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In This Issue

Almond/Walnut Day

Almond Bloom and Leaf Diseases

Walnut Hedgerows on Marginal Soils

BT Sprays for Almonds and Prunes

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Almond/Walnut Day

Enclosed is the program for the Butte/Glenn Walnut Day and Almond Institute which will be held in Chico at the Enloe Conference Center on February 3rd. The program, which includes lunch, will begin at 9:00 a.m. and conclude by 3:45 p.m..

The meeting is free of charge - thanks to the sponsors listed on the program. If you are staying for lunch, the charge is $8.00. Please send a check payable to UC Regents with the enclosed registration form for the luncheon. Your lunch reservation must be received by January 29th.

Walnut Hedgerows on Marginal Soils

For the last 12 years UC Farm Advisors John Edstrom, Wilbur Reil and myself have been testing the feasibility of walnuts on marginal soils at the Nickels Soils Laboratory in Arbuckle. We have been comparing Chandler and Howard on Paradox and Northern California Black Rootstock in slip-plowed and non slip-plowed soil. The trees were planted in a 12 ft. x 18 ft. north south hedgerow. The soil is about 50% Arbuckle sandy loam, a class II soil which is 4 to 5 feet deep over sand and gravel, and 50% Hillgate, a class III soil which is similar to the Arbuckle to a depth of 18 to 24 inches where rooting and water movement are limited by dense clay. Prior to planting, half of the block was slipped plowed to a depth of 6 ft. on 10 ft. centers in a north south direction. Following are the highlights of the trial.

Consistently throughout the trial the trees on Paradox have out performed the trees on Northern California Black in growth and yield (Table 1).

Yield and nut quality for the trees on Paradox compares favorably to those from trees on class I soils.

In most years of the trial, Howard has slightly out yielded Chandler. In 1997 there was no difference.

Surprisingly, we have seen no yield or growth benefit from slip-plowing despite limited backhoe observations which indicated deeper, more extensive rooting in the slip-plowed area. It could be that with drip irrigation with frequent light irrigation and monthly fertilization, soil mixing will not show the same benefits as with another type of irrigation. Additionally, current slip-plow practices include a second pass made diagonally to the first. Because of the plot size, this was not feasible.

The trees were started with a single line drip and after the 5th season, due to unsatisfactory vigor, a second drip line was added, doubling the wetted area. Since then growth and yields have been very satisfactory. With walnuts on this type of soil, it appears as though it is important to wet a higher percentage of the soil volume than is possible with a single line drip.

The 18 ft. row spacing is too close even on this soil. Under these conditions, Howard needs at least 20 ft. and Chandler needs at least 22 ft.

TABLE 1.

Variety	4th	Th	6th	7th	8th	9th	10th	11th	12th	Accum.
	'89	'90	'91	'92	'93	'94	'95	'96	'97	
Howard Paradox	404	1085	2343	4308	5476	5680	5290	4822	7393	36,800
Chandler Paradox	571	979	2498	3434	4883	5053	6243	4479	7551	35,691
Howard Black	387	976	1901	3051	3770	3961	3680	3448	5373	26,547
Chandler Black	457	757	1901	2562	3647	3815	4185	3203	5175	25,702

1997 Yield Comparisons	lbs/Ac	1997 Yield Comparisons	lbs/Ac
NC Black Rootstock	5274	Non-Slip	6792
Paradox Rootstock	7472***	Slip-plowed	5954 ns
		Non-Slip Chandler	7172
Howard	6383	Non-Slip Howard	6411
Chandler	6363 ns	Slip Howard	6354
		Slip Chandler	5554

**** = highly significant* *ns = nonsignificant*

Almond Bloom and Leaf Diseases

Reference: "In A Nutshell" newsletter, UCCE Tulare County

Springtime disease control is a major concern of almond growers. "Brown rot", "shot hole", "jacket rot", "scab", and anthracnose are controlled prebloom and up to 5 weeks following bloom. Table 2 presents relative fungicide effectiveness and appropriate timing for control of these diseases.

NOTE: Full protection against **all** six diseases usually requires at least two fungicide applications during bloom followed by continued treatments for shot hole as needed, if wet weather persists. Moisture such as rain, fog, and dew favors all the diseases listed in the table.

Remember, materials must be **applied** and **dried** before rain. Also, the "best" program for one orchard may not be the "best" for another.

SPRING CONTROL OF ALMOND DISEASES, 1998

Beth L. Teviotdale, Extension Plant Pathologist
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Table 2

FUNGICIDE EFFICACY

	Bloom			Spring			Summer	
Fungicides	Brown Rot	Green fruit rot[a]	Anthrac-nose[b]	Shot hole	Scab	Anthrac-nose[b]	Leaf blight	Rust
Benlate	+++	+++	---	---	+++	---	+++	---
Funginex	+++	?	---	---	?	---	?	---
Rally	+++	?	+	---	+	+	+++	---
Rovral	+++	+++	---	++	---	---	?	---
Topsin	+++	+++	---	---	+++	---	?	---
Captan	++	++	++	+++	++	++	++	--
Maneb	++	++	?	+++	++	?	++	+++[c]
Ziram	+	++	?	+++	++	?	++	--
Sulfur	---	---	---	---	---	---	---	++

+++ = most effective
++ = moderately effective
+ = limited effectiveness
? = unknown
--- = not effective and/or, in the case of rust, not registered for use in summer
[a] No recent data
[b] If Break or Bravo are registered, they should be rotated with Captan.
[c] Not registered later than 5 weeks after petal fall.

TREATMENT TIMING

		Bloom[a]			Spring[b]		Summer		
	Dormant	PB	FB	PF	2W	5W	May	June	July
Anthracnose[c]	---	++	++	++	++	++	++	---	---
Brown rot	---	+++	+++	++	---	--	---	---	---
Green fruit rot[d]	---	---	+++	---	---	---	---	---	---
Shot hole	+[e]	---	++	++	++	++	---	---	---
Scab	+[f]	+	++	++	+++	+++	+	---	---
Leaf blight	---	---	++	---	---	---	---	---	---
Rust	---	---	---	---	---	---	+++	+++	---

+++ = Most important, but application at all timings not always necessary.
++ = Importance depends.
+ = Effective only if spring treatments also applied.
--- = Ineffective.
[a] PB = pink bud, 10% bloom; FB = full bloom, 80-100% bloom; PF = petal fall, 50-80% postbloom.
[b] 2W, 5W = 2 or 5 weeks after the petal fall application
[c] Repeat applications following rain through spring.
[d] No recent data.
[e] Copper fungicide; the number and timing of spring treatments also may be applied according to a monitoring system.
[f] Liquid lime sulfur

BT Sprays for Almonds and Prunes

If it continues to be wet, it may be difficult to apply dormant sprays before blooming and leafing of almonds and prunes. This may be the time to consider the bacterial insecticide Bacillus thuringensis (BT) for control of Peach Twig Borer (PTB). This material has been extensively tested by UC personnel and has generally been as effective as standard oil and organophosphate insecticides for control of PTB.

BT avoids some of the problems associated with the dormant sprays such as potential runoff and disruption of beneficial insects. Control of PTB with BT requires two to three sprays which start with PTB emergence from the hybernacula and then at 10-day intervals. These treatments can usually be combined with spring fungicide treatments.

BT is specific to moth and butterfly larvae (lepidopterans) and will not control San Jose Scale, Brown Almond Mite, European Red Mite, or (in prunes) Leaf Curl Plum Aphid and Mealy Plum Aphid. Fall and winter monitoring of these pests can be done to determine if they will require treatment. Generally, SJS will be controlled by beneficial insects if they are not disrupted by in-season insecticides. If monitoring indicates high levels, they can be controlled by dormant oil sprays. Brown Almond Mite and European Red Mite over winter as eggs on the tree and can be detected in dormant spur samples. They usually are seen in the spring and decline with the onset of high temperatures and usually do not require treatment. They can be treated with dormant oil sprays if necessary. Aphids are the main obstacle to the successful use of BTs in prunes. We are currently testing fall monitoring (50% leaf fall) as a means of predicting aphid populations the following spring. This would let you know where the aphids are and allow you to design a program for that area only. Aphids can be controlled by in-season insecticides and (somewhat less reliably) by in-season oil sprays.

Don't Forget.....

Almond/Walnut Day- February 3, 1998

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