

CROP CURRENTS

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WINTER 1998-1999

- **Weather Report**
- **TOMATOES: 1998 Variety Trial Results**
- **FINANCES: The Taxpayer Relief Act Helps Farmers**
- **GRAPES: Phylloxera Alert**
- **TREE CROPS: Preventing Crown Gall**
- **WALNUTS: Alternate Year Pruning Increases Profits**
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WEATHER REPORT

The weather is again a topic of concern as we move out of an El Nino and into a La Nina pattern. I have included a summary of the rainfall (below normal) and chilling hour accumulation (above normal) from the Brentwood CIMIS station, below.

RAINFALL (inches)

MONTH	1998-99 (La Nina)	1997-98 (El Nino)	Average (12 yrs)
OCTOBER	0.7	0.4	0.7
NOVEMBER	1.9	4.3	1.2
DECEMBER	0.3	1.9	2.0
JANUARY		5.5	3.0
FEBRUARY		8.0	2.7
MARCH		1.4	1.5
APRIL		0.8	0.6
MAY		2.1	0.8
JUNE		0.2	0.4
JULY		0.0	0.1
AUGUST		0.0	0.2
SEPTEMBER		0.1	0.4
TOTAL		24.7	13.0

ACCUMULATED CHILL HOURS

(hours below 45^o F)

DATE	1998	1997	1996	1995	1994	1993
11/7	15	1	60	34	19	25
11/14	68	12	92	46	88	49
11/21	104	22	98	50	157	115
11/28	123	34	115	79	245	199
12/5	165	77	169	113	314	257
12/12	281	154	175	121	422	290
12/19	350	267	289	187	554	433
12/26	506	343	375	295	669	576
1/2/99	617	432	376	318	789	655

If you have internet access you can update these records at your convenience through the UC Fruit & Nut Research and Information Center web site (<http://fruitsandnuts.ucdavis.edu>). Click on the *Pomology Weather Services* button. Select the "Accumulated Chill Hour" option or the "Weather Condition Links" which will lead you to "UC Statewide IPM Project" where you can access rainfall and other CIMIS weather records.

1998 TOMATO TRIAL RESULTS

I have been conducting processing tomato variety trials in Brentwood for the past six years in

cooperation with Bob Mullen, Farm Advisor in San Joaquin Co. and Stan Nunn of Ron Nunn Farms. These trials are part of a series of statewide variety trials supported by the California Tomato Research Institute. The following table summarizes this year's

trial results for Brentwood. If you would like a 6 year summary of the Brentwood trials or a copy of the statewide trial results for this or past years, give me a call.

Replicated Varieties							
Variety	Yield		Brix		Color		
H 3044	46.2	a	4.9	e	20.50	e	
Red Century 32	45.3	ab	5.8	a	22.00	d	
Sun 6235	45.2	ab	5.8	ab	24.75	a	
APT 410	44.4	abc	5.6	abc	22.00	d	
Sun 6287	44.4	abc	5.1	de	22.00	d	
H 9280	43.9	abc	5.1	de	21.75	de	
H 9661	43.2	abcd	5.3	cd	23.50	abc	
RedSetGo 28	42.6	abcd	5.3	cde	22.00	d	
CXD 187	41.3	bcd	5.4	bcd	22.75	bcd	
Hypeel 45	41.0	bcd	5.8	ab	23.75	abc	
FMX 1080N	40.5	cd	5.4	cd	22.25	cd	
HMX 4874	40.0	cd	5.2	de	24.50	a	
APT 403	39.2	d	5.2	de	22.75	bcd	
Average	42.9		5.4		22.65		
LSD @ 5%	4.5		0.36		1.28		
CV	7.39		4.71		3.94		

Means followed by the same letter are not statistically different at the 0.05% level

Observational Varieties							
Variety	Yield		Brix		Color		
CXD 204	52.9		4.8		22.0		
ASG 670	51.2		4.7		25.0		
ENP 513	46.6		5.3		25.0		
RPT 1952	43.8		5.1		25.0		
H 8773	40.8		4.4		23.0		
Brigade	40.2		5.3		23.0		
HM 7860	40.0		4.8		24.0		
H 9552	40.0		5.4		21.0		
ENP 519	39.1		4.7		25.0		
ES 911	39.1		4.7		20.0		
FMX 1115	38.5		5.5		24.0		
Nema Brix	37.4		5.4		23.0		
RPT 2332	33.9		5.2		25.0		

Planting Date: March 19, 1998

Harvest Date: August 26, 1998

THE TAXPAYER RELIEF ACT HELPS FARMERS

*by Steve Sutter
UC Area Farm Advisor*

The taxpayer relief Act of 1997 lowers Federal income tax for most farmers, and allows farm families to transfer farms across generations more easily, according to USDA agricultural economists James Monke and Ron Durst. Most provisions of the new law become effective in 1998.

An estimated 6% of farm estates currently owe Federal estate and gift taxes compared with just over 1% of all estates. The Act gradually increases the unified estate and gift tax credit to shield \$1 million from estate taxes by 2006. However, due to the relatively slow phase-in through 2003, the benefits will be realized in 2004 and beyond. This, and other provisions of the Act should reduce, if not eliminate, the need to sell farm assets to pay Federal estate taxes, especially for continuing businesses.

Lower capital gains tax rates provide the greatest income tax savings for farmers – nearly \$725 million of the estimated \$1.6 billion annual savings for the US farming industry. The rate declines from 28% to 20% for individuals in most tax brackets (from 15% to 10% for taxpayers in the 15% bracket), with lower rates available in the future for assets held at least 5 years.

Couples can exclude up to \$500,000 of the gain on the sale of their principal residence. This new exclusion can be used as frequently as every 2 years.

The new law also expands retirement savings incentives. Currently, only about 9% of farmers annually contribute to an individual retirement account (IRA). Although the 1997 Act creates a new, nondeductible “Roth IRA”, deductible IRAs are usually preferred if marginal tax rates are expected to fall substantially in retirement.

Farmers who pay their own health insurance premiums will benefit from expanded self-employed health insurance deductions. This year, farmers and other self-employed taxpayers are allowed a deduction of 45% of health insurance premiums; the percentage deduction gradually increases to 100% by tax year 2007 and thereafter.

The Act restores the farmers’ ability to use deferred payment contracts without being subject to the alternative minimum tax amount (AMT). Deferred payment contracts allow farmers to deliver farm commodities for sale at a specified price, with payment deferred until the following year. The Act also repeals the AMT for small corporations (most farm corporations) beginning in 1998.

The Act increases tax benefits for most taxpayers having dependent children by providing \$500 (\$400 for 1998) tax credit for each qualifying child under the age of 17. An additional refundable credit is allowed for taxpayers with 3 or more children. The new child tax credit is expected to benefit about 1/3 of all farmers and their families.

Farmers and their advisors can request the free IRS Publication 225 “Farmers Tax Guide” each December by calling 1-800-829-3676.

PHYLLOXERA ALERT

A new strain of our old friend phylloxera has recently been found in California. This form feeds on *leaves* rather than roots and causes characteristic galls to form on the underside of the leaves. For this reason, it is being called Foliar Phylloxera or Leaf Gall Forming Phylloxera.

This form of phylloxera is common in Europe and the Eastern US. It has also been noted on wild grape in Southern California and elsewhere in the Southwest. But, until recently, it has rarely been found in California's wine growing regions. Over the past 2 years, persistent populations have been identified in three California grape nurseries, feeding on the foliage of rootstock plants.

The good news for growers is that the new form prefers the leaves of rootstock varieties rather than the vinifera varieties we grow for fruit. So, even if it eventually spreads to commercial vineyards, it is unlikely to have much impact...under the current circumstances, anyway.

It is likely to have a greater impact on the nursery industry as it can defoliate rootstock plants if an infestation is left untreated. There is also a concern that this pest may move undetected in rootstock cuttings, under the bark or bud scales, perhaps. If this is the case, it may spread rapidly to other nurseries (and eventually to the vineyards). It is suspected that the current infestation came undetected on rootstock cuttings from the East Coast.

Drs. Andy Walker and Jeffrey Granett from UC Davis are investigating the genetics of phylloxera. This should lead to a better understanding of how this pest adapts to new conditions. There is evidence that this new foliar form may be able to adapt themselves to feed on roots. If this is the case, then those plantings on rootstocks that are susceptible to the root feeding form (AXR#1, own rooted vines, any other rootstocks with vinifera parentage), would also be susceptible to this new form. With its potential for rapid spread via rootstock materials and its suspected feeding

adaptability, the Foliar Phylloxera could increase the phylloxera pressure on susceptible rootstocks. Growers with vines on resistant rootstock should not be affected.



PREVENTING CROWN GALL

Adapted from an article by:

Janine Hasey, FA, Sutter/Yuba Co.

John Edstrom, FA, Colusa Co.

Beth Teviotdale, Plant Pathologist, KAC

Crown gall disease can cause serious losses to a variety of deciduous fruit and nut crops. In California, walnuts and cherries are among our more susceptible tree crops.

Disease & Symptoms: The disease is caused by a soil born bacterium, *Agrobacterium tumefaciens* which infects susceptible plants through wounds. Once infected the bacteria induces the tree to form galls instead of normal tissue. These galls can develop at the crown, on roots (where they may not be visible) or sometimes on trunks and branches.

On young trees, the gall can disrupt a large portion of the water and nutrient conducting tissue, causing the trees to grow poorly and even die. Mature trees tend to tolerate crown gall infection with little effect. However, wood rotting fungi may enter the tree through the gall, weakening the crown area. Such trees are subject to blow over in wind storms.

The disease can enter the tree through wounds resulting from various cultural practices (hoeing, pruning, nursery digging, disking, etc.) or from natural occurrences (frost injury, root cracking from wind, gravel/sand abrasions, growth cracks, emergence of lateral roots, gopher and other rodent damage).

At warmer temperatures (68-86⁰F), small galls will become visible 2-4 weeks after wounding and infection. However, at lower temperatures (below 59⁰F), the infection sites will not develop galls until the next growing season when the weather has warmed up and temperatures are favorable for plant growth.

Control: As this bacteria is quite widespread and can persist in fallow soil for 1-2 years, PREVENTION is really the key to successful management of crown gall. The guiding principals to a successful prevention program are:

1. avoid unnecessary root and crown injuries and
2. treat injuries that do occur with Galltrol or Norbac.

Galltrol and Norbac are pre-plant, biocontrol treatments of “good” bacteria (strain K84) which colonize the wound and help protect the plant from infection by the pathogen. These materials can be applied preplant as a spray or dip but, as they are living organisms, they need to be treated carefully to assure their effectiveness. Only mix up as much material as can be used in one day; use unchlorinated, clean water with a pH no lower than 6; never mix it with bleach; keep the material cool and out of direct sun. Soaking roots and spraying entire trees has been beneficial on very susceptible trees (cherry, Paradox/English walnut).

Wounds should be treated as soon as possible after infection to be most effective. At moderate temperatures, treatment should occur within a few hours of wounding for best control. At lower temperatures, a longer interval may be OK.

Not all strains of crown gall are sensitive to the biocontrol strain, so this treatment has not been effective everywhere. In orchards with resistant

strains, a higher rate (2-3 times normal) has proved to be more effective.

The following are a few pointers to a successful crown gall prevention program:

Orchard Planning/Pre-plant:

- Plant less susceptible rootstocks, if possible, especially where galled plants have been grown within the last 4-5 years.
- When replanting an orchard, offset the new planting sites from the old tree sites.
- Handle nursery trees carefully to avoid damage and heal them in using sawdust or uncontaminated soil.

At Planting:

- Hose off nursery soil/sawdust from roots/crown.
- Discard any trees showing galls.
- Trim roots that have been damaged, cut during digging, or are too long.
- Spray or dip the trees with Galltrol or Norbac, as soon as possible after trimming, following the handling precautions mentioned above.
- Plant treated trees immediately; do not let them sit out in the sun for long periods.
- Avoid damaging treated trees with planting boards, shovels, etc.; install stakes in the planting hole to avoid damage from driving them in after planting.
- Pack soil firmly without creating wounds.
- Plant trees high to avoid having to pull trees up to grade after settling which can injure roots.

After Planting: Avoid all root/crown injuries!

- Avoid cultivation; control weeds with herbicides or other non-cultivation methods.
- Control root/crown suckers with sprays, if appropriate (ie. urea ammonium nitrate on walnuts) before they become woody. Or if shears are used to remove suckers, disinfect tools between cuts and treat cut surfaces with Galltrol/Norbac or chlorine solution. Leave a 2-3” stub to avoid crown injuries.
- Control gophers and other rodents.

ALTERNATE YEAR PRUNING OF WALNUTS CAN INCREASE PROFITS

Have you ever wondered if pruning your walnut orchard is necessary? We know that pruning increases light penetration and helps to maintain fruitfulness and nut quality. However, it also removes fruit wood (potentially reducing yields) and is expensive. Is it really worth it in the long run? Bill Olson, Farm Advisor in Butte County, and Dave Ramos, Walnut Specialist, set up a trial in a 16 year old Ashley orchard in Gridley to answer this question.

For the first 4 years they simply looked at the difference between trees pruned every year versus trees not pruned at all. The yield was about the same in either situation but the quality (nut size and edible kernel) was much improved in the pruned trees. However, they found that the increase in nut value did not quite make up for the cost of pruning and brush disposal (although it was pretty close).

So they decided to expand the trial to see if pruning every other year (biennially) would provide a similar quality benefit with a reduced cost by spreading the expense over 2 years. They continued the comparison for another 4 years and found that biennial pruning provided the best long term return. They also found that if the biennial pruning was begun in a year following low production (the even year pruning in this orchard) it tended to even out the alternate bearing pattern.

A summary of average yields and quality and net cumulative returns over 4 years are included below.

Pruning Schedule	Yield (T/A)	Nut Size	Edible Kernel	Net Return
Annual	2.30 b	75.4 a	43.2 a	\$5476
None	2.31 b	68.6 c	40.8 b	\$5564
Biennial Even year	2.53 a	71.9 b	42.4 a	\$6065
Biennial Odd year	2.50 a	73.1 ab	42.8 a	\$6158

WEBSITES

Agricultural Economics, UC Davis

<http://www.agecon.ucdavis.edu/outreach/outreach.htm>

View the Agricultural Resource Economics quarterly newsletter, a list of available cost of production studies for California crops, or a list of Giannini Foundation Publications.

Ca. Dept of Food and Agriculture

<http://www.cdffa.ca.gov>

Provides information on ag statistics, marketing, commodity boards, events, and CDFA's programs & services. Also has good links to other ag sites.

Ca. Federation of Certified Farmers' Markets

<http://farmersmarkets.ucdavis.edu>

Includes information on the state's 350 certified farmers markets with a search engine that can find markets by county, region or zip code.

New Crop

<http://www.hort.purdue.edu/newcrop>

Information on a variety of "new crops" including herb, spice, aromatic, and medicinal plants, quarantine and phytosanitary information, newsletters, references, and excellent links to similar sites.

International Fruit Variety Data Base

<http://fruitdb.com>

A database of over 400 nursery catalogues. You can search by nursery, variety, harvest date or crop utilization (cider, dessert, etc.). Very helpful in finding an unusual or new variety or one that fits a certain criteria. It also has a "What's Hot" - Fruit of the Month button. This month's choice is the Pink Lady apple. To find out more about how this variety does in California, attend the Ca. Apple Symposium, Feb 3rd (see the Calendar section for details).

USDA National Ag Statistics

<http://www.usda.gov/nass/pubs/agstats.html>

Includes information on agricultural production, supplies, consumption, and costs.

PUBLICATIONS

UC Agriculture & Natural Resources Publications Catalog 1999– 2000

Hot off the press. This catalog lists all our current UC publications. There are some great new ones! I've listed just a few below. Pick up a free catalog from my office or call and we'll send you a copy.

The following UC publications are priced and are available by phone, fax, or visit from:

*UC ANR Communication Services
6701 San Pablo Ave.
Oakland, CA 94608-1239
TEL: 1-800-944-8849
FAX: 510-643-5470*

Vineyards in an Oak Landscape

This publication provides practical land management information for grape growers on why and how to conserve biodiversity, protect oak trees, prevent vine diseases transmitted from native vegetation, erosion control, mitigate environmental damage, protect riparian and wetland areas, and support wildlife.

Publication 21577 16 pp. \$4.50

Cover Cropping in Vineyards: A Grower's Handbook

This new guide features cutting-edge methods for using cover crops to enhance vineyard performance. Based on extensive research and with excellent how-to instructions.

Publication 3338 168 pp. \$20.00

Natural Enemies Handbook: The Illustrated Guide to Biological Pest Control

This provides the most comprehensive guide to biological control agents ever made available to practitioners. Excellent photos and illustrations.

Publication 3386 162 pp. \$35.00

The following UC publications are free and available from my office. Call for a copy:

Mortgage News: Refinancing and 30 vs. 15 year Loans

Financial Management Note # 14

by Steve Blank, UC Extension Economist, 3 pp.

Calibration of the John Deere Moisture Chek® 16060 Meter for Use with Ground Walnut Samples

by Joe Grant, Farm Advisor and Jim Thompson, Extension Ag Engineer. 2 pp.

Chile Pepper Production in California

UC Publication 7244, 4 pp.

Eggplant Production in California

UC Publication 7235, 3 pp.

Olive Spray Thinning Guidelines

UC Publication 7238, 3 pp.

Snap Bean Production in California

UC Publication 7240, 3 pp.

UC IPM Pest Management Guidelines

These are updated frequently in response to pest management changes. The following is a list of all the guidelines and their most recent updates:

Alfalfa	May 97	Kiwifruit	Dec 96
Almond	Apr 98	Lettuce	Dec 96
Apple	July 98	Olive	May 97
Apricot	July 98	Onion/Garlic	Aug 97
Artichoke	Dec 96	Peach/Nect.	Jul 96
Asparagus	May 97	Pear	Dec 95
Avocado	July 98	Pecan	Dec 97
Caneberries	Dec 97	Peppermint	Apr 98
Carrot	Dec 96	Peppers	Aug 97
Celery	Dec 96	Pistachio	Dec 97
Cherry	Apr 98	Potato	Aug 97
Citrus	Jul 98	Prune/Plum	July 96
Cole Crops	Dec 97	Rice	Aug 97
Corn	May 97	Small Grains	May 97
Cotton	Apr 98	Strawberry	Jul 98
Curcubits	Dec 97	Sugarbeet	Apr 98
Dry Bean	May 97	Tomato	July 98
Fig	Dec 97	Turfgrass	Dec 97
Grape	July 98	Walnut	Aug 97

CALENDAR

Intro. to Sensory Evaluation of Wine

Jan 9-10, 9 am-4 pm, UC Davis

\$350 (incl. lunches & wines)

Contact: University Extension (800) 752-0881;

<http://universityextension.ucdavis.edu>

Foreman Training Workshop

Jan 12-13, Woodland

\$35 (incl. 2 lunches & materials)

This is the 7th annual training seminar for Spanish speaking foremen put on by UC Cooperative Extension. Topics include interpersonal relations, employee discipline, power & abuse of authority, counseling employees, listening skills, conflict management.

Contact: Marilyn at (530) 666-8143 or maflores@ucdavis.edu

Ca. Apple Day

Jan 13, Double Tree Motel, Modesto

\$10 (incl. lunch, drawings, gift, events)

This is the annual meeting of the Ca. Apple Commission (CAC). There will be exhibitors, research reviews, market updates and more.

Contact: CAC at (559) 456-0125

Contra Costa County Private Applicator Continuing Education Workshop

*Jan 16, Delta Community Service Center
730 Third St., Brentwood*

This class is a pest management update for local growers and pest management professionals. Attendees will receive 3 hours of continuing education credit for Private Applicators (growers), PCA's, QAL's, QAC's and Pilots (2 hours of Laws & Regs; 1 hour General). Sponsored by CCC Dept. of Ag. and UC Cooperative Extension. Contact: Ag Dept at (925) 634-5682 or Janet Caprile at (925) 646-6540.

Ca Cherry Research Review

Jan 19, 8 am-noon, Stockton Inn

Sponsored by UC Cooperative Extension and the Ca. Cherry Advisory Board. 1.5 hrs PCA continuing education credit.

Contact: Joe Grant at (209) 468-2085

Stockton Ag Expo

Jan 19-21, San Joaquin Co. Fairgrounds

\$ 4 admission fee

Over 500 exhibitors featuring a variety of agricultural products and services.

1999 Annual Pistachio Day

Jan 19-20, Visalia Convention Center

A statewide meeting for pistachio growers sponsored by UC Cooperative Extension.

Contact: JoAnn Coviello at (209) 646-6525

Unifird Wine & Grape Symposium

Jan 20-21, Sacramento Convention Center

\$45 – 180

The annual conference sponsored by the Amer. Soc. of Viticulture and Enology and the Ca. Assoc. of Winegrape Growers.

Contact: (530) 753-3142

Ecological Farming Conference

Jan 20-23, Asilomar

\$50-180 + (depends on tour, meal, lodging options)

This is the 19th annual conference sponsored by the Committee for Sustainable Agriculture. This year's theme is "Tending our Grassroots Farming Community".

Contact: CSA at (831) 763-2111

Ca. Plant & Soil Conference

Jan 20-21, Visalia Holiday Inn

\$40-75

This year's theme is "Agricultural Technology – Moving California into the 21st Century". Sponsored by the Ca. Chapter of the Am. Soc. of Agronomy and Ca. Fertilizer Assoc.

Contact: Steve Oakley at (805) 746-3366

Intro. to Wine Analysis

Jan 23, 8 am-5pm, UC Davis

\$155 (incl. lunch & lab supplies)

Contact: University Extension (800) 752-0881;

<http://universityextension.ucdavis.edu>

Quad Co. Tomato Day

*Jan 27, 8:30 am-noon, UC Cooperative Extension
420 S. Wilson Way, Stockton*
Free

This annual research update is sponsored by UC Cooperative Extension for tomato growers/managers/PCA's in Contra Costa, Sacramento, San Joaquin and Stanislaus Counties.
Contact: Janet Caprile at (925) 646-6540

No. San Joaquin Valley Grape Seminar

Jan 27, Stanislaus Co. Ag Center, Modesto

Topics include vineyard cover crops, training & trellising winegrapes, updates on measles & young vine decline, pruning phomopsis and Eutypa infected vines. Sponsor: UC Coop. Ext.
Contact: Roger Duncan at (209) 525-6800

Understanding and Using Winery Financial Reports

Jan 28-29, 8:30 am-noon, St. Helena

\$150 (incl. course materials)
Contact: University Extension (800) 752-0881;
<http://universityextension.ucdavis.edu>

Managing The Small Vineyard I

Jan 30, 9 am-4 pm, UC Davis

\$95 (incl. lunch & course materials)
This is the first in a quarterly series of one-day classes designed for home and small commercial winegrowers. Taught by experienced viticulture Farm Advisors, Donna Hirschfeld and Ed Weber.
Contact: University Extension (800) 752-0881;
<http://universityextension.ucdavis.edu>

Association of Applied Insect Ecologists 33rd Annual Conference

Jan 31-Feb 2, Santa Barbara

\$80-145
This year's theme is "Micro & Macro Influences on Integrated Pest Management".
Contact: Max Jehle at (209) 897-7340 or sailmax@aol.com

Negotiation Skills Seminar

Feb 2, Modesto

\$ 10 (incl. lunch & materials)
A UC Cooperative Extension seminar to help you improve your negotiation skills when handling

anything from buying a new tractor to handling a difficult labor management challenge.

Contact: Elizabeth Resendez at (209)525-6800

Ca. Apple Symposium

Feb 3, 8:30 am-12:30 pm, Stanislaus Co. Ag Center, Service & Crows Landing Rd, Modesto

Topics include chemical thinning, evaporative cooling, rootstocks, Pink Lady performance, and more. Sponsored by the Mid Valley Apple Association and UC Cooperative Extension. Lunch to follow meeting.

Contact: Joe Grant at (209) 468-2085.

RAVE '99 & 2nd Joint Burgandy: California-Oregon Winemaking Symposium

Feb 8-9, UC Davis

\$250 (incl. meals & winetasting)
Contact: University Extension (800) 752-0881;
<http://universityextension.ucdavis.edu>

Olive Day

Feb 8, 9 am-1:30 pm, Sacramento Conv.Center
\$10 + CLFP registration (\$30-45)

The Ca. Olive Committee and UC Cooperative Extension sponsor this annual meeting featuring the latest research results on mechanical pruning and harvesting, boron nutrition, olive knot and thinning studies. Olive Day is part of the Ca. League of Food Processors (CLFP) Conference so you must register for that conference to attend. Lunch is included.

Contact: CLFP at (916) 444-9260 or <http://www.clfp.com>

Varietal Winegrape Production Shortcourse

Feb 17-19, 8 am-5 pm, UC Davis

\$525 (incl. course materials & meals)
This annual short course is taught by UC Farm Advisors and Faculty. It combines reviews with updates to serve the needs of experienced vineyard managers as well as new growers.
Contact: University Extension (800) 752-0881;
<http://universityextension.ucdavis.edu>

Plant Nutrition Workshop

Feb 18, 8 am-3 pm, Stanislaus Co. Ag. Center (NE corner of Crows Landing Rd. & Service Rd.)
\$20 (incl. lunch)

Topics cover soil analyses, amendments, water analyses, plant analyses, and discussion for field, vegetable, vine and tree fruit growers. 5 hours CCA continuing education credit. Sponsors: UC Coop. Extension and A&L Western Ag Labs. Contact: A&L Labs at (209)529-4080.

Wine Filtration Short Course

Feb 20-21, UC Davis

\$350 (incl. lunches & materials)

Contact: University Extension (800) 752-0881;

<http://universityextension.ucdavis.edu>

Advanced Tasting Seminar

Feb 20, 9 am-4:30 pm, UC Davis

\$165 (incl. lunch & wines)

Contact: University Extension (800) 752-0881;

<http://universityextension.ucdavis.edu>

Intro. to Wine Analysis

Feb 27, 8 am-5pm, UC Davis

\$155 (incl. lunch & lab supplies)

Contact: University Extension (800) 752-0881;

<http://universityextension.ucdavis.edu>

Intro. to Sensory Evaluation of Wine

Mar 13-14, 9 am-4 pm, UC Davis

\$350 (incl. lunches & wines)

Contact: University Extension (800) 752-0881;

<http://universityextension.ucdavis.edu>

Intro. to Wine Analysis

Mar 20, 8 am-5pm, UC Davis

\$155 (incl. lunch & lab supplies)

Contact: University Extension (800) 752-0881;

<http://universityextension.ucdavis.edu>

Clonal Aspects of Winegrowing

Mar 22, 9 am-4:30 pm, UC Davis

\$150 (incl. lunch, materials, parking permit)

Contact: University Extension (800) 752-0881;

<http://universityextension.ucdavis.edu>

Issues in White Wine Production

Mar 30-31, 9 am-5:30 pm, UC Davis

\$275 (incl. lunches & wine tasting)

Contact: University Extension (800) 752-0881;

<http://universityextension.ucdavis.edu>

Ca. Pistachio Industry Annual Conference

Mar 3-5, Monterey

\$125-175 (incl. meals, exhibits, sessions)

Sponsor: Ca. Pistachio Commission (CPC)

Contact: CPC at (559) 221-8294

Tri County Walnut Institute & Nut Grower Trade Show

Mar 17, Stanislaus Co. Fairgrounds

Contact: Kathy Kelly at (209) 525-6800

Introduction to Winemaking for Distance Learners

Apr 2 – Jun 10, at your home!

\$450-500

A 3 unit UC course offered via electronic media. Students receive lectures on video tape, a text, access to the class web site and interact with instructors via e-mail. Register by Mar 2.

Contact: Jim Lapsley at (530) 757-8899 or jlapsley@unexmail.ucdavis.edu

Getting Started in the Specialty Food Business

May 15-16, UC Davis

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CROP CURRENTS

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WINTER 1998-1999

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