



# Pest e-alerts



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## Cotton Disease Update-10/15/18

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With the dramatic increase in cotton acres I have received more requests for diagnosing and troubleshooting disease and disease-like problems on cotton this year than in total over the last 28 years. The following are some of the diseases/issues observed in 2018.

**Boll rot** was observed in an irrigated cotton field affecting a few of the lower bowls (Figure 1). The most common boll rot was anthracnose and another cause was *Phytophthora* spp. These were both found in the same field. Overall a low percentage of the bolls were affected. There are many causes of boll rots including bacteria and fungi and the biology of boll rots is poorly understood. Over 170 species of microorganisms including mostly fungi and a few bacteria have been associated with rotten bolls. These organisms can invade the nectaries of flowers, and the stomates and growth fissures of bracts and bolls causing infection and disease development. Others are opportunistic pathogens that invade wounded bolls. A few boll rot pathogens can penetrate intact bolls directly. Boll rots are generally favored by wet and humid weather, dense plant canopies that increase humidity and moisture retention, and lodging that increases soil splash onto bolls. Seed contamination with bacterial blight and anthracnose also favors boll rot by these pathogens. Seed treatments have greatly reduced seedborne anthracnose and resulting boll rot although Bob Kemerait at UGA relayed that anthracnose is still a leading cause of boll rot in Georgia. The use of growth regulators to manage plant growth has contributed to reduced levels of boll rot by reducing rank growth and increasing air penetration into the plant canopy.



Figure 1: Boll rot on lower bolls

**Bacterial blight**, also caused angular leaf spot (Figure 2) was observed in several fields in 2018 but did not reach the damaging levels that occurred in 2016. This is likely due to reduced planting of susceptible varieties or contaminated seed. Angular, water-soaked spots appear on leaves at any stage of plant development. The infections can become systemic and follow the leaf veins (Figure 3). Severe infection results in defoliation. Bacterial blight can also cause boll rot. Affected bolls develop water-soaked circular spots that increase in size to about ½ inch in diameter and appear sunken. Diseased bolls open prematurely and have discolored lint. Lesions on cotyledon stage cotton are typically from seedborne inoculum. Other sources of the bacterium are infested residue left of the soil surface from previous crops. Planting of resistant varieties is the most effective management strategy although crop rotation; use of good quality, pathogen free seed; and residue management also contribute to effective disease control.



Figure 2: Bacterial blight



Figure 3: Cercospora leaf spot

**Foliar Diseases** were apparent late in the season, often on plants with nutrient deficiency symptoms. *Ascocyta* (Figure 4), *Alternaria*, and *Cercospora* (Figure 5) leaf spots were observed in several fields. These diseases did not appear to be having much of an impact. Target spot (Figure 5) is considered a more damaging foliar disease but it was not observed in 2018. *Ascocyta* typically causes 'wet weather blight' of young plants but it was found on older plants following significant rains in August and early September.



Figure 4: *Ascocyta* leaf spot



Figure 5: Target spot  
(photo courtesy of Randy Boman).

A **white discoloration** of cotton leaves was observed in several fields in north central Oklahoma. The consultant was concerned that this was *Aerolate* mildew, also known as false powdery mildew. This is a relatively new disease of cotton in the US that can cause defoliation. Growers in Georgia have been spraying for *Aerolate* mildew where it appears early. However, the white discoloration here was confined to the upper leaf surface (Figure 6) and lacked the conspicuous white mildew on the lower leaf surface typical of *Aerolate* mildew. The epidermis (surface) of affected leaves appeared ruptured and bleached often following leaf veins, and was devoid of fungal or bacterial growth. The cause of the white discoloration is a mystery.



Figure 6: White leaf discoloration - cause unknown.

#### **Disease and Insect Diagnostic Laboratory**

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