

Walnut growers fend off fungal disease

Botryosphaeria proves a threat following wet winter weather

By **CECILIA PARSONS**
For the Capital Press

Wetter than normal winters have the potential to unleash a "sleeping giant" of a disease in walnut trees.

Themis Michailides, plant pathologist at the University of California-Davis is warning walnut growers that the canker disease Botryosphaeria, dodged during dry years, could be a factor in tree health this year.

The disease was first discovered in a Butte County, Calif., pistachio orchard in 1983, following a wet winter.

The disease gathered steam in subsequent wet winters and by 1995 had spread from a few trees in Northern California to Southern California walnut production areas.

There was a major epidemic of botryosphaeria in 1998, as the fungi attacked branches and clusters, affecting crop yields and gaining the attention of growers.

At that time, Michailides said, there was no known con-



Cecilia Parsons/For the Capital Press
Botryosphaeria has infected these shoots on a mature walnut tree in Tulare County, Calif.

trol other than sanitation practices. Many growers pulled their infected pistachio trees after that epidemic and planted walnuts, not realizing the fungal disease also targeted that crop.

There are 10 species of Botryosphaeria that affect walnut trees, and all walnut cultivars are susceptible to the disease.

Michailides' research, funded by the California Walnut Board since 2012, has found the fungi infect the nut, move to the peduncle and then

spread to the spurs, killing the next year's buds.

Tulare County farm advisor Elizabeth Fichtner said that several species of the pathogen are associated with branch dieback and bud mortality and shoot and fruit infections in California walnuts.

In the past the dieback has been attributed to shade-out, but Fichtner reports that 84 percent of the walnut samples submitted to the Michailides laboratory at Kearney Agricultural Research and Extension Center in Parlier have

tested positive for Botryosphaeria or Phomopsis, also a canker disease.

Infected wood, prunings and hulls left in the orchard are a source of the Botryosphaeria spores. Other hosts for the fungi are blackberry. Scale insects increase the potential for infection.

In a presentation at the annual Walnut Day organized by Cooperative Extension farm advisors, Michailides said the fungi spores are both wind- and water-borne with the majority of spores released within 30 minutes of even a short rain shower. Higher temperatures contribute to the spread of infection.

Walnuts are unique, he noted, in that pruning wounds leave trees open to infection for a longer time, increasing the risk of infection.

One of the first steps in management of the disease is to assess disease risk and cultural control. To have an idea of the level of infection in a single orchard, growers can collect 200 buds throughout their orchard from January to March and have them checked for Botryosphaeria using a bud monitoring technique called BUDMON.

There are also effective management practices to suppress the amount of the disease in the orchard. Removal

of dead branches, blighted shoots and cankers after winter pruning is essential. Burning is recommended for large branches. Pruning material that is chipped should be disked under. Other management strategies include avoiding irrigation that dampens the tree canopy.

Fungicide sprays also work to control the disease. Growers who want to know the efficacy of particular materials can visit the UC-Davis Integrated Pest Management website to see the chart: ipm.uc-davis.edu/PMG/r605902111.html. Michailides said if only one spray is planned the best time is mid-June to early July.

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