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# Crop Management Newsletter

News about Crop Management for producers in Dawson, Lynn and surrounding Counties.

Thanks to the sponsors and the gins who support the Dawson/Lynn IPM Program
(found on page 2)

## Current Conditions

Due to all the rain, I did not get much chance for scouting fields this week.

I have seen a few open bolls this week.

Diseases are showing their ugly head.

A few field days and farm tours coming up.

## Open Boll

Boll development is divided into three overlapping phases: the enlargement phase, the filling phase and the maturation phase.

Bolls grow rapidly after fertilization with the most rapid growth occurring between days 7 to 18 and full size reached between days 20 to 25. Along with obtaining maximum boll size during this period, maximum seed size and maximum fiber length are established.

The maturation period from white flower to open boll is influenced strongly by temperature. Approximately 800-850 HU's are required for full maturity which might take as few as 40 days or as many as 70 days.

Based on historical records for our area, August 6 is the date in which there is an 85% chance to accumulate enough HU to mature a white flower and August 12 is the date in which there is a 50% chance to accumulate enough HU to mature a white flower.

Boll opening is under the control of hormones. Ethylene is responsible for triggering the process of boll opening and is the active ingredient in compounds such as Prep.

Boll range is size from under 3 grams (0.0066 pounds) to over 6 grams (0.013 pounds). The seeds account for about 60% of the mature bolls weight - the remainder is lint. This translates into about 200 to 400 full-sized bolls to produce a pound of lint, or 100,000 to 200,000 full-sized bolls to produce a bale of cotton. I use 160,000 full-sized bolls when estimating yields.

## Vascular Wilts in Cotton

Vascular wilts, such as Fusarium, Verticillium and again this year Bacterial Blight, are capable of significantly reducing yields and impacting fiber quality. Properly diagnosing these diseases is critical in developing a management strategy. Subtle differences can be observed in the field but laboratory examinations are often needed to differentiate the two wilts.

Once the symptoms appear there is really nothing that can be done. Management strategies are to avoid/minimize the problems in the future.

**Fusarium wilt:**
Disease development is typically dependant on warmer temperatures and sandy soils where the root-knot nematode is present.

Symptoms can occur throughout the growing season. Initial symptoms consist of chlorosis and wilting on the leaf margin. Diseased plants have a discoloration of the vascular tissue with reduced stands and poor vigor. Diseased areas in the field occur in circular patches.

**Verticillium wilt:**
Disease development is typically dependant on cool, wet conditions, variety and plant density (typically irrigated fields).

Initial infestations occur early in the season but symptoms are more evident post-bloom. Chlorosis or necrosis occur on the margins and intervenial areas of the leaf. Infected plants may be wilted and stunted with light to dark brown discoloration in the vascular system. Sever defoliation can result.

**Bacterial blight:**
The bacterium, *Xanthomonas axonopodis* pv. *malvacearum*, is capable of surviving saprophytically (An organism, especially a fungus or bacterium, that lives on and gets its nourishment from dead organisms or decaying organic material. Saprophytes recycle organic material in the soil, breaking it down into in simpler compounds that can be taken up by other organisms.) on infested crop residue. Dry arid conditions facilitate survival in soil from year to year. Cotton plants are susceptible to infection at all growth stages; however, leaves and bolls are most commonly infected later in the growing season. Conditions that favor disease development consist of moderate temperatures and high humidity. Wounding of leaves


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Many Thanks to the Gins who participate and support the Lynn/Dawson IPM Program

**Adcock Gin**
**Farmers Association Coop - O'Donnell**
**Flower Grove Coop**
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by blowing sand or hail may lead to an increase in incidence of the disease. Sprinkler irrigation can increase spread of the pathogen. The population structure of this bacterium is complicated with numerous races being present in cotton around the world. In the United States, race 18 has been the predominant race of the pathogen for the past several decades. The identification of multiple resistance genes and deployment has led to resistance or immunity in many upland varieties. As a result, Bacterial blight epidemics have been sporadic causing negligible losses. Various symptoms are associated with the disease. Initial symptoms consist of small, pinpoint lesions on foliage. As the disease progresses, lesions take on a blocky, angular shape as the bacterium is not capable of crossing veins found within leaves (Fig. 1). Following systemic infections, veins may become necrotic (Fig. 2). Petiole infections result in severe necrosis, which may progress down the limb or branch resulting in a symptom referred to as Blackarm (Fig. 3). Premature defoliation and fruit abortion are often associated with the aforementioned symptoms. Later in the season, the bacterium may infect developing bolls causing a boll rot (Fig. 4). The appearance of these symptoms differs from foliar symptoms. Such lesions have a circular appearance, as there are no veins within the boll to limit growth of the bacterium. These symptoms are characteristic of what has been associated with infections caused by *Xanthomonas axonopodis* pv. *malvacearum*, race 18 over the past several decades.

During the 2015 growing season, subtle differences in symptom expression have been observed when the disease occurs on varieties that were previously documented as being resistant. While angular lesions occur still occur, the middle potion of the lesion has a distinctly different appearance. Seeming as though the center of the lesion is more degraded and falls out, giving the infected tissue a 'shot hole' appearance (Fig. 5). Furthermore, infected leaves of 'resistant' varieties tend to turn chlorotic more readily (Fig. 6).

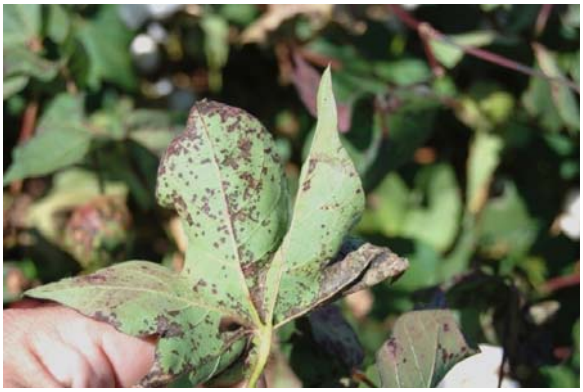

**Figure 1.** Appearance of angular leaf spot lesions characteristic of Bacterial blight.

**Figure 2.** Vein necrosis (top) and leaf necrosis (bottom) associated with Bacterial blight.

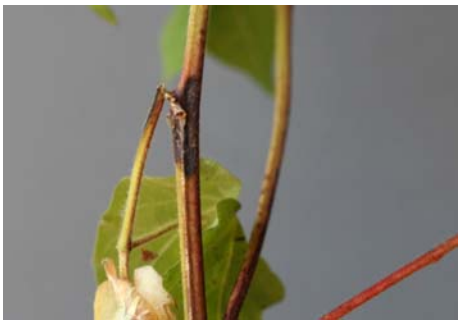

**Figure 3.** Initial blackarm symptom associated with Bacterial blight.

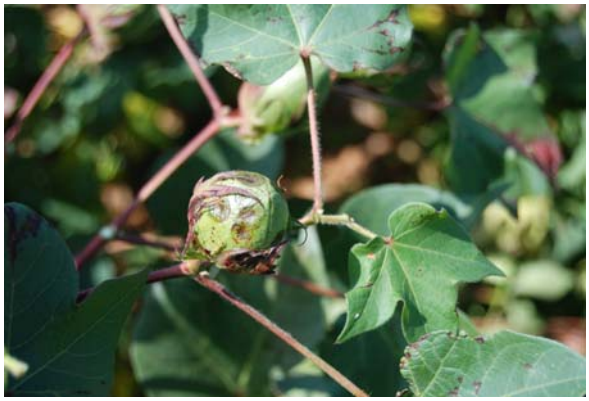

**Figure 4.** Boll rot symptom associated with Bacterial blight.

**Figure 5.** Falling out of leaf tissue associated with Bacterial blight.

**Figure 6.** Chlorotic appearance of leaves exhibiting Bacterial Blight.

# FIELD TOURS

September 6: Ag-Cares Farm Tour
Registration at 8:00 a.m. at Lee Roy Colgan Building (901 S. Houston, Lamesa)
Buses to Ag-Cares Farm will be provided
Lunch provided
3 CEU's
For more information contact:
The Dawson Extension Office at 872-3444

September 20 or 21: Lynn Co. Ag Tour (originating out of Wilson)
Details to follow

September 27: Howard and Martin Counties Enlist & Phytogen Field Tour
9:00 a.m. - Old Flower Grove Schoolhouse (intersection of FM 137 and FM 2002)
Breakfast and drinks provided
TDA and CCA credits offered.
For more information contact:
BrettCypert at 325-895-1841 or Scott Fuchs at 325-277-2001

September 28: Dawson Counties Enlist & Phytogen Field Tour
9:00 a.m. - Jacob Teichroeb's Farm (2 miles East of Wech on FM 2053)
Breakfast and drinks provided
TDA and CCA credits offered.
For more information contact:
BrettCypert at 325-895-1841 or Scott Fuchs at 325-277-2001