



August 2005

**SABBATICAL LEAVE**

I will be taking a sabbatical leave from Sept. 1, 2005 through Aug. 31, 2006. The following farm advisors in neighboring counties will be available to answer production-related questions:

**Pears and apples** – Lynn Wunderlich (El Dorado Co.), phone (530) 621-5505, e-mail [lrwunderlich@ucdavis.edu](mailto:lrwunderlich@ucdavis.edu)

**Cherries** – Joe Grant (San Joaquin Co.), phone (209) 468-2085, e-mail [jagrant@ucdavis.edu](mailto:jagrant@ucdavis.edu)

**Grapes** – Paul Verdegaal (San Joaquin Co.), phone (209) 468-2085, e-mail [psverdegaal@ucdavis.edu](mailto:psverdegaal@ucdavis.edu)

During my leave, I plan to accomplish the following objectives:

**1. High-Density Pear Production.** A coalition of university researchers and economists from Oregon, Washington, New York, and California are planning trials in the different regions to assess the economic viability of high-density planting systems (see the article on page 2). I plan to visit researchers and growers in these regions, and in Australia, to study the horticultural practices and economics of these systems. We are currently planning experiments to examine the effects of trellis systems, propagation methods, rootstocks, and varieties.

**2. Grapes.** I plan to develop information for new grape growers on planning and establishing vineyards in the region. Also, I will evaluate the rootstock trial that Wilbur Reil and

I established on Jefferson Boulevard, West Sacramento.

**3. Alternative crops - Cherries and Blueberries.** Because Sacramento County's cherry acreage is increasing, I plan to learn more about cherry production by visiting researchers in northern Oregon and central Washington and attending research meetings in California. Similarly, I will also learn more about blueberries during these visits, and to initiate a blueberry variety trial here.

**4. Elderberry Mitigation Project.** To financially support the Cooperative Extension this past year, technician Gordon Card and I have been managing a mitigation project on 6.8 acres east of Discovery Park. The project was developed by the Sacramento County Regional Sanitation District to mitigate for destruction of the threatened valley elderberry longhorned beetle caused during the construction of a massive sewage pipeline near Sacramento State University. The project which will expand to eight acres in the coming months includes elderberry and approx. 15 other species of native shrubs, vines and trees. UC Master Gardener volunteers and other volunteer organizations are assisting with the installation of this project.

**5. Home Orchard Manual.** I will be working with several other UC personnel to complete a publication on fruit and nut growing for the home orchard and small farm.

**6. Landscape Horticulture Coursework.** To increase my knowledge in this area, I plan to participate in short courses and meetings.

## HIGH-DENSITY PEAR SYSTEMS AND MECHANIZATION

The ability to grow pears profitably is becoming more difficult with increasing labor shortages and high input costs, coupled with stagnant commodity prices. Many of the most costly orchard practices involve high labor inputs and ladder work, such as pruning and harvesting. A significant reduction in labor costs would make pear growing more viable, and reduced ladder work would potentially make the farm labor job safer and more desirable.

Many growers in other parts of the country and the world are planting mechanized high-density systems, although in some countries this is made more feasible with government subsidies. Many apple and pear orchards in the Pacific Northwest are being planted as close as 2-3 ft. apart in the row – and some as close as 18 in. – with row spacing as close as 9-10 ft. To reduce costs, most trees planted in these systems are “sleeping eye” (fall-budded) or bench grafted trees. Dwarfing rootstocks are used (mainly for apple), strong branches are removed, and a trellis is used to support the weak leaders. The trellis system is either a vertical (5-wire) or a Tatura (“V”) trellis. The “fruiting wall” is ideally no more than 3-4 ft. wide. With these systems, substantial tonnage is expected in the third or fourth year after planting, and yields of well managed mature orchards may exceed 40 tons per acre.

A major advantage to these systems is that, with such a narrow fruiting wall, a mechanical platform or harvester can be used for the most labor-intensive practices – tree training, pruning, fruit thinning, and harvesting. These units have a fairly small engine and they automatically steer down the row by constantly veering toward the right and then veering left when the long hydraulically controlled rod strikes a tree. The platform surfaces are adjustable vertically and horizontally; manual and hydraulic models are available. With the platform, fruit can be transferred from the picking bag to the bin manually and forks pick up and deposit bins, whereas the harvester has conveyor belts to move the fruit to mechanical bin fillers, which

has caused some bruising of apples. Platforms, on which two to four pickers or pruners work, are showing more promise in the Pacific Northwest. One researcher was able to document a 30 percent increase in worker productivity at harvest in a 50 ton/acre Golden Delicious apple orchard. (Faubion 2005).

Will it work here? Is it viable? A few local pear growers have planted some trellised orchards, with mixed results. Some blocks have approached 40 tons/acre in a few years. However, excess vigor has been a problem due to the lack of a truly dwarfing rootstock, coupled with our deep, fertile soils and a long, warm growing season. The rootstock of choice in the Pacific Northwest is now Old Home x Farmingdale 87, whereas most growers had planted OHxF 97, which is more vigorous. OHxF 87 produces greater yields in the early years. Research by Rachel Elkins (UCCE Lake/Mendo. Co.) showed that OHxF 69 produced the most precocious and easily managed Bosc trees. The standard rootstock here has been Winter Nelis, which has moderate to high vigor and may not be best suited to high-density plantings.

High-density systems can be successful here, given the right rootstock and proper training and pruning (quick establishment of the leader, promoting early bearing, and removal of large limbs). With growers in many other areas using these systems, it may be the only way to remain competitive.

### Additional Information

- For a look at the “Technology Roadmap”, produced by the Washington Tree Fruit Research Commission, see the Web site: [www.treefruitresearch.com/techroad.htm](http://www.treefruitresearch.com/techroad.htm).
- Enterprise Budget – Pears, High Density, North Central Region (Oregon) - EM 8486. (<http://eesc.orst.edu/AgComWebFile/EdMat/EM8486.pdf>)
- Establishing and Producing High-Density Pears in Hood River County. (<http://eesc.orst.edu/agcomwebfile/edmat/EM8822-E.pdf>)
- Faubion, D. 2005. Moving Away from Ladders. Western Fruit Grower, Feb. 2005. ([www.findarticles.com/p/articles/mi\\_qa3824/is\\_200502/ai\\_n11826539](http://www.findarticles.com/p/articles/mi_qa3824/is_200502/ai_n11826539)).

## VINEYARD COVER CROPS

Growers who plan to sow a cover crop should order seed from a distributor now. Cover crops can have multiple benefits, including increased water penetration, improved vineyard accessibility on wet soils, and addition of organic matter and nitrogen. Many of these benefits can be attained by using perennial or reseeding annual grasses, as well as “resident vegetation” (weeds), but nitrogen can only be added by using or including legumes.

Some growers have sown cover crops to improve red wine quality by causing moderate moisture stress to the vines in mid to late spring. There are some drawbacks to using cover crops; one being that the cover crop may compete excessively with the vines for moisture and nutrients, stunting the vines and reducing yields. Competition can be reduced by planting the cover crop in alternate rows and/or by reducing the width of the planted strip. The decision to plant cover crops depends on whether the expected benefits outweigh the drawbacks.

### Additional Information

- Cover Cropping in Vineyards: A Grower’s Handbook. 1998. University of California, Publication 3338. Available in our office or at <http://ucanr.org/pubs.shtml>.
- UC SAREP Cover Crop Resource Page: [www.sarep.ucdavis.edu/ccrop](http://www.sarep.ucdavis.edu/ccrop).

## UC RELEASES NEW CHERRY ROOTSTOCKS

Joe Grant  
UCCE San Joaquin County

The University of California recently released and patented three new clonal Mahaleb rootstocks for sweet cherries, numbered 155-1, 156-5, and 195-5. (For the full text of this article, visit the UCCE San Joaquin County Web site: <http://cesanjoaquin.ucdavis.edu>). Click on *Publications*.

## TRYING A NEW PRACTICE? TEST WITH APPROPRIATE METHODS

Many growers are using new and innovative practices to increase production, improve fruit quality, reduce costs, and/or reduce the risks to workers or the environment. To be successful often requires taking some risk to develop strategies that work on your farm. However, it is important to test potentially risky practices or materials in a way that provides you the information you need to assess the practice but reduces your financial risks.

Ideally, all new methods would be subjected to years of unbiased research before being brought to the farm; this frequently occurs through rigorous University research. In scientific research, where practical, we apply various *treatments* (different materials, rates, timings, etc.) using several randomly spaced *replications* of each treatment to account for natural variability. Replication provides a more precise measurement of treatment effects.

In addition, we *randomize* the layout of the treatments to ensure that each plot will be interspersed in a way that removes the influence of any gradients, such as soil or water gradients across the field. Usually, each treatment is randomly placed within each of four to six or more blocks. After the data (e.g., yield, fruit quality, insect damage) for each plot are collected, statistical methods are used to determine the probability that differences among the treatment means were caused by the treatments rather than by chance alone.

In reality, formal research will never be conducted on all problems or new practices. Most successful growers continually try new methods. Although you often do not need complicated experimental designs to determine what works for your farm, there are some things to keep in mind when testing new strategies.

- Test only one new practice at a time in a given area. Adding too many variables will make it difficult to determine what actually caused the effect.
- Test the new practice or material on small areas or a few rows when (Cont. Page 4)

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- possible. Testing on small areas, rather than the whole orchard or vineyard provides a comparison of the treatment effects with those of the standard practice.
- If possible, leave some plants or rows completely untreated for that pest or practice. In some years a given pest may not reach damaging levels, in which case an apparently positive result of a practice may have not actually been beneficial. Use caution, however, because in some cases leaving an untreated "control" may lead to serious pest outbreaks or plant devigoration.
- In most cases, it would be wise to look at the treatment over a period of at least two years before adopting it on the whole farm. Climatic conditions often vary greatly from year to year, so the result from one year to the next may differ greatly.

Keep records for several years. Keep a separate file of your experiments by noting when and where treatments were applied and the results you observed. With all the things there are to remember in farming, the details of experiments can be easily lost.

## OTHER ITEMS

### Weed Science School 2005

This intensive, three-day school is being held October 18-20, 2005 at UC Davis, and it offers 22 hours of DPR continuing education credit. The school will emphasize herbicides registered for use in California and important weeds within the state. Specific topics include weed biology, ecology and seed bank dynamics, as well as herbicide selectivity, resistance, and additives. For more information, visit the UC Weed Research & Information Center web site at <http://wric.ucdavis.edu> or call Gale Pérez at (530) 752-1748. Enrollment is limited.

### Ag Personnel Management Web Site

Check out the award-winning Agricultural Personnel Management Program Web site (<http://apmp.berkeley.edu>). It contains a wealth of information on news, laws and agencies, labor market information, and much more.

### Farmland Conservancy Newsletter

The quarterly newsletter, Focus on Farmland, produced by the California Farmland Conservancy Program (Dept. of Conservation), is available for viewing on their Web site: [www.conservation.ca.gov/dlrp/cfcp/focusonfarmland.htm](http://www.conservation.ca.gov/dlrp/cfcp/focusonfarmland.htm).

### UC Land Conservation Publication

UC Cooperative Extension is pleased to announce the publication of "Conserving Agricultural Land Through Compensation: A Guide for California Landowners".

Published by the Agricultural Issues Center and Community Studies Extension, the 83-page book covers the major techniques for compensating California farmers and ranchers for engaging in conservation practices. The techniques covered include the Williamson Act, several USDA (NRCS) conservation payment programs, and agricultural easements. Detailed information is presented on eligibility, enrollment procedures, economic benefits, requirements, and program requirements. The book also examines the rationale for using public funds to compensate private landowners.

The guide is available on the Agricultural Issues Center Web site: <http://aic.ucdavis.edu/research1/land.html>.

### Web Site for World's Pome Fruit Growers

The World Apple and Pear Association (WAPA) launched a Web site in response to members' calls for an online information exchange forum. The site, which can be viewed at [www.wapa-association.org](http://www.wapa-association.org) is also intended to provide information for news media and consumers. Founded in 2001, WAPA's goal is to provide a forum for discussion on matters of interest to the apple and pear industries. Members represent the following countries: Argentina, Australia, Belgium, Brazil, Canada, Chile, France, Germany, Italy, the Netherlands, New Zealand, South Africa, the United Kingdom, and the U.S.