AgriLIFE EXTENSION
Texas A&M System

July 31, 2012 — Cotton

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Cotton Agronomy

CROP UPDATE

Recent rainfall (July 9-10) events were spotty and provided some relief to those fortunate enough to be under one of the clouds that produced precipitation amounts ranging from a trace to just over an inch, with some reports of 2+ inches localized. According to the Texas Tech University – West Texas Mesonet website, for June and July rainfall combined, the Abernathy location reported 6.86" for a high and the Lamesa location recorded the lowest with 0.62". Cotton crop conditions are very mixed and variable. Under good irrigation with higher rainfall amounts, most are currently in peak bloom and producers should continue to monitor crop for stress or insect pressure to maintain early set fruit. At this time, most irrigated fields are in fair shape and range from early to peak bloom. However, there are areas where irrigated crops are still feeling the effects of 2011 were high amounts of irrigation have resulted in saline soil conditions. If producers suspect this condition in their fields, a proper soil sample should be taken and sent in for Sodium Absorption Ratio analyses. Recently, a sample was sent in for testing from a field in Lynn county and the results indicated a highly saline soil with an SAR of 7.3 and an EC of 20.1. Based on cottons response to saline soil, at this level, a better than 50% reduction in stand establishment can be expected. Another field has been sampled and results are pending, but it is suspected that salinity may be a factor in slowed growth and development. Unfortunately, the saline soil problem can only be remedied by large amounts of rainfall to leach the salt minerals through the profile.

As for dryland cotton crops in the area, most locations are already starting to show signs of moisture stress. This again will only be remedied by much needed rainfall. One bright spot are the modest temperatures experienced on the High Plains in early July with Lubbock recorded daily highs in the low to mid 90's. Although the temperatures have moderated considerably, heat unit accumulations for Lubbock are 19% above normal for the time period of May 1 to July 18. Extended forecasts are mixed with some indicating above normal precipitation in August and September and below normal temperatures in September. Others are predicting continued drought conditions.

The June 29 NASS Crop Report indicated that we planted about 960 thousand cotton acres in 1N (down 23%) and about 3.19 million in 1S (down only 4%) for a combined total of 4.15 million. If these numbers hold up the combined total of 4.15 million acres indicates the 2012 planting is down 9% from 2011. Although acres are down slightly, with beneficial rainfall abandoned acres will be down significantly compared to 2011 (>60%). However, if some areas with struggling dryland do not receive moisture soon, the percent abandonment could soon begin to rise.

PLANT GROWTH REGULATOR CONSIDERATIONS

Although limited in number, some irrigated cotton crops may experience growthy conditions that require use of a mepiquat based plant growth regulator (PGR). For more in-

Continued on page 2

Continued from page 1

Cotton Agronomy

formation on these PGR products, see the June 15 edition of Focus. Producers should check with their area seed company representatives and see what they are recommending for specific varieties in specific field situations. There are a lot of growth potential differences among varieties planted in our region and these differences will have the opportunity to be expressed soon. Fruit retention will be important, and some areas are experiencing square shed due to environmental issues. Many of these lower fruit retention fields will produce vigorous growth under higher levels of irrigation. The growthy varieties perhaps even with good fruit retention will tend to take off if hot temperatures and open skies continue. For producers who initiated early low rate multiple application PGR regimes, it may be necessary to make additional applications to control growth. For producers who have yet to make any PGR applications, higher rates will likely be in order to help check growth. The good news is that the PGR products can be tank mixed with glyphosate in Roundup Ready Flex cotton.

Mark Kelley, Extension Cotton Agronomist

Cotton Disease Update

To date, things have been relatively slow from a disease standpoint in this year's cotton crop. Root-knot nematodes (Meloidogyne incognita) are apparent in many fields with severe damage occurring with high populations. Symptoms of nematode damage include low vigor, stunting and a reduction in bolls. Infected plants may also exhibit nutrient deficiency-like symptoms, as nematode feeding disrupts root functions. Spherical galls or 'knots' may be present on the tips of tap and feeder roots. With the cancelation of Temik 15G, there are few chemical management options that can be used. While seed treatment nematicides may offer some early season protection, they are less effective under high pressure conditions. Foliar applications of Vydate have been shown to reduce nematode damage and increase yields; however, little information exists on how to properly time applications in the absence of Temik. Since nematode damage is a function of populations in the soil, management practices which impact nematode reproduction or survival should be utilized to reduce losses in the future. Several partially resistant varieties, including Deltapine 174RF, Phytogen 367WRF, Stoneville 4288B2F and Stoneville 5458B2F are available. Benefits from planting these varieties include increased yields, as well as a reduction in reproduction. Breeding for resistance to root-knot nematodes is a major interest in many breeding programs, and new resistant varieties are being evaluated. In the meantime, it is important to monitor nematode populations in fields with a history or those that are at risk. Soil sampling is an important process that can be used to determine nematode populations. Samples collected in the fall or early winter can provide insight into potential issues the following year. For information on nematode sampling, handling and processing see the http://lubbock.tamu.edu/files/2011/11/Nematodesampling.pdf

Fields infested with root-knot nematodes could also experience problems with Fusarium wilt. The causal agent of this disease is a soilborne fungus (Fusarium oxysporum f. sp. vasinfectum), that is capable of negatively affecting stands and greatly reducing yields. Symptoms associated with this disease include wilting of leaves early in the day, as well as chlorosis or necrosis on the margins of leaves in the lower canopy. Wilt symptoms are more severe on hot, dry days when the plants demand for water is high. Such symptoms occur because of clogging of the vascular system caused by infection.

Mortality can occur in young plants. Discoloration, which is continuous, can be seen when examining the inside of the root system or lower stem. The development of Fusarium wilt in Texas is found to be in conjunction with root-knot nematodes; therefore, the appearance of galls can be used in some cases to distinguish this disease from Verticillium wilt.

As the cotton crop transitions from vegetative growth to reproductive stages the plants demand for water increases. As a result, now is the time to expect to see an increase in the incidence of Verticillium wilt (caused by the soilborne funfus Verticillium dahliae). Infections by V. dahliae occur early in the growing season as microsclerotia (the overwintering structures of the fungus) germinate in response to soil conditions and plant exudates. The fungus infects through the roots and ultimately colonizes the vascular system. It is this colonization that plugs the channels which transport water and nutrients (known as the xylem) and results in the wilted symptoms observed on the foliage. Leaves of infected plants will exhibit a yellowing between the veins before becoming necrotic. Under severe circumstances the leaves may defoliate prematurely. Previous research has shown that several cultural practices can affect Verticillium wilt development (lubbock.tamu.edu/files/2011/11/ IntegratedManagementVerticilliumWiltCotton.pdf). There are no fungicides labeled for control of Verticillium wilt in cotton. Rather the disease should be managed with partially resistant varieties. Studies are on-going to determine the performance of cotton varieties and breeding lines in fields infested with varying levels of V. dahliae. Refer to the following link to see the response of cotton varieties to Verticillium wilt and other diseases.(http://lubbock.tamu.edu/files/2011/11/DiseaseRecommendations.pdf)

High relative humidity within the canopy resulting from irrigation applied to maximize fruiting and scattered thunderstorms favors development of other diseases, such as bacterial blight (caused by Xanthomonas axonopodis pv. malvacearum). This disease occurs routinely in the High Plains; however, substantial yield loss is seldom experienced. Recent crop alerts from the mid-south indicate that the disease has been reported in parts of the mid-south. Symptoms of bacterial blight include small, dark green, water-soaked lesions that are first visible on the underside of leaves. These lesions are delimited by the veins within the leaf (which gives rise to the common name 'angular leaf spot'). As individual lesions coalesce and become necrotic, infected leaves will defoliate prematurely. In addition, lesions may develop on the bolls, resulting in the rotting of lint. There are no chemical management options available for bacterial blight; however, the disease can easily be managed through the use of resistant or immune varieties http://lubbock.tamu.edu/cotton/pdf/2010Bacterial.pdf. If you have any questions regarding these or any other disease issues in cotton, please contact Jason Woodward @ 806-632-0762, or via e-mail jewoodward@ag.tamu.edu.

Jason Woodward

Extension Plant Pathologist

The articles are from a recent issue of FOCUS on South Plains Agriculture, a weekly newsletter from the Lubbock Research and Extension Center.
http://lubbock.tamu.edu/focus

FOCUS Editor—Patrick Porter
