UNIVERSITY OF CALIFORNIA ~ SUTTER/YUBA COUNTIES
COOPERATIVE EXTENSION
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ORCHARD NOTES

February 1999

Sutter, Yuba, Colusa Walnut Day

Thursday, February 18, 1999
9:00 a.m. - 12:00 p.m.
Veterans Memorial Building, 1425 Circle Drive, Yuba City

MEETING PROGRAM

8:30 A.M. Sign-in, **Coffee and Danish - Courtesy of Helena Chemical**

9:00 A.M. PEST MANAGEMENT UPDATES
Moderator, John Edstrom, U.C. Farm Advisor, Colusa County

WALNUT PEST MANAGEMENT ALLIANCE/CODLING MOTH
Carolyn Pickel, Area UC IPM Advisor, Sacramento Valley

WALNUT HUSK FLY
Janine Hasey, UC Farm Advisor, Sutter/Yuba Counties

WALNUT BLIGHT
Bill Olson, UC Farm Advisor, Butte County

9:45 A.M. RESEARCH

YOUR WALNUT RESEARCH PROGRAM -UPDATE
Dave Ramos, Research Director, Walnut Marketing Board

10:15 A.M BREAK

10:35 A.M. CULTURAL PRACTICES/VARIETY ISSUES
Moderator, Janine Hasey, U.C. Farm Advisor, Sutter/Yuba Counties

CONSIDERATIONS FOR USING ETHEPHON IN NORTHERN CALIFORNIA
Bob Beede, UC Farm Advisor, Kings County

CHANDLER TIP SHRIVEL PROBLEM
Joe Grant, UC Farm Advisor, San Joaquin County

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11:30 A.M. MARKETING

WALNUT MARKETING BOARD(WMB) AND CALIFORNIA WALNUT COMMISSION MARKETING ACTIVITIES (CWC)
Dennis Balint, Executive Director, WMB; Nathan Holliman, Marketing Director, CWC

12:00 P.M. ADJOURN

SPONSORS ~ UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION SUTTER, YUBA, COLUSA COUNTIES

PCA credit - 1 hour continuing education pending
CCA credit - 2.25 hours of continuing education pending

FUNGICIDE EFFICACY & TREATMENT TIMING TABLES

Fungicide efficacy and treatment timing tables for Apple and Pear and Peach and Nectarine are attached for your reference. They will help answer your questions as to how effective a particular fungicide is for a disease and when to apply it. The table on fungicide properties provides information that should be helpful in planning your fungicide program to manage resistance. They were produced by U.C. Plant Pathologists, Beth Teviotdale, Jim Adaskaveg, Themis Michailides and Doug Gubler.

FEBRUARY REMINDERS

˜ **Peaches:** Hang Oriental Fruit Moth (OFM) pheromone traps around the third week of February to detect the first moth. Set biofix to calculate degree-days. At first moth, hang OFM pheromone dispensers if using mating disruption. I will have a research plot comparing the many pheromone products available for mating disruption of OFM and peach twig borer (PTB). Please call if you have any questions on how effective mating disruption has been in controlling these pests locally or how to use them.

Bacillus thuringiensis (Bt) sprays should be applied with bloom time fungicide sprays to control overwintered PTB. These two sprays have provided effective control for PTB in cling peaches locally where a dormant insecticide spray was not used.

˜ **Walnuts:** Prune young walnut trees in late February and March after the potential for winter freezes has past. Control navel orangeworm by removing mummy nuts and mowing them, and cleaning up all trash around hullers. Check prunings for the presence of scale.

˜ **Kiwifruit:** Apply a dormant spray after pruning and before budbreak to control scale.

NEW PUBLICATIONS

These are available from our office. We will also be selling publications at our upcoming walnut meeting.

Cover Cropping in Vineyards: A Grower=s Handbook - This new guide features cutting-edge methods of using cover crops to enhance vineyard performance. Based on extensive research, this guide details technical and theoretical information on how cover crops affect vineyards and promote ecological stability. With many how-to instructions as well as grower=s testimonials, it is an essential reference for vineyard owners, managers, consultants, and pest control advisers. Publication #3338, price $20.00.

Pests of the Garden and Small Farm, Second Edition

This revised edition of the convenient handbook for home gardeners and small-scale farmers covers insects, mites, plant diseases, nematodes, and weeds of fruit and nut trees and vegetables. Ninety-five common pests are described in individual sections

that focus on biology, identification, and control. More than 250 photos and 118 drawings help diagnose problems. The book=s integrated pest management approach makes minimal use of broad-spectrum pesticides; recommended methods rely primarily on organically acceptable alternatives. Crop-by-crop symptom identification tables guide readers quickly to the information they need. Publication #3332, price $35.00.

USDA Farm Plans - Our office has available for client reference, a catalog of USDA plans for farm buildings and other farm structures.

PROGRAMS/WORKSHOPS

The 31st California Nematology Workshop

Co-sponsored by the Department of Nematology, University of California, Davis and Riverside and the California Department of Food and Agriculture Nematology Program, Plant Pest Diagnostics Center.

The program will be held from 9:00 a.m.-5:00 p.m. on Monday, March 29, 1999, at the Best Western Bonanza Inn, Yuba City, California. Continuing Educations Credits will be available with one hour being in ALegal.@

The morning presentations will cover current basic and applied research on biology and control of: Sugar Beet Cyst Nematode, Ring Nematode, Bacterial Canker and Rice White Tip Nematode.

After lunch, four break out sessions will cover: the identification of nematode problems and diagnostics; a computer demonstration of pertinent WWW sites in nematology; a demonstration of nematodes feeding behavior with discussion time for questions and answers; and a demonstration of sampling technique/technology for phytonematodes.

For additional information, please contact:
Dr. Robert W. Hackney, CDFA/PPDC, Nematology, (916) 262-1115 or
Dr. Harry K. Kaya, University of California, Davis Nematology, (530) 752-1051
To register contact: University of California, Davis, University Extension
Debbie Roberts, (530) 757-8691 or
Wendy Kercher, (530) 757-8897.

Understanding Agricultural Leases

Analyze agricultural leases from both the landlord=s and the tenant=s viewpoint in this intensive program. The session covers the rights and liabilities of landlords and tenants under standard agricultural lease provisions and selected specialized lease clauses, including cash and share rents; repairs and maintenance; irrigation water supply; assignment and subletting; options to renew; rights of first refusal; utilities and tax increase; right of others in leased premises; oil, gas, and mineral rights; hunting rights; and condemnations. Participants learn how to resolve and/or avoid landlord-tenant disputes.
Fee is $125.00 which includes course materials.
Enroll in **Section 983E104**.

For general information, call (800) 752-0881. For more specific program information, contact (530) 757-8899, fax (530) 757-8634 or email: aginfo@unexmail.ucdavis,edu.

JANINE HASEY
U.C. Farm Advisor
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PEACH AND NECTARINE -- FUNGICIDE EFFICACY

Fungicide	Resistance Risk	Brown Rot[a] Blossom	Brown Rot[a] Fruit	Powdery Mildew[a]	Scab	Rust	Leaf Curl	Shot Hole
Benlate[b]	high	++++	++++	+++	+++	+	----	----
Break EC	high	++++	++++	+++	----	+++	----	+/-
Elite	high	++++	++++	+++	++	+++	----	+/-
Indar	high	++++	++++	?	+++	?	----	+/-
Rovral[c]+oil[d]	low	++++	++++	+	+	+++	----	++[h]
Topsin[b]	high	++++	++++	+++	+++	+	----	----
Abound	high	+++	----	+++	++++	+++	----	++
Rally	high	+++	+++	+++	----	----	----	----
Ronilan	low	+++	+++	----	----	----	----	----
Rovral[d]	low	+++	+++	----	----	----	----	----
Vangard	high	+++	----	+++	?	?	----	----
	low	++	++	----	+++	+++	+++	+++
Bravo[e,f]	low	++	++	----	+++	----	----	+++[h]
Captan[f]	high	++	++	++	----	+	+	----
Funginex[g]								
	low	+/-	----	----	----	----	+++	+++
Copper	low	+/-	+/-	+++	+++	+++	----	----
Sulfur	low	+/-	----	----	+++	----	+++	+++
Ziram								

Rating: ++++ = excellent and consistent, +++ = good and reliable, ++ = moderate and variable, + = limited and/or erratic, +/- = minimal and often ineffective, ---- = ineffective, and ? = insufficient data or unknown.

a. Do not use the same fungicide or fungicides with similar chemistry and high resistance risk more than twice in one year.
b Strains of *Monilinia fructicola* resistant to Benlate and Topsin are present in some peach and nectarine orchards.
c Rovral is not available for pre-harvest use.
d. Oil is a ›light‹ summer oil, 1-2% volume/volume.
e. Do not use after shuck split.
f. Do not use in combination with or shortly before or after oil treatment.
g. Label canceled; other companies may produce.
h. Not effective if used as dormant treatment.

PEACH AND NECTARINE -- TREATMENT TIMING

Note: Not all indicated timings may be necessary for disease control.

Disease	Dormant	Bloom 20-40%	Bloom 80-100%	3-6 weeks post bloom	Preharvest[a] 3 weeks	Preharvest[a] 1 week
Brown rot	----	++	+++	+[b]	++	+++
Powdery mildew	----	++	++	++	----	----
Leaf curl[c]	+++	----	----	----	----	----
Rust	+[d]	----	----	+++	++	----
Scab	----		++	+++	----	----
Shot hole[e]	+++	----	----	++	----	----

Rating: +++ = most effective, ++ = moderately effective, + = least effective, and ---- = ineffective.

a. Timing not exact; weather conditions determine need for treatment.
b. Application at about 4 weeks post bloom may reduce pre-harvest brown rot.
c. Treatment should be made before bud break and preferably before bud swell.
d. Dormant treatment with liquid lime sulfur.
e. Fall application before winter rains begin is the most important; additional spring sprays are seldom required but may be needed to protect the fruit if heavy persistent spring rains occur.

APPLE AND PEAR -- FUNGICIDE EFFICACY

Fungicide	Resistance risk [a]	Scab		Powdery Mildew (apple only)
		Protectant	Eradicant	
Benlate	high	+++	+++	+++
Funginex[b]	high	+++	+++	++
Procure[c]	high	++++	++++	++++
Rally[c]	high	++++	++++	++++
Rubigan[c]	high	++++	++++	++++
Topsin M	high	+++	+++	+++
Vangard	high	+++	+++	+++
Captan[d]	low	++	----	----
Maneb[d]	low	++	----	----
Thiram[d]	low	++	----	----
Ziram[d]	low	++	----	----
Copper	low	++[e]	----	----
Lime sulfur[f]	low		++++[f]	+++[g]
Sulfur	low	++	----	+++

Rating: ++++ = excellent and consistent, +++ = good and reliable, ++ = moderate and variable, + = limited and/or erratic, +/- = minimal and often ineffective, ---- = ineffective, and ? = insufficient data or unknown.

a. Do not use the same fungicide or fungicides with similar chemistry and high resistance risk more than twice during a season.
b. Labeled on apple but not on pear.
c. On pears, use only **before** white bud and **after** full bloom.
d. These are important components of resistance management programs.
e. Copper, though effective for scab control, causes fruit scarring.
f. ABurns out@ scab twig lesions when applied at delayed dormant and disrupts pseudothecial development when applied to leaves in fall. CAUTION: LIME SULFUR IS INCOMPATIBLE WITH MOST OTHER PESTICIDES. CHECK BEFORE USE.
g. In-season application eradicates powdery mildew.

APPLE AND PEAR -- TREATMENT TIMING

Note: Not all indicated timings may be necessary for disease control.

Disease	Fall	Delayed dormant	Green tip	Pink bud	Spring
Scab[a]	++[b]	++[b]	+++	+++	+++
Powdery mildew[b]	----	----	----	+++	+++

Rating: +++ = most effective, ++ = moderately effective, + = least effective, and ---- = ineffective

a. Protection of early tissue is important. Additional applications should be made according to infection periods as determined by the Mills table.
b. Disruption of pseudothecial development (fall) and inactivation of overwintering twig lesions (delayed dormant) occurs; effects of these treatments on disease control uncertain.
c. Early application is most effective; added treatments are made if mildew continues.

General Properties and Efficacy of Registered and Experimental Fungicides Used on Deciduous Fruit and Nut Crops in California

PROPERTIES

Trade Name	Fungicide	Class	Systemic action	Mode of action	Resistance potential
ML[w]	copper	Inorganic	No	Multi-site	Low
ML	sulfur	Inorganic	No	Multi-site	Low
Maneb	maneb	Carbamate(EBDC)[x]	No	Multi-site	Low
Thiram	thiram	Carbamate(DMDC)[y]	No	Multi-site	Low
Ziram	ziram	Carbamate(DMDC)[y]	No	Multi-site	Low
Ronilan	vinclozolin	Dicarboximide	Yes	Multi-site	Low
rovral	iprodione	Dicarboximide	Yes	Multi-site	Low
Vangard	cyprodinil	Anilinopyrimidine	Yes?	Single-site	High
Bravo	chlorothalonil	Aromatic nitrile	No	Multi-site	Low
Benlate	benomyl	Benzimidazole	Yes	Single-site	Very high
Topsin-M	thioph.-methyl	Benzimidazole	Yes	Single-site	Very high
Syllit*	dodine	Guanidine	Yes	Few to Multi-site	Medium
Elevate*	fenhexamid	Hydroxyanilide	Unknown	Unknown	Unknown
Captan	captan	Phthalamide	No	Multi-site	Low
Unnamed*	quinoxyfen	Quinoline	Yes		
Scholar*	fludioxonil	Phenylpyrrole	Contact		
Bayleton	triadimefon	DMI[z]-Triazole	Yes?	Single-site	High
Break/Orbit	propiconazole	DMI-Triazole	Yes?	Single-site	High
Elite	tebuconazole	DMI-Triazole	Yes?	Single-site	High
Funginex	triforine	DMI-Piperazine	Yes?	Single-site	High
Indar	fenbuconazole	DMI-Triazole	Yes?	Single-site	High
Procure	triflumizole	DMI-Imidazole	Yes?	Single-site	High
Rally	myclobutanil	DMI-Triazole	Yes?	Single-site	High
Rubigan	fenarimol	DMI-Pyrimidine	Yes?	Single-site	High
Abound*	azoxystrobin	Strobilurin	Yes?	Single-site	High
Flint*	trifloxystrobin	Strobilurin	Yes?	Single-site	High
Sovran*	kresoxymethyl	Strobilurin	Yes?	Single-site	High

*Experimental; registration pending

[w] ML=many labels
[x] EBDC-ethylene bisdithiocarbamate
[y] DMDC=dimethyl dithiocarbamate
[z] DMI=demethylation (sterol) inhibitor

?=not confirmed on stone fruit and nut crops using radioactive labeled compounds