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FOCUS on South Plains Agriculture

A newsletter from the Texas A&M AgriLife Research and Extension Center at Lubbock

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Most of the cotton acres in the High Plains are already at physiological cut out or approaching that stage rapidly. Open bolls are visible in numbers in both dryland and irrigated cotton fields. At this late crop stage, cotton bolls are mature enough and safe from the late season pests such as Lygus and stink bugs. Bollworms could still injure the young cotton bolls to some extent, but this year bollworm pressure appears to be negligible to none even in our non-Bt cotton. The only concern in terms of cotton insects in the fields at this stage would be cotton aphids if they occur in significant numbers.

Cotton aphids are normally oval shaped, small insects, yellow in color when noticed underside of the leaves. However, color of cotton aphids can vary from yellow to dark green. Heavy infestation of cotton by cotton aphids results young leaves to crinkle and curl downward. Leaves may be covered with honey dew excreted by aphids and this honey dew gives a shiny appearance to the leaves which are noticeable from distance **(Figure 1)**. Honey dew secreted by aphids can result in sticky cotton, especially when bolls in lower nodes are open. The recommended threshold for cotton aphids at crack boll stage of cotton is 10 aphids per leaf. Therefore, it is recommended to scout cotton fields at this late growth stage for any aphid population development. There are fields across the region where cotton aphid populations have been noticed over the last couple of weeks. However, the aphid populations spotted in these fields are small and have not increased near to the treatable level. Presence of beneficial insects has helped tremendously to keep the aphid populations at check. In fact, I see advantage of having few aphids here and there within our fields so that the beneficial insects are being conserved. Application of non-selective insecticides such as pyrethroids on cotton fields with aphid populations might exacerbate the aphid problem since such insecticides can eliminate the beneficial insects. For example, if your cotton is already infested with bollworm or fall armyworm and need to be treated, then avoid using pyrethroids and use some of the newer chemistries which are soft on beneficials.

During the last two weeks I have checked number of cotton fields across the region and have noticed that the fields are pretty clean in terms of insect pests. I did record few fields with low number of whiteflies and stink bugs. The number of these two insect pests was very low and I do not anticipate any concern to our producers. We still have few weeks left for this crop to go into termination and we should be vigilant for any surprises such as late season infestation of saltmarsh caterpillars or yellow stripped armyworms.

Yesterday I received information from Tommy Doederlein and Kerry Siders (see his newsletter) that Kurtomathrips have been found in some cotton fields in Dawson and Hockley County. Although we have not experienced the hot and dry conditions in like 2011, when Kurtomathrips made big presence in Gaines County, the weather conditions in August did put lots of stress on cotton, especially on the dryland acres. Kurtomathrips usually show up on stressed cotton plants and prefer older leaves. I expect that their population will go down drastically with the cold temperature and rain showers we are experiencing currently. However, I suggest to our producers be vigilant for Kurtomathrips on their fields. Meanwhile, there are some cotton fields

which look unusual; leaves are drying out as if someone has put out harvest aid application **(Figure 2)**. I have seen such fields in Lubbock and found that there has been no chemical application made to those fields. Rather this appears to be the result of weather event we experienced recently. After the hot and dry weather which stressed out the cotton plants, mainly dryland acres, we received a spell of cold and wet weather last weekend. It could be that the sudden change in weather conditions may have caused the leaves to senesce (die) prematurely. This is my educated guess and in part it results from discussions with my colleagues here at the Experiment Station. There could be other factors such as nutrient deficiency involved in such premature leaf senescence syndrome. I will try to provide more information as soon I find some more details on this topic. Please do not hesitate to reach me at Apurba.Barman@ag.tamu.edu or 806-407-2830 (cell) regarding any cotton insect related questions. **AB**

Figure 1. Symptoms of cotton aphid infestation in cotton

Figure 2. Early leaf senescence seen in dryland/water stressed cotton fields

Cotton Agronomy

Crop Update

With this year's June and July rainfall events and good temperatures, the condition of much of the cotton crop in the Texas High Plains and Panhandle regions has improve greatly. However, a majority of the cotton crops are currently still ten days to two weeks behind, developmentally than what they should be by this calendar date. Many of these cotton fields across the region began blooming around the middle of July (typically first week in July) and have set small bolls, while some of the later planted fields have just began, or are close to bloom. Most of the fields I have personally observed have excellent fruit retention and came into bloom at 7 to 8 nodes above first position white flower (NAWF). Crops that come into bloom at that level show excellent vigor while those that come into bloom at 6 or less are less vigorous and near physiological cutout, which is 5 NAWF, and may be experiencing some level of moisture, nutrient, or environmental stress. If producers find that their cotton crop comes into bloom at 9 to 10 NAWF, an application of a plant growth regulator may be warranted (see below for more information).

At this point, for a large portion of the High Plains and Panhandle cotton crop, all that is needed for success is an open fall. Meanwhile, producers should continue to monitor for insect pests and adopt a zero tolerance policy in trouble fields where glyphosate tolerant palmer amaranth, or pigweeds, escapes are present. This policy may include either layby applications of residual herbicides under hooded sprayers, employing hoe crews, or careful cultivations if possible. High populations of these weeds not only compete with the current cotton crop for valuable moisture, nutrients, and sunlight, but also provide millions (500 thousand per "female" plant) of seeds for germination the following season to exacerbate the problem. For more information on proper weed control measures, please click at the link for an excellent Texas A&M AgriLife Extension publication authored by Drs. Gaylon Morgan, Paul Bauman and Pete Dotray besides other helpful weed control publications. If fields are kept relatively weed free and insect pests are controlled in a timely manner, most fields should enter the boll maturity phase with an excellent fruit load to result high yield potential. As indicated above, an open fall with warm temperatures and plenty of sunshine will be needed for many cotton fields for optimum lint yield and fiber quality. In the Lubbock area, under "normal" conditions (whatever that is…) a bloom set on August 10th has a 100% probability of reaching full maturity. However, a bloom after August 10th has a declining percent probability of maturing. For example, a bloom set on August 15th has a 71% chance, August 25th, a 29% chance, and on September 1st, a 14% chance. With the above average temperatures during the fall, however, these chances increase and higher maturity values and yields result.

Plant Growth Regulators

Some producers have asked about applications of plant growth regulators (PGR) to control plant height or "hasten" maturity. Research conducted in the High Plains over the years has indicated that under some conditions, producers may be able to "shave off" one node and gain approximately one week at the end of the season through the use of PGR products (mepiquat chloride or mepiquat pentiborate formulations). In many cases, for some varieties, a good fruit load will prevent or minimize "rank" growth. However, if more aggressive growing varieties were selected for planting, a sound PGR program may be warranted; especially if adequate or excessive moisture and nitrate-nitrogen levels are present. This topic was covered in the July 10, 2014 Focus on South Plains Agriculture (Volume 53 Number 5) and can be reviewed at: http://lubbock.tamu.edu/files/2014/07/FOCUS-July-10.pdf . If more information or clarification is needed, please feel free to contact me at (806) 746-6101, or (806) 781-6572.

Corn and Sorghum Insects

The sugarcane aphid arrives on the southern High Plains

We have been watching for the possible arrival of the sugarcane aphid, *Melanaphis sacchari*, on the High Plains, and we must now report that it has been found. Clay Golden, an independent crop consultant serving the area, discovered a small pocket of the aphids on soft dough stage sorghum in an extreme northwestern portion of Floyd County on September 9, 2014. Upon his find Clay enlisted the aid of Blayne Reed, EA-IPM Hale & Swisher counties, who supported Clay's identification of the aphid. Dr. Pat Porter and Dr. Ed Bynum were then presented with aphid samples and confirm the identification.

Given the proximity of this aphid population to neighboring counties; ½ mile from Briscoe, 2 miles from Swisher, and 7 ½ miles from Hale, combined with some possible smaller and un-confirmable sugarcane aphid hits in nearby sorghum in Swisher and Hale and that this aphid is often dispersed by prevailing winds, it is logical to assume that it is present over a wider area encompassing small portions of all four counties. Many of the aphids in Clay's sample were at the developmental stage just prior to becoming winged adults, so we expect that further dispersal is happening now.

After Clay's discovery, we asked for some help and perspective from our downstate colleagues who have been dealing with this pest since last year. Here is a summary of information from Raul Villanueva, Robert Bowling, Stephen Biles and Mike Brewer.

1) It takes ten days to two weeks for isolated aphids to establish significant colonies on sorghum. So scouting should be concentrated on finding the first few infesting aphids in the field on lower leaves.

2) Stephen Biles, Extension Agent IPM in Victoria, has done some very recent work on an action threshold in sorghum in the reproductive stage. Stephen's work suggests that a good action threshold for treating is an average of 100 aphids per leaf. He suggests sampling 10 plants per location within a field (several locations) and picking the leaf below the flag leaf and an additional leaf from the middle of the plant. If there are an average of 100 aphids per leaf (2,000 total on all 20 leaves), then come back in two days and re-sample to see if the population is increasing. If the numbers are going up then consider treating. If the numbers are not going up then don't treat but continue to monitor. Observations of this aphid from downstate have shown that some populations can crash very quickly. We don't know how to predict which populations will crash and which will increase.

3) Transform (available under a Section 18 exemption) is the most effective insecticide. It can be used at a rate of 0.75 to 1.5 ounces per acre. Our downstate colleagues have had good results at the 0.75 ounce rate, but good coverage is essential at this rate. They strongly recommend 10 gallons of carrier volume per acre by ground and, if this can't be achieved with aerial application, they recommend a bare minimum of 5 gallons per acre and a minimum rate of Transform of 1.0 ounces per acre. (Which is to say the 0.75 oz rate of Transform may not work by air at 5 gallons per acre.) We do not know if a 1.0 oz rate can be put out at less than 5 gallons per acre. Our colleagues have also said that Dimethoate is not a good option because it is not a consistent performer.

This aphid is not going to be Atilla the Hun on the High Plains. Invasive species often do the most damage in their first year or two of invasion before natural enemies can respond to the new pest. For this year at least, the aphid is arriving late in the season and will not be infesting whorl stage plants which will be limiting the aphid in time to build into an economic problem. We also have products that have proven to control this aphid. This, combined with the implementation of good scouting techniques, give us confidence that this aphid can be effectively controlled if necessary. The Section 18 allows for two applications of Transform (1.5 oz maximum per application), with the total application for the season not exceeding 3.0 ounces. There is also a mandatory 14-day waiting period between the first and second application. So this gives us six weeks of good control, assuming 14 days of activity from each application. This should be sufficient to carry us through harvest.

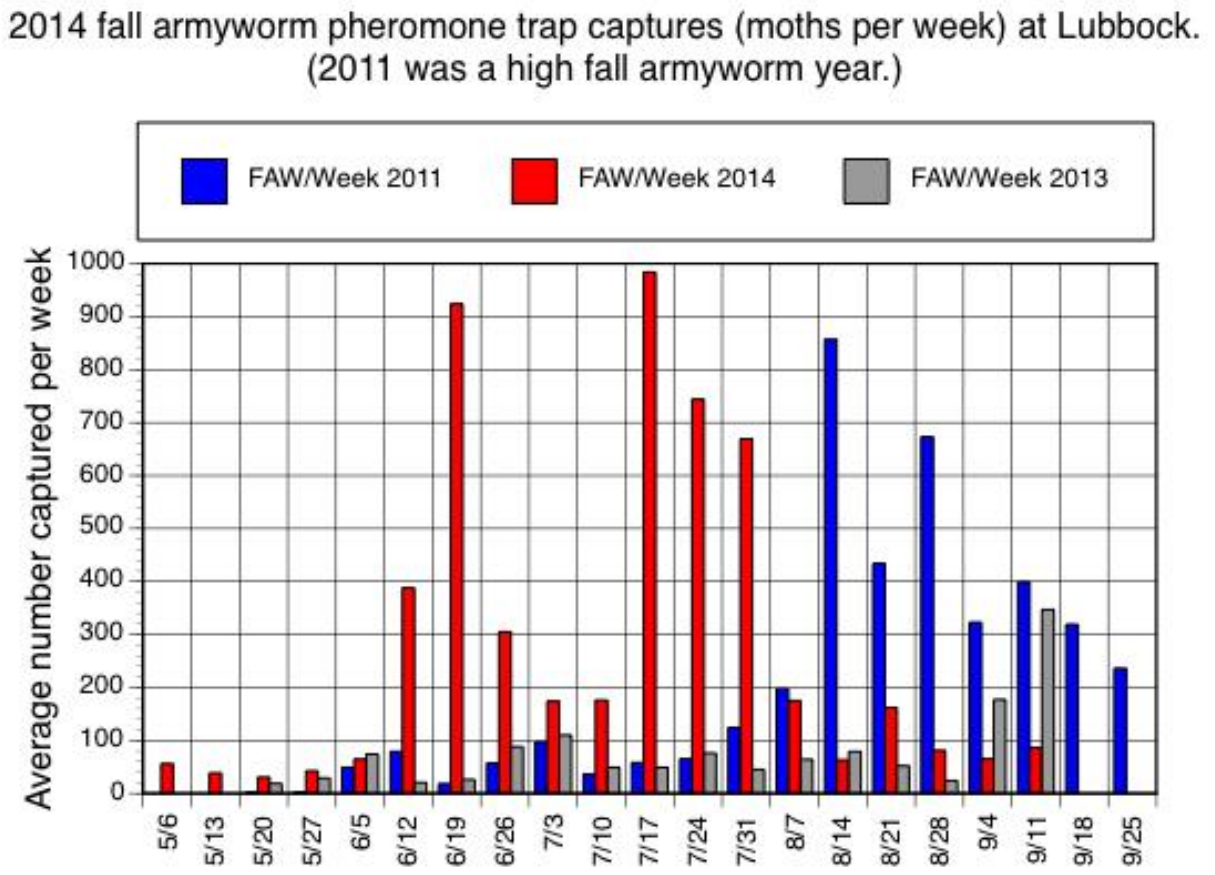
It is not known whether the sugarcane aphid can overwinter on the southern High Plains; it is a subtropical species and overwintering survival is very much in doubt. We also do not know how fast the sugarcane aphid can reproduce given the predicted cooler temperatures in this week's weather forecast. We will have to watch for it next year

when our sorghum is in the whorl stage, but for this year we can handle the problem if it arises.

The sugarcane aphid is fairly easy to recognize and distinguish from our other common aphids. Look for black-tipped antennae and legs. Dr. Ed Bynum recently posted an article on identifying the sugarcane aphid: http://amarillo.tamu.edu/files/2010/11/PPU-V6i6-5-23-2014.pdf . Our publication Sugarcane Aphid: A New Pest of Sorghum is available here: http://www.agrilifebookstore.org/product-p/ento-035.htm . We will of course keep you informed of new developments. **Blayne Reed, Patrick Porter and Ed Bynum**

Sugarcane aphids from Floyd County.

Fall armyworm trap capture



Small Grains Agronomy

Harvest Aids & Seed Maturity for Grain Sorghum

Sodium chlorate and glyphosate are labeled for pre-harvest use in grain sorghum. The former is a burn down chemical that acts as a defoliant, whereas glyphosate (technically labeled for weed control) kills the plant, which aids in drydown. For seed milo growers, diquat dibromide is also labeled. Although limited Texas &AM AgriLife research has not demonstrated yield differences among treated and untreated grain sorghum, the ability to manage and potentially accelerate harvest can have significant advantages in Texas, especially when humid conditions or cool fall conditions slow drydown. Furthermore, combine operators have often noted that the uniform condition of the crop at harvest makes use of these harvest aids a plus, but do not treat more acres than you anticipate you can harvest in the next 7 to 10 days. The primary physiological criteria for application include seed moisture below 30% AND physiological maturity, which is best determined by identifying black layer in the seed (Figure 1).

For a summary of grain sorghum harvest aid uses in Texas grain sorghum, consult AgriLife's "Harvest Aids in Sorghum" (L-5435).

Figure 1. Sorghum kernels in various stages of maturity harvested from the same head from the most mature (1) to the least mature (5). The black layer is first readily visible in (3) and becomes more distinguishable as the seed loses moisture. Do not confuse black layer, which develops where the seed is attached to the plant (bottom end when in the head), with the black dot on the opposite end of the seed. (Photo courtesy Charles Stichler.)

Economic "Loss" from Selling Low Moisture Grain Due to Excessive Harvest Delay

Producers understand the need for timely harvest to minimize potential lodging and the reduction in yield. A hidden loss of gross income, however, comes from delaying harvest well beyond when grain sorghum could be cut and sold closer to (but below) 14% moisture. How can this happen? Your pay weight is not adjusted up for low moisture, so you don't get to sell water, i.e. any moisture in the seed up to 14% adds to your pay weight.

Example: For grain sorghum the net effect of each 1% moisture content below the standard 14% reduces your effective yield. In this example at $7.00/cwt., the reduction in pounds of grain to sell translates to a $0.081/cwt. penalty per each -1% percent of moisture of drier grain. In this grain example at 10% moisture, the reduction in sale pounds is equivalent to receiving $6.69/cwt. Thus for each 1% moisture below 14% in the harvested grain, every 1,000 lbs./A of grain is worth $0.81/acre less (or $4.05/cwt. less for a 5,000 lbs./A crop at 13% moisture; or $16.20 less per acre for a 10% moisture grain crop vs. a crop harvested at 14%). This adds up when you harvest several hundred acres! Obviously we can't get all the sorghum harvested right at or just under 14%, but let this knowledge lead you to take that test cut a little sooner, ensure you have your custom harvester lined up, etc. This crop value differential is sufficient to justify paying a little more for earlier harvest if you can to avoid dry grain in addition to reduced potential lodging losses or storm damage. Harvest aids may help you also manage timely harvest by adding predictability to your harvest timing to capture and sell water as part of your grain.

Typical Seeding Rates for Wheat for Grain

A long-time standard for wheat for grain when planted at target seeding dates (early October, northwest South Plains, mid-October central South Plains, including ~Oct. 20 in the Lubbock area;

and later October in the lower South Plains) is about 60 lbs. per acre for irrigated, and 30 lbs. per acre for dryland. Most wheat is probably planted at slightly higher rates, but AgriLife data suggests this is not necessary if the wheat will not be grazed. Dryland growers may choose to go with a higher rate (40 lbs./A) if ground cover is needed, or at-plant soil moisture is limiting which will lead to lower stand establishment. As we move past these dates a month or more, wheat drilled by Thanksgiving in the northwest South Plains to early December in the lower South Plains should consider increasing the seed rate by as much as 50%. One recent five-year dataset from Gaines Co. irrigated wheat demonstrated that among seeding rates of 30, 60, 90, and 120 lbs./A that the two higher rates yielded no more than the seeding rate at 60 lbs./A, and even the lowest seeding rate was not significantly less than 60 lbs./A in 3 of 5 years.

Small Grains Planting Date for One-Time Forage Harvest

A significant number of acres in the South Plains are harvested for silage or in some cases wheat hay. These fields for one-time forage harvest should not be planted early like small grains fields where fall grazing is desired. This reduces efficient utilization of moisture among other things. Use the grain seeding date instead. You may gain a little earlier harvest in the spring with slightly earlier fall planting, but the spring flush of growth that will produce the desired forage production you want will come when mother nature allows it. If you want to fall graze these silage or hay fields, then yes, use an earlier planting date. But otherwise, there is no rush to plant early. As I often say about wheat, triticale, and other small grains, remember these are cool-season crops, and they do not perform as well or as efficiently in hotter weather even when planted in late August into September. **CT**

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Useful Web Links

Water Management Website, TAMU, Irrigation at Lubbock, IPM How-To Videos, Lubbock Center Homepage, Texas AgriLife Research Home , Texas AgriLife Extension Home, Plains Cotton Growers

County IPM Newsletters

Castro/Lamb, Dawson/Lynn, Crosby/Floyd, Gaines, Hale/Swisher, Hockley/Cochran, Lubbock, Parmer/Bailey, Terry/Yoakum