UCCE Kern County
Pistachio Newsletter

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Attention Pistachio Growers: Why Not try Kalch Ghochi?

During the course of the last pistachio harvest, I was introduced to the Kalch Ghochi (Kalehghoochi?) variety of pistachio. Even though I am not sure how the name for this variety is spelled, I was very impressed with what I saw, and if half of what I heard about is true, this variety certainly merits further attention by California pistachio growers. If I were a pistachio grower, especially a large grower, I would find some space for a Kalch Ghochi planting.

The Kerman variety is for all practical purposes the only variety being planted now in the San Joaquin Valley. A lot of research work has and is being conducted to correct some perceived deficiencies in Kerman. Growers would like to see a pistachio tree come into bearing earlier. In the mature tree, desired traits would be a higher percentage of splits, improved nut size, and a reduction in the alternate bearing habit . The Kalch Ghochi appears to have some of these characters.

I saw two plantings of Kalch Ghochi pistachios in southern Tulare County near the town of Terra Bella. One planting was approximately 20 years old on *P. atlantica* and a younger planting on *P. integerrima* and about 7 years old. The purple hull and large nut size makes the trees readily recognizable from the road. The nuts are large, but not so large that a consumer would think they were anything else but a large pistachio. The average size Kalch Ghochi nut is similar to a large to very large Kerman. The shells are as white as Kerman and have a large split. The edible portion of the Kalch Ghochi has an attractive reddish-purple crescent on an otherwise light-colored meat. Historically, one reason that pistachios have not been sold as a shelled nut is that the meats do not look very appetizing out of the shell. Aside from being larger, Kalch Ghochi are, also, less shriveled looking then Kerman. The Kalch Ghochi appears very attractive out of its shell and I believe a good market for shelling stock could be developed.

The Kalch Ghochi splits well, and its proponents have claimed regularly-obtained split percentages of 95% plus. The splits involve a greater part of the circumference of the nut, and processors might have to make some minor changes in their processing plants to avoid losing the shell. The large split does make them very easy to open, something that I think the consumer would appreciate.

The trees produce a large canopy, and by early September had produced branches 20 to 30 inches beyond the nut clusters. The nut clusters tend to be located more on the interiors of the trees, closer to the scaffolds, than is the case with Kerman, so they shake well. However, the Kalch Ghochi grower will definitely spend more money on pruning. A wider plant spacing than is the case for Kerman, is probably in order for this variety.

Those with experience in growing the Kalch Ghochi claim that it shows little tendency toward alternate bearing. Yields appear to be as good as or better than the yields of Kerman in this area, and we estimated that the seven-year old trees on *P. integerrima* probably had a crop in the 1500 to 2000 pound per acre range. However, the yield and the quality of the nuts, of course, will depend to a great extent on the skill of the grower. The potential, apparently, is there. In Iran, the Kalch Ghochi comes into bearing in the third year after budding.

The Kalch Ghochi apparently matures earlier than the Kerman, with the harvest date in these plantings running toward the last week of August in the southern San Joaquin Valley. For those without their own harvest equipment this might be a problem depending upon how the custom harvesters are progressing with the prunes.

Botryosphaeria and *Alternaria* can be problems on Kalch Ghochi as they can be on Kerman. However, in Kern County, especially on the west side, neither of these diseases are currently much of a concern. In fact, *Botryosphaeria* has yet to be reported in Kern County on pistachios, although a close cousin has been found on lemons.

Good yields and splits, early bearing and earlier annual harvests, big attractive nuts and reduced alternate bearing should make at least some growers want to try an experimental planting of Kalch Ghochi.

I would be very interested in establishing a randomized variety trial comparing Kerman to Kalch Ghochi with a cooperative grower. The trial does not need to be large, but it will definitely be long term. I would prefer that it be located in Kern County, preferably on the west side of the Valley. Please contact Craig Kallsen, UC Cooperative Extension, 805-868-6221, FAX at 805-868-6208 or E-mail at cekallsen@ucdavis.edu if you might be interested in talking about it further.

What Bit Me!?

Pistachio harvesters, and at least one farm advisor, were viciously attacked while harvesting pistachios this season. The suspected culprit, even though none has been positively identified because of a general reluctance of investigators to put their body in harms way, is the straw itch mite, *Pyemotes ventricosus* . The female is an almost microscopically small, elongate mite, 0.22 mm long and white to yellow in color. When gravid, she elongates and may attain a length of 2 mm. The mites are active during the warmer months of the year at temperatures above 80 degrees F. The mite is particularly insidious, in that the one being bitten seldom feels the actual bite. The results of the bite, however, are obvious.

I will paraphrase from a couple of medical textbooks which very accurately describe the symptoms as follows:

The dermatitis has been confounded with hives, scabies, and even chickenpox; the neck, chest, abdomen, back, arms and legs - in fact the whole body - may be involved, and the itching is intense. The bites of the straw itch mite are characteristically distributed randomly on clothed portions of the body, particularly where the clothing is heaviest. The welts caused by the bites of the mites vary with different individuals , but they form around a vesicle marking the site of the puncture. If this vesicle ruptures, secondary infection may result. The period between the bite and the appearance of the welts can be from 10 to 28 hours. As was the case with some of the harvesters, a single person may have hundreds of bites. The bites have been associated with fever and in severe cases (although I am not aware of any in Kern County this season) , headaches, anorexia, nausea, vomiting, mild diarrhea, and pains in the joints. Those of you that had large unexplained, infected looking welts, that you attributed to a spider, may well of been the target of a straw itch mite.

Humans can be attacked by coming into contact with straw, hay, grasses, grains and even beans and peas that are infested with insect larvae upon which these predacious mites feed, such as Angoumois grain moth, wheat straw worm, peach twig borer, the bean weevil, and in the most likely host in the cover crops of the pistachio orchards, ants.

The pistachio orchards with the most severe straw-itch-mite problems had a thick mat of straw left over from a foxtail cover crop. The problem was so severe for the personnel operating the harvesters that they were reluctant to enter the orchards or, once in the orchards, were using quantities of duct tape to seal their overalls around the arms and legs.

An insect repellent, like DEET would probably be useful in deterring the mites from crawling up onto people, in the fields. Reducing the ant population in an orchard should reduce the pest but very little is registered for this purpose in pistachios. Choosing a cover crop that is not a prolific producer of straw should, also, be helpful in reducing the problem. Hopefully the pests will not reappear next season.

Avoid Navel Orangeworm Problems with Orchard Sanitation

Navel orangeworms overwinter in the nut mummies left on the tree or on the ground. To reduce a navel orangeworm problem, remove nut mummies on the trees, blow the old nuts from the berms, and shred and/or disc under the nuts in the middles. Generally, the later the harvest, the greater is the problem with navel orangeworms. Thus sanitation becomes even more critical for orchards that are traditionally harvested later in the season.

El Nino in Kern County

Mario Viveros, Deciduous Fruit and Nut Farm Advisor in Kern County, has related horror stories to me about how difficult it was to get into many orchards due to heavy and frequent rains after the first part of January during the last big El Nino. For this reason, pistachio growers, probably, should not procrastinate and endeavor to get all necessary cultural operations completed while weather permits. Pruning, orchard sanitation, application of preemergent herbicides, repair of irrigation systems, and whatever else needs to be done, should be scheduled as early as possible in case winter storms make it impossible to do these chores later.

Yield and Flowering Response of Pistachio to Winter Oil

Last season, 50% or more of the total bearing pistachio acreage in Kern County was treated with Volck Supreme oil during the winter to encourage an early, more uniform bloom. The general consensus, backed up by replicated, scientific data from Bob Beede, UC Farm Advisor in Kings County, and a number of growers who took the time to establish replicated trials, is that it appeared to improve the harvest of split nuts.

The idea behind the oil is to bring the entire orchard (both male and female trees) into flowering simultaneously to improve pollination and reduce the variability in nut maturity at harvest. Again, the idea is to have the maximum number of nuts split and ready to fall into the catcher when the harvester makes the pass through the orchard. Even orchards that in the past have had large differences in nut maturity at harvest, for example because of hilltops and swales, or because the orchards are located in areas where chill accumulation is marginal, generally saw very uniform flowering and nut maturity as a result of the oil treatments.

Most of the oil went on in mid to late February at a rate of 6 gallons of Volck Supreme Oil in a total spray mixture of 100 gallons of solution per acre. Coverage is very important since this spray will move flowering up by two to three weeks. If a considerable number of trees are missed, the oil, obviously, will greatly increase the variability in flowering. If spray uniformity is a problem, slow the spray rigs down to 1 mph or increase the spray volume. Sprays earlier in the winter have often had the same effect as the February spray, but the February timing appears to yield more repeatable results. The response to the oil appeared to decrease rapidly with sprays in March.

Trees just coming into bearing, or which have been bearing for only a few years, are notorious for having uneven blooms which result in harvests which are difficult to time or harvests which include too many blank nuts. Well replicated data from last year=s oil sprays show that the oil treatment greatly improved the uniformity of the bloom in young bearing orchards, with the result of larger yields, a higher percentage of split nuts and a lower percentage of blanks.

Kerman scions on *P. atlantica* rootstock do not appear to be as responsive to the winter oil as those on *P. integerrima*. Thus those with mixed blocks of the two rootstocks may actually increase the variability in flowering by the application of the oil.

The pistachio tree appears to be very well adapted to our weather conditions in the San Joaquin Valley. The tree normally blooms after all danger of frost is passed, so in the past, unlike the almonds, peaches, apples, and other stone fruits, pistachios were not affected by late season freezes. **However, if the trees are sprayed by winter oil, pistachio trees may bloom into freezing temperatures**. One grower in the northern rolling-hill country of Kern County, lost 40 acres of production in the swales of a large orchard due to an early April freeze in combination with the early blooming trees.

If the grower does not have his or her own harvest equipment, the early bloom and earlier harvest can present an additional problem. Many growers are dependent on the prune shakers for harvesting their crop. If the prune harvest is running late, and their nuts are ready earlier than usual as a result of the oil spray, increased navel orangeworm damage, sticking hulls, and stained nuts may be significant problems.

Early evidence suggests that continual oil spraying may delay the down cycle of alternate bearing for up to three years, but an off year, when it returns, may be very off indeed.

Pesticide Registered for Pistachios

(See cautionary statements below)

The following section is reprinted from an earlier newsletter. I have made additions and other changes in response to communication with growers, chemical representatives and others.

FUNGICIDES
Benlate7 - Dupont
Benlate SP7 - Dupont
Elite7 - Bayer (Section 18) - Bayer
Kocide7 - Griffin

HERBICIDES
Devrinol 50 DF7 - Zeneca
Envy 2,4-D7 - Wilbur-Ellis

Fusilade DX7 - Zeneca (non-bearing only)
Goal 2XL7 - Rohm and Haas
Gramoxone Extra7 - Zeneca
Pentagon DG7 - Cyanamid (non-bearing only)
Poast7 - BASF (non-bearing only)
Prism7 - Valent (non-bearing only)
Prowl7 - Cyanamid (non-bearing only)
Roundup Ultra7 - Monsanto
Surflan AS7 - DowElanco
Touchdown7 - Zeneca (non-bearing only)

INSECTICIDES/ACARACIDES
Agree7 - Ciba
Ambush7 - Zeneca
Ambush 25W7 - Zeneca
Ambush 25W WP7 - Zeneca
Azinphos-M WSB7 (Section 3) - Gowan
Dipel 2X7 - Abbot
Dipel 2S7 - Abbot
Guthion Solupak 50% WP7 (FIFRA Section 24c) - Bayer
Imidan7 (FIFRA Section 24c) - Gowan
Neemix7 - Grace
Pounce7 1.5 G - FMC
Pounce7 25 WP- FMC
Pounce7 3.2 EC - FMC
Pounce WSB7 - FMC
Pyrenone7 - Roussel UCLAF
Sevin 4F7 - Rhone-Poulenc
Sevin 50W7 - Rhone-Poulenc
Sevin 80 WSP7 - Rhone-Poulenc
Sevin 80S7 - Rhone-Poulenc
Sevin XLR Plus7 - Rhone-Poulenc
Trilogy 90EC7 - Grace
Volck Supreme Spray7 - Valent
XenTari7 - Abbot
Microthiol7 - Elf Atochem
Uniflow Sulfur7 - Leffingwell
Kumulus DF7 - BASF
Dusting Sulfur Clean Crop7 - UAP

ATTENTION! This list is intended as a general guide only. Before use of any pesticide read and follow the label carefully. Labels change frequently and often contain special restrictions regarding the specific use of a company's product. Some materials have special restrictions placed upon them by County regulations.

The list is meant to be compilation of chemicals currently available for use on pistachios. The listing of a material should not be considered as a recommendation for its use by me (Craig Kallsen) or the University of California.

The list is meant to be as complete as possible but probably contains omissions, especially with respect to sulfur products available for control of citrus flat mite. Please contact me if I have left out any products. I will list them in future newsletters.

Pistachio Day Announced

Annual Pistachio Day
Visalia Convention Center
January 20, 1998

At this meeting the latest findings of the research funded by the California Pistachio Commission will be presented and discussed. Contact Joanne Coviello, UC Kearney Ag Center 209-646-6500.