Pest e-alerts

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Peanut Disease Update

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I visited the peanut plots last week at the Caddo Research Station and noticed that **early leaf spot** (Fig. 1) was present at low levels in a field trial planted to Spanish peanuts. While it is hard to become concerned about foliar disease in this hot weather, once the weather breaks and it rains again (I am being optimistic here), look for leaf spot to rapidly increase. Examining the peanut leaf spot advisory program (http://agweather.mesonet.org/) shows that since June 1, sufficient infection hours have accumulated in most production areas to establish leaf spot (Table 1). It takes 36 infection hours before spots appear. This is an approximation assuming that spores of the fungus are present and plentiful. Crop rotation typically delays disease development.

Fig 1. Early leaf spot of peanut.

Leaf spot typically appears as a few spots in the initial stages of the disease epidemic. The disease then increases as 14-day secondary cycles develop over the course of the season. Hot and dry weather, and fungicide application prevent further disease development. Fields should be checked for the presence of leaf spot and sprayed before or soon after favorable conditions return. The goal of a fungicide program for leaf spot should be to keep the peanuts as clean as possible into the fall so that rescue treatments are not needed late in the season.

Table 1. Weather conditions favorable for leaf spot development since June 1, 2012 according to the Peanut Leaf Spot Advisor on the Oklahoma Mesonet Agweather web site.

Location (County)	**Days w/ at least one infection hour**	**Total infection hours since 1 June**
Burneyville (Love)	19	120
Erick (Beckham)	7	61
Ft. Cobb (Caddo)	16	76
Hinton (Caddo)	16	81
Tipton (Tillman)	12	82

Southern blight was also observed on a few isolated plants on the station (Fig. 2). Southern blight can increase during hot and dry weather. Now is the time to begin spray programs for southern blight, which should be targeted towards fields with a history of the problem. Fungicide programs for southern blight consist of 2 to 4 midseason sprays with fungicides such as tebuconazole (Folicur), azoxystrobin (Abound), prothioconazole+tebuconazole (Provost), or flutolanil (Moncut). Except for Moncut, these fungicides also control foliar diseases.

Fig 2. Southern blight of peanut.

Tomato Disease Update

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Given the good tomato crop this year, there has been considerable interest in diseases. There are many tomato diseases as evidenced by entire books written on the subject. Below are some of the diseases encountered thus far in field visits and in samples submitted to the OSU Plant Disease and Insect Diagnostic Laboratory.

Leaf roll

Causes of leaf roll can either be infectious (caused by a pathogen) or non-infectious (caused by environmental conditions or a chemical).

Physiological Leaf Roll: Excessive soil moisture and/or nitrogen fertilizer, heat, drought, severe pruning, and/or root damage all are thought to be causes of physiological leaf roll (right). Usually the lower leaves are first to show upward (inward) leaf rolling symptoms. Affected leaves become thickened and leathery. Eventually, all leaves on a plant may become affected. Plants retain their normal green color and continue to be productive, although severe leaf roll appears to increase sun scalding of fruit. Heat is obviously involved this year as many plantings are now showing 100% leaf roll despite adequate irrigation.

Curly Top Virus: Curly top is caused by beet curly top virus (BCTV). BCTV is transmitted to from plant to plant by the beet leafhopper. Plants begin to show symptoms about 7 to 14 days after they are first infected by a leafhopper. Tomato is not a preferred host for the beet leafhopper, however the leafhoppers transmit the virus to tomato while sampling it. Both the virus and the beet leafhopper have very wide host ranges. On tomato, plants become pale green, stunted, and have curled leaves with purple-colored veins (Fig. 3). Affected plants do not recover and die or remain stunted without setting additional fruit. Fruit already set on symptomatic plants ripens prematurely and is poor in quality. In Oklahoma, curly top usually affects only a small percentage (1 to 5%) of plants, although higher levels (30 to 50%) have occurred.

Herbicide Damage: Various forms of leaf curl, leaf deformation, and twisted growth occur when plant are exposed to phenoxy (hormone-type) herbicide (Fig. 4). Symptoms generally appear in the new growth and mimic virus symptoms. When plants with such symptoms test negative for POTY and CMV virus, we normally conclude the symptoms are caused by herbicide injury from pasture or lawn care drift or runoff; or from contaminated compost, manure, or mulch. The source of such contamination is often difficult to pinpoint, as tomato is highly sensitive to low doses.

Fig 3. Healthy tomato plant (upper R) vs. plant w/BCTV (lower L).

Fig 4. Phenoxy herbicide damage.

Wilt: Wilted plants have been diagnosed mostly as Fusarium wilt (Fig. 5) or root-knot nematode (Fig. 6). Symptoms of Fusarium wilt include an internal, reddish brown discoloration of the lower stem, which extends upward in the plant (Fig. 7). Root-knot nematode is easily diagnosed when plants are uprooted by the appearance of large, swollen, knotted roots (Fig. 9). These diseases can only be controlled with resistant varieties, although we have seen Fusarium in some race 1-resistant (F) varieties.

Fig 5. Fusarium wilt.

Fig 6. Wilt and yellowing from root knot nematode.

Fig 7. Internal stem discoloration caused by Fusarium wilt.

Fig 8. Swollen disfigured roots from root-knot nematode.

Leaf scorch: Leaf scorch caused by bacterial canker (right) was recently observed in a field. Bacterial canker can be difficult to diagnose because a variety of symptoms may occur and the canker symptom (stem lesion) is not always produced or is a minor component of the symptom complex. More often the disease causes a systemic infection of the pith or xylem. Plants affected early in their development wilt and die and the disease may be confused with bacterial or Fusarium wilt. When older plants are infected, leaf scorch develops and foliage is killed from the bottom up.

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