



Pest Cast

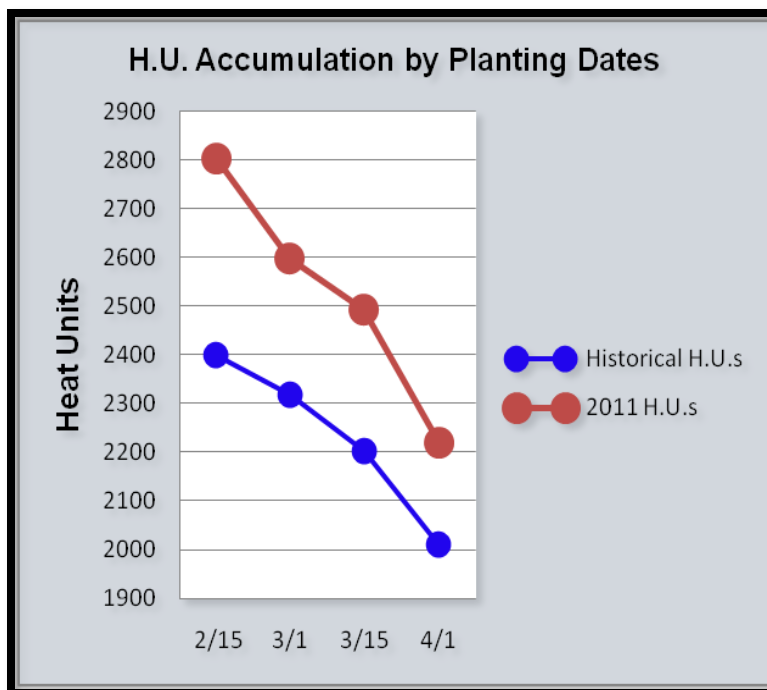
The Row Crops IPM Newsletter for the LRGV, a cooperative project of Texas AgriLife Extension Service and the Cotton & Grain Producers of the lower Rio Grande Valley

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Editor

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General Situation: More rain fell over the past weekend in isolated areas. Many fields were wetted again for the second, third or even fourth time in the last two + weeks. This week has been dry, for the most part. Grain sorghum harvesting resumed for in some fields. To date, no reports of sprouting grain heads or seed sprouting in open cotton bolls.



Cotton: Generally speaking, cotton continued to hold up well despite all of the wet stuff in the last couple of weeks. A few locks of cotton were on the ground in the areas where the heaviest amounts of rain fell. Most bolls were showing little signs of hard locking. A few fields of cotton which have now begun to “grow like weeds” had some boll rotting going on. But, field situations where cotton had grown past 3 feet or more and allowed high levels of moisture to abound were not as common as shorter fields seen this week.

Part of the improved look noted in all cotton fields across the Valley over the last two weeks has been due in part to both to the rains and lower temperatures. Temperatures at or above 95 daytime and 78-79 nighttime will inhibit cotton fruit set. National Weather Service records for the Harlingen airport showed numerous days well above 95 during the day and night time lows of more than 80 degrees. Daytime temperatures during the two weeks of rainy weather were in the upper 70s and 80s to low 90s and nighttime temps were in the 60s and low to mid 70s. This week’s temps have started back up, approaching the mid 90’s and mid to upper 70s at night. So, we should continue to see improvement in the appearance of Valley fields.

The premature leaf loss seen in the Valley and discussed in last week’s *Pest Cast* has also been reported in fields in the Blacklands area of central Texas according to Dr. Gaylon Morgan,

State Extension Cotton Specialist out of College Station. In central Texas the premature leaf loss has occurred even in young cotton fields unlike here in the Valley where it has only been reported from mature cotton fields. A publication from *Texas AgriLife Extension* which shows pictures and discusses the crop symptoms is now available. We have attached a copy to this issue so that it can be printed for those with an interest in the subject.

Verde bug and whiteflies were about the only insect pests of concern this week. New finds of Verde bugs were observed in fields from southwest of Monte Alto to near Lasara in eastern Hidalgo county and western Willacy county this week. Fields which will need to go to at least the middle of August before defoliation should be checked very thoroughly for Verde bugs. Small bolls of a quarter dollar and smaller in size are susceptible to Verde bug attack and can be lost unless the bugs and their damage are detected and managed appropriately. Older, more mature fields which likely will be defoliated within the next couple of weeks or so, should be home free from damage by Verde bugs. But, early maturing fields still should be checked, as those fields may not be as mature as first thought and could still be damaged by the bugs.

Whiteflies continue to be found in all fields across the Valley. To date, most fields have not needed insecticide to control the pests. But, whiteflies can increase in population rapidly if conditions are to their liking. So, while your out looking for Verde bugs, keep in mind whiteflies as well and check for them too.

Dow AgroSciences will be holding a producer meeting in Corpus Christi later this month. We have attached a file which covers the event to this newsletter.

http://southtexas.tamu.edu/ipm/PC_15%20Link.pdf

LRGV

BOLL WEEVIL TRAPPING INFORMATION

YTD	2011	2010	2009	2008	2007	2006	2005
	.00290	.00803	.14764	.14230	.20808	.47096	3.63535

Week Ending	2011	2010	2009	2008	2007	2006	2005
4/3/11	.00476	.00672	.19847	.08503	.64118	.48544	0
4/10/11	.00360	.00592	.11633	.30512	.40392	.37552	0
4/17/11	.00114	.00312	.23686	.17102	.36414	.88875	6.47392
4/24/11	.00133	.01426	.38106	.05425	.23751	.15855	3.48685
5/1/11	.00043	.01528	.09081	.09113	.18227	.08629	1.70269
5/8/11	.00077	.00825	.05548	.08168	.07073	.09976	.73028
5/15/11	.00174	.00291	.02454	.07013	.17113	.09204	.72057
5/22/11	.00234	.00140	.10516	.08410	.06717	.20786	.58319
5/29/11	.00177	.00336	.20724	.06413	.07770	.12939	.84931
6/05/11	.00244	.01018	.13857	.04752	.13497	1.0014	.82565
6/12/11	.00720	.00794	.17487	.11127	.03975	.46624	1.77066
6/19/11	.00556	.00766	.06249	.13535	.12318	.32430	6.8556
6/26/11	.00570	.01430	.03580	.49846	.13204	1.44546	14.96033
7/3/11	.05716	.01456	.13756	.30683	.16200	2.17874	7.73737

Traps inspected for current week: 32,647

We thank the following sponsors of the Pest Cast newsletter for their very generous contributions toward this effort.



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Premature Senescence Syndrome

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Mark McFarland, Ph.D., Professor and Extension Soil Fertility Specialist

Premature senescence syndrome has occurred over the past several years in the eastern and southern cotton production regions. This condition is generally thought to be caused by insufficient potassium in plant leaf tissue which predisposes the foliage to secondary pathogen infection. This was very widespread across both regions in 2002, 2003 and was also observed to a limited extent in 2005. The scenario that appears to favor the onset of premature senescence is very dry conditions during the boll filling period followed by extended periods of wet, cloudy weather post-cutout, and plants with decent boll load (relatively speaking). Symptoms are seen in the upper third of the canopy and are characterized initially as yellowing between the leaf veins followed by a rapid change in leaf tissue to a red/orange/bronze coloration (Figure I). The affected leaves continue to deteriorate, eventually showing brown, necrotic lesions and leaf margins. Generally, secondary foliar pathogens such as *Alternaria*, *Cercospora* and *Stemphyllium* can be isolated from affected leaf tissue (Figure II). These are not considered primary pathogens, but they attack these debilitated plants and contribute to premature senescence and defoliation (Figure III).

The boll is the major sink for potassium (60% of total plant potassium is in the bolls). Adequate potassium is necessary for fiber and seed development. Also, potassium is important for enzyme activation, pH balance, stomatal control and translocation of photosynthates. Both the extended dry period and the onset of late season rains (waterlogged soils) contribute to reduced root function. The relatively non-functioning root system can't uptake enough potassium (and perhaps other nutrients) to meet boll demand, hence the deficiency. Barren plants and those with very little boll load will generally appear unaffected because their demand for potassium and other nutrients is much less (Figure IV).

In addition, the plant hormone cytokinin is important in regulating senescence and roots are a major site of cytokinin production. As root function decreases, so does the production of cytokinin, which leads to senescence.

For nutrients to be absorbed by plant roots, they must come in contact with the root surface. There are generally three ways that this occurs: root interception (very small amounts), movement of ions by mass flow with the soil solution, and diffusion of ions through the soil solution. Most of the potassium moves to roots by diffusion. Diffusion occurs when an ion moves from an area of high concentration to one of low concentration. As plant roots absorb nutrients from the surrounding soil solution, a diffusion gradient is established. Under low soil moisture conditions, water films around soil particles become deleted and discontinuous, slowing the movement of potassium to the roots, thereby reducing uptake. Under these conditions, plants cannot absorb enough of the nutrient to meet boll demand.

Research has indicated that this condition can occur even in fields that contain ample soil potassium. In 2002 and 2003, we collected soil samples from about 20 fields showing signs of premature senescence. Results indicated that soil test potassium levels in 18 of these fields were in the moderate to high category, and presumably sufficient for optimum plant growth.

However, it is important to test the soil annually to determine seasonal crop needs. In addition, annual soil testing will provide a good history for tracking nutrient levels over time. Moderate soil potassium levels in fields with a history of premature senescence may signal the need for supplemental fertilizer. Soil applications of potassium fertilizer may be justified in some situations. In-season foliar potassium applications have been evaluated, but generally have proven effective only about 20% of the time.



Figure I. Symptomology first appears on younger leaves in upper-third of canopy indicating K requirements exceed plant uptake



Figure II. Alternaria, Stemphyllium, Cercospora



Figure III. Premature Defoliation



Figure IV.

Produced by Soil & Crop Sciences Communications

Extension publications can be found on the web at:

- <http://soilcrop.tamu.edu>
- <http://cotton.tamu.edu>
- tcebookstore.org

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