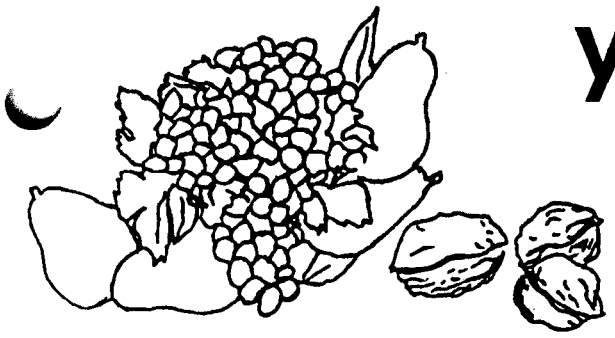

your *Lake County* HORTICULTURAL NOTES

MAY 1995

PLEASE COMPLETE AND RETURN THE ENCLOSED *HORT NOTES* SUBSCRIPTION FORM

THE LAKE COUNTY AGRICULTURAL COMMISSIONER'S INVOLVEMENT WITH THE MANAGEMENT OF COMMON ORCHARD PESTS

Chris Twohy, Agricultural Biologist

You probably know that your Agricultural Commissioner has considerable authority to abate certain orchard pests. Our community has enacted ordinances against pear psylla, fireblight of pears, blackline in walnuts and the vineyard pest grape phylloxera.

In addition to local authority, Commissioners can use authority provided by state law to designate plant pests of quarantine and pest management concern within their county of jurisdiction. They have the authority to declare a specific pest to be a public nuisance, to carry out an abatement and even to attach a lien on the property to insure payment for the costs of abatement.

In spite of this authority, Agricultural Commissioners are reluctant to involve government in orchard pest management except in the most extreme cases of neglect or abandonment. There are several reasons for this reluctance:

1) Legal Action vs. Biology

In order to justify governmental intervention, we need clear and consistent guidelines and procedures. However, the ecology within an orchard is rarely clear cut. Populations of insects and diseases are often variable and unpredictable. The choices of timing, methods and pesticides

Wheelchair Accessible

are just as important as the decision whether or not to spray. The legal steps of an abatement lead, by necessity, to a single treatment directed at a specific pest, often without regard for the health and long-term management of the orchard. The purpose of government involvement in the pest management of an orchard is to improve the overall, long-term health of orchards in the entire area. When we abate an orchard, we want to make sure that we are working toward that purpose.

2) Abatements Take Time and Effort

Each time the Department of Agriculture follows up on a formal orchard complaint, we initiate an investigation, similar to the preparation of a court case. The biologist must conduct a survey of pest counts in orchards in the area, interview the interested parties, advise of pest management problems and follow a series of legal steps requiring pest management in a professional manner. All of this takes time. There is no specific funding for the Department of Agriculture to pay for ordinance enforcement. At present staff levels, we can afford about 300 work hours annually for abatement. Resources limit our involvement.

3) Politics

Government control over common cultural practices in a private business can be "touchy". In trying to respect individual growers' rights, we realize that when we act on an orchard complaint, we are telling a grower that he is not doing a good job of farming. When we do so, we want to be sure we are right. Even growers following good pest management practices will sometimes have temporarily heavy insect pest populations. Before taking legal action against a grower, we must document an *ongoing neglect* of pest management. Minimal, or even spotty, pest management is enough to stop a pest abatement proceeding, for good reasons, since government action threatens continued ownership of the land.

4) Hardship Cases

Growers have a strong incentive to produce marketable fruit. Poorly managed orchards are often related to financial hardship or personal tragedy such as a death in the family. These are very difficult cases. When we abate a "hardship orchard", we may very well be pushing a weak operation out of business. In requiring a single treatment of a pest, we cannot solve the long-term problem since no real change in overall pest management has occurred.

Why Bring Government into the Business of Pest Management?

Pest problems in unmanaged orchards do spill over property lines, can cause problems and expense for neighboring orchards and affect the industry as a whole. Agricultural Commissioners can use the force of law to reduce these problems. They can help resolve ongoing pest management disputes between growers and they can abate a pest condition before it grows too large to address. These are proper roles for a Commissioner in common pest management.

LAKE AND MENDOCINO PEAR FULL BLOOM TEMPERATURES

As promised in April *Hort Notes*, here are comparative March-early April maximum temperatures for Kelseyville and Ukiah Valley. The Ukiah Valley station is run by the National Weather Service (NWS) during frost season and is in a pear orchard east of the Russian River near Talmage. The Kelseyville data is from the UCCE station in a pear orchard on Merritt Road.

	March																		
DATE	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	***14**	**15**	**16**	**17**	**18**	**19**
Kelseyville	59	54	52	51	55	61	54	60	51	58	56	50	64	58	62	68	68	61	58
Talmage	no available data						60	55	62	56	54	58	55	60	64	68	71	64	60

													April							
DATE	****20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Kelseyville	52	47	46	45	53	58	61	64	69	68	71	64	64	75	79	77	71	58	58	51
Talmage	55	52	49	47	58	65	69	73	77	77	77	67	65	82	83	79				

* approximate Ukiah full bloom

** Kelseyville full bloom (Ross Benson)

From the table it can be seen that there were very few days condusive to parthenocarpic set (60° F or more) at either location. Talmage dates are March 7 (and perhaps another 1-2 days before this), March 9, March 14-19. Blooms open during March 14-19 probably had the best chances to set. In Kelseyville, suitable conditions occurred March 13, March 15-18 and March 26 till the end of the month. Since Mendocino full bloom occurred about a week ahead of Kelseyville, late March temperatures probably played a greater role in Lake County.

Of course, these temperatures represent only one district in each county. Set in early blooming areas would be less affected by late March temperatures while late blooming areas probably benefitted from warm weather in late March and even early April.

In Lake County, pears began falling significantly around the last week of April - first week of May. Besides erractic set weather, the crop has endured frost, hail, bacterial blast and even a little scab in some orchards. Final crop estimation is still a ways off.

IRRIGATING YOUNG TREES

It is May 3rd and growers are still slogging through wet, muddy orchards attempting to maintain some semblance of a normal spray program between storms (the latest bringing up to 2 inches from April 29-May 1). Irrigation is the last thing on growers' minds and it is unclear when the first irrigation will actually be applied. However, once a somewhat sustained period of reasonably warm, dry weather occurs, particular notice should be taken to the needs of *young trees and vines*. This is because:

1) limited root systems draw moisture from a limited area; any damage caused by sustained waterlogging further reduces the effective root zone and uptake;

2) heavy weed growth easily out-competes tree/vine roots for moisture (and nutrients);

3) less stored reserves in bark and roots necessitates more dependence on the soil for early nutrient uptake, which requires adequate moisture on a constant basis, which takes us back to 1), and

4) unlike mature tree/vine root systems, root systems are constantly expanding in area and density, which must be encouraged.

In a year such as this one, growers should begin to comparatively monitor soil moisture around mature versus young plants and make sure the needs of young trees/vines are met. It is crucial that young tree/vine root systems be kept moist but not waterlogged.

Unfortunately, there is little good information on actual water use of young trees/vines. Irrigation amount/timing is usually "seat of the pants", based on experience and convenience. Extension Specialist Dr. Scott Johnson developed actual water use data using a weighing lysimeter (a scale that measures subtle weight changes in plants). The following table has been adjusted **for Lake County** from evapotranspiration (ET) data from the Kearney Ag Center at Reedley, where the experiment was done. Although the data was developed for stone fruit, there is likely to be little difference for *young* trees.

Estimated Water Use of Young Trees in Gallons/Week
Lake County, California

Tree Volume	March*	April*	May	June	July	August	Sept.**	Oct.**
10	7	10	19	23	38	28	20	8
25	7	10.5	19	28	39	29	20	9
50	8	12	22	31	42	31.5	22	9.5
100	10	14	25	35	46	36	25	11
200	14	19.5	32	44	58	45	33	15
300	18	25	37	49	62	49	37	20
400	21	30	44.5	58	72	57	44.5	24
500	25	36	49	64	77	63	49	28
600	28	40.5	56	72	87	71	56	33

* In years of normal rainfall, irrigating in March and April may actually inhibit roots.

** These values for late September or October would only be applied in years when temperatures stay high. Once the weather cools down, irrigations should be stopped to reduce the potential for root and crown diseases.

In the table, tree volume refers to height x length x width of an average tree. Also, the data was developed from trees irrigated by drip using multiple emitters, thus application efficiency was high. In descending order, drip efficiency > microsprinker > undertree sprinklers > flood/basin, so actual amount applied must be adjusted accordingly.

Other factors to consider are:

soil type - heavy soils hold more moisture and are more prone to waterlogging. Lighter soils drain faster. In either case, lighter, more frequent irrigations may be in order.

weather - obviously, cooler conditions reduce ET and warmer weather increases it; make adjustments accordingly.

weeds/covercrop - the table assumes *no competition.* Competing vegetation can add up to 30% additional water use.

Grapevines generally use less water than trees. Grape growers can adjust the table by about one-third depending on planting density, but the general principles apply.

Although the table is **only a guide**, it provides a clear picture of changing irrigation needs through the season.

OBLIQUE-BANDED LEAFROLLER IN PEARS

by Lucia G. Varela, Area IPM Advisor

Oblique-banded leafroller (OBLR) is becoming a more prominent pest on the North Coast. Locally, it has two generations each year. Presently, we are at the start of the summer generation. The larvae of the OBLR summer brood roll and feed on leaves and fruit. The larvae cause superficial skin tunnels in the fruit when they tie leaves to the surface of fruit and feed in the sheltered area underneath or when they feed in between two or three fruit in a cluster. This fruit damage is usually more serious than the spring feeding by overwintered larvae. Fruit in the upper part of the tree are preferred by this pest.

First adults of the overwintering generation appear from late April to mid-May in the North Coast, depending on spring temperatures. Use pheromone traps to monitor the activity of male OBLR. It is important to know the date of the first male moth caught in the trap to set biofix. Degree-days for OBLR are calculated using a lower threshold of 43° F and an upper threshold of 85° F. Fifty percent adult emergence occurs between 230 to 250 day-degrees from biofix. First egg hatch occurs at 420 day-degrees. Sample for presence of larvae between 450 to 600 day-degrees from biofix. In 1994, peak first instar larvae occurred at the end of June in Big Valley (Lake County).

To monitor for OBLR, sample from random trees that are representative of the entire block. From each block, take 100 fruit samples from the upper part of the tree canopy; choose half of

your samples from inside the tree canopy and the other half from the outside. Tentative guidelines suggest that a treatment may be warranted if 4 or more fruit clusters are infested out of a sample of 100.

Two recommendations for treatment from the East Coast are: 1) treat twice, once at peak egg hatch (approximately 420-450 D°) and a second time 10-14 days later; or 2) time a single application after most of the larvae have emerged (approximately 600 D°). Recommended materials include B.t. products and synthetic pesticides. Proper timing for California is currently being studied by comparing degree-day models with actual insect development, leading to a more locally-based model in 1996.

LOCAL FRUIT FROST PROGRAM IN JEOPARDY

According to National Weather Service (NWS) Meteorologist-in-Charge Ron Hamilton of the at UC Riverside (Art Horton's home office), the NWS Ag Weather Program has been deleted from the 1996 budget submitted by President Clinton. The program has been eliminated in prior budgets, only to be re-instated by Congress; however, this is less likely in the current economic/political climate.

The implications of this are:

- loss of on-site forecasting service sensitive to local conditions and changes;

- dependence on remote monitoring which increases probability of error due to lack of local interpretation of models;

- reliance on weather technology and more probability of "garbage in, garbage out".

Lake County is particularly in need of reliable weather monitoring and reporting. Growers should carefully consider the pros and cons of human versus technology-based forecasting and exercise their option to contact public officials with their opinions.

Detailed information may be obtained from:

Ron Hamilton
Meteorologist-in-Charge
National Weather Service
University of California
Riverside, CA 92521-0311
(909) 787-3644

Ag Commissioner Mark Lockhart can also be contacted.

ORGANIC PRODUCTION COST STUDIES

UC Davis Dept. of Agricultural Economics has completed a number of cost of production studies for organically-grown crops. They include almonds, apples, cotton, diversified vegetables, processing tomatoes, rice, walnuts and wine grapes. Lake County participated in the wine grape studies.

Contact our office to obtain the apple, wine grape, walnut or vegetable studies. We have a mail order form for the others.

AGRICULTURAL ENERGY LOAN PROGRAM

The California Energy Commission is now accepting applications for loans under the Commission's Agricultural Energy Assistance program. A total of $500,000 is available for loans to improve agricultural energy use. The loan applications were released on January 3, 1995. Loan applications will be accepted on a ***first-come, first-served basis*** until all loan funds available are awarded. Applications must be postmarked no later than July 31, 1995.

The maximum funding amount that can be requested for any given project or by an applicant is $150,000. The interest rate is fixed at 3.3 percent and loan repayments shall not exceed seven years.

The objective of this program is to demonstrate the potential for improving energy efficiency in the California agricultural sector by providing an incentive to purchase and install energy efficient technologies/equipment. Any California resident involved in an agricultural enterprise may apply for the loan funding.

For Lake County, applicable funding categories are energy efficient motors and various greenhouse technologies. Applications may be obtained by writing or calling:

Agricultural Energy Assistance Program
California Energy Commission
Efficiency Services Office, MS-26
Sacramento, CA 95814-5512
Telephone: (916) 654-4008
FAX Number: (916) 654-4304

MAY CHECKLIST

Grape powdery mildew will likely be problematic with continued humid, mild weather. Vines should be protected as long as weather is condusive to fungus development and reproduction. Contact us for current UC treatment recommendations.

Cutworms and thrips damage in grapes may be more significant than usual since shoot and flower cluster development look to be slowed by cool weather and wet soil, making regrowth more difficult. Pay close attention to these and other early-season pests.

Rodent pests may be rampant due to abundant feed and moisture. Control weeds around young trees and vines.

Black walnut rootstock is more sensitive to waterlogged conditions than Paradox. I have already visited one orchard affected by a high water table. Keep the crown free of weeds and work to promote drainage. Contact us for a copy of *Managing Seepage and Flood Damaged Walnut Orchards* by Colusa County Farm Advisor John Edstrom.

Crown gall should be guarded against. Before planting, treat tree roots and crown with Galltrol or Norbac. If replanting walnuts though, Paradox rootstock tolerates wet soils much better than No. California black it is more susceptible to crown gall.

RACHEL DOES E-MAIL

Well, we are going to attempt to get on the Information Superhighway (hopefully, without becoming roadkill). For you computer aficionados, my new Internet E-Mail address is **rbelkins@ucdavis.edu**. You may send me a message - then pray that I will answer you before next year. Any takers?

Sincerely,

Rachel Elkins
Farm Advisor

REMEMBER - FILL OUT AND RETURN
YOUR *HORT NOTES* SUBSCRIPTION FORM.
DON'T BE DROPPED FROM OUR LIST!
Thanks

SUBCRIPTION FORM
YOUR LAKE COUNTY HORT NOTES
1995-96

Name _____ Home Phone _____
Fax # _____
Company _____ Bus. Phone _____

Mailing Address _____
(include city, state, zip)

A $5.00 subscription fee is charged to all subscribers who DO *NOT* EITHER RESIDE OR OWN PROPERTY IN LAKE COUNTY. Please make checks payable to *UC Regents* and return with your form. Thank you.

If you do own property in Lake County, but reside elsewhere, please indicate the address of your property below.

Yes, I do own property in Lake County located at:

_____ Signature _____

In order to obtain special mailings pertaining to your field of interest, please mark areas of interest below. Mark as many as you feel is appropriate.

☐ Pears ☐ Grapes ☐ Walnuts ☐ Kiwi ☐ Backyard Fruit ☐ Vegetables
☐ Berries ☐ Ornamentals ☐ Winery ☐ Packinghouse ☐ PCA

* * * * * * * * * * * *

The University of California values diversity and desires that our programs be open to all who would like to participate. Completing the following information will assist us in verifying our programming efforts. The information you provide will be held confidential and only used for group reporting. Please check each category that applies:

____ Asian ____ Black ____ Caucasian ____ Hispanic ____ Native American

____ Other, please specify _____ Gender: ____ Male ____ Female

Thank you for your cooperation,

U.C. Cooperative Extension
883 Lakeport Blvd
Lakeport, CA 95453
(707) 263-2281

Rachel Elkins, Farm Advisor

Cooperative Extension
U.S. Dept. of Agriculture
University of California
Oakland, CA 94612-3560

Official Business
Penalty for Private Use, $300

Bulk Rate
Postage & Fees Paid
USDA
Permit No. G-00268