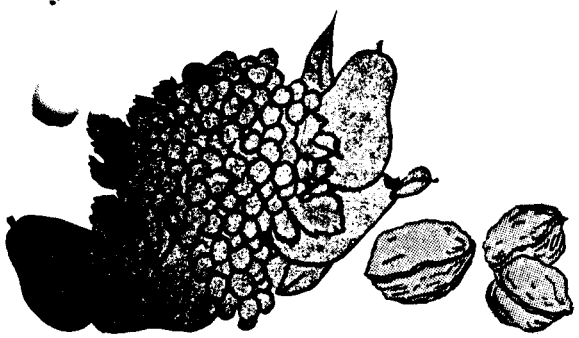
UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION COUNTY OF LAKE



your Lake County HORTICULTURAL NOTES

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MARCH 1990

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IMPORTANT NOTES

1990 Walnut Update - March 22 - Nice Community Clubhouse
(agenda on page 4)

1990 Subscription Forms - Return ASAP (see page 7)

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PREPARE FOR THE 1990 FROST SEASON

It is hard to believe, but a new season will soon begin. All crucial components of wind machines, sprinkler systems and orchard heaters should be in good working order by March 15. Remember, pears hit full bloom on March 21 in 1988 and severe frost damage had already been incurred on earlier bloom stages two weeks prior.

IS IT SAFE TO COMBINE WIND AND UNDER-TREE SPRINKLERS?

Last spring, at our frost meeting in Scotts Valley, the merits and drawbacks of various protection combinations were discussed, e.g. heaters plus wind. There was a question about the safety (to blooms/young fruit) of combining wind and under-tree sprinklers. Although not generally recommended by the "experts", growers indicated it is a fairly common practice in Lake County.

There is virtually no information, much less guidelines, on combining wind and sprinklers. Frost protection experts are apparently leary due to the potential problem of evaporative cooling during the first initial couple of minutes after sprinklers are turned on, before the released heat has raised air temperature.

The only clear-cut research on the subject (that I could find) was an experiment conducted in a mature apple orchard by Washington State University agricultural engineers Robert Evans and Arte Kroeger. They compared wind alone, under-tree sprinklers alone (Rainbird F-20's, 3/16" nozzles) and the two combined. They concluded that under a strong inversion with calm air, wind

provided an extra 1-2°F protection to the 3-4°F of sprinklers alone. Thus, from these results, if the predicted minimum is 26° F, it would be beneficial to combine wind and sprinklers. Now, back to safety. After recording temperatures at various heights every 10 seconds, they were unable to measure the initial cooling that supposedly takes place when sprinklers are first turned on. The key phrase, however, is "strong inversion". Evaporative cooling would pose a problem if the inversion was weak or none, in which case, it would be useless to turn wind machines on anyway.

I will keep abreast of any further research developments by WSU or anyone else. In the meantime, I am interested in anyone's observations on combining wind and sprinklers i.e. when it is most useful, if any damage has been noticed, etc. If anyone has questions, or would like to discuss any aspect of frost protection, please contact me.

FROST PUBLICATIONS - AVAILABLE AT UCCE OFFICE

Frost Protection for North Coast Vineyards #2743 Cost $1.00

Frost Protection: When to Turn Sprinklers On and Off
#7165 Cost Free

Passive Frost Protection of Trees and Vines #21419 Cost $1.00
(emphasis on soil and ground cover management)

A NOTE ON DEW POINT

The concept of dew point is often difficult for both novice and veteran growers to really understand. Bill Coates, U.C. Farm Advisor in San Benito County, offers a clear, succinct explanation:

> "You may wonder what significance the dew point plays in our daily frost forecasts. The dew point is the temperature at which dew or frost begins to condense out of the atmosphere as the temperature falls on a clear, calm night. When the dew point is 45°, dew will begin to form on vegetation or other objects exposed to a clear sky when the temperature drops to 45°F. At a dew point of 28°, no dew will form but white frost will appear when the temperature reaches 28°F.
>
> The dew point is an indication of the amount of moisture in the atmosphere - the higher the dew point, the greater the amount of water vapor in the air. On nights when the dew point is high (above 35°), the temperature fall is usually slow and steady with few fluctuations. When the dew point is low (below 25°), the temperature fall is usually more rapid and orchard thermometers should be watched more closely. Frost is rarely a problem when the dew point is above 45°."

FROST PROTECTION FACTORS

TEMPERATURES CAUSING INJURY
(30 minutes or more)

	First color	Full bloom	Post bloom
Grapes (green shoots)	30-31°F	31°F	31°F
Pears	25	28	30
Kiwifruit (green shoots)	30-31	31	31
Walnuts	30	30	30

EFFECT OF DEW POINT ON AIR TEMPERATURE

If dewpoint is:	Start sprinklers at - to maintain: 33°F	31°F
13-14°F	43°F	40°F
15-16	42	39
17-18	41	38
19-21	40	37
22-23	39	36
24-25	38	35
26-27	37	~~34~~
28-	36	38

Should be 33

EFFECTS OF ORCHARD FLOOR CONDITION ON TEMPERATURES

Bare, firm, wet soil - warmest*
Close mowed cover crop, moist soil - 1/2° colder
Moist soil, low growing cover crop - 1/2-1/3° colder
Dry, firm soil - 1 1/2 - 2° colder
Fresh disced or loose soil - 2° colder
High cover crop - 2 -4° colder
Cover crop with restricted air drainage - 6 - 8° colder

*I recommend an irrigation to wet the top 8-12" of soil be completed before protection begins this year if the soil profile is dry this spring.and trees/vines are susceptible to injury. The ground must be in the desired condition when the frost event occurs so that heat is immediately available to the trees.

I wish all Lake County growers a late bloom and short frost season!

1990 WALNUT UPDATE (PCA credit applied for)

DATE: Thursday, March 22, 1990

MORNING SESSION

TIME: 8:45 - 12:00 noon
PLACE: Nice Community Clubhouse
Carson Way/Lakeshore Blvd. off Hwy 20
DONATION: $1.00 to cover hall rental

AGENDA

8:45	Registration and coffee
9:15	The Chinese Walnut Industry Steve Sibbett, U.C. Farm Advisor, Tulare Co.
10:00	Chandler: How is it Doing? Bill Olson, U.C. Farm Advisor, Butte Co.
10:30	BREAK - coffee and pastries sponsored by Moyer Products
10:45	Establishing a Walnut Orchard Using Drip Irrigation John Edstrom, U.C. Farm Advisor, Colusa Co.
11:15	Navel Orangeworm - Can It Infest Lake County? U. C. Advisors and Lake County Dept. of Agriculture staff.
12:00	ADJOURN FOR LUNCH (on your own)

AFTERNOON SESSION

TIME: 1:15 - 3:15 P.M.
PLACE: Alex Suchan Nursery
10005 Elk Mountain Road, Upper Lake
(turn right or left at Treasure Cove Pizza off Hwy 20, then straight ahead into nursery driveway - signs will be posted).

TOPICS AND DEMONSTRATIONS

1) Replants and interplants
- pre-plant site preparation
- proper planting technique
- post-plant care of young trees
- training young trees

2) Grafting techniques

*** SPANISH TRANSLATION WILL BE AVAILABLE FOR THE ***
AFTERNOON SESSION

We hope to see MANY growers at one or both very informative and valuable sessions!

LAKE COUNTY PHYLLOXERA BIOASSAY RESULTS

As local grape growers probably know, UCD Entomologist, Dr. Jeffrey Granett, has been collecting phylloxera from California vineyards to map the extent of Biotype B colonies which, unlike normal Biotype A, successfully feed and reproduce on AXR #1 rootstock. Bioassays thus far have provided sufficient evidence to prompt the UC Phylloxera Task Force to strongly recommend that AXR #1 be eliminated as a rootstock of choice, expecially in Napa and Sonoma counties where Biotype B is now thought to be quite widespread (See January Hort Notes). Napa and Sonoma growers on AXR #1 now ask, "When will I get it" rather than "Will I get it?" They don't question whether, but when to replant and to which rootstock.

As far as we know, Lake County vineyards are infested exclusively with Type A (as are vineyards in all counties other than Napa and Sonoma). In July, 1989, samples were collected from six infested vineyards and reared from egg stage for 25 days on AXR #1 roots. Two of the tests failed (e.g. the adults died before egg-laying stage). The remaining four colonies were identified as Type A. This was expected as all the test vineyards were own-rooted.

In late August, phylloxera were collected from 1-4 year old AXR #1 and 5BB rootstock interplanted among infested own-rooted vines in the Highland Springs district. Three weeks after collection, insects had survived and matured on 2/3 of the 60 samples in approximately equal proportions on each of the two stocks. A replicated bioassay was then performed in which 10 eggs from each test female were placed on AXR #1 root sections that were then examined after 4 weeks. It was concluded that all the colonies were Type A since none survived as well on laboratory AXR #1 as the Type B standard did.

IMPORTANT NOTE: The presence of phylloxera on young AXR #1 and 5BB in the field DOES NOT IMPLY SUSCEPTIBILITY TO TYPE A!! Insects were found in very low numbers on their roots, and previous researchers have reported phylloxera presence on immature rootlets and callous of young vines in past rootstock trials. Recently, UCD Viticulturalist Dr. Mark Kliewer set up a test to study the effect of stress on young, presumably-resistant rootstock at UC's Oakville Experiment Station. The goal is to learn whether young stock can be debilitated simply by being overwhelmed with high populations of phylloxera such as may occur under interplanted conditions. Another unknown is whether young vines with limited root systems are more susceptible than mature extensively-rooted vines.

Even if attack on resistant stock is (theoretically) limited to very young vines, growers must acknowledge long-term uncertainty - who knows how many biotypes may evolve? Besides, inter-planting is associated with a host of difficulties, even on non-infested sites. Young vines often suffer from inappropriate irrigation/fertilization schedules, poor weed control and general lack of attention - all of which compound the inherent handicap

of having to compete with the established vines. Thus, we return to the stress factor that Dr. Kliewer is studying.

Although there are no official recommendations on inter-planting, common sense would dictate a preference for solid block replacement. Besides even the remote possibility of eventual attack, it is much better to farm one vineyard or a given site rather than the two-in-one that results from interplanting.

Along with the staff of the Department of Agriculture, I urge all growers to remain vigilent for the symptoms of possible phylloxera damage and to notify Chris Twohy (263-2271) or me if there is any suspicion whatsoever. For suggestions on caring for infested vines until you are economically or logistically able to replant, refer to the November, 1988 issue of Hort Notes, or contact me.

Phylloxera is a fact of life in Lake County. However, with our present detection strategy, sanitation practices, possibly better - albeit, short-term - chemical control with GY-81, and, most important, new rootstock choices, there is excellent hope for the future.

GRAPEVINE PROPAGATION

Contact me for copies of the following California Agriculture articles written by former (deceased) UCD Specialist Curtis J. Alley:

Bark grafting grapevines at high and low levels.
March 1965. 2 pgs.

Chip-budding of mature grapevines.
September 1979. 2 pgs.

Improved field budding of grapevines using a modified cut and plastic tape.
February 1975. 2 pgs.

Side-whip grafting of grapevines to change over varieties (topworking vines earlier in the spring).
March-April 1983. 2 pgs.

T-bud grafting of grapevines. July 1977. 3 pgs.

We also have a 1985 cost study, Grafting Over a Mature Vineyard, prepared by Kern County Farm Advisor, Donald Luvisi and Tulare County Farm Advisor, Bill Peacock.

HAZARDOUS SUBSTANCE TRAINING OFFERED

Contact University Extension at (916) 757-8777 by March 21 about the following class:

Pesticide Regulations and Safety: Steps to Compliance
(#893K13)
March 28, 1990, 9:00 a.m. - 4:00 p.m.
University of California, Davis
$75.00 (incl. course materials and lunch)

ASCS 1989 DISASTER ASSISTANCE DEADLINE

(paraphrased from ASCS News, January 16, 1990)

The final date to file for 1989 disaster losses is APRIL 2, 1990. Producers who lost 50% or more of their 1989 crop should contact the ASCS, 405 Orchard Avenue, Ukiah, CA 95482, (707) 468-9225 as soon as possible.

According to Executive Director Mark Renfree, loss payments will be based on the difference between 1989 actual and historical production. Producers who suffered losses greater than 65% of normal production will be required to purchase multi-peril crop insurance before any payment may be received.

KEEP THOSE SUBSCRIPTION RENEWAL FORMS COMING !!!!

February's newsletter was purposely kept very brief in order to focus everyone's attention on the subscription renewal form. By law, if the form is not returned, you will be dropped from the Hort Notes mailing list. If you need another form, please call our office or drop by and fill one out. We want everyone to keep informed and updated, SO GET THEM IN!

A couple of growers have called to ask about "Materials in Spanish". The intent here is to gauge interest. If there are certain subjects you feel would be useful, i.e. pest management, pruning, frost, etc., please let us know so that we can communicate local needs to our communications staff. If interest is strong, I will arrange translations of relevant newsletter articles periodically.

To all Lake County growers - the very best for a profitable 1990 season.

Sincerely,

Rachel B. Elkins

Rachel Elkins
Farm Advisor