# your *Lake County* HORTICULTURAL NOTES

*HAPPY HOLIDAYS!!*

Rachel

**DECEMBER 1993**

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*Farm Advisor*

*!!! MARK YOUR CALENDARS !!!*
(contact us for details)

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| **January 12** | **Restricted Materials Permit Annual Grower's Exam** - 9:00 A.M.<br>contact: Lake County Department of Agriculture - 263-2271 |
| **March 10** | UCCE/Ag Department **HANDS-ON PESTICIDE SAFETY TRAINING**-Spanish and English<br>Lake County Fairgrounds<br>details coming soon |

## 1993 WALNUT SEASON WRAP-UP

### I. Growing Season Summary

Like other Lake County crops, the walnut crop had its ups and downs in 1993, depending on variety and time of bloom. All in all, tonnage appears to be about the same or somewhat below 1992, with a wide range of nut sizes and excellent quality. Again, much depended on orchard and variety. About 3,400 tons were delivered in 1992 and the 1993 tonnage figures will be released in January 1994.

As with other crops, time of bloom largely determined final crop. The main factor is whether bloom coincided with rainy or dry weather. The pistillate, or female, flowers are only receptive to wind-blown pollen from male flowers for a limited time, about three to seven days. If compatible pollen is unavailable or washes off the stigma (receptive part of the female flower) during this short period, set is diminished. Since pollen is relatively short lived, weather conditions during the pollination period are very critical.



Wheelchair Accessible

The 1993 bloom period was characterized by on and off periods of rain and cold, interspersed with warm periods. The result was a long drawn out bloom period in which luck-of-the-draw determined whether or not pollen 1) release and movement, 2) adherence to the stigma and 3) tube growth down the stigma, successfully resulted in nut set. Some of the varietal, as well as site, differences observed were:

- in many cases, a better-than-average Poe crop, especially in the northwest districts
- staggered Hartley and Franquette bloom, often resulting in mixed sizes at harvest, and
- perhaps more crop loss in the earlier orchards and districts, e.g. Clearlake and Lower Lake.

Following the main pollination and set period (i.e. after non-fertilized flowers dropped), the remaining growing season was relatively cool though with a couple of warm spells that caused some sunburn. Although the majority of nuts sized adequately, the cool season may have slowed the development of later blooming nutlets. There were complaints this year of small Hartley nuts in some blocks. (On a positive note, hopefully one result of mild summer temperatures was enhanced formation of the 1994 crop.)

Finally, induced by early October rains, a timely and smooth harvest was followed by excellent shaking and pick-up weather. Again, some growers noted a "two stage" harvest due to the split between early and late varieties and among districts.

Growers interested in learning more about walnut bloom and nut growth/development, contact me for copies of two chapters from the 1991 Walnut Short Course Proceedings:

Flower Structure, Development and Pollination
by Vito S. Polito

Fruit Growth and Development
by John M. Labavitch and V.S. Polito

## II. **Problems to Prepare For In 1994**

**Walnut blight** - This bacterial disease was apparent throughout the county. Many growers, unaccustomed to seeing it, mistook symptoms for walnut husk fly damage. Several years of spring rains have fostered gradual innoculum build-up, which "exploded" during extended rainfall during bloom and early set. Usually confined to early varieties, even Hartley and Franquette were affected this year. Most affected nuts either dropped off or were sorted out. However, if rainy springs continue, affected orchards may warrant at least one copper spray to protect pistillate bloom (which enters via stigmas) and young nuts.

**Walnut husk fly** - WHF emergence was slightly delayed this year, with relatively small numbers caught versus the past several years. Peak emergence occurred between August 24-31 in Kelseyville and Upper Lake and, unlike 1990-1992, a second mid-September peak never really materialized. Thus, many orchards got by with one or two sprays and final damage was minimal. Of course, orchards with historical damage required more treatments. Growers who are still unaware of proper monitoring and treatment procedures should contact our office and of course, this topic will be covered in depth next summer.

**Frosted scale** - This pest is becoming a persistent and vexing problem in some orchards, despite the presence of biological control. Since no pesticides other than 1-3 localized malathion/bait sprays are applied in Lake County, there must be other factors affecting the efficacy of wasp parasites. However, since parasitism is apparent, I am encouraging growers to continue to give the wasp a chance. The latest control recommendations for scale are on pages 6 & 7. Please contact me before deciding to apply a winter spray so we can observe the status of biological control together.

**Navel orangeworm** - There were no significant complaints this year, though the incidence of overwintering blighted nuts may cause scattered NOW problems next year. If inspectors found NOW ("worms") in your grade sample, please practice good sanitation procedures this winter. Knock mummy nuts and remove them from the orchard or disk and shred them in place. NOW will build up in orchard trash and old nuts - SANITATION IS THE BEST AND CHEAPEST CONTROL AVAILABLE.

All in all, 1994 was relatively pest-free. To keep abreast with the latest pest control recommendations, growers should contact our office for a copy of the *UCIPM Walnut Pest Management Guidelines*, October 1993, 41 pages, $2.25.

## GET THOSE RODENTS - WITH BARN OWLS!

Over the past couple of years, interest in utilizing birds of prey to control rodents has increased dramatically. This is because of 1) lack of available effective poisons, 2) environmental/worker safety concerns and 3) movement toward "sustainable" practices as a marketing tool.

Perhaps the most widely publicized tactic is to attract barn owls to fields, orchards and vineyards by building nest boxes. Barn owls eat many kinds of rodents, including gophers, field mice and ground squirrels. One reference stated that two adults and six young owls can eat over 1000 small mammals per nesting season.

There is little scientific data on the effectiveness of barn owls as orchard/vineyard predators. One Washington study apparently found better control of meadow mice when nests were placed away from human activity, e.g. houses and roads. "Grower testimony"

however, is encouraging, for example, successful gopher control by almond growers in Merced County. In Merced, Farm Advisor Lonnie Hendricks noted that having riparian habitat nearby seemed to help attract and keep the owls. If that is the case, Lake County should be an ideal habitat. In fact, Alan Buckman, local wildlife biologist for California Dept. of Fish and Game, stated that barn owls are widely distributed on the North Coast, especially in agricultural areas that have barns, out buildings, etc. However, he noted that they can be harmed or killed by anti-coagulants, so the use of these substances should be avoided anywhere boxes are placed.

Regardless of scientific validity, experimenting with attracting barn owls seems like a positive - and fun - venture. In recent months, quite a few local growers have expressed interest and a couple have actually built houses. Winter is a good time to construct the boxes since it can be done indoors during rainy weather and they can be in place by spring when needed.

There are a couple of different plans for nest boxes. Please contact our office if you would like to try it out. Also, please let us know if the owls take up residence and if you observe signs of rodent "population control".

Contact us for copies of:

*Barn Owl Nest Box - Plans and Instructions*
USDA-SCS Job Sheet CA-501

*Birds of prey assist farmers* by Chuck Ingels
UC Davis Sustainable Research and Education Project (SAREP)

*Who ya gonna call? Barn Owl!*
California Grower, May 1986

**NEW VINEYARD MANAGEMENT MANUAL AVAILABLE**

The Southern Sonoma County Resource Conservation District (SSCRCD), in conjunction with the USDA Soil Conservation Service, has published *Vineyard Management Practices: An Environmental Approach to Development and Maintenance*. Funding for the project was provided by a grant from the San Francisco Estuary Project of the USEPA.

According to the Board of Directors of the SSCRCD, the manual was compiled in response to requests from local growers for a basic reference of guidelines and standards for vineyard development and management.

Chapters, written by growers and local experts from SCS, UCCE and Santa Rosa Junior College, include vineyard development, land preparation, erosion control, irrigation installation, vineyard maintenance and wildlife habitat. There is also a bibliography

and glossary.

The manual costs $29.95 plus $3.50 for postage. Contact us for an order form or mail a check to SSCRCD, 1301 Redwood Hwy., Suite 170, Petaluma, CA 94954.

## NEW PAMPHLET HIGHLIGHTS LAKE COUNTY PEAR VARIETIES

*The Many Varieties of Lake County Pears* is a new three-color leaflet published by the Lake County Chapter of California Women for Agriculture. It was designed to inform pear buyers (both wholesale and retail), consumers and visitors about the Lake County pear industry and product.

Sections include a brief history, varietal descriptions (in order of harvest), ripening instructions, growing area map and an directory of local growers/shippers illustrated with their labels.

Copies of the pamphlet are available from local packinghouses, the Lakeport Visitors Center, UCCE in Lakeport or CWA.

## BENCH GRAFTING PROCEDURE FOR GRAPES

Contact us for a newly re-typed copy of an old publication entitled "*Outline for Bench Grafting Procedure*" by Dr. J.H. Winberger of USDA. It includes diagrams.

## UPCOMING UNIVERSITY EXTENSION COURSES

call 1-800-752-0881 or pick up a UNEX catalogue at our office

Soil and Water Testing in Perennial Crops
Tuesday, February 22 UC Davis $95.00

Interpreting and Applying Soil, Water and Plant Analyses:
A Small-Group Workshop
Wednesday, February 23 UC Davis $95.00

## UNEX VITICULTURE CLASSES

Wine Grape Production Short Course
Monday-Wednesday January 24-26 UC Davis $375.00

Italian Varietals in California: An Introduction
Saturday, February 5 UC Davis $120.00

Vineyard Canopy Management and Assessment
Saturday, March 12 UC Davis $100.00

Recent Advances in Viticulture and Enology
Wednesday, March 30 UC Davis $ 50.00

# INSECTS and MITES

## FROSTED SCALE and EUROPEAN FRUIT LECANIUM (7/93)

**Scientific Name:** *Lecanium pruinosum, Parthenolecanium corni*

**DESCRIPTION OF THE PEST:** The frosted scale is the most important soft scale pest of walnuts. Its frostlike cover and copius honeydew secretion in spring make it easy to recognize. This scale has one generation a year. It overwinters as a nymph on twigs and small branches. In spring, it grows rapidly, becomes convex, forms a frostlike waxy cover, and secretes large amounts of honeydew. After mating in late spring, females lay many eggs, which fill the entire space beneath their cover, and die after egg production. The white waxy substance weathers away, leaving oval, dark brown covers that may be present for a year or more.

Newly hatched nymphs or crawlers emerge from beneath the scale cover from late May through June and settle mostly on the underside of leaves. Here they feed for the rest of the summer. In fall, the nymphs molt and move back to twigs.

The European fruit lecanium has essentially the same life cycle. The immature stages closely resemble those of the frosted scale, but the adults do not form the thick, frostlike cover in spring. Instead, the cover is domed, shiny brown, and about 0.25 inches in diameter with several ridges along the back.

**DAMAGE:** Soft scales suck plant juices from leaves and twigs. Low to moderate populations apparently are not damaging, but heavy populations reduce terminal growth and vigor, resulting in smaller nuts and poor kernel quality. The secreted honeydew may cover nuts and favor the growth of sooty mold, increasing the chances for sunburn damage.

**BIOLOGICAL CONTROL:** Parasites play an important role in controlling these soft scales. The most effective of the parasites is the wasp *Metaphycus californicus*. It produces several generations a year, compared with one generation of the scale, and parasitizes all stages of the frosted scale except the eggs. Parasitized nymphs are almost black and have convex covers; unparasitized nymphs are flat. Several parasites emerge from a single parasitized adult scale, leaving a perforated cover.

**WHEN TO TREAT:** Monitor these scales during the dormant period. Examine the previous season's growth on randomly selected trees throughout the orchard. If you find more than 5 nymphs per foot of last year's wood throughout the orchard and less than 90% are parasitized, a treatment is warranted. If a treatment is necessary, apply it during the delayed dormant period before rapid scale growth begins in early spring. The safest time is as bud swell begins (see CAUTION below). Treatments applied to first instar scales on leaves are also effective. High populations of soft scales often result from the use of chemicals that are disruptive to parasites and predators. If a high degree of parasitization is observed, treatments may be delayed until after crawlers emerge in late spring.

**CAUTION:** Supreme/superior oils should not be used on walnuts during the dormant period; if oil is to be used during this period it should be a dormant oil emulsion. This material should not be used, however, if trees have suffered from a lack of adequate soil moisture, high scale populations, or other stressing factors at any time during the growing season or during the period

*Continued on next page.*

*Frosted scale and European fruit lecanium cont. (7/93)*

of dormancy. If frosted, European fruit lecanium, calico, walnut, or San Jose scale need to be controlled during the dormant period and trees have been stressed, use methidathion or use diazinon or chlorpyrifos without oil. The use of these materials without oil will suppress scale insects, but treatments may be needed again during late spring or early summer.

**TREATMENT:**

| Pesticide (commercial name) | Amount to Use** (conc.) | (dilute) | P.H.I.+ (days) |
|---|---|---|---|
| A. METHIDATHION* | | | |
| (Supracide) 2EC | 8 pt | 2 pt | 7 |
| COMMENTS: Use concentrate rate in a minimum of 100 gal water. Do not combine with oil or severe phytotoxicity may occur. Do not graze livestock in treated orchard. Do not apply more than twice a year or more than once a dormant period. | | | |
| B. DORMANT OIL EMULSION | – | 2 gal | |
| COMMENTS: Apply oil to walnuts only when soil moisture is adequate and trees have not been water stressed at anytime during the growing season. Use a minimum of 200 gal water. If trees are stressed, use diazinon or chloropyrifos without oil to suppress scale insects; treatments may be needed again during late spring or early summer. | | | |
| ...*PLUS*... | | | |
| 1. DIAZINON 50WP | – | 1-1.5 lb | HS |
| ...or... | | | |
| 2. CHLORPYRIFOS (Lorsban) 4EC | – | 1 pt | 14 |
| COMMENTS: Do not apply chlorpyrifos more than twice per year. | | | |

* Permit required from county agricultural commissioner for purchase or use.
\+ Preharvest interval. Do not apply within this many days of harvest.
HS Do not apply after husk split.
** For concentrate application, use the amount given in 80 to 100 gal water/acre, or lower if the label allows; for dilute application, amount is per 100 gal of water to be applied in 300 to 500 gal water/acre, according to label.

Cooperative Extension
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Oakland, CA 94612-3560

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