



## UCCE Kern County Pistachio Newsletter

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### **The California Pistachio Commission at Work in Kern County**

Research studies funded by the California Pistachio Commission (i.e. the growers of pistachios in California) will continue to take place in Kern County. To mention a few: Bob Beede and others will be working on pruning, Dan Parfitt and others will be evaluating and selecting possibly improved cultivars, Craig Kallsen and others will be looking at the feasibility of fertigating zinc and copper, Dr. Rice and others will be developing trapping systems for big and small bugs, Dr. Michailides will be looking for *Botryosphaeria* using BUDMON, and Dr. Ferguson will continue working on rootstock evaluation. I apologize to everyone that I forgot to mention. Other research projects not funded by the California Pistachio Commission are also underway by UC Cooperative Extension and others.

### **Pistachio Potassium Fertilization**

Drs. Zeng and P. Brown, researchers from UC Davis, have been studying the affect of potassium fertilization in some orchards having low or borderline available potassium (K) in the soil, and lower K levels in the leaves. Generally, the pistachios responded to potassium fertilization with significantly increased yields. The yield increase from a 200 lb./acre potassium fertigation to a San Joaquin sandy loam soil in Madera County was particularly impressive. The source of the potassium, whether from potassium nitrate, sulfate or chloride did not matter. Potassium fertilization did not do much to change leaf-K levels, but, I guess, who cares if yields go up. Perhaps the leaf -K level is not a particularly sensitive measure of K nutrition or, perhaps, leaf-K takes a while to recover once deficient. Drs. Rosecrance, Weinbaum, and others have shown that pistachios are heavy users of K and this may account for some of this yield response in soils that are poor natural suppliers of K.

The need for supplemental K fertilization has been a subject for many crops in Kern County where many of our soils, even some of the sandy loams, generally are good suppliers of K. However, if leaf-K values are low as determined from the August leaf-tissue sampling, Dr. Zeng=s results suggest that applying the K to the deficient areas would be worthwhile. Because the response that was achieved with the fertigated K was so dramatic, and since pistachios have been shown to be heavy K users, the grower might

want to do some on-farm experimentation, regardless of current soil or leaf-K status, to determine if fertigated K might not benefit their yield, as well.

### **Wet Years Promote Botrytis Blossom And Shoot Blight**

*Botrytis* blossom and shoot blight is a fungal disease of pistachio that occurs only in the spring. The fungal spores causing the disease are present in most orchards, however, the severity of the disease increases under wet and cool conditions. During most years in Kern County, the low rainfall, low humidity environment in combination with low-volume irrigation systems offers significant natural protection from this disease. However, the series of storms which have delivered and which are forecasted to continue delivering, plenty of moisture to Kern County suggest that *Botrytis* blossom and shoot blight could be a problem this year. Growers which have not treated for this disease in the past, might consider a preventative treatment this spring if the wet conditions continue into the bloom period of late March to mid-April.

The first symptoms observed in the spring are the wilting of new tender shoots and, later, a drying up of the leaves. These young shoots die with the leaves still attached. Twig death is caused by girdling as a result of the infection of the bark and cambium tissue. Often, the result of the infection are not seen until May and June when the now tan or reddish brown dead twigs and small branches are very noticeable against an otherwise green canopy. Symptoms tend to be more severe in the male trees as the blossoms tend to be more susceptible to infection than is the case with female trees. In male trees, the infections can result in large cankers above and below the flowers.

Blighted shoots are a source of infecting spores not only this spring but the following spring. Weeds and other neighboring crops can be a source of spores, as well. Often, in wet conditions, a grayish mass of spores can be seen around the base of infected branches. For identification purposes, a suspect twig can be removed from the tree and placed in a plastic bag. If *Botrytis* killed the twig, spores will germinate and should be visible a grayish mass within days of being in the humid bag. Dead shoots translate into reduced vegetative growth and fruiting potential next season.

A single application with benomyl (Benlate 50 DF) at a dosage of 1 - 1.5 lbs/100 gallons of water during early bloom to full bloom has proven to significantly reduce *Botrytis* shoot blight. Aerial applications have been allowed under the registration. Check the current label for the latest registration information. To be effective, the benomyl should be applied as a preventative as the compound has limited curative potential.

Growers should be aware that for the past two years older shoots in the interior of the tree canopy have died producing symptoms very similar to *Botrytis* shoot blight. In some cases this older twig death has been severe giving the whole orchard a poor appearance. The primary cause of this shoot death is currently being attributed to shading of the interior of the trees by large, overlapping tree canopies in closely planted orchards.

Kern county has had a wet winter and the forecast is for a wet spring. In the more northern pistachio growing areas of California every year, and in Kern County in some wet years, an ounce of prevention has been worth a pound of cure when it comes to controlling this disease.

**Ride Herd On The Gophers And Ground Squirrels**

This wet weather is going to produce some lush grass and weed growth. It could be a bumper ground squirrel year (also, false chinch bugs, grasshoppers, nut-piercing hemipteran and etc.). Ground squirrels can devastate all ages of pistachio trees while gophers are more of a concern for new plantings. Concern for native rodents and other species is increasing regulations governing the control of ground squirrels. Consult your Ag Commissioner to discover how to poison the ground squirrels while minimizing effects on protected species in your area.

**Chill Hour Update - And It Isn't Simple**

Evidence is converging on a chill hour requirement of mature pistachios of something like 600 hours of temperatures under 45 ° F under southern San Joaquin Valley conditions. Undoubtedly factors like interruptions of the rest period by warm, sunny periods; when the cold temperatures occur during the rest period; how cold the temperatures are, and other factors can influence the relationship. The bottom line for this season is that all areas should get enough chill this season for mature pistachios to set a good crop.

Carl Fanucchi, pistachio grower in Kern County, reports the following chill hours (hours under 45°F with subtraction for hours greater than 65° OR total of hours less than 45° with no high temperature subtraction) from various locations in Kern County where he is maintaining temperature recording equipment.

Location	Total Chill Hours (November 1 to February 8	
	(temp<45 <sup>0</sup> )-(temp>65 <sup>0</sup> )	temp<45 <sup>0</sup>
Poso (one site)	946	1003
Poso (second site)	927	678
McFarland (one site)	910	790
McFarland (second site)	709	736

McFarland (third site)	692	---
McFarland (fourth site)	676	---
McFarland (fifth site)	636	663
Wasco	484	539
Tejon	490	---
Arvin	707	757

A download that I did of Cimis station weather data from Blackwell Corners and Shafter resulted in these figures for the same time period:

Shafter 722 840

Blackwell Corners 710 774

We will get many more chill hours than this before the winter is over.

What these calculations show is that the location of a particular orchard can greatly affect the chill hour accumulations, even for orchards relatively close to one another. Asking what the chill hour accumulation is at a given location may have little relevance with respect to even a nearby orchard. Further, temperature differences between a tree in the swale as opposed to one on the hilltop can result in large differences in chill hour accumulation. In years like this one that are somewhat borderline in some areas, the differences in chilling between hilltops and swales is probably more important than the magnitude of the chilling. Both hilltops and swales will receive sufficient chilling for a crop, but because of the differences in chilling and heat unit accumulation, the bloom could be uneven between the high and low ground.

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