Reports of Bacterial blight in cotton have plant pathologists seeking samples

Weather conditions experienced this season throughout most cotton producing regions of Texas have been conducive for the development of foliar diseases, such as Bacterial blight. Furthermore, cotton plants can be infected by the causal agent of the disease, *Xanthomonas axonopodis* pv. *malvacearum*, during any growth stage. During this time of year, the disease is easiest to identify on leaves and bolls in the lower canopy. 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.

Earlier this season, subtle differences in symptom expression were observed on varieties that were previously documented as being resistant to the disease. 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). Recent field observations have shown that most all varieties evaluated exhibited some level of disease (Table 1).

In order to determine why the disease is so wide spread and developing on resistant varieties plant pathologists at the Texas A&M AgriLife Research and Extension Center in Lubbock are trying to implement a sampling program. We are asking producers, consultants, dealers, distributors, seed and chemical representatives, as well as anyone else involved in the cotton industry to contact your local county extension agent regarding fields exhibiting symptoms of Bacterial blight. Samples of symptomatic leaves should be collected, placed in a plastic bag and shipped to the Texas A&M AgriLife Research and Extension Center, 1102 East FM 1294 Lubbock, TX 79403 c/o Terry Wheeler or Jason Woodward. The following information should accompany samples 1) variety name, 2) estimated level of severity (i.e., low, moderate or high), as well as 3) GPS coordinates of the field (to allow for further monitoring or subsequent sampling). If you have any questions regarding the appearance of the disease or need additional information about the sampling please contact either Dr. Wheeler (806-746-6101; twheeler@ag.tamu.edu) or myself (806-632-0762; jewoodward@ag.tamu.edu).

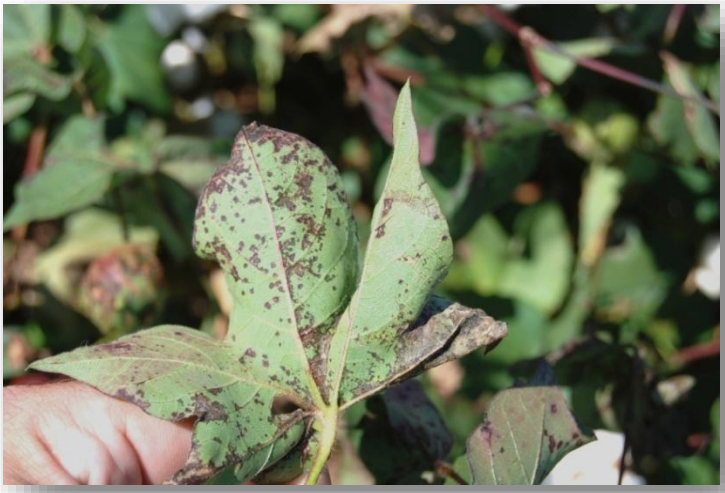

Figure 1. Appearance of angular leaf spot lesions characteristic of Bacterial blight.

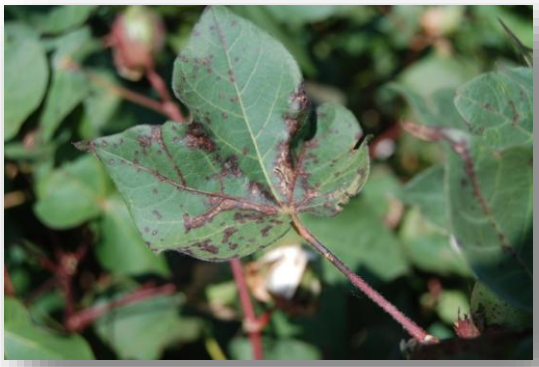

Figure 2. Vein necrosis (left) and leaf necrosis (right) associated with Bacterial blight.

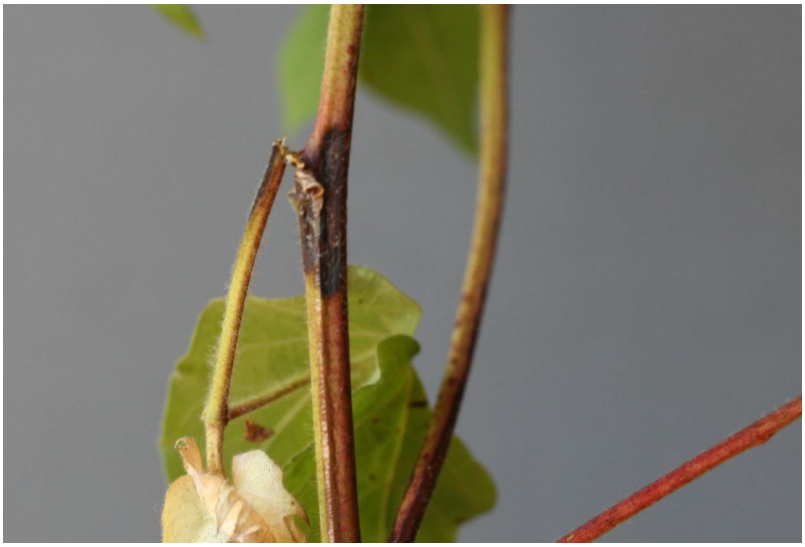

Figure 3. Initial blackarm symptom associated with Bacterial blight. (Photo Tom Isakeit)

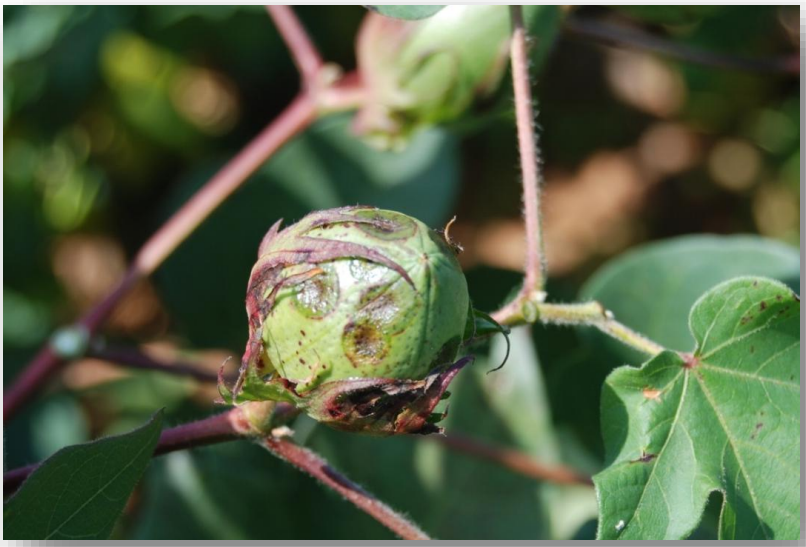

Figure 4. Boll rot symptom associated with Bacterial blight.

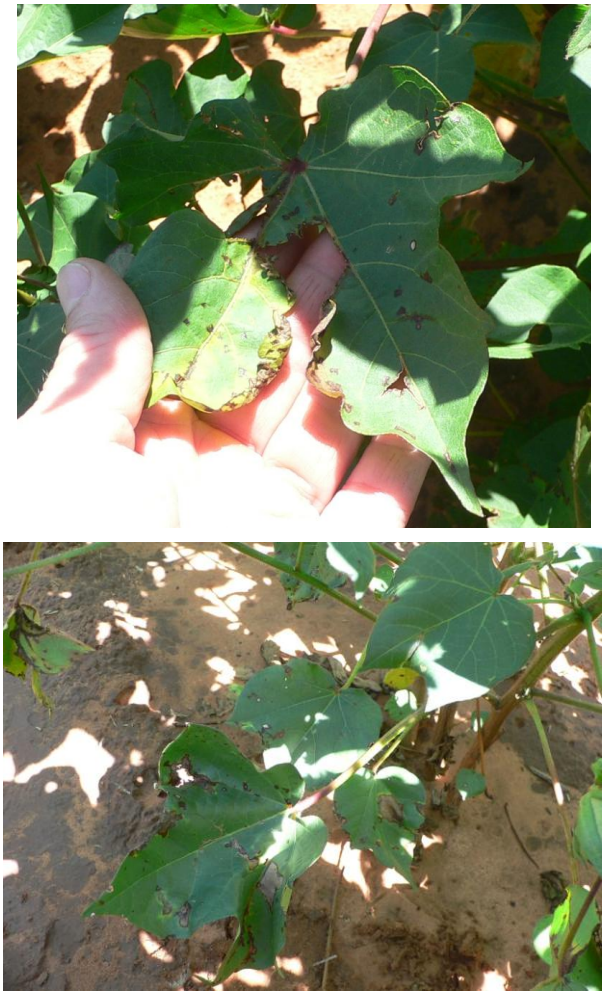

Figure 5. Falling out of leaf tissue associated with Bacterial blight-like symptoms on a resistant variety.

Figure 6. Chlorotic appearance of leaves exhibiting Bacterial blight-like symptoms on a resistant variety.

Table 1. Blight incidence ratings in a variety trial for a field near Plains, TX suspected of having a new bacterial problem, or a possible mixture of a new bacterium plus our standard Bacterial blight pathogen[z]

Variety	% of plants with blight symptoms	Rating from trials with race 18 of normal bacterial blight
DP 1549B2XF	60.00	No data yet
DP 1321B2RF	48.75	Susceptible
PHY 495W3RF	43.75	No data yet
BX 1531GLT	42.50	No data yet
FM 1830GLT	**42.50**	**Immune**
BX 1634GLT	37.50	No data yet
BX 1635GLT	37.50	No data yet
FM 2322GL	37.50	Susceptible
DP 0912B2RF	33.75	Susceptible
DP 1558NRB2RF	32.50	No data yet
PHY 487WRF	32.50	No data yet
FM 2007GLT	**31.25**	**Resistant**
DP 1359B2RF	**30.00**	**Partially resistant**
BX 1637GLT	28.75	No data yet
DP 1410B2RF	**27.50**	**Resistant**
PHY 444WRF	27.50	No data yet
PHY 575WRF	27.50	No data yet
FM 2484B2F	**26.25**	**Immune**
NG 1511B2RF	26.25	Susceptible
DP 1555B2RF	22.50	No data yet
NG 5007B2XF	21.25	No data yet
PHY 417WRF	21.25	Susceptible
PHY 339WRF	**20.00**	**Partially resistant**
FM 2334GLT	**17.50**	**Immune**
PHY 499WRF	17.50	Susceptible
ST 6182GLT	17.50	No data yet
DP 1538B2XF	16.25	No data yet
FM 1320GL	16.25	Susceptible
PHX 3003-04WRF	13.75	No data yet
DP 1441RF	10.00	Susceptible
DP 1553B2XF	8.75	No data yet
ST 5289GLT	**8.75**	**Immune**
DP 1311B2RF	3.75	Susceptible
DP 1454NRB2RF	3.75	Susceptible
BX 1532GLT	2.50	No data yet
BX 1633GLT	2.50	No data yet

[z]Differences between varieties were not significant at P=0.05.