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Crop Management Newsletter

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

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

Snapshot

I made a mistake - I know it's hard to believe but I did. Last week I mentioned a field with aphids " has about 2% of the plants that would surpass the threshold of 50 aphids per leaf". The mistake was that should have been 0.2%.

Aphids are still being found in cotton - they are just scattered about in most every field.

With the cooler wet conditions we have been experiencing - vascular wilts might become a big concern.

Aphids

Aphids, although small, can hurt a crop, especially during the boll fill process. Insecticidal control of aphids should be delayed until infestations exceed 50 aphids per leaf.

Here are a few techniques to help you monitor aphid populations in your fields:

1) Sample two leaves, the forth mainstem leaf down from the terminal and another mainstem leaf from the bottom third of the plant. Do this in several locations throughout the field. Total the number of aphids and divide by the total number of leaves sampled; this will give you the aphids per leaf count.

2) Place a flag next to several plants throughout the field and monitor the aphid activity on these indicator plants. This will help you in deciding if the population is increasing, decreasing or staying about the same.

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.

Special THANKS to those who support Agriculture and the Lynn/Dawson IPM Program

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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.

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

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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 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.

Subtle differences in symptom expression have been observed when the disease occurs on varieties that were previously documented as being resistant. While angular lesions 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.

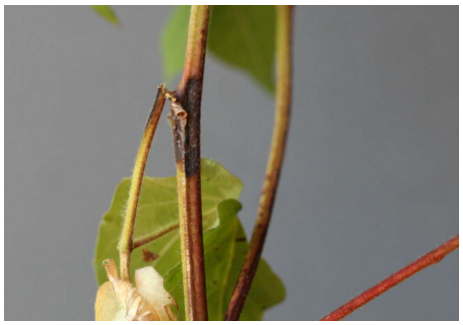

Figure 3. Initial blackarm symptom associated with Bacterial blight.

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.