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For South Plains Agriculture

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IN THIS ISSUE

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COTTON INSECTS

Insect activity is ramping up, as fewer fields remain vulnerable to their attack. Since cotton fields in the area range from just blooming to approaching cracked boll and burned up to heavily irrigated, there will be quite an array of pest situations in our area. Most pest activity is concentrated in the later planted fields or those fields receiving enough timely irrigation to avoid cutout and small fruit shedding. As the weeks go by there will be fewer and fewer of these for pests to choose from. These fields will be where all the hard management decisions will have to be made.

Scattered light showers on Friday and lower temperatures the preceding days will result in increased survival of pests but will not have done much to alleviate crop stress. As conditions have improved for insect survival so has the rate of infestation increased for pests. Our hopefully last bollworm cycle is ramping up as corn begins to dump its corn earworms (aka bollworm) into area cotton. Other sources of infestation have been migration into the area from the southeast and of course from area fields infested earlier. I would expect activity to peak over the next 8-12 days but not go away entirely until sometime in September.

Bollworms are generally infesting the lusher fields, those that have received enough timely irrigation to avoid shedding of squares and small bolls. These fields for the most part have plants with 4 or more NAWF. Bollworm activity tends to be higher from Lubbock moving north. I was in the Denver City area earlier in the week and saw very little bollworm activity in late planted, heavily fruited, heavily irrigated cotton. This is an unusual situation for me since this general area usually has some pretty significant bollworm activity by now. But I have a Bollgard test in the area and it is probably acting as a repellent since I really need bollworm pressure on this test to achieve my research goals (just joking).

Decisions, decisions, decisions! What I look for is whether a field can first support a bollworm infestation and second if there are any fruit that are vulnerable that can still mature into harvestable bolls. Once cotton plants reach cutout (NAWF=5) and shed squares and small bolls, there is little left for newly hatched out bollworm caterpillars to feed on to achieve a size that can penetrate the larger important bolls. Egg and small larvae infestations in these fields usually collapse. Also, once a boll has about 450 heat units on it since bloom, it is relatively safe from bollworm penetration. At a heat unit accumulation rate of about 15 per day, that would be about 30 days or longer as temperatures wind down toward the end of the season. Except for areas to the south of Lubbock, I would stop counting flowers as potential harvestable bolls. Too risky!

Using the above criteria to determine vulnerable fields and fruit, I would not even consider treating a field with less than 10,000 ¼ inch or smaller caterpillars. To do so would be a waste of money. At this time of year, I generally will not make a bollworm management decision at threshold levels until larvae are ¼ inch long or bigger, to make sure that all mortality factors have a chance to make a contribution. Now if I find 15,000 or more small larvae per acre in vulnerable fields, I won't hesitate to pull the trigger.

What insecticide to use? At this point in the season it is hard to justify anything other than one of the pyrethroids. They are relatively cheap, effective and have long residual activity. The only down side is their propensity to flare aphids. I am willing to take that chance. And, pyrethroids will incidentally control any Lygus bugs you may have lurking in your fields.

Beet armyworm activity is also increasing in some areas of the High Plains. I don't expect to see an outbreak this late in the year with our kind of crop conditions, but there will be some fields needing protection. Most beet armyworm activity thus far is distributed in clumps in infested fields. Some of these clumps are large enough to be of concern. Most infestations are in the lusher cotton just like the bollworm infestations. Eggs are laid in masses rather than singly like bollworm eggs. When these egg masses hatch we refer to them as "hits". If you find 2 hits per 100 row feet of cotton inspected you might start considering a control

BAW "hits"

decision. Our latest beet armyworm infestations do not involve much leaf feeding with most damage concentrated in the squares. Sometimes all a plant's squares are removed. Thus far boll damage has been minimal. Remember that "beets" cause most of their yield damage by feeding on squares that can make a harvestable boll. They do much less boll feeding than bollworms.

I would probably start my treatment level at 15,000 small beet armyworm caterpillars per acre. This is lower than our nominal 20,000 per acre threshold because of less leaf feeding but higher than our bollworm threshold because of their reduced impact on our potentially harvestable bolls. Intrepid would be my first insecticide of choice because of its effectiveness and long residual activity. This extended control does come at a cost. The recommended rate range is 4-10 ounces per acre. Lower rates will give you less than a week protection while higher rates (6 ounces and above) will give 12 plus days of protection. Denim would be my second choice. It will cause more harm to beneficial insects than will Intrepid.

The aphid situation remains murky. Some fields have infestations actually approaching or at treatment levels while others have aphids at much lower levels, still infesting the terminal. Natural enemies and high temperatures have held many aphid situations in check. I am not sure what our recent weather will do to change this situation. I would be a little cautious in jumping the gun and treating aphids just at threshold (50 per leaf). On the other hand, most folks grossly underestimate aphid numbers anyway, often thinking they have 50 while really having over 100 per leaf. If aphid honeydew deposits have "slicked up" the leaves instead of appearing as a light mist, you have waited too long.

To figure out whether you have enough aphids present to be a concern you will need to average counts on at least two leaves per plant, from several representative plants across the field. These leaves would be the upper most fully expanded 1st position leaf and another 1st position leaf down in the middle of the plant. My first insecticide choice would be Intruder, followed by Centric (a very close second at the higher rate) and then Bidrin and Trimax. The 0.6-ounce per acre rate of Intruder performs very well. The low rate of Centric gives good immediate control but has poor residual control.

Lygus bug and fleahopper numbers remain high in area fields. The fleahoppers are of no concern but the Lygus could become a headache. So far boll damage has been minimal and as stated earlier, we are no longer concerned about square feeding. Bolls will be vulnerable for at least 250 heat units past cutout or last flower (at least 16 more days from a white flower today). Pyrethroids have always been good for Lygus bug control. Orthene is also a good bet. The jury is still out on Intruder, Centric, Vydate and Trimax. Brant Baugh (Extension IPM in Lubbock) and I have a 14-treatment test out for Lygus and fleahoppers on the Experiment Station. We'll let you know the results soon.

Looper activity has increased in the area. Don't confuse early instar looper larvae with either bollworms or beet armyworms. This would be a big mistake in any control decision as looper feeding is on leaves only and rarely justifies control. Looper caterpillars are missing a pair of abdominal legs, which most other caterpillars have. This results in a looping motion.

Boll weevil numbers caught in traps went up last week and will continue to do so for a while, in spite of eradication program efforts. While there are still late fields that are just now

blooming and attracting the attention of weevils, there are many more fields that have cut out and subsequently have a declining food supply to attract boll weevils. This is forcing more weevils to be on the move, searching for the remaining fields that can provide the buffet weevils desire. As a result of this, traps will be intercepting more weevils than before; at least until the eradication program beats them back with their malathion sprays.

Average accumulative number of boll weevils caught per trap through the week ending August 10.

Zone	2003	2002	2001	2000
Northwest Plains	0.00001	0.0002	0.009	0.126
Western High Plains	0.00001	0.0004	0.0153	0.4286
Permian Basin	0.0018	0.0001	0.014	0.4291
Northern High Plains	0.00004	0.0035	-------	-------
Southern High Plains	0.00003	0.0021	-------	-------

Total number of boll weevils trapped the week ending August 10, 2003 Texas High Plains.

Zone	Number of traps checked	Total number boll weevils
Northwest Plains	38,768	0
Western High Plains	78,277	0
Permian Basin	88,353	17
Northern High Plains	64,764	2
Southern High Plains	149,194	4

The good news is that a very low percentage of acreage in the High Plains' five zones have required treatment thus far this year. While sprayed acreage may increase somewhat in some areas over the next couple of months, a low percentage will still be the rule. This has meant that program applications of malathion have not had much of an impact if any on secondary pest outbreaks. It also means that most beneficial insects have gone unmolested by insecticide applications. And finally, unless the program backslides before the end of the season, I would expect that all five High Plains zones will achieve suppressed status or better. **JFL**

SORGHUM INSECTS

We are now rolling the dice on sorghum midge. Late blooming fields are at risk and should be scouted daily throughout the bloom stage for midge adults. Area wide midge populations have been light, but individual fields may experience a different reality. Greenbugs are starting to build up now, and I have seen fields with only a few colonies causing the red areas on lower leaves to a few fields with entire leaves killed. Headworms will likely be abundant as we go into September. I have been monitoring the corn earworm populations in several places and they are high in some areas, especially north of Muleshoe. Corn earworm is part of the sorghum headworm complex, so it would be a good idea to start checking fields as they reach the soft dough stage and beyond. Thresholds and scouting procedures for all of these pests are presented in "Managing Insect and Mite Pests of Texas Sorghum", which is available on the web at http://lubbock.tamu.edu/ipm/AgWeb/PDFs/SorghumInsect98_b1220.pdf . **PP**

CORN INSECTS

Most corn has passed dent stage and hence yield will not suffer from the increasing spider mite populations unless populations are very high. If the moisture line has passed 50% down the kernel, mites will not reduce yield at all. However, we have many late-planted cornfields in the area, and these are at risk. Mites have become more numerous in the last two weeks, thanks in part to the hot weather. Our corn pest management guide has a good chapter on spider mites, and it is reprinted at this link

http://entowww.tamu.edu/extension/bulletins/b-1366.html. The web version contains short digital videos that discuss scouting, damage, and identification of spider mites. **PP**

SORGHUM AGRONOMY

Whether or not to irrigate. Some producers have reported irrigation costs are running over $9 per inch on less efficient systems. If a farmer is renter then the landlord probably gets ¼ of the crop. According to Dan Krieg, Texas Tech University professor, grain sorghum can produce about 350 to 425 lbs. of grain on 1" of effective rainfall or irrigation. Using $3.50/cwt and 375 lbs./inch, then gross return is estimated at about $13.25 per 1" of irrigation and the producer would get about $9.90. In this scenario the producer is just about giving away his water. Unless there is a compelling reason to irrigate, like there was 3 to 4 weeks ago when many acres of young sorghum were not yet well rooted through 9-10" of dry topsoil into deep moisture, it doesn't make sense to irrigate. Producers who retain single irrigations at key stages of development such as late boot or right at flowering might see a greater return with a limited but optimally timed irrigation application.

Herbicide damage from 2,4-D? A common complaint I hear from grain sorghum growers is damage from 2,4-D. Yes, sorghum is labeled for over-the-top spray from 6" to 15" tall (if more than 8" tall use drop nozzles to keep off the plants). Inevitably, it still seems that occasionally producers experience some damage. Plants lay down (and hopefully stand back up). Over the years 2,4-D has proved to be a reliable, inexpensive weed control option, and when applied correctly, any possible damage in the short term has not affected long-term yield results. But labels may not be perfect (though they are pretty clear cut for sorghum), drop nozzles may not be placed correctly or working as they should, and hooded sprayers might still get some chemical on the plant.

This picture highlights some apparent 2,4-D damage that occurred in sorghum. I am surprised that the plants have made it this far. The sorghum was planted in early to mid-June and sprayed about 3 weeks later (0.75 lb./Acre). The brace roots are short and stubby, and any head on the sorghum plant will surely cause lodging. We are usually careful to ensure that other herbicides remaining from cotton are not contributing to the problem, but it appears that it was not the case as this savvy producer has some untreated check areas in the field, and they are growing fine. **CT**

ALFALFA AGRONOMY

Variety selection for new stands. Texas Cooperative Extension completed regional alfalfa workshops this week at Littlefield, Lamesa, and Dalhart. The take home message for many producers was that good farming and haying practices can enhance profitability. A key area of discussion was variety selection. Producers seeding alfalfa in the fall should focus less on seed price (in fact, ignore it initially), and consider an alfalfa's overall package of insect and disease resistance ratings and choose a minimum of 'R' for resistant for as many of the potential pests as possible. This includes bacterial wilt, Fusarium, phytophthora, anthracnose, blue alfalfa aphid, cowpea aphid, etc. The National Alfalfa Alliance annually prepares a summary of varieties listing their resistance, and it is available for viewing at http://www.alfalfa.org

A review of New Mexico State University alfalfa variety trial data relevant to West Texas does not show consistent differences among the varieties in the trials. In other words, yields don't vary that much. Some checks, commons,

and a few varieties do appear to yield less. The bottom line is pick a variety with good insect and disease resistance, seed that has a *Rhizobium* inoculant on it, and then shop price. It appears that a producer's management will have a much greater influence on yield and quality than variety selection—provided that you have a resistant variety that will continue to perform in the presence of a host of pests. NMSU's most recent variety trial report is available at http://lubbock.tamu.edu/othercrops

Fall dormancy rating, stand establishment, and seeding rate. Land preparation for new alfalfa stands is critical in the success of an alfalfa crop, especially when good quality seed for appropriate varieties typically costs $2.50-4.00 per pound. A packing rain on newly prepared alfalfa ground is a good thing. Alfalfa must be seeded no more than ½" deep, and when you walk across your field, the heel of your shoe should not sink more than 3/8" into the soil. For north of Lubbock and northwest toward Farwell, fall dormancy ratings on appropriate alfalfas should be FD 4 and 5, possibly 6. The higher the number the earlier the alfalfa will green up and the later it will last in the season, but higher FD ratings do not necessarily translate into more production. In fact these higher FD rated varieties are more susceptible to stand reduction if they must endure harsher winter conditions. Some varieties are now rated for "Winter Survival" or WS. You may see in some advertising for alfalfa seed something like "a FD 6 with a winter survival (or cold tolerance) of a 4."

NMSU-Tucumcari includes many FD 7 varieties in their trials, and for the most part these varieties in early testing have done fairly well, but I am not convinced those varieties have experienced the typical winter cold yet that could diminish their stand.

For Lubbock and south, though there are many good varieties in FD 4, I believe a producer can easily go with FD 5 and 6, and especially if in the Lamesa area then one may easily consider FD 7. Some producers report good success with FD 7 in Lubbock County.

Texas Cooperative Extension recommends the following seeding rate targets in the High Plains: north of Lubbock and Texas Panhandle, 15-20 lbs./acre of actual seed product and south of Lubbock, 20-25 lbs./acre of seed product. Producers can reduce input costs by having excellent seedbed preparation, which will establish an excellent stand even at a seeding rate 1/3 less than listed above. For example, an experienced grower in Scurry Co. routinely obtains an excellent stand with a seeding rate of 17-18 lbs. per acre planted in the fall. As a sidenote, I do not recommend spring planting alfalfa at all.

In the Texas Panhandle some producers fly the seed on. This may require slightly increased seeding rates of 20-25 lbs./acre. Lest anyone think any of these seeding rates might be low, I emphasize that seedbed preparation is a key. Done right, yes, you don't need as much seed, and at current seed costs up to $4.00/lb that adds up fast. Assuming adequate seedbed preparation, Oklahoma State Univ. routinely recommends only 10-12 lbs./acre.

Fitting irrigation capacity to seed alfalfa acres. This is an area that new alfalfa growers continually misunderstand. Alfalfa uses a tremendous amount of water. In the Lubbock region it requires about 6", perhaps 7" of water per ton of production. Toward Farwell and Dimmitt, one ton or production requires 5-6" of water. Depending on your location, ask yourself: do I have enough water to grow 6,000 lbs./acre peanuts, 4-bale cotton, or 240-bu./acre corn? No? Then you don't have enough water to grow alfalfa—unless you reduce field size and concentrate irrigation water.

Leon New, Extension Irrigation Specialist at Amarillo, reports in the Amarillo area that some producers with efficient irrigation systems, namely LESA or low-elevation spray nozzles placed 18" or less over the soil can

produce a ton of alfalfa on 4" of water. Leon believes that the minimum irrigation capacity for irrigating alfalfa is 5.5 gpm near Amarillo. For the Plainview, Littlefield, and Muleshoe areas, Leon adds 0.5 gpm. For south of Lubbock add another 0.5 gpm. Furthermore, for irrigation systems that are less efficient, e.g. nozzles more than 30" high, etc., add 1.0 gpm to the original 5.5 inches. A formula I often use with producers in the Lubbock area pegs the minimum gpm for irrigating alfalfa at 8 gpm. Just remember that if you extend the field size past your irrigation capacity, you can still grow fair alfalfa, but you have incurred significant additional land preparation costs. Alfalfa reliably yields proportionally higher as more water is added.

Alfalfa 'crop book' available. Producers attending the recent alfalfa workshops received an alfalfa crop book full of extension and research literature relevant for West Texas. We have leftover copies available for sale at $20 per book. Much but not all of the information is available over the Internet, but we have it in one place for you. Call Dena Griffith, Texas A&M—Lubbock, 806-746-6101, if you would like to order a copy. All South Plains county extension staff currently have alfalfa crop books, and I will be updating those with additional resources by early September. **CT**

SUNFLOWER AGRONOMY

Soybean stem borer in sunflower.
Sunflower harvest will begin shortly on early-planted commercial fields. Some hybrid seed sunflower has already been harvested. As producers move into harvest the rest of the month and into September, I see one insect influencing the urgency with which you may want to hasten harvest as much as possible. The soybean stem borer (*Dectes texanus*) infests some fields such that stalks will break right at the soil line. These insects girdle the stalk from the inside outward. The adult of this insect is the longhorn beetle. You may see a few stalks fall as the head begins to dry down. Growers can determine the presence of this insect by examining for lodging (already active) or splitting stalks lengthwise to find the larva (only one) in the base of the plant. A field with significant infestations should be prepared for harvest as soon as possible or else more lodging will occur. This same insect infests soybeans, as the name suggests, but seems to be less a problem there. Generally, we do not recommend that sunflowers follow soybeans unless there was essentially no soybean stem borer activity in the soybeans.

While splitting stalks also note any stem weevil boring in the cortex around the pith. It usually takes many stem weevils (10 to 15 or more) before any significant lodging occurs. Stalk breakage due to stem weevil damage usually occurs about 4-12" above the ground, in contrast to soybean stem borer damage girdling at ground level.

Rust in sunflower. Recent inquiries from producers about the severity of leaf rust have indicated that though the infection appears damaging, actual degree of incidence and the stage of sunflower indicate that no treatment is needed. Rust appears regularly in very minor amounts on Texas sunflower. One field in the northern South Plains on Wednesday was evaluated and though rust infection was near

10% on the leaves, the stage of growth (almost all petals dropped) was well past any need or even opportunity to control the infection. Folicur may be the best chemical control, but it requires a Section 18 for use. In normal control of rust in sunflower, growers will first see the rust on lower leaves. Humid conditions will foster the spread of the infection. Spraying would need to occur well before flowering, in part because some chemistries require a 50-day interval before harvest. If significant rust is noted in a field then scout different areas of the field, including high and low areas, and also along the south and southwest side, where spores are more likely to blow in.

Cultural control of rust can occur using any of several means: 1) put drag hoses on center pivots as occasional to frequent spray irrigations foster the development of the disease; 2) if rust is expected, or if you had some rust last year (in the same field or a neighboring field), you can choose a rust-resistant hybrid; 3) rotate out of sunflower for 1 year; 4) don't apply excessive N (much of the Texas High Plains sunflower is under fertilized, at rates less than 5 lbs. N required per 100 lbs. of yield goal, less soil N), and don't use unnecessarily too high seeding rates (e.g., maximum seed drop for confectionary about 17,000 seeds/A; 23,000 seeds/A for oilseed).

Ca 3-5% rust infection rate

For further information on rust in sunflower, including leaf infection rates, access North Dakota State University rust guidelines at http://www.ext.nodak.edu/extpubs/plantsci/rowcrops/pp998w.htm **CT**

SMALL GRAINS AND WHEAT AGRONOMY

I will provide weekly updates of production tips through FOCUS for the remainder of the cropping season. This will include a discussion of varieties for forage in next week's edition to be released August 22nd.

Is it too early to plant wheat for forage if I get a rain? I have already received several questions about this. If it rained tonight there would be several producers raring to drill. There are several reasons this would not be a good idea, even at the end of next week (Aug. 22nd). In general, almost without exception, it is simply still too early to plant wheat, no matter how bad a farmer may want grazing. But why is this?

Soil Temperatures—A maximum daily average, 4" depth, for seeding small grains should be at most 85 F and preferably lower. Average daily maximum soil temperatures at Lubbock and Halfway have cooled somewhat at 6" depth, but could still go back up. You can check current soil temperatures for the South Plains at http://lubbock.tamu.edu/irrigate/weatherdata.html

Growers wanting early small grains should fit the planting date to the climate, not the calendar. When soil temperatures are above the 85 F maximum target, successfully achieving a viable stand is more difficult. Yes, decent stands can be achieved at higher soil temperatures, particularly if under center pivot, but at what cost? Steve Winter, retired Experiment Station scientist at Amarillo, has conducted limited research on soil temperatures and small grains forage growth. He had found that water use was high (and costly!), and overall biomass (forage yield) was not improved by excessively

early planting (ca. August 25th). With warmer soil temperatures, frequent irrigation has not maintained survival and plant vigor.

The cost of extra water use required for irrigating wheat planted in August vs. saving that cost and planting a little later does not merit early planting. Growers eager to get some early fall grazing might think they are ahead of the game, but a poor stand from heat, etc. in August may never catch up with a crop planted for grazing in early September.

Other research in the Panhandle demonstrates that early-planted wheat has shorter (poorer) coleoptile length and poorer grain yields, particularly for dryland (too much water use early on during high temperatures, leaving less water for tillering and grain production the following spring). Also, some varieties have too much post-harvest dormancy (PHD) when soil temperatures are high, which can drastically reduce germination by over two-thirds for some varieties. Varieties with favorable or low PHD include: Lockett, TAM 202, Tomahawk; poor or high PHD, Longhorn, TAM 107, Ogallala, Thunderbolt, Triumph 64).

Fall forage yields for grazing are key to making money on grazing. If you want to emphasize fall and some winter forage production vs. spring production, consider rye.

Ideally, if I could pick my date for seeding irrigated wheat forage, for the Northwest South Plains I would target Sept. 1-5, and about Sept. 5-10 for Lubbock. Barley withstands the heat better and could be planted now. Triticale experts suggest that triticale may be planted about two weeks before wheat. For dryland wheat grazing, you plant when you can, but I wouldn't want to err planting too soon, that is, I would rather seed in late September for dryland forage than in late August.

Deep phosphorus for improved wheat forage yields. Growers concerned about trying to increase their wheat forage yields (let alone grain yields) by early planting might consider the good Rolling Plains work demonstrating how effectively deep P boosts wheat forage yields. See 'Deep Phosphorus Banding in Winter Wheat—A Risk Management Tool for the Southern Great Plains,' http://lubbock.tamu.edu/wheat. The key is placement of the P 6-8" in the soil so that even in dry times, roots can still take up P, an immobile nutrient in the soil.

Next week's small grains topic. I will discuss variety selection among wheats from Texas A&M forage clipping trials in Hale, Lubbock, and Scurry counties. This will include beardless wheats as well as rye, triticale, and small grains blends. Keep in mind that we are going to emphasize good wheat seed with a minimum test weight of 57-58 lbs./bushel, and a minimum germination of 85%. There may be substantial bin run seed for beardless wheat this year with test weights below 56 bu./acre due to poor growing conditions last spring. If you will consider bin run wheat there is time for a germination test (before you buy) here at Lubbock's Texas Department of Agriculture seed lab. Contact them for test details at (806) 799-0519. **CT**

CROP WATER ISSUES

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. **DP**

Average Daily Estimated Crop Water Demand for Week of August 7 to August 13, 2003 (Inches Per Day)								
Location	Reference ET	Corn		Cotton		Peanuts	Sorghum	
		Dough	Black Layer	1st Bloom	1st open	Pod / Seed	Head	Black Layer
Halfway	0.25	0.30	0.17	0.29	0.18	0.27	0.27	0.22
Lamesa	0.28	0.32	0.19	0.32	0.21	0.30	0.29	0.24
Lubbock	0.27	0.32	0.19	0.32	0.20	0.29	0.29	0.23

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