



FRUIT & NUT NOTES

Yolo County

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ALMOND PRODUCTION SHORT COURSE

An Almond Production Short Course will be held this fall on November 12-15, 2002. The four day intensive course provides lectures, field days and interaction between growers, industry and researchers. A bulletin describing it, the cost and sign up is included with this newsletter.

Generally the course sells out, so if you want to attend I suggest making reservations early.

COVER CROPS AND NITROGEN

I am seeing more people experimenting with cover crops in orchards. Cover crops can be useful for some things such as reducing compaction, improving water penetration, suppressing undesirable weeds, and reducing dust.

Claims are being made that cover crops will add nitrogen to the soil with exaggerated figures of hundreds of pounds a year being supplied, and provide a habitat for beneficials that will control all your pests.

Legume cover crops can add nitrogen to soil that is low in nitrogen if it is incorporated at the right time, provided there is not any non-legume cover crops that is depleting this nitrogen. I personally believe that a legume cover crop in a non-tilled orchard is contributing very little if any nitrogen to trees that previously have been adequately fertilized. I have seen several orchards become deficient with cover crops when fertilizer programs have been decreased.

I strongly recommend a leaf analysis from each orchard to “fine-tune” a nitrogen fertilizer program. Leaves should be collected in late June or July annually. While a single year analysis will show if the nitrogen level is deficient or adequate, it does not indicate if the current program is increasing or decreasing. Collecting leaf samples every year will provide information on whether the level is adequate and also whether the current fertility program needs to be adjusted to keep the orchard in an

adequate range. If you wait until the tree symptoms show nitrogen deficiency you have reduced your production for this year and for one or two years in the future.

I recommend nitrogen leaf analysis for all trees and vines. I especially recommend it for trees that are high nitrogen users such as walnuts and almonds. I also strongly urge any grower that is changing farming practices such as planting cover crops, using compost, changing weed spray practices or changing irrigation systems to use leaf analysis to maintain an adequate and efficient nitrogen fertilizer program and then “fine-tune” the nitrogen level to the new practices.

Cover crops do promote beneficial insects and spiders to build up in the cover. The pest you as an orchardist want controlled is present in the tree not the cover. There sometimes is a problem on moving the beneficials from the cover crop to the trees. Also in some cases a pest can also be moved into the tree canopy at the same time. Proper and frequent monitoring of pests and beneficials is needed to judge how to manipulate the cover crop to best utilize the beneficials present. Mowing the cover on a calendar basis or because it can reseed itself at that stage probably will not be the best for beneficial management. Monitoring and correctly identifying beneficials and pests is extremely important for predator manipulation.

LEAF ANALYSIS

Leaf analysis in late June or July can be used to “fine-tune” a nitrogen fertilizer program. The following table lists the critical N values for several crops.

Critical Nitrogen Level in Leaves in July Samples*

Crop	Deficient Below	Adequate Range
Almond	2.0 % 2.3	2.2-2.5 %
Apple	1.9	2.0-2.4
Apricots (ship)	1.8	2.0-2.5
Apricots (can)	2.0	2.5-3.0
Cherries	--	2.0-3.0
Nectarines & Peaches	2.3	2.4-3.3
Pears	2.2	2.3-2.8
Prunes	2.2	2.3-2.8
Walnuts	2.1 2.3	2.2-3.2

*From Soil and Plant Tissue Testing In California, UC Bulletin #1879.

* * * * *

Recent research on both young almonds and young walnut trees suggest that the adequate range should start slightly higher at about 2.3% and show deficiency slightly below 2.3%. Listed figures for walnuts and almonds may apply more to mature trees.

Annual leaf analysis allows growers to evaluate the short range nutrient status of the block and also the continuing maintenance over several years. Adjustments in fertility will help sustain the tree health and production.

ALMOND NUT REMOVAL AT HARVEST AND HULL ROT

Experiments conducted between 1992 and 1996 showed improved almond nut removal at harvest and reduced hull rot on drip irrigated trees that were moisture stressed for a 2 to 3 week period at early hull split. The same results were not obtained in the microsprinkler irrigated block in 1996. It was postulated that the stress may not have occurred at the correct time to be beneficial.

Trials in 1998 that were in a microsprinkler orchard, were designed to create a mild stress during July compared to a well irrigated orchard (60% E T compared to 100 % E T) on two different rootstocks (Peach/Almond and Lovell peach). Data is summarized in the following table.

Significant differences occurred between the No stress and the Stress treatments for nuts remaining on the tree. Significant differences also occurred for hull rot on both rootstocks.

Better nut removal was also achieved in the drip irrigated trials conducted in prior years by a moisture stress occurring at the start of hull split. It appears that microsprinkler trees need to have water reduced earlier than drip-irrigated trees to achieve the desired stress. The stress probably is necessary at the same time in both micro-irrigated trees and drip-irrigated trees. It takes longer, though, following the start of deficit irrigation for the trees to achieve the stress; therefore, the reduced irrigation must be started earlier. In these trials creating a tree stress meant starting in early July in 1998. Remember that we had late rains and cool temperatures all spring and all crops were about three weeks later maturing therefore the water deficit should probably be started about mid June to early July most years.

Average count per Nonpareil tree of the number of nuts remaining after normal harvest shaking and the number of hull rot strikes as identified by dead spurs with nuts and dead leaves attached.

<u>Treatment</u>	<u>Nuts Remaining After Harvest</u>		<u>Hull Rot Strikes</u>	
	<u>P/Almond</u>	<u>Peach</u>	<u>P/Almond</u>	<u>Peach</u>
No stress	43.8	218.0	6.4	14.4
Stress	13.7	65.0	1.4	2.7
Probability	0.02	0.04	0.01	0.09

From these data it appears that stress occurring before and during early hull split will promote better nut removal at harvest and reduce the incidence of hull rot in microsprinkler almond orchards.

I have not duplicated these trials on solid coverage sprinklers. I believe the same benefits could be achieved but additional trials need to be conducted to determine timing and irrigation rates. The stress is needed at the time first hull split is occurring.

If you have had a considerable number of mummies left on trees following shaking or considerable hull rot, evaluate your irrigation program. If the trees are being well supplied with water before and at early hull split perhaps they are being “too well” supplied. A slight stress at this time may improve knock-ability, increase harvestable yield and reduce mummies.

WALNUT HUSK FLY

Now is the time to consider what you are going to do about walnut husk fly. First and primary, husk fly is usually a problem in the same orchard and the same area of the orchard each year. If you have had a problem you will continue to have a problem most years. Walnut husk fly has one generation

per year. Flies emerge in June, July and August but might vary several weeks from one year to the next. Egg laying has occurred in July some years but has not occurred until September other years.

Traps have been used to monitor populations. Sprays can be timed to egg development in the females. The “super charged” AM trap is made by inserting a tube containing one ounce of ammonium carbonate into a yellow sticky card. Commercial super charged traps are available from Trece Inc., or from Consep Co. Traps should be hung high in large, shaded trees. Experience has shown that sprays should not be applied when the first fly is caught. Wait until you find egg development and then spray about a week to 10 days after. The best way to treat husk fly and to protect natural enemies or other pests is to use an insecticide with a protein bait that serves as an attractant to the fly. Total coverage is not as important as when using an insecticide alone.

Some growers in the county have had good success with the protein bait and insecticide by applying it with a hand gun as a fairly coarse spray to the more dense areas of the canopy. The use of traps to time the sprays is best, although some growers are making two or three spot applications with reported success. If you use the protein bait-insecticide don't wait for stings. The material is directed at the adult fly before egg laying, not at the maggot after hatch.

There is a video available at my office explaining trapping and control. It may be checked out and viewed and then returned. There is no cost for its use.

Submitted by;

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6/28/02

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