



# Pest e-alerts



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## Disease in this heat?

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A few disease problems have shown up despite the intense heat. Naturally most of these diseases are soilborne and stress-related.

**Charcoal rot of soybean:** Plants in patches or large areas turn yellow, wilt, and die (Fig 1). Roots of affected plants have tiny round, black microsclerotia (survival structures) embedded in them (Fig 2). Heat and drought stress allow the fungus to reach damaging levels in the root, although roots are probably infected earlier in the season. Charcoal rot is the one of the most widespread soilborne diseases of soybeans along with soybean cyst nematode. The fungus also causes stalk rot of sorghum and crown rot of cantaloupe among the large number of host plants it affects. Consult Pest e-alerts (<http://entopl.okstate.edu/pddl/2008/PDIA7-32.pdf>) for more information. A lack of pollination and pod set from the heat is likely to be make charcoal rot a moot problem this season.



Fig 1. Wilting soybeans due to charcoal rot.



**Fig 2.** Charcoal rot microsclerotia.

**Southern blight of peanuts and tomatoes:** As its name implies, southern blight likes it hot. It is mostly a problem on irrigated peanuts and tomatoes, although soybeans and cantaloupe fruit are also susceptible. Southern blight appeared on peanuts much earlier than normal this season due to the early heat and frequent irrigation at the Caddo Research Station. Tomato samples have also come into the diagnostic lab with southern blight. Southern blight is relatively easy to diagnose by the presence of the white, stringy fungus growth on the lower stem and the mustard seed-sized sclerotia (survival structures) that form on infected stems (Fig 3). Wide fluctuations in soil moisture levels favor the germination of sclerotia that result in infection of the lower stems, wilting, and plant death. Spray programs with fungicides recommended for southern blight are effective on peanuts when watered in within 4 days of application by rain or irrigation. It is too late to worry about southern blight control on tomatoes this year. I have not seen data on control of southern blight of tomatoes. The fungicides Evito and Quadris have good activity on the southern blight fungus and may be effective on tomatoes when applied preventively. Crop rotation with non-hosts is partially effective in problem fields.



**Fig 3.** Southern blight is relatively easy to diagnose by the presence of the white, stringy fungus growth on the lower stem.

**Aspergillus crown rot of peanuts:** *Aspergillus* crown rot is caused by a different, black-spored species of *Aspergillus* than the green-spored species that causes aflatoxin contamination of peanuts and corn. The fungus (*Aspergillus niger*) causes a crown rot near the soil line accompanied by a black, sooty fungal growth beneath the soil line (Fig 4). Normally seedlings are affected within about a month after planting. However, crown rot symptoms that result in the wilting and death of individual branches or entire plants can develop throughout the season. Drought and heat stress, and feeding by the lesser corn stalk borer predisposes plants to developing *Aspergillus* crown rot. Fungicides have not proven to be effective on crown rot and irrigation to minimize stress and lesser corn borer feeding is the only effective control strategy.



**Fig 4.** *Aspergillus* crown rot near the soil line is accompanied by a black, sooty fungal growth beneath the soil line.

**Aspergillus ear rot/Aflatoxin contamination:** Heat, drought stress, and earworm feeding predispose corn to *Aspergillus* ear rot (Fig 5). The fungus, *Aspergillus flavus*, produces aflatoxin, which is regulated in marketing corn. Corn growers this year will be painfully aware of the impact of pre-harvest aflatoxin contamination in the marketing of corn. Exposure of corn to high temperatures during grain development favors infection and toxin development. We are testing the effectiveness of Afla-Guard, a non-toxic strain of the fungus as a biological control for aflatoxin contamination in corn. The product reduced aflatoxin levels up to 85% in inoculated plots last year. Given the intense heat this summer, I suspect that aflatoxin problems will show up in irrigated corn as well. Some (??) crop insurance policies cover losses from pre-harvest aflatoxin. It is important to prove by testing, that loss occurred before the corn goes into storage. Testing is offered at local buying points, by the Oklahoma Department of Agriculture, Food and Forestry and by the OSU Animal Disease Diagnostic Laboratory.



**Fig 5.** Aspergillus ear rot on corn.

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