

COOPERATIVE EXTENSION

University of California - Sacramento County

Tree and Vine Newsletter

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Thank You for Support

We are grateful to the outpouring of support for Cooperative Extension in Sacramento County by several individuals and groups. We cannot survive without the active support of our clientele. Our office survived the budget cuts when various Sacramento County departments contributed toward office operations. As a result, we are developing research and educational programs targeting biosolids use in field crops, reduction of green waste disposal in landfills by professional landscapers, and low water use landscapes. We are still strongly committed to working with and serving the farming community through research and education programs. Thanks again for your support!

Pear Leaf Deformity Problem: What's Causing It?

Most pear growers and PCAs have observed a leaf distortion phenomenon over the last several years, and this year is apparently worse than previous years. I have seen the problem to some degree in nearly all orchards I have visited.

The main symptom of the problem is small leaves which emerge with somewhat scalloped edges. Occasionally the leaves are cupped upward slightly, and the midrib is sometimes bent slightly to one side. The distortion begins in early spring and resembles tattering by wind. The location of the symptomatic leaves on the shoots seems to differ less within an orchard or tree than between orchards. In some orchards only a small portion of the middle of the shoot is affected, in others there are a couple of distinct parts of each shoot, while in some cases the symptoms occur on the entire shoot. Also, the problem is almost nonexistent in some orchards, while others are impacted heavily, although growth and production do not appear to be affected. In some cases, young and vigorous trees are affected the most. One unique feature is that new growth that has emerged in late summer seems to be unaffected.

There is increasing concern among many people about this problem. Some of the theories that have been proposed include insect damage (thrips, earwigs), drift of herbicides or growth regulators, or a viral disease. Some believe that it may have increased shoot blight.

It is interesting to note that in no other crop in the area have similar leaf symptoms been reported.

I would be very interested in hearing of your thoughts on this problem. Let me know if your orchard was seriously affected or if you have reason to believe that it has affected growth, production, or fire blight incidence. I have sampled symptomatic leaves for analysis and will do so again in the spring, and I plan to closely examine leaves for insects.

ATTRACTING BARN OWLS TO FARMS

Many growers have installed barn owl nest boxes, mainly so the owls can assist in the control of pocket gophers and voles (meadow mice), but also as a means to increase biodiversity. A single barn owl eats about 40 to 48 pounds of prey per year. However, the effect of this predation on rodent populations is unknown.

Barn owls naturally nest and roost in barns, silos, haystacks in barns, tree cavities, stream bank holes, and palm trees. Nests in haystacks are often destroyed when hay is removed, and young owls in palm trees often fall to the ground during heavy winds. Barn owls will readily take up residence in nest boxes provided by farmers. [Linked are two nest box designs](#): the Lodi model has been used successfully for years in orchards and vineyards; the Raptor Center design is often used in trees.

A few tips: 1) paint the box exterior to protect the wood; 2) install the box at least 12-15 ft. high, but low enough to allow easy access for cleaning; 3) orient the box so that the entrance hole faces east - this reduces the exposure of the hole to hot summer sun and to prevailing winds; 4) provide a 1 in. thick layer of nesting material, such as wood shavings or small wood chips, to prevent eggs from rolling. In the fall of each year, remove the pellets and debris and add new nesting material.

Signs that owls have inhabited the boxes include white excrement below the entrance hole, pellets of regurgitated matter on the ground below the box, and screeching and clicking sounds made by the owls near the box at night. It is best avoid disturbing the nest, especially when eggs are present, since this may cause the owls to abandon the nest. This period is usually about late February through March for the first brood.

Barn owls usually begin looking for nesting sites in early January, so it may take many months before they use the box. Also, they may use the box for nesting only, abandoning it during the summer and fall in favor of a tree or barn roost. Nest boxes may also be abandoned as a result of the high mortality rate of barn owls. If several boxes have been installed, it may take one or two years before they are all inhabited. If the box(es) have not been occupied for up to two years, try using a different box design and/or a different location.

VINE TRAINING/EUTYPA STUDY IN SACRAMENTO COUNTY

A large research trial at a Vino Farms vineyard in southeastern Sacramento County is heading into its eighth year. The project, which is headed by Keith Striegler of CSU Fresno, looks at the influence of training systems on vine performance and Eutypa dieback on Cabernet Sauvignon grapevines. This article is extracted from summaries of their work, which is funded by the Lodi-Woodbridge Winegrape Commission and the American Vineyard Foundation. For information on the mechanical thinning experiment, which is a separate study within the Eutypa trial, see the July 1997 issue of *American Vineyard* magazine.

Eutypa dieback is one of the most common canker diseases in California, and is caused by the fungal pathogen *Eutypa lata*. The disease is most severe in the North Coast and Sacramento River Delta, and causes economic losses by affecting yield, reducing the life of the vineyard, and increasing the cost of management practices.

Economic losses are minimal in the early years of the vineyard and are most damaging in older vines, which have large pruning wounds that result from efforts to retrain vines and replace infected cordons. Yield reductions are attributable to the loss of fruiting spurs. Management costs are increased because disease detection, pruning wound sanitation, and retraining of vines are labor-intensive. All *Vitis vinifera* varieties are susceptible to Eutypa, and disease symptoms are more pronounced in Petite Sirah, Chenin Blanc, Chardonnay, Cabernet Sauvignon, Merlot, Sauvignon Blanc, Shiraz (Syrah), and Zinfandel. The chances for infection can possibly be reduced by pruning grapevines late in the spring when the risk of rainfall is less and fewer spores are released.

Treatments

The following treatments, each replicated six times, are being used in this experiment:

1. Cordon-trained with spur pruning (control); cordon on lower wire.
2. Head-trained with cane pruning; canes originating from head of vine on lower wire.
3. Hudson River Umbrella; cordon on top wire with canes (5-8 nodes) trained down.
4. Machine trimming with hand follow-up; cordon on lower wire.
5. Machine trimming without hand follow-up; cordon on lower wire.
6. Minimal pruning; cordon on top wire.

1996 Results

Preliminary results from this project indicate that the incidence of Eutypa can be influenced by the pruning and training methods used. Symptoms of Eutypa infection were observed in the plot for the first time in the spring of 1996 (data not shown). Eutypa symptoms were only observed in handpruned, cordon-trained treatments.

Training system had a significant effect on yield and components of yield in 1996 ([Table 1](#)). Yield was highest for the minimal pruning treatment and lowest for the head trained/cane pruned treatment. High yield resulted from increased clusters per vine.

Cluster number was greatest for minimally-pruned vines while cluster weight, berry weight, and berries per cluster were among the lowest when compared to the other treatments.

In general, large yield for the minimal pruning treatment resulted in delayed fruit maturation. Soluble solids and pH were lower for vines which were minimally pruned ([Table 2](#)). Potassium content was greatest for the Hudson River Umbrella treatment and lowest for the machine pruning with hand follow-up treatment. Titratable acidity and anthocyanin content did not differ significantly between treatments.

Training system also had a significant effect on vegetative growth. Growth, as measured by mature nodes per vine, was greatest for bilateral cordon and lowest for minimally pruned or machine pruned vines ([Table 3](#)). Vines that were minimally pruned had more shoots per vine than all other treatments.

FIRE BLIGHT HOT THIS YEAR!

Fire blight plagued many pear orchards this year, and its control represented a major expense for most growers. Some growers who historically had very little blight were hit hard this year. To try to understand blight management practices and their effects, in August I met individually with 10 pear growers, representing over 1,000 acres. As one might expect, no single practice or emerged as a main cause of this year's blight problem.

The main symptom in most orchards this year was shoot blight, beginning about mid-May after a late rain, although some growers had serious blossom blight as well. Removal of holdover cankers is essential to controlling fire blight; a few overwintering cankers per acre can provide enough inoculum to render a spray program ineffective. All but one of the growers interviewed said they had effective holdover canker removal. For best control, blight strikes should be cut at least 12 in. - up to 18 in. - below the visible injury or canker. About half the growers said that short cuts were a problem this year, mainly due to the large volume of blight workers were cutting. Most growers had sent crews through a given orchard about 2 to 3 times as of August, but about a third of the growers had already cut 4 to 5 times. Most growers instruct workers to sterilize loppers only if they think they cut into active blight; some do not sterilize loppers at all. Virtually everyone does have workers treat blades and tree wounds after scraping.

The spray programs used by the growers interviewed varied. A few growers used copper dust, with streptomycin or terramycin sprayed as needed before rain. All other growers used Blightban, tank-mixed with or alternated with streptomycin, or alternated with terramycin (appropriately, no one tank-mixed Blightban and terramycin). One grower used Blightban alone, and some tank-mixed Aliette with Blightban (which is apparently acceptable as long as the pH is buffered correctly). The timing of the first and sometimes subsequent sprays or dustings was based on one of about three models or was based on phenology (5-10% bloom, or up to 20% bloom). There were no obvious differences in blight severity based on the spray/dust program.

Vigor is often thought to be associated with greater fire blight severity. There were some indications that high vigor orchards had more blight, but this did not always hold true. Fertilization varied greatly, with many growers recently using less N and many using pre-harvest and fall applications only. A majority of growers irrigate about every 2 weeks from late April through harvest.

There were no obvious trends in fire blight severity related to fertilization or irrigation practices. There were no obvious causes of this year's fire blight problems, although it is clear that May rains led to serious shoot blight for many growers. No sprays have been shown to be effective against shoot blight. Aliette is thought to suppress shoot blight temporarily, but no formal tests have been conducted to validate this. UC blight trials are in the works for next year, and many growers and PCAs continue to experiment with new strategies. I'd like to hear of your experiences and I welcome your comments.

UPCOMING MEETINGS

Dec. 16-17: **Pest Science Conference** - UC Davis. Cost: \$100. Contact: University Extension, (800) 752-0881.

Jan. 7-8: **Workshop for Trainers of Pesticide Handlers and Ag. Fieldworkers** (English/Spanish) - Winters. Cost: \$100. Contact: IPM Education & Publications, (916) 752-5273.

Jan. 21-22: **California Plant & Soil Conference** - Sacramento. Theme: Agricultural Challenges in an Urbanizing State. Cost: \$60. Contact: Shannon Mueller, (209) 456-7261.

Jan. 26-28: **Varietal Wine Grape Production Short Course** - Radisson Hotel, Sacramento. Cost: \$525. Contact: University Extension, (916) 757-8777.

Feb. 5: **Recent Advances in Codling Moth Management** - Sacramento. Contact Chuck Ingels (916) 875-6913. Details in next newsletter.

PUBLICATIONS, ETC.

Walnut Production Manual (2nd edition). 1997. University of California, #3373. 128 pages. Price: paperbound - \$35; hardbound - \$50. Available in our office or through [UC ANR Publications](#), (800) 994-8849.

Video: "Walnut Husk Fly: Biology, Monitoring and Control Strategies". 22 min. Price: \$20. Call [UC DANR Communication Services](#), (800) 994-8849.

Pesticide Safety: A Reference Manual for Growers. 1997. University of California, #3383. 128 pages. Price: \$7. This publication is a resource for growers preparing for the Certified Private Applicator examination. Available in our office.

FPMS Grape Rootstock Flash Cards. 1997. University of California. 27 laminated cards with leaf photos and rootstock descriptions. Price: \$40. Call FPMS at (530) 752-3590.

Spanish-English / English Spanish Illustrated Agricultural Dictionary. 1993. Price: \$27.95. Thomson Publications, PO Box 9335, Fresno CA 93791, (209) 435-2163. 160 pages. Complete with agricultural, botanical, and horticultural terms, as well as livestock, equipment, tools, weeds, diseases and insects.

Grape Articles in Spanish. The articles listed below are available in our office. Let me know if you would like a copy or if you are aware of other Spanish articles related to wine grape cultural practices.

- 1) "Injertos de Vides" ("Grafting of Grapevines"), by Fred Jensen, Marian Bailey, and Curtis Lynn; 29 pages, with diagrams.
- 2) "Epidemiologia y Control de Cenicilla de la Vid" (also available in English: "Epidemiology and Control of Grapevine Powdery Mildew"), by Doug Gubler, UC Davis; 6 pages.

How to Find Agricultural Information on the Internet. This publication walks you through real-life examples of how farmers and others have used e-mail and the World Wide Web to answer questions to improve their business effectiveness and their bottom line. 1997. Price: \$15.99 incl. S&H and taxes. Call [UC DANR Communication Services](#), (800) 994-8849. [More Information](#) available through the SAREP web site.

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