I had hoped to see. Last year at this time the number jumped from 112 to 1,454 weevils caught. The next week in 2002 trap numbers went over 9,000. Needless to say I am getting rather nervous about the Permian Basin situation. **JFL**

Average accumulative number of boll weevils caught per trap through the week ending August 31.

Zone	2003	2002	2001	2000
Northwest Plains	0.00001	0.0002	0.008	0.1348
Western High Plains	0.00001	0.0004	0.0143	0.4166
Permian Basin	0.0026	0.0019	0.0113	0.3865
Northern High Plains	0.00003	0.0036	-------	-------
Southern High Plains	0.00003	0.0022	-------	-------

Total number of boll weevils trapped the week ending August 31, 2003 Texas High Plains.

Zone	Number of traps checked	Total number boll weevils
Northwest Plains	38,937	0
Western High Plains	79,408	0
Permian Basin	90,598	1,132
Northern High Plains	65,923	0
Southern High Plains	147,689	4

COTTON RESEARCH BRIEFS

Long-term trends in bollworm and tobacco budworm moth flight activity in the High Plains. Bollworm and tobacco budworm moth activity were monitored for 14 years (1982-1995) in pheromone traps in the Texas High Plains. Moths were monitored weekly from early March to mid-November near Lubbock and Halfway. The bollworm-budworm complex consisted of ≈98% bollworms and ≈2% tobacco budworms. The 14-year average weekly bollworm moth capture at Lubbock was significantly higher (227 moths/trap/wk) compared with that at Halfway (154 moths/trap/wk).

Bollworm **Budworm**

Correlation analyses showed a significant positive relationship between weekly trap catch and temperatures, whereas a significant negative relationship was observed between trap catch and wind speed for both species. Also, if winter and spring temperatures were higher than average, the trap captures during the following summer were higher than average. Our analyses also showed a strong positive relationship between moth abundance and summer rainfall for both species at both study sites.

Average weekly trap captures were positively correlated between adjacent months during most of the active cotton fruiting season (June-September). However, the relationship between populations that contributed to the overwintering generation (early fall trap catches) and the following spring populations varied between species and study sites. Nevertheless, data from this study indicated that late-season moth catches could be indicative of the dynamics of the early-season moth catches the following year in the High Plains.

The mean population abundance curve based on 14-year averages showed two population peaks for bollworms (*Helicoverpa zea*) at Lubbock, but only one peak at Halfway **(**see graph). A mathematical model estimated the first bollworm moth capture peak in Lubbock at 2,962 degree-days from January 1 while the second peak was estimated at 4,590 degree-days. At Halfway, the moth abundance peak was estimated at 4,092 degree-days. There was a lag of ≈500 degree-days between Lubbock and Halfway sites in both the peak moth abundance and the cessation of moth flights in late fall; moth captures declined to ≈5 moths/trap/week at 5,540 degree-days in Lubbock and 5,110 degree-days in Halfway.

The two population peaks at Lubbock site and a single peak at Halfway site can partly be explained due to cropping system difference between the two sites, affecting moth behavior. Corn acreage at Lubbock site represented only 1% of the total crop acreage whereas corn represented 27% of the total crop acreage at the Halfway site. Due to negligible role of corn at Lubbock site, bollworm moths were not restricted within corn microhabitat and a longer distance movement probably occurred at the Lubbock site throughout the

season resulting in greater chance of trap interception. At Halfway site, corn-to-corn movement of bollworm moths significantly restricted the chances of trap interception of bollworm moths until corn matured and moths were forced to move to cotton. Therefore, the first potential peak at ≈2,400 degree-days was probably masked by restricted moth movement at the Halfway site. We also speculate that the potentially high cannibalism in more localized feeding sites in corn habitat (ears and silk) might also have reduced the number of moths produced from per unit corn habitat. **MP**

WHEAT AGRONOMY

Wheat grown for forage. Last week's rains have got wheat seeding for grazing well underway. The timing on the calendar for Lubbock and north couldn't be better to enhance our potential for fall forage production. Temperatures are down so stand establishment will be better. One situation to watch out for if you received about 0.75" or less rain is that you may have a dry zone underneath the wet soil. Wheat roots will stop at the dry soil, and if more moisture is not received, especially if rooted 4-5" deep, you run the risk of having to seed again.

One caller asked this week about wheats for forage graze-out. As I mentioned in FOCUS a couple of weeks ago, it appears for the time being that timely planting, seed test weight of at least 58 lbs./bu, and germination of >85% may be more important than variety. With the cooler temperatures at hand Longhorn should not have any major post harvest dormancy concerns (only for wheat harvested earlier this year). The long coleoptile for Longhorn has helped some producers get their wheat better established, especially if soil conditions are fluffy, poor, or you have an older drill with less than optimum seed placement.

If you intend to go to grain, I do not recommend beardless wheat, not even Longhorn or Lockett. These two wheats can produce good grain yields but we have found that compared to popular varieties such as Jagger, Ogallala, and the TAM lines 105, 110, 200, and 202, on average there is about a 10% yield drag with both Longhorn and Lockett. If you are not sure about whether you might go to grain, then plant either of these. We expect that grain yields are substantially less for the older Russian beardless varieties.

Evidence from first year Texas Cooperative Extension clipping trials indicate that fall and winter forage production for conventional bearded wheats is no less than that of bearded wheats. Hence, if grain yield is your goal plant a grain variety.

Wheat varieties for grain. Over the past several years, wheat variety trials from up to 8 locations across the Texas Panhandle and northern South Plains were harvested. Each year is different. For this reason, we always base recommendations on yield data from at least three consecutive years before selecting a variety for planting. It is also a good idea to plant more than one variety since varieties perform differently under various environmental conditions.

Based on long-term varietal testing Brent Bean, TAMU Amarillo agronomist, notes the following wheat variety recommendations:

2003 Grain Variety Recommendations

Irrigated	Dryland
TAM 110*	TAM 105
TAM 200	TAM 110*
TAM 202*	Cutter
Dumas	Thunderbolt

Previously Recommended Varieties

Jagger*	Custer
Ogallala	Jagger*

*Early maturity wheat varieties.

When selecting a variety, characteristics such as plant height, disease and insect tolerance, coleoptile length (determines how deep the variety can be planted), and fall grazing potential should be considered along with yield data. Under dryland conditions it is hard to go wrong with, TAM 105, TAM 110 or Thunderbolt. These varieties have good yield histories. Dumas appears to be hard to beat under irrigated conditions. Custer and Jagger have been considered good grazing wheats, and TAM 110 has greenbug tolerance. Thunderbolt has good straw strength along with good tolerance to wheat streak mosaic and leaf rust. Jagger, Ogallala, TAM 200, and TAM 110 should perform well under a wide range of conditions, but Jagger has been removed from our recommendations as it has demonstrated a tendency to break dormancy early then be injured by subsequent cool weather.

If growers anticipate particular problems with diseases or pests, growers may consider planting the following varieties:

Wheat streak mosaic--some resistance: 2137, Jagger, also Longhorn, Ogallala, TAM 110, TAM 202, Thunderbolt

Leaf rust--some resistance: Thunderbolt, Dumas, also OK 101, Tonkawa

Soil borne mosaic--2137, 2174, Jagger, Cutter

Stripe rust--Cutter, Jagger, TAM 202, also 2174, Dumas, Ogallala, TAM 105, TAM 110

Russian wheat aphid a problem-- Halt, Prairie Red

Greenbugs--TAM 110 (fall and spring resistance), also the new Clearfield wheats (over-the-top broad spectrum grass control with Beyond herbicide), AP 502CL, TAM 110CL

Varieties we are watching: Jagalene is a cross of Jagger and Abilene that shouldn't break dormancy as early as Jagger. Jagalene may be good for both forage and grain. TAM 111 is a taller wheat targeted to replace TAM 105. It has better disease resistance, but hasn't perhaps distinguished itself as well as we would like to see on dryland, but for irrigated grain yield may be better than expected.

Wheat grain yield seeding rates. Whereas in earlier issues of FOCUS I have described increasing the seeding rate if looking to enhance forage production, especially in the fall, we have reduced the recommendations for irrigated and dryland seeding rates. Traditionally, for irrigated grain yields, we have recommended 90-120 lbs./A, but increasing evidence from Texas A&M-Amarillo/Bushland suggests that 60 lbs./A is just fine. Grain yields are comparable to that with 90 and 120 lbs./A. Likewise for dryland, the standard recommendation of 45-60 lbs./A for grain is now reduced to 30-45 lbs./A. Seed quality is important for good grain yield as it is for forage yield as well.

Planting dates for grain wheat. In general for the Texas South Plains there is little or no yield benefit planting wheat for grain before October 1 (more susceptible to insects, excess water use, etc.). This is especially true south of Lubbock. Also, yield potential into early November is not significantly diminished, especially south of Lubbock. But keep in mind that the onset of colder soil temperatures, especially if below 45 F will retard wheat stands if planted later. If I could pick my date to plant wheat for grain at Amarillo I would pick October 1, but at Lubbock I would like October 15th. At Lubbock I would also expect yields over time would begin to significantly diminish if planting after about November 10, and especially in late November or later. The rainfall you receive in March after jointing and in April, however, might have far more impact on whether a grain crop is going to yield well.

One risk, which occurs in many years, is that some wheats, often the early and medium-early maturating varieties, can break dormancy early due to warmer weather. This makes them susceptible to damage from cold temperatures.

Furthermore, a late freeze can hurt even longer maturity wheats if the freeze occurs late enough. There is less the risk the further south you go. This represents a trade-off, however, as earlier maturity wheats often tend to yield a little more and can flower and complete much of their grain fill before the onset of consistently hot weather. Early/medium-early maturity wheats such as Jagger, Coronado, TAM 110, and TAM 202 are good wheat varieties that have a high probability of maturing before hot weather, especially south of Lubbock. But as we noted above Jagger now seems prone to breaking dormancy too early and gets hurt. Snowfall and freezing temperatures at the end of March 2003 hurt many varieties of wheat, early or medium, but early maturity wheats suffered somewhat more. **CT**

FOCUS on Entomology is published by
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Lubbock, Texas 79403

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