your *Lake County* HORTICULTURAL NOTES

JUNE 1995

!! REMINDER !!

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WHY IS PEAR PSYLLA CONTROL SO DIFFICULT?

Many growers and pest control advisers are frustrated that despite expensive control efforts, pear psylla (PP) populations are increasingly problematic. Although the reasons will, of course, differ for each orchard, here are some immediate and long-term factors:

Lack of Adequate Dormant/Delay Dormant Treatments - In the short-term, heavy rains in 1995 prevented many growers from applying the most important treatment of the season - dormant oil. This immediately resulted in a "behind the 8-ball" situation. Rains continued through bloom, preventing or diminishing the effectiveness of delay dormant oil/Asana® applications. It is clear many blocks have not or have only partially recovered from this. The very cool weather this season, ideal for PP, has only exascerbated the problem.

Loss of Ideal Window for Avermectin - In 1995, PP hatch occurred very early, much prior to petal fall. Thus, even the earliest avermectin (i.e. Agrimek®) treatments were applied to mixed stages, which is always less effective. In 1991, a local replicated study showed that petal fall applications at any rate gave season-long control. However, in that year, initial hatch correlated well with petal fall timing, so PP were at a uniform stage.

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Coverage - This is a chronic problem, though much less in winter and early spring. As foliage becomes denser, good coverage in the top center of the tree, where PP tend to migrate, becomes more crucial. In a *hand-gun* test currently underway, one 20 oz. application of avermectin applied at 400 gallons per acre on May 2, looks excellent so far. This is contrary to reports that 20 oz. applications made in the same time frame are now being followed up by full dilute applications of oil. This may reflect that coverage achieved by many spray rigs is less than with a hand gun. It may be necessary to work toward attaining more "hand gun-like" coverage by 1) increasing spray volume 2) using equipment that maximizes air displacement in the top and top center of the canopy and 3) paying particular attention to tractor speed, i.e. driving at a ***maximum*** of 2.5 mph. The relationship of coverage factors to the efficacy of avermectin should be researched.

Decreased Efficacy of Currently-used Materials - This long-term factor is always controversial and difficult to demonstrate. In 1988, 9-fold resistance to pyrethroids (i.e. Pydrin®) was found in several Lake County orchards. That was seven years ago and to date, there has been no formal follow-up resistance testing in California of Asana®, which replaced Pydrin® about that time. Although Asana® is, and will continue to be, an important part of the PP program, current delay dormant use rates of 16 oz. per acre are much higher than rates used when pyrethroids were first introduced.

There has also been ***no*** **systematic** resistance testing of avermectin in California, at least by UC. Testing on winter form adults by Oregon and Washington State Universities began in 1993 and has yet to produce a "bottom line". There is also reported "evidence for resistance" to avermectin in 2-spotted spider mite (2SSM) populations in Washington, albeit at doses 700 times lower than field rates. 2SSM control is still excellent locally and the difference may be that, in Washington, use rates are much higher than in California. If more applications are made at higher rates, selection pressure in both mite **and** PP populations will likely increase, hastening potential resistance.

Lack of Effective Biological Control - Though mating disruption has thus far been unreliable for long-term, **stand alone** codling moth (CM) control, years of local trials showed that when azinphosmethyl (e.g. Guthion®) was removed from the pest management program, especially first cover, PP and mite predator populations increased. PP predators include lacewings, various true bugs and spiders. The lack of effective **selective** CM controls severely hinders the ability to reduce PP biologically, thus allowing them a wide and unchecked "niche" in the orchard.

In summary, economic PP control is increasingly difficult and depends on:

* AN EFFECTIVE **DORMANT/DELAY DORMANT OIL** PROGRAM

* **EXCELLENT COVERAGE** IN THE TOP AND CENTER OF THE TREES

* **CONTINUED SUSCEPTIBILITY** TO CURRENTLY REGISTERED MATERIALS AND

* **AVAILABILITY OF SELECTIVE CM CONTROLS** TO PRESERVE PREDATORS

Pear psylla control is an old problem. In fact, it was covered extensively in **Hort Notes** in April 1988 and June 1989. As one PCA commented, "What we basically do now is practice psylla management rather than pest management". Let us hope true IPM solutions are found soon.

CHOOSE YOUR WALNUT VARIETY WITH BLOOM WEATHER IN MIND

By now, most growers are consigned to the fact that 1995 will be remembered as a "washout", literally. Poor pollination, frost damage and walnut blight have taken their toll, as evidenced by sparse crop and the blighted and/or nonfertilized nuts which began falling around the first week of June. As in the pears, the crop is spotty, depending on orchard location and variety.

Although there is little growers can do against the whims of Mother Nature, there is one choice which can reduce both probability and level of loss, and that is **VARIETY**.

In Lake County, varietal choice is perhaps the most important factor in preventing loss due to frost, insects and walnut blight. There are good reasons why Franquette and Hartley dominate the local industry. Chasing high tonnage is futile if half the crop is frosted out or must be extensively sorted to avoid high penalties. This was made clear in the Diamond Walnut *Walnut Variety Update - 1994*. For the North Coast tonnage, the average offgrade (for ***Diamond*** deliveries) was 2.5%, the lowest in the state. Eureka, Franquette, Hartley and Tehama levels were 2.0% or less. This contrasts with Payne at 14% and Vina at 10%. One can see that the early varieties suffered greatly, in this case from blight, sunburn and codling moth.

Fortunately, there are a couple of excellent, relatively new late-blooming varieties to choose from, namely Chandler and, to a lesser extent, Howard. Although local long-term experience is lacking, growers are thus far pleased with these varieties. After 1995, growers with early varieties may decide to call in the grafters next year.

INTERPRETING BLOOM-TIME GRAPE PETIOLE ANALYSIS

Depending on how the grape bloom survives the unseasonable late rains of mid-June, 1995 looks to deliver more than decent tonnages.

Bloomtime tissue analysis is used to determine nutrient imbalances. Most of the currently used deficiency/excess thresholds are detailed in the "classic" UC publication by now-Extension Specialist Pete Christensen, ***Grapevine Nutrition and Fertilization in the San Joaquin Valley*** (UC DANR #4087, $10.00). Recently, Pete wrote an updated summary, ***Use of Tissue Analysis in Viticulture***. It covers analysis needs, sampling collection/handling and interpretation. Both publications are available at our office (due to severe budget cuts, there will be a $.50 charge for the monograph).

The potential effects of the rains that began the night of June 12 will be discussed further in July ***Hort Notes***.

COST STUDY BUDGET PLANNER PROGRAMS AVAILABLE

Most growers are familiar with UC cost studies. Each study contains a "your cost" column. Now, UC Davis Ag Economics Extension has made many of the studies available on diskette. These "Budget Planners" allow the user to input their own costs to generate net income and return. The recent Lake County pear study, as well as several wine grape and walnut studies, are available. For **any** crop (fruit, vegetable, field crop, livestock, etc.), contact us for a list and where to order. We have sample diskettes for the 1994 Lake County pear study, 1994 Lodi winegrapes, 1994 Sonoma winegrapes, 1993 North Coast organic winegrapes and 1994 organic walnuts. The establishment spreadsheets are all on Excel except Sonoma winegrapes, which is on SuperCalc 5.

TREE AND VINE LOSS CALCULATOR

UC Davis Ag Economics Extension has developed a spreadsheet to calculate individual tree and vine losses. It is written for Excel Version 5.0a but can be converted for earlier Excel versions, Lotus or Quattro Pro. The spreadsheet is designed to calculate for up to 12 years, allows entry of particular crop units (i.e. pound, ton, box, etc.), and fits a diamond pattern layout or number plants per acre. Contact us if you are interested.

RECENTLY-OBTAINED COST STUDIES (contact us for copies)

Establishment and Production Costs for Walnuts; early leafing laterial-bearing
Northern San Joaquin Valley, 1990 (60 cents)

Establishment and Production costs for Walnuts; late leafing terminal-bearing
Northern San Joaquin Valley, 1990 (60 cents)

Walnuts; Hedgerow
Northern San Joaquin Valley, 1990 (50 cents)

Sample Costs to Establish a Vineyard and Produce Wine Grapes; Cabernet Sauvignon and drip irrigated
Lodi Appellation of Sacramento and San Joaquin Counties, 1994 ($1.00)

Financial Analysis of Christmas Tree Investments (40 cents)

SPECIALTY CROPS HANDBOOK ON DISKETTE

The UC Small Farm Center has put their excellent Specialty Crops Handbook on two diskettes (A-J and K-Z). We have the Word for Windows version but Macintosh is also available. Contact our office or the Small Farm Center at 916-752-8136.

UPCOMING UNIVERSITY EXTENSION VITICULTURE COURSES

(all fees include materials and lunch - contact UNEX at 1-800-752-0881)

Home Vineyard Series: Soils, Ground Covers and Integrated Pest Management
Saturday July 15 UC Davis $95

Winegrape Variety and Rootstock Identification Workshop
Monday August 14 UC Davis $130

Vineyard Water Status: Concepts and Consequences
Tuesday August 15 UC Davis $130

Vineyard Canopy Assessment Workshop
Wednesday August 16 UC Davis $135

Sincerely,

Rachel Elkins
Farm Advisor