



your Lake County HORTICULTURAL NOTES

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POOR GRAPE SET - BLAME IT ON THE WEATHER

With demand and prices for Lake County wine grapes up, the poor set in many vineyards is disappointing, adding insult to injury for those who suffered winter kill and/or frost damage. Although yield can vary 10-20% from year to year, abnormally cool followed by hot weather in June and July was responsible for most of the estimated 15-75% yield reduction this year, depending on vineyard.

Bloom was strung out from the first (Middletown) through the last week of June (Big Valley, Upper Lake). Cabernet sauvignon and Sauvignon blanc bloomed together in many cases. According to Winkler in General Viticulture, bloom occurs when mean daily temperatures reach 68°F and usually lasts 8-10 days. At less than 60°F, few flowers open, the rate increasing rapidly between 65-70°, then retarded again at 95-100°. From June 1-13 there were only two days of 65° or more. The .27 inches of rain during this interval may have also contributed to bloom delay. Additionally, pollen tube growth is slow in cool weather, so the little early pollen shed probably lost viability before fertilization could occur, resulting in shot berries.

Though bloom rate increased the latter half of June, very high temperatures inhibited pollination and fertilization. The pollen tube reaches the ovule in only several hours under ideal temperatures of 80 - 90°. Temperatures skyrocketed on June 14; 10 days of 95 to over 100° highs were recorded through the last half of June, slowing and even completely inhibiting tube growth down to the ovule.

The main loss however, was due to poor set or seed development. According to Robert Sisson, retired Sonoma County Farm Advisor, temperatures of 90°F or more during or immediately following bloom can reduce set. Add the 27 days of over 90°F in July to the 13 in June and it left very few days conducive to proper set.

Several growers questioned the role of Botrytis this spring. Although there was a little stem and bloom infection around due to cool, rainy weather in early June, widespread losses were more likely due to early cool weather slowing bloom and pollination, then sudden, prolonged heat that inhibited pollination and fertilization and reduced set.

WALNUTS - ANOTHER POOR QUALITY YEAR?

Sunburn to both nuts and foliage is rampant this year, but it is only the most obvious symptom of this very hot, dry year. Come harvest, I expect to once again receive samples of black, stick-tight fruit with mushy inner hulls and shriveled, dark kernels. For non-irrigated trees, especially those that have not been pruned in recent years, the severe water and heat stress will surely take it's toll (pruning invigorates shoot growth, providing more protective canopy).

For those with available water I urge irrigation to continue through September, though frequency and amount can be reduced. Between now and harvest the kernel will continue to fill and dry weight accumulate. Quality is affected by late season water stress all the way up to harvest. Lake County depends on light meats, low insect and disease pressure, and good size to keep our industry profitable. Although we cannot totally prevent damage due to abnormally hot, dry weather, a little extra effort can ease the stress.

Note: some orchards were leveled for harvest as early as mid-July. In a very hot year such as 1988, a flat, smooth, bare orchard floor reflects even more heat up to the tree, thus aggravating sunburn. A mowed or roughly disked orchard floor is cooler and reflects less heat back up into the tree.



CHANDLER - A LATERAL BEARING VARIETY FOR LAKE COUNTY?

When a walnut cultivar that both suits Lake County growing conditions and is desired in the marketplace comes along, it is worth taking notice.

Chandler is a lateral-bearing variety that leafs out with, but harvests a couple of days before, Hartley. Like other late varieties it avoids blight and other problems associated with Payne-type lateral bearers. The need for a late-blooming pollenizer is satisfied in Lake County by abundant Franquette pollen. The biggest advantages of Chandler over the terminal bearing Hartley are earlier and higher potential yields due to 80-90% lateral fruitfulness. In fact, yields are second only to the #1 bearing Vina which is an early variety unsuited to our area.

The tree itself is upright, with "moderate vigor". In the Central Valley it is being considered for close-spaced or even hedgerow plantings when grafted onto Black walnut rootstock to control vigor in their alluvial and sandy soils. I feel that Paradox hybrid rootstock would be most appropriate here because we need the vigor that Paradox supplies. Because it is lateral bearing, Chandler needs heavier and more detailed pruning than Hartley or Franquette. Thus, it may only be a choice for growers who are able to prune at least every other row yearly. Also, there is no experience under non-irrigated conditions, which generally only the most vigorous varieties can withstand.

Nut characteristics are excellent, with 50% edible yield and light nuts. Traditionally, Lake County produces a light kernel so we should get good quality. The only problem encountered so far is a thin shell that breaks easily during handling. Apparently, this goes away as the tree gets older. Important: Chandler is a shelling variety versus the in-shell Hartley and processors are learning how to handle it to minimize breakage.

I am aware of several small Chandler plantings in the county. Growers are welcome to contact me for more information on managing Chandler for maximum production and quality. Below is a table comparing the Chandler and a newly-released late blooming pollenizer, Cisco (UC 66-178) to our "standards". This data is from USDA Research Scientist, Dr. Gail McGranahan, who runs the walnut breeding program at UC Davis.

COMPARISON OF WALNUT CULTIVARS AND SELECTIONS AT UC DAVIS

SPRING 1988 and 5 YEAR AVERAGES

CULTIVARS	LEAFING	FRUITFUL LATERALS (%)	KERNEL WEIGHT ^a (g)	PERCENT KERNEL ^a (%)	KERNEL COLOR (% light) 5 yr avg	SHELL SEAL ^b (grade) 5 yr avg	YIELD (estimate) ^c (days after Payne) 1988 Spring 5 yr avg	HARVEST (days after Payne) 1987 5 yr			
	DATE 1988 5 yr avg DAYS AFTER PAYNE										
<u>REFERENCE</u>											
Payne	3/5	0	90	5.6	48	70	1 - 2	4	4	0	0
Hartley	3/25	16	0 - 5	6.6	46	90	1 - 2	4	3	24	17
S. Franquette	4/6	25	0 - 5	5.0	45	80	1 - 2	4	3	41	25
<u>SELECTIONS</u>											
Chandler	3/27	16	80 - 90	5.8	49	100	2	4	4	20	10
Cisco (66-178)	4/3	25	70 - 90	5.7	47	90	2	3	3	38	21

a Based on sample size of 10 sound nuts

b Shell seal: 1 = very well sealed to 5 = very poorly sealed

c Yield estimate: 0 = none to 5 very high yield

ULTRA LOW VOLUME SPRAYERS: WHAT IS HAPPENING?

by Harold M. Kempen, Weed Control Advisor, Kern County

Since the initial promotion of ULV rotary atomizers more than a decade ago, what has evolved since then with these new technologies?

Introduced from the United Kingdom from Micron Sprayers via a company in Texas in 1977, when I was on sabbatical in England, the Herbi^R and later the Micromax^R was widely bandied about as the new application technique for pesticides. While it made the headlines of many popular agricultural magazines in 1978 and 1979, the public research to back up claims that rates of herbicides could be halved, showed that in general that this was not true.

Now the Micron company is headquartered in Reedley (North American Micron), and the equipment has shown considerable evolution and upgrading. Usage of equipment such as the Micromax^R or Tecnomax's Girojet^R has been mostly in California's tree and vine crops in the less windy areas. Also the first entry, the Micron Herbi^R, continues to be used in hillside sites where vehicle traffic is not able to run.

The many glitches that always appear in new equipment have now been removed. But each has limitations still, which must be considered. Conventional hydraulic nozzles have been much improved since the 1977 era, so the new competition no doubt helped spray technology.

In the tractor-mounted systems, I have found that the Micromax and Girojet applicators work as well but not better than the newer low volume hydraulic nozzles now available, on vegetation. But they usually do not plug up as much, although proper strainers on equipment can largely overcome that with hydraulic (Spraying Systems or Delavan) nozzles. Research has shown that spacing and the angle of inclination on Micromax atomizers is important for uniform application. Best uniformity was at 40" spacing (Coefficient of Variation = 3.0%) although at 80" the CV at 5.4% was acceptable. Note that a CV of 15% is generally considered acceptable by specialists, according to Weed Science of America. New Micromax models now come to be mounted properly inclined (30°). The revolutions per minute and the flow rate of the liquid both can also affect application uniformity.

Most usage of this application equipment is for Roundup applications in tree berms or almond middles. With Roundup, a considerable data base shows that results are noticeably improved if water volumes are kept low, usually below 10 gpa. But usage of 8001 or 8002 tips can permit such low volumes as well. And with a change in nozzle tips, conventional nozzles can permit application of Goal, which requires 50 gpa on Rohm and Haas (but not Monsanto) labels.

In the pedestrian arena, North American Micron now has various

Microfit^R models, all battery operated, and with a backpack or bottles as needed. The Herbi Twin^R unit is interesting; it has two gravity fed atomizers 40" apart, so that an 80" swath can now be made at the usual 2 mph gait of human applicators, applying one gallon per acre. Seems logical for headlands and farm roads, if cultivation is not logical. Also a Herbaflex^R sprayer permits a controlled swath of 4 to 18" for cracks in cement or asphalt, etc. These have been popular with the increasing number of urban pest management specialists who contract with homeowners and businesses for landscape vegetation and pest management. (Gardeners now must be licensed and pay to spray Roundup, etc.)

For those who want detail on application, a new Weed Science Society of America book, Methods of Applying Herbicides, is available for \$35. Order from WSSA, 309 W. Clark St., Champaign, IL 61820.

CALIFORNIA ENERGY COMMISSION GRANT AND LOAN PROGRAM

Senate Bill 1145 (Chapter 1341, Statutes of 1986) directed the California Energy Commission to develop and administer a Farm Energy Assistance Program providing financial and technical assistance to California's farmers. SB 1145 is intended to help the agricultural industry in general, and small family farms in particular, to reduce energy costs and aid California farmers in their long-term efforts to remain strong and competitive.

Two out of three categories of financial assistance are available directly to growers: one million dollars for demonstrations of existing and new energy conservation tillage and harvesting techniques and three million for loans for the purchase of equipment and services for agriculture energy conservation and development projects.

Grant funds will be available to California farmers/ranchers interested in conducting demonstrations either independently or in cooperation with other farmers, private agricultural consultants, public advisors from agricultural colleges and universities, farm equipment manufacturers and farm input suppliers.

The maximum grant to any applicant is \$150,000. Projects must (a) include an actual California farm as a host site, (b) demonstrate clear and quantifiable energy savings and (c) have the potential for widespread application. Examples are: innovative tillage, soil fertility and water management, pest management, harvest and post-harvest handling and processing systems.

Loans up to \$200,000 at 6% fixed rate are available to finance farm equipment, water management systems, post-harvest systems, and farm production systems which conserve energy and mitigate increases in energy costs resulting from utility rate restructuring.

COMPLETED applications are due by 5:00 P. M., October 3, 1988.

If you are interested, contact me for more detailed information and application forms, or call (916) 324-3338.

NEW PUBLICATIONS - Contact Us

Pistachio Production (#2279) - \$5.50 - 16 pages
- emphasis on insects, fungi, pruning, irrigation and nutritional problems.

Safe and Effective Use of Pesticides (#3324) - \$30.00 - 400 pages

Christmas Tree Weed Control (#21445) - \$1.00 - 10 pages

A List of Bibliographies and a Selected List of Publications that Contain Bibliographies on Grapes, Wines, and Related Subjects (#1923) - \$5.00 - 72 pages

Making Table Wine at Home (#21434) - \$5.00 - 48 pages

Sincerely,



Rachel Elkins
Farm Advisor