



## TREE AND VINE NOTES



JANUARY 2002

### 2002 Tri-County Almond Day

For North San Joaquin Valley Almond Growers

**Thursday, February 14, 2002**

Stanislaus County Agricultural Center  
Service and Crows Landing Roads, Modesto

**2 ½ hours of Continuing Education Credits Offered**

Registration: 8:00----Program 8:30-12:00

- **Irrigation Management Strategies Near Harvest.**  
– Ken Shackel, Dept. of Pomology, UC Davis
- **Evaluation of Almond Varieties**  
– Paul Verdegaal, UC Farm Advisor, San Joaquin County
- **Update On New Miticides for Almonds**  
– Benny Fouche, UC Farm Advisor, San Joaquin County
- **Using the Internet for Optimizing Pest Control**  
– Joyce Strand, Information Systems Manager, UCIPM
- **Viable Options for Managing the Replant Problem**  
– Mike McKenry, Dept. of Nematology, Kearney Ag Center
- **Control of Oblique Banded Leaf Roller in Almonds**
- **Update on Dormant Bud Drop Management**  
– Roger Duncan, UC Farm Advisor, Stanislaus County

There is no fee or pre-registration required for this meeting

# 8th Annual Madera County Almond Day

**Tuesday, February 5, 2002**

**Madera County Conference Center, 700 E. Yosemite Ave, Madera  
8:00 AM-12:00 Noon**

- 8:00 a.m.    **PCA and continuing education credits sign-up**
- 8:15 a.m.    **Welcome**  
*Brent Holtz, Pomology Farm Advisor UCCE Madera*
- 8:20 a.m.    **Ant control in almond orchards**  
*Rich Coviello, UCCE Entomology Advisor Fresno*
- 9:00 a.m.    **Navel Orange Worm and Peach Twig Borer and how their  
biology influences control**  
*Walt Bentley, IPM Advisor, Kearney Agricultural Center*
- 9:30 a.m.    **Management of hull rot disease on almonds**  
*Dr. Beth Teviotdale, Extension Plant Pathologist, KAC*
- 10:00 a.m.    Break
- 10:10 a.m.    **Almond production strategies to ensure food safety**  
*Tom Krugman, Almond Board of California*
- 11:00 a.m.    **Ground squirrel control in almond orchards**  
*Dr. Desley Whisson, Extension Wildlife Specialist*
- 11:30 a.m.    **Wood chipping almond brush and Pruning Out Almond Leaf  
Scorch Infections**  
*Brent Holtz, Pomology Farm Advisor UCCE Madera*
- Noon         **Adjourn**

From the north take 4<sup>th</sup> street exit, go south on I st., and east on Yosemite, 145 East  
From the south, take Gateway exit, go north until Yosemite 145, then go east.

## **Reducing Costs in Almonds - A Practical Guide to Orchard Cost-Cutting**

by Wilbur Reil, UC Cooperative Extension in Yolo and Solano Counties

Almond growers are experiencing tight economic pressures these days. Costs continue to increase while the returns have dramatically decreased the last year. Growers are continually trying to find ways to reduce costs or receive higher prices for their crop. In order to look at areas that growers could reduce costs or increase returns a typical or hypothetical farm needs to be considered. For a typical farm I am using the "1995 UC Cooperative Extension Sample Costs to Produce Almonds" that is available at Cooperative Extension Offices. I have made no adjustments on costs although some costs have increased. Labor costs are estimated to be about 15% higher and other costs about 6 or 7% higher than in 1995.

The almond cost study is divided into sections on cultural, harvest, overhead and investment costs. The cost study is based on the orchard producing 2000 meat pounds. To better illustrate two orchards I have used the 2000 pound yield as the high yielding orchard and have

included a 1000 pound orchard as a lower input orchard. Individual grower expenses may vary from this hypothetical farm. I hope that I can stimulate your thoughts towards where you might reduce costs without affecting the short term return and also where cost cutting could seriously reduce the short or long term return.

Figure 1		
Operation	1000 Pound	2000 Pound
Cultural	\$517	\$924
Harvest	\$244	\$314
Overhead	\$205	\$215
Investment	\$452	\$452

Figure 2		
Operation	1000 Pound	2000 Pound
Cultural	\$.52	\$.46
Harvest	\$.76	\$.64
Overhead	\$.97	\$.73
Investment	\$1.42	\$.95

Figure 1 shows the almond orchard cost for a 1000 and a 2000 pound per acre yield for the four general categories. From the figure the cultural costs are much lower and the harvest costs are somewhat lower for the orchard with the lower crop. Very little reduction is shown in the overhead and no reduction is shown in investment cost. The investment was made several years ago in land cost, the irrigation system and planting and no reduction is shown in investment cost. These costs continue and are basically the same for a high producing or a low producing orchard. The overhead expenses of office, insurance, worker safety training, property taxes and investment repairs will not change. The only change that decreases the cost some on the low yield orchard is operating expense interest that I included in overhead.

The two operations that have some changes in costs are harvest and cultural. Harvest cost can be reduced in hauling and in hulling because you are handling only half as much crop and it will require only half the time. Shaking, sweeping, hand raking and pickup will still require the same time because the same number of trees need to be shook and the same area of ground is swept and picked up. Cultural costs can also be reduced and will be commented on later.

Figure 2 shows the accumulated costs per pound of nuts based on the 1000 and 2000 pound yield. The cultural costs are not too much different between the two orchards. Some

difference occurs in harvest costs. The major differences in cost per pound occur under overhead and investment operations. Under these two categories the cost per pound is double under the low yield.

As shown in Figure 1 you can decrease cultural and harvest costs some if you are producing a smaller crop. As shown in Figure 2 this decrease cost per acre does not translate in decreased cost per pound of nuts produced. In fact just the opposite is true. Also the overhead and investment costs cannot be decreased. Therefore, if you want to minimize your cost per pound of nuts produced you need to maximize your yield as much as possible without increasing costs.

Figure 3		
Operation	1000 Pound	2000 Pound
Winter Sanitation	\$••	\$81
Pruning & Brush Removal	\$54	\$108
Insect Control	\$39	\$78
Disease Control	\$66	\$66
Weed Control	\$62	\$72
Pollination	\$50	\$100
Fertilizer - Nitrogen	\$50	\$71
Potassium	\$••	\$69
Insect Control	\$90	\$115
Other	\$106	\$145

Figure 3 shows the cultural costs for an almond orchard yielding 1000 pounds compared to an orchard yielding 2000 pounds. I have tried to decrease the costs where I believe growers can save money. Some of the cost savings can also be temporarily used for growers that are still producing 2000 pounds without adverse effects. I will make additional comments on several of these cost saving areas later.

Winter sanitation is needed to reduce the overwintering host for navel orangeworm. If mummies are not present in the orchard or if a large bird population cleans the trees after harvest it is not necessary. Several growers pole the trees at harvest and harvest the nuts at the same time as the rest of the crop or will harvest the Nonpareils and then reshake them at the same time they harvest the other varieties. Generally the off-type nuts will be under the 10% tolerance so will not affect the grade. While the double shake or the hand poling does not make much money it usually is a “break even” operation instead of an \$81 cost in the winter with no return. Generally it is much easier to pole smaller trees. Large trees usually require shaking in the winter.

Reducing the number of mummies left on the tree at harvest can favorably impact winter sanitation. Proper service and operation of the shaker will improve removal. Harvesting at the ideal time also helps. Irrigation and tree moisture status at hull split and at harvest can also be critical. This will be discussed under irrigation.

Pruning is one area wherein substantial savings can occur especially on young bearing orchards. Newly planted trees need to be pruned properly for the first three years. Trees for the next 6 to 10 years could probably be pruned every third year or less often with only broken limbs and suckers removed in years when no pruning is done. Older trees could also be pruned on an alternate year pruning or less often as long as excellent vigor is maintained in the orchard. While I have indicated the cost savings under the 1000 pound list the same savings could also be achieved with the higher production orchard at least for the short term. Pruning is probably the area that costs can be reduced with a corresponding large money savings.

A newer tool that may increase productivity or efficiency of the workers is the gas powered chain saw on a pole that allows the worker to saw fair-sized limbs 10 to 15 feet in the air. Also, hedging machines have been used in a few cases to help rejuvenate growth in older orchards.

The cost study shows two sprays for insects: a dormant spray and an inseason worm spray. The dormant spray will control the peach twig borer, European red mite, brown mite, and San Jose scale. If these mites and scales are not problems the dormant spray could be substituted by Bt achieve some cost savings in several ways. Almond trees require full ET in the spring and early summer to maximize crop load, nut size and vegetative growth where next year's crop will set. Therefore, we need to make sure the trees are not stressed before hull split. Trials have shown that almonds that are somewhat stressed at early hull split are easier to knock, have less hull rot and have less mummies that need to be removed. There is also some saving son water from the reduced irrigation needed. Irrigation systems require different management strategies to achieve the mild stress desired. Drip systems can be reduced to 50% ET at first hull split for about 3 weeks to achieve the desired effect. Micro and solid sprinkler systems must be reduced earlier to achieve the partial stress. The grower must know his/her soil, the amount of water the soil contains and judge reducing the irrigation soon enough to achieve about a 50% stress on the trees at early hull split. Irrigation can also be reduced some after harvest to achieve some water savings.

Some of the other costs can achieve temporary cost savings. Not replanting lost trees in the orchard will save money today but cost you in lost production in 5 or 6 years. I don't advise it unless the orchard has only a 6 to 8 year life expectancy.

Crop consultants or PCAs who charge for their services are an expense but they usually can save a grower money or prevent insect, disease or nutritional problems that will cost a grower lost or damaged crop.

Pickup and ATV costs as well as cellular phone costs also are a part of the "other" category. Now we can't do without them but we got by with much less only a few short years ago. Can we decrease a trip here and there or run the pickup another year without costing us increased repair?

It will usually save money at harvest if breakdowns can be avoided or kept to a minimum. Keep equipment in good repair and do the repair early before harvest time. If you have a huller that is slowing down the harvest, stockpile some of the almonds and then fumigate

them. Fumigation will stop any worm problems. Stockpiling will also give a steady supply to the huller in case of harvest equipment failure or in case of rain.

I hope I have stimulated some cost saving ideas for you. Not all the ideas are practical and useful to every grower. Consider your operation and go through each operation. You may already be achieving cost savings greater than I have suggested. If it is working well for you continue your current practices. Don't fix it if it isn't broke. In other areas perhaps an adjustment may save you some money or improve efficiency.

### **MECHANICAL PRUNING-Wine Grapes**(Maxwell Norton)

Farm Advisors around the state have received a few questions this winter about mechanical pruning (MP) of winegrapes as a way of reducing costs. MP has been done successfully in Italy and Australia for many years. Some vineyards in the SJV have been MP for several years also. Besides the obvious cost savings, MP also allows you more flexibility in scheduling as you are not dependent on the availability of crews.

There are two basic types of MP with many variations of each. Box or hedge pruning involves hedging back the canopy into a small box. The size of the box is often determined by the dimensions of the trellis. Large, complicated trellises may need to be removed to prevent the fruiting area from becoming too large. A hand crew follows behind to remove any wood below the cordons or canes the cutters miss. Commonly found in Australia is the "V" or minimally pruned cordon trained (MPCT) system. Once the cordon is established they make a V cut that starts at the cordon and extends upward and outward, leaving any upright growth. As you can imagine, that is a lot of wood to leave on a mature vine that has been spur pruned in the past. Like the box system, a crew follows behind and cleans off any low hanging wood.

Ideally vines should be trained into a MP system from the start but you can convert an mature block if you do not leave too much wood initially and you reduce the crop early in the spring as soon as the canes drop below the vine. You simply skirt off any crop that is below the cordon. You can also run a harvester over the vines and shake off a portion of the crop. You need to prevent the vines from over cropping. Newly converted vines will run a few day behind in maturity initially depending on how well you regulate the crop. In 2-3 years the vine will come into balance.

Fancy cross arms and trellis systems are not needed as the fruit is already spread out in a MP vine. No cross arm or a simple catch wire is ideal. The canopy is self-supporting and does not flop over. I think a vertical shoot positioned system can be adapted if you cut close enough.

Fruit on MP vines is dispersed through the canopy instead of being concentrated near the cordon. The clusters will be smaller and looser. Berry size will be smaller. My experience is you can virtually eliminate bunch rot and MP fruit holds a little better on the vine. Because the bunches are loose and more dispersed it is easier to get good penetration and coverage of powdery mildew sprays. There is also better air circulation.

Because you are making fewer large cuts and you can prune later, Eutypa and "Bot" canker should be reduced. Scientific studies have shown that fruit quality can be enhanced by having smaller berries, looser clusters and better color.

Equipment does not need to be elaborate. A simple cane trimmer can be adapted if the trellis is not complicated. If you are at all interested go to the farm equipment shows and look at the many models that are available. You can also view models on manufacturer web sites or call them and they will send you literature. A few manufacturers/dealers are Kingsburg Cultivator in Kingsburg 559/897-3662, L&H in Selma 559/896-1971, A.I.M. in Lodi 209/369-1994, and Bechthold in Lodi 209/368-2031 and Bubco in Lodi [www.bubco.com](http://www.bubco.com). I am planning to have a field demonstration on MP. Call or e-mail me if you are interested.

## **Integrated Pest Management for Almonds - Second Edition**

This revised edition of our best-selling guide for almonds is completely revised and expanded. Covers 120 different pest problems including diseases, insects and mites, nematodes, vertebrate pests, and weeds; including 10 new insect pests and diseases including anthracnose, Alternaria leaf blight, rust, tenlined June beetle, and leafhoppers.

New in the second edition you'll find: \* An extensively revised chapter on vertebrate pest management which adds recommendations for control techniques where endangered species occur. \* A revised and expanded chapter on vegetation management including detailed information on cover crops. \* A revised section on navel orangeworm, emphasizing cultural control techniques instead of insecticides. \* A revised section on peach twig borer includes discussions of bloomtime sprays with *Bacillus thuringiensis* and pheromone mating disruption. \* Revised and updated tables on susceptibility of rootstocks and scion cultivars to major pests, and a detailed index. This indispensable reference is illustrated with 259 photos, many of them digitally remastered, 33 new color photos, and 69 line drawings and tables. Rev. 2002. 199 pp. # 3308 \$32.00-available at Cooperative Extension Offices.

## **MECHANICAL PRUNING DEMONSTRATION**

Thursday 31 January 2002 – 1:00 p.m.  
Castle Farms on north Hwy 59, 5 miles north of Merced and about 0.5 miles north of Bellevue Road, almost across the street from the Merced County Landfill.

### **Topics:**

Principles of mechanical pruning of wine grapes  
Typical responses  
Benefits and drawbacks  
Demonstration of how it is done

We will show Chardonnay, White Zinfandel and Rubired that have been mechanically pruned for three years.

Sponsored by the Stanislaus and Merced Cooperative Extension Offices. Roger Duncan and Maxwell Norton, Farm Advisors.

