



UCCE Kern County Pistachio Newsletter

Submitted by **Craig Kallsen, Farm Advisor, Kern County**
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Meetings

Botryosphaeria Field Days will be held throughout the state. Dr. Themis J. Michailides, Plant Pathologist from UC Davis and Kearney Agricultural Center, will lead the programs on the diagnosis, epidemiology and control of Botryosphaeria blight of pistachios, including how to accurately identify and differentiate the disease from Botrytis and Alternaria. The meetings are jointly sponsored by the California Pistachio Commission and UC Cooperative Extension. If you have any questions, please call the Commission or one of the following UC Farm Advisors:

Wednesday, June 17 Glenn County Field Day
Bill Krueger 530-865-1107

Tuesday, June 23 Merced County Field Day
Brent Holtz 209-675-7879 x 209

Tuesday, July 28 Kings County Field Day
Bob Beede 209-582-3211 x 2737

Bud Monitoring Program Picks Up *Botryosphaeria* Infections/Infestations in a Few Buds of Kern County Pistachio Trees

Botryosphaeria panicle and shoot blight caused by *Botryosphaeria dothidea* has become a disease of major importance for pistachios grown in California in the last 10 years. Symptoms of Botryosphaeria panicle and shoot blight have not been seen, at least to science, in Kern County. However, this year as a result of the UC Plant Pathologist Themis Michailides' recently instituted bud monitoring program, the presence of this disease-causing organism has now been found in buds from several eastern Kern County pistachio orchards. The infection/infestation, when present, is described as light. The presence of the infection or infestation does not necessarily indicate that the disease (i.e. blighted shoots and blighted clusters) will occur. It is probable that we have had infected or infested buds in many orchards in previous years. For example, *Botryosphaeria*

dothidea has caused active disease on citrus in Kern County for many years, so we know the spores have been blowing around Kern County for some time. Botryosphaeria panicle and shoot blight is more of a concern for pistachio this season since our rainfall accumulation has been similar to what the Sacramento Valley normally receives and where Botryosphaeria blight has put the future existence of the industry at risk in some counties. This year could well be the year when we see some active infections of this disease in Kern County. However, our dry and somewhat windier climate in the southern San Joaquin Valley, our generally well-drained soils, and our wide adoption of low-volume drip irrigation systems, confers significant protection on our pistachios from this disease, especially on the west side of the valley.

We continue to be limited as to what we have available to chemically control this disease, anyway. The Section 18 for multiple applications of Elite7 fungicide was issued for this season and preventative applications may be warranted in orchards in Kern County where Alternaria late blight has been a problem or in orchards that have tested positive for *Botryosphaeria dothidea*, especially if the weather remains wet. Elite works better as a preventative treatment as opposed to being a curative treatment. Generally though, there is little evidence to suggest that spraying for *Botryosphaeria dothidea* in Kern County is necessary or desirable or, in fact, that Botryosphaeria panicle and shoot blight will occur in this county at an economically significant level this year. For those not wanting to make preventive Elite treatments with so little idea of the need or risk in Kern County, it may be prudent to look for disease symptoms in suspect orchards early in the season.

Themis Michailides writes that wilting shoots first appear in late April, early to mid-May, and during June. Infected shoots quickly turn black and their leaves wilt and die. Infections on fruit clusters turn black, usually starting at the basal or branching points of the rachis. Infection of rachises result in blighted clusters with the fruit adhering to the stem. Infections of leaf stems or leaf midribs are black in color and result in leaf blight. Secondary infections of fruit also start as small black lesions which enlarge turning the hulls black. Eventually, the hulls of infected nuts become characteristically light gray to a silvery color with small black spots which are the pycnidia of the fungus inside the hull tissue. Only two to five nuts may have the characteristic light gray color, while the rest of the blighted nuts are brown.

If active infections are seen early, a program of Elite7 sprays would probably be warranted with a follow up pruning of blighted plant parts in late fall or winter.

Blackened Flower Shoots

A sample of black, shriveled Kerman flower shoots collected from some west side replants was determined to be infected with *Botrytis* by Themis Michailide's lab at the Kearney Agricultural Research Center. The symptoms were somewhat unusual in that only the rachis was infected. The disease had hit early during flowering before nut formation began.

Botrytis shoot blight in Kern County, although mild by standards used in most of the pistachio-growing counties of California, was probably the most severe ever seen here. Again, the disease was the worst on the east side of the valley with very little reported from the west side. Very little of the acreage on the west side of the valley was treated with benomyl, and treatment on the east side was sporadic. Benomyl did not appear to be very effective if applied after significant symptoms of Botrytis shoot blight were observed in the orchard. Orchards that were treated with oil to promote early, more uniform flowering appeared to be more subject to Botrytis shoot blight, probably because of the heavier rains which preceded the normal blooming period.

Male and Female Flower Synchronization

The pistachio tree is dioecious, meaning that a tree is either male or female, and to get a crop the male and female trees have to bloom, roughly, at the same time. There was some concern during bloom time this season that synchronization of the 'Kerman' females and 'Peters' males was not as close as it had been in most years, especially so, if the trees had been treated with oil to advance flowering. Normally the males bloom before the females but the males seemed to be a little slower this year. Most orchards are planted with the 'Peters' male which Dr. Dan Parfitt, UC researcher from Davis, suggests may have come from Armenia. Dan writes that Peters produces a large number of male and flowers over an extended period of more than three weeks. The fresh pollen is very viable (exceeding 94% and also relatively durable), remaining fertile for up to a week compared to two to three days for some other males. Dan informed me that, generally, if the bloom periods of the males and females overlap for as little as two days, that sufficient opportunity for cross-pollination exists to set a normal crop. In most of Kern County, we had two days of overlap, at least, and early indications suggest that pollination was not a problem in most orchards.

June Pest Concerns

Monitor and treat as necessary - big bugs (hemipterans), citrus flat mite and ground squirrels.

Growers and PCA's are seeing more obliquebanded leafrollers but many feel the damage they cause is not economically significant enough to pay for the cost of treatment.

Pistachios Don't Like Wet Feet

I have seen at least five cases in Kern County where poor drainage has caused the rapid decline and/or death of pistachio trees of various ages. Phytophthora organisms were not found associated with the declining or dead trees so simple lack of oxygen to the roots appears to be the probable problem.

Too much water is worse than not enough for this tree that comes from the dry steppes of central Asia. Avoid irrigating in excess of the evapotranspiration requirement, having standing water around the trunks, perched water tables, and swales with active runoff or slow drainage. Pistachios do well on clay loam soils under drip irrigation in Kern County, but would probably not fair as well under border irrigation. An efficient irrigation system with pressure compensated emitters or hoses will decrease the amount of water running in the swales of hilly, rolling ground or ponding in low spots in the field. Soil amendments, like gypsum, lime, or dolomite may increase water infiltration rates where standing water has been a problem. Tensiometers and the old-fashioned hand probe can tell a lot about what is going on underground. Soil with a rotten smell, a paucity of roots, and with a surface coating of algae is a tip-off that things are too wet.

Disclaimer

Discussion of research findings necessitates using trade names. This does not constitute product endorsement, nor does it suggest products not listed would not be suitable for use. Some research results included involve use of chemicals which are not currently registered for use, or may involve use which would be considered out of label. These results are reported but are not a recommendation from the University of California for use. Consult the label and use it as the basis of all recommendations.

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Citrus/Pistachio Advisor