GAINES COUNTY IPM NEWSLETTER

Manda G. Anderson
Extension Agent - IPM
101 S. Main RM B-8
Seminole, TX 79360
(432)788-0800 cell

http://gaines-co.tamu.edu
http://www.tpma.org
http://ipm.tamu.edu
mganderson@ag.tamu.edu

Volume IV, No. 5 June 17, 2011

General Situation

Another severe wind storm came through Gaines County on Sunday, June 12. This wind storm brought only 4/100 inch of rain to Seminole and caused significant wind damage in some fields. It is very rare that you walk into a field that doesn't have any wind damage. Cotton stages range from seed in the ground to squaring, with a majority of the cotton sitting at 3 to 5 true leaf stage. It takes approximately 526 Heat Units (H.U.) from planting to squaring. Cotton that was planted on May 15 has accumulated 608 H.U. However, not all of this cotton is squaring due to the excessive drought, wind storms, plants unable to cool themselves, the pivot unable to keep up with the water demands, and the extreme temperatures. The plant becomes less efficient at utilizing H.U. under hot conditions when moisture is limited (See section on Cotton Physiology below).

Table 1. **Accumulated Heat Units (H.U.) since April 25, May 1, May 15, and June 1 for 2009, 2010, & 2011.**

Year	Acc. H.U. Since April 25	Acc. H.U. Since May 1	Acc. H.U. Since May 15	Acc. H.U. Since June 1
2009	628	565	410	255
2010	667	644	561	337
2011	746	712	608	350

Spider mites in cotton and peanuts

Spider mite populations may be on the decline. Last week I reported that we found a cotton field northwest of Seagraves that had a heavy spider mite infestation. We looked at the field again on Wednesday of this week and the spider mite population had declined. Additionally, we found a peanut field this week that had significant spider mite damage, however, we found on average 0-1 spider mites per leaf. This leads me to believe that the spider mite population was heavy at one time (which is what caused the significant damage), but the spider mite population has already dropped off.

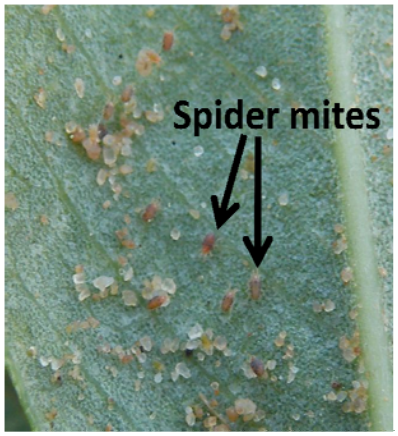

Figure 1. **Spider mites on the underside of a peanut leaf**

Figure 2. **Early stages of spider mite damage on peanuts**

Figure 3. **Severe damage caused by spider mite feeding**

Root-knot Nematodes Reproduction

Last week in my newsletter I mentioned how root-knot nematode damage is likely to be less severe in a tolerant/resistant variety compared to a susceptible variety. The reason for this reduction in severity is due to the plant's resistance limiting nematode reproduction. This can be seen in the table below.

Table 2. **Root-knot Nematode/500cc soil and six different nematode variety trial sites**

Variety	2009 Lamesa Dr. Wheeler	2009 Seminole M. Anderson	2010 Spade Dr. Wheeler	2010 Whiteface Dr. Wheeler	2010 Lamesa Dr. Wheeler	2010 Seminole M.Anderson
DP 174RF	305	4,035	913	1,555	690	560
PHY 367WRF	600	-	1,134	1,380	488	525
ST 4288B2F	1,110	-	1,403	520	265	0
ST 5458B2RF	3,945	8,640	1,989	2,905	535	260
Average per test site	**7,332**	**8,718**	**2,805**	**3,323**	**1,552**	**635**

The first column has four of the varieties known to have partial resistance to root-knot nematodes. Each succeeding column represents a nematode variety trial site. The number of root-knot nematodes/soil sample is indicated. For example, at the 2009 Lamesa trial site DP 174RF had 305 nematodes/soil sample, PHY 367WRF had 600 nematodes/soil sample, ST 4288B2RF had 1,100 nematodes/soil sample, and ST 5458B2Rf had 3,945 nematodes/soil sample. The average number of nematodes/soil sample for all the varieties in the trial was 7,332. Therefore, there was greater than a 50% reduction in nematode reproduction with these varieties as compared to some of the other varieties in the trial.

The reduction in nematode reproduction will not only benefit you this year, but it will also benefit you the following year. Next year, there will likely be a lower number of nematodes at the beginning of the season. Therefore, there will be less nematodes to infest roots early in the season. Ideally, we would hope that repetitive use of resistant varieties year after year would continue to decrease nematode populations on a yearly basis and eventually reach a point that nematodes are not a yield limiting factor.

There are other varieties currently on the market that have shown some tolerance or resistance to root-knot nematodes. These varieties will likely limit nematode reproduction as well.

Vydate Applications

I have also had people ask me about the effectiveness of Vydate being applied during the afternoon heat. Essentially, the same conditions apply to Vydate applications as to when you are applying Roundup. The heat, low humidity, wind, and leaves covered with fine dirt will all likely reduce the effectiveness of Vydate applications. However, to my knowledge there has not been any research to say at what point Vydate applications become less effective. Therefore, my best assumption is to apply Vydate before we reach 100 degrees. If possible apply Vydate to areas of the field where the pivot has just passed and washed off the leaves. In the June 17 edition of Focus on South Plains Agriculture http://lubbock.tamu.edu/focus Dr. Jason Woodward notes that "spray equipment should be configured to produce large droplets when applying Vydate in hot and dry conditions. This will help minimize the effects of evaporation."

Air temperature is important, but so also is sunlight, soil moisture, relative humidity, and air movement. Plants attempt to regulate their tissue temperature, just like warm blooded animals. Although cotton can only cool itself, not heat itself. Cotton attempts to keep its plant tissue temperature between 74 and 90, in the optimum range for growth and photosynthesis. It accomplishes this by opening stomates in the leaves allowing water to evaporate when the air temperature and sunlight heats up the plants. Thus during a hot dry afternoon, well-watered cotton plants are often 10 degrees cooler than the air temperature. Over 99.9% of the water taken up by plants is used to evaporatively cool the plant.

Living organisms, such as plants, contain individual sacks of chemical soup, called cells. The chemicals in the soup combine and rearrange to support growth and maintain their organized state. Temperature is the driving force that allows the chemicals in this soup to react. The warmer the temperature the faster they react, until the temperature gets so warm that the cells start to leak and basic materials such as enzymes start to degrade.

Whether high daytime temperatures increases or decreases yield depends on the availability of soil moisture and the stage of crop development. When the maximum air temperatures are near 100, it's a good bet that most of the daylight hours are favorable for rapid growth, if the plant has sufficient moisture to cool itself. Without adequate moisture, high air temperatures during the day have the inverse effect; they decrease yield. The damaging effect is most severe on cotton in bloom. When hot temperatures occur prior to bloom or after boll set, yield is often increased. Hot temperatures prebloom speed the arrival of the bloom period and occur at a time when water use is low and the root system is still expanding into fresh soil moisture. Hot temperatures after boll set hasten the maturation and opening of the crop.

Special Thanks to the Gaines County TPMA Scouting Program Sponsors

Special Thanks to our Platinum Sponsors of $1000

Carter & Co. Irrigation Inc.
Oasis Gin Inc.
Tri County Producers Coop

Thanks to our Gold Sponsors of $750

West Texas AgriPlex

Thanks to our Silver Sponsors of $500

AG Aero
Doyle Fincher Farms
Five Points Gin
Golden Peanut Company
Western Peanut Growers
Wylie Implement

Thanks to our Bronze $250 Sponsors

Anderson Welding Pump and Machine
Baucum Insurance Agency
Birdsong Peanuts
Crop Production Services, Inc.
Moore-Haralson Agency PC
Pioneer Gin
Ten High Gin Inc.
Valley Irrigation & Pump Service Inc.

Thanks to our $100 Sponsors

McKinzie Insurance
State Farm Insurance