



Pomology Notes

December 2002

DORMANT SPUR CHECK CAN SAVE GROWERS MONEY!

I know a grower who gets edgy every time he hears his sprayer running, because he knows it is costing him money he doesn't want to spend. But he does spray, when he needs to with the right materials and rates to do the job, because a dormant or delayed dormant spray can be a key part of good pest control in orchard crops – if it is needed.

So, when is a dormant spray needed? Research by UC Cooperative Extension has produced guidelines for answering this question for several crops, including prunes and almonds. These guidelines include 1) how to look for what pests, and 2) what the number of pests found means in trying to answer the question, "Should I put on a dormant spray?"

If a spray is needed, knowing what and how many pests are in a block can also save growers money when it comes time to decide what goes in the tank. For example, oil alone will kill some pests, but insecticides should be added to the oil if other pests are present. Reduced rates of Asana can control aphid eggs in prune orchards compared to a rate intended to control peach twig borer and aphid eggs.

If you are interested in monitoring your orchard for dormant season pests, but don't know how, please call me (Franz) at 822-7515. I would be happy to come to your ranch and

help you and/or your employees take the sample and see what is there. We can also discuss your options based on what we find.

WET SPRING FORECAST = TIME FOR ORCHARD SPRAYER TUNE-UP?

A well calibrated and maintained air-blast sprayer is essential to effective orchard pest control – especially if pest pressure is high. El Niño is currently forecast to produce a wet January through March this next year. If it is a wet early season next year, orchard disease pressure may be high. Now might be a good time to make sure your spraying equipment is in top shape.

See weather forecasts on the web at US Weather Service at <http://www.noaanews.noaa.gov/stories/s1060.htm>) and Fieldwise at <http://www.fieldwise.com>. FieldWise requires registration to view the forecast, but the basic site is free. Additional information is available at a reasonable cost.

If you would like help tuning up your orchard sprayer, please call me (Franz) at 822-7515 to make an appointment for a farm visit. I will come out and help you or an employee calibrate the sprayer to ensure the best control possible with as little chemical waste (and savings to you) as possible.

UC Cooperative Extension
Yuba—Sutter Counties Pruning Meeting
December 10, 2002
10:00 AM-11:00 AM
*Across from HB Orchards receiving station on Highway 70 District 10.
Signs will be posted.*

Agenda

- Mature Orchard Pruning Options for Prune Growers
- Equipment demo:
 - Power hedgers for hanger removal
 - Pole mounted chain saws for limb removal
 - Orchard renewal with power equipment?
- Pruning young prune orchards/replants

Hosted by: Franz Niederholzer, UCCE Farm Advisor, Yuba and Sutter Counties
Joe Serger, Farm Manager, Miki Orchards



Coffee and Donuts courtesy of Linda Saw and Mower. Thank you!

LESS PRUNING CAN MEAN MORE PRODUCTION IN YOUNG ORCHARDS

Question #1: What is the single largest cost in orchard establishment?

Answer 1: **Interest on the money.**

Question #2: How do you cut total costs in orchard establishment and start making money sooner?

Answer 2: **Don't prune too much** is one part of the answer in prunes, and might be part of the answer in almonds.

PRUNES

“Hard” or “short” pruning can limit production and grower returns early in the life of the orchard compared with “long” pruning. This was the conclusion of a trial conducted in Sutter County from 1979-1986 by Dave Chaney and Larry Fitch, UCCE Farm Advisors. The reports I have seen do not report rootstock or orchard spacing.

All trees were pruned following Dave Chaney’s guidelines (see below) in the first-leaf dormant period. Seven pruning treatments were established at 2nd leaf dormant pruning. The seven treatments were: based on the heading length of secondary scaffolds:

- Treatment 1: Secondary scaffolds headed at 1-foot length
- Treatment 2: Secondary scaffolds headed at 2-foot length
- Treatment 3: Secondary scaffolds headed at 3-foot length
- Treatment 4: Secondary scaffolds headed at 4-foot length
- Treatment 5: Secondary scaffolds headed at 5-foot length
- Treatment 6: Secondary scaffolds unheaded (“long pruning”)
- Treatment 7: No pruning done after 1st leaf

In the third-leaf dormant pruning, treatments 1-5 were identically pruned, with tertiary scaffolds headed at 32” after selection. The long pruned trees of Treatment 6 were thinned to new unheaded laterals.

In the remaining years of the study, all trees in all treatments were pruned by a combination of thinning and heading cuts (standard pruning practices).

The trees with scaffolds headed to 1 or 2 feet long produced much less fruit over the entire experiment (see Table 1 below). Except for the unpruned treatments, pruning did not affect fruit size (see Table 2). *Caution: Long pruned trees should be “tipped” in dormant to avoid setting many fruit near the end of the scaffold. Untipped scaffolds can bend down dramatically and become deformed.*

Bottom Line:

- “Short” pruning can mean short returns early in the life of a prune orchard.
- Leaving scaffolds long will increase prune production, but scaffolds should be tipped to avoid deforming limbs.

Table 1. Comparison of annual and total prune orchard production (tons dried fruit per acre) under several pruning treatments. 1981-1986. Dave Chaney and Larry Fitch.

-----Dry Tons Per Acre-----

Pruning Treatment ¹	3 rd leaf	4 th leaf	5 th leaf	6 th leaf	7 th leaf	8 th leaf	Total
One foot	--	0.13	0.58	1.83	1.88	3.47	7.89
Two feet	--	0.21	1.13	2.78	1.91	4.11	10.14
Three feet	--	0.3	1.94	3.51	3.24	5.25	14.24
Four feet	--	0.83	1.94	3.89	2.56	4.45	13.67
Five feet	--	0.68	2.59	3.70	4.15	4.49	15.61
Long pruned	0.08	0.51	3.14	5.12	4.00	5.91	18.76
Unpruned ²	1.01	4.00	3.57	*4.13	0.87	5.68	19.26

*Estimated 0.5-1.0 dried ton/acre on ground at harvest due to heavy limb breakage.

¹“Treatment” is the pruned length the secondary scaffolds after the 2nd dormant pruning.

² Pruned in the first dormant season only.

Table 2. Comparison of average prune fruit size (dried fruit count per pound) under several pruning treatments. 1981-1986. Dave Chaney and Larry Fitch.

-----Average Dried Fruit Count per Pound---

Pruning Treatment ¹			5 th leaf	6 th leaf	7 th leaf	8 th leaf	
One foot	--	--	48	68	49	59	--
Two feet	--	--	48	73	47	65	--
Three feet	--	--	51	74	49	68	--
Four feet	--	--	46	74	49	62	--
Five feet	--	--	55	70	57	59	--
Long pruned	--	--	47	79	51	68	--
Unpruned ²	--	--	66	112	41	73	--

¹“Treatment” is the pruned length the secondary scaffolds after the 2nd dormant pruning.

² Pruned in the first dormant season only.

ALMONDS:

Is annual pruning necessary for good production in almonds? Results of recent research lead by John Edstrom and Bill Krueger, UC Farm Advisors for Colusa and Glenn Counties, respectively, at Nickels Soils Lab in Arbuckle indicates that not pruning almonds after the first dormant pruning “appears to have commercial potential”.

Their work showed no difference in total yield in a replicated study comparing unpruned and pruned almonds over 18 years of production (3rd thru 21st leaf). This trial was planted in 1979 on weak soil with Non-Pareil and Price at 1:1 hedgerow (7' x 22') on drip irrigation. Trees in the "Unpruned" treatment were unpruned after the first dormant season (when three main scaffolds were selected). Other pruning treatments in this trial include "Standard" pruning, "Temporary Hedge", in which every other tree was removed after the 8th year, and "Two Scaffold Hedge" where the trees were trained to just two scaffolds growing out into the drive rows and conventionally pruned. The results are presented below in Table 3.

The same researchers are currently reexamining pruned vs. unpruned almonds in a more vigorous site at Nickels on a 16' x 22' planting under micro-sprinkler irrigation. So far, the unpruned trees (unpruned after selection of three scaffolds at first dormant season) are producing similar yields to three other treatments where annual pruning is done. This trial was planted in 1997, and, so far, the authors report the unpruned method "appears to have commercial potential". Work in this project is continuing.

Details of both of these trials are presented in the Nickels Soils Lab Annual Report, 2001 Season. John Edstrom is the manager at Nickels, as well as the UC Farm Advisor for Colusa County. John and Stan Cutter, Nickels Soils Lab, also are studying production of almond on plum rootstock (Marianna 2624) in a 10' x 20' hedgerow planting at Nickels in 1989.

Table 3. Comparison of total almond hedgerow production (kernel pounds per acre) under several pruning treatments on weak soil with drip irrigation. Trees are planted on 7' x 22' spacing. 1981-1999. John Edstrom, Bill Krueger, W. Reil, J. Connell, W. Micke, and J. Yeager.

Treatment	Accumulated Yield (kernel nut pounds per acre)
Two Scaffold	41,238 a
Unpruned	39,292 a
Permanent	39,647 a
Temporary	31,204 b

Yields with the same letter (i.e., a) are not statistically different.
Different letters indicate significant differences established by statistical analysis.

NON-PAREIL ON PLUM?

At least one California nursery is marketing almond trees with Non-Pareil scion on Marianna 2624 rootstock separated by an interstem of compatible almond (Padre). Growers may want to look at this combination. However, no established, mature commercial plantings of this combination exist to give good evidence to support large-scale plantings of this combination at this time.

First-Leaf Dormant Prune Training

*By Dave Chaney, former UC Cooperative Extension Farm Advisor
Yuba and Sutter Counties*

1. Select 3 primary scaffolds 120° apart. Don't save poor limbs.
If there are only 2 good limbs, head the lower one short to develop two good primaries from that one limb.
2. Vertical distribution of primaries isn't as important as direction – as long as limb attachment is strong. No bark inclusions (tight crotch angles).
3. Never: save 2 limbs opposite from each other with a 3rd limb above. This is a guaranteed choke out of the top limb.
4. Low limbs grow faster and stronger than top limbs. To prevent choke out, leave top limb long and head lower limbs hard.
5. Don't leave extra limbs. Direct growth into your permanent primary scaffolds. Leave extra limbs in later years.
6. Head primary scaffolds at 30-36"
7. Take good care of the trees, and there will be lots of limbs to choose from next dormant pruning.

NOVEMBER/DECEMBER TO-DO LIST FOR ALMOND GROWERS

- **Monitor orchards for dormant season pests. (Call Franz at 822-7515) if you want/need help)**
- **Remove and destroy (mow or disc) nut mummies.**
- **Review leaf and soil analysis results. Plan next nutrient program for next years.**

NOVEMBER/DECEMBER TO-DO LIST FOR PRUNE GROWERS

- **Monitor orchards for dormant season pests. (Call Franz at 822-7515) if you want/need help)**
- **Review leaf and soil analysis results. Plan next nutrient program for next year.**

FRANZ NIEDERHOLZER, FARM ADVISOR

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