



ORCHARD FACTS



April 24, 2008
Vol. IX, No.3

In This Issue

Nickels Field Day

Sacramento Valley Prune Newsletter

Making Money Growing
Prunes in 2008

Crop Management

Spring Irrigation

Using Spring Weather Data
to Predict Harvest Date

Bill Krueger
Farm Advisor

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31st Annual

Nickels Field Day

Thursday, May 8, 2008

Nickels Soil Lab

Green Bay Road - Arbuckle

8:30 a.m. **Registration**

Coffee and Danish provided by Farm Credit Services of Colusa-Glenn, ACA

9:00 a.m. **Field Topics:**

Irrigating with Limited Water Supplies

Allan Fulton, UCCE Farm Advisor, Tehama County

Best Management Practices to Promote Food Safety

Tim Birmingham, Assoc. Director Industry Relations –Food Quality & Safety, Almond Board of California

New Projects at Nickels Soil Lab

John Edstrom, UCCE Farm Advisor, Colusa County

Almond Replant Problem

Dr. Greg Browne, Plant Pathologist, USDA UC Davis.

Benefits of Brush Chipping & Shredding in Almonds

Brent Holtz, UCCE Farm Advisor, Madera County

New Developments in Olive Production

Bill Krueger, UCCE Farm Advisor, Glenn County

Walnut Pruning, Canopy Development and Yield

Dr. Bruce Lampinen, Pomology Specialist, UC Davis

Caring for Young Walnut Trees

Janine Hasey, UCCE Farm Advisor, Yuba/ Sutter Counties

12:15 **Lunch** by reservation to Benefit the
Pierce Youth Foundation

Current Market Conditions

Dave Baker, Blue Diamond Growers

**PCA & CCA Credits
Pending**

**Map & Registration Form
Enclosed**

Making Money Growing Prunes in 2008

Franz Niederholzer, UC Farm Advisor, Sutter/Yuba Counties

If I were a grower, here's what I'd do to give myself the best possible chance of making money growing prunes in 2008.

- **Set a good crop.** First things first. Some key things should be done (even though the weather is out of your hands). Manage nutrition and crop load the year before to favor a good return bloom. Rent bees. Spray fungicides as needed. Advance bloom or heat/cool orchard to avoid extreme temperatures.
- **Don't over crop the orchard.** Too much fruit on a tree loses money. Excess crop load reduces fruit sugar and increases dry away. The risk of branch dieback from potassium deficiency increases with crop load. Too much fruit weakens the tree. Weak trees risk a light crop next year. Strip and count fruit per tree in late April/early May to measure crop load. Shaker thin to remove excess fruit.
- **Irrigate as needed.** Fruit end-cracking occurs when water stressed trees are irrigated. The risk of end cracking is highest in May and June. To avoid end cracking, irrigate to meet tree water needs at least through June. Test soil moisture to find out if the orchard soil is drying out. To save drying costs (improve dry away) cut off water as early as possible before harvest. Cutoff date in your orchard will depend on soil conditions and irrigation system.
- **Fertilize to feed the crop and keep leaves on the tree.** Prune trees need potassium (potash) and nitrogen fertilizer to feed a good crop. The more fruit, the more fertilizer needed. Potassium nitrate sprays help avoid potassium deficiency. Prune trees need around 100 pounds of actual nitrogen per acre per good crop year. Take a leaf sample in July to see how well your fertilizer program is working.
- **Manage pests. Keep leaves on the tree to grow the sweetest, biggest fruit possible.**
 - a. **Prune rust** can defoliate trees resulting in less sugar and reduced dried fruit size. Look for prune rust spots once every week beginning May 1. Spray sulfur when the first rust spot is found. Repeat sulfur application if more spots are found. Don't apply sulfur if rust is not found in the orchard. [Sulfur can harm "good" mites that eat spider mites.]
 - b. **Spider mites** can also defoliate trees. Spider mite numbers can double in one week of 100°F weather. Look for spider mites once a week in the orchard beginning June 1. [Start scouting earlier if it is a dry spring.] Treat if significant mites are found and mite predators are absent.
 - c. **Fruit brown rot** can damage fruit as harvest approaches. A fungicide spray can help control fruit brown rot. Spray fungicide 1-2 weeks before harvest if wet weather is forecast or orchard has a history of fruit brown rot problems.

Contact your local UC Farm Advisor for more information on these topics. Rust and mite scouting practices are described in detail in the Integrated Prune Farming Practices (IPFP) decision binder available from the Farm Advisors for just over \$30.

Crop Management for Dried Plums

Bill Krueger, UC Farm Advisor, Glenn County

Excessive crops are undesirable because they lead to small less valuable fruit, higher drying ratios, potassium deficiency, tree damage (sun burn and limb breakage) and alternate bearing.

Pruning is the first line of defense against excess cropping. Pruning can help improve fruit size and drying ratios and help reduce the negative impact of excessive crops. However, because eventual crop set is dependant on conditions during bloom and early fruit growth, which are unpredictable, a moderate pruning level may be advisable. If conditions are good, an excessive set may result.

Removing some of the fruit early in the season will allow the remaining fruit to grow larger and develop a higher sugar content and improved drying ratio. Mechanical thinning with the same machinery used for harvest is the most practical way of accomplishing this. A representative sample taken at reference date, when the endosperm is visible at the flower end of the fruit (Fig. 1), usually in early May, will allow for an estimation of fruit size at harvest (Table 1). Unfortunately, this procedure will often over-estimate size, especially with a heavy crop load. To get a better idea, using your experience and past production history, estimate the tonnage you can produce at the desired size and determine how many fruit per tree at harvest will result in this yield. For example, 4 tons (8000 lbs) X 70 dry fruit per pound divided by 151 trees per acre (in a 18' .x 16' planting) = 3708 fruit/tree at harvest. Adjust this by the estimated pre harvest drop to determine how many fruit should be left after thinning. Work done in the Sutter-Yuba area in the 70's suggested that approximately 40% of the fruit would drop between reference date and harvest. More recent work in Glenn and Tehama Counties has suggested that fruit drop may be closer to 20%. Using 20% drop in our example, 3708 divided by .8 = 4635 fruit left per tree after shaking.



Figure 1. Extracting endosperm at reference date.

Dried Plum Reference Size Table

Reference size (count/lb)	Your Sizing Potential Harvest size (dry) (count/lb)		
	average	upper 25%	upper 12.5%
50	32	31	30
55	36	34	32
60	39	37	35
65	42	40	38
70	46	43	41
75	49	45	43
80	53	48	46
85	56	51	48
90	60	54	51
95	63	57	54
100	67	60	56
105	70	63	59
110	74	66	61
115	77	68	63
120	81	71	66
125	84	74	68
130	88	77	70
135	92	79	73
140	95	82	75
145	99	85	77

At reference date estimate the number of fruit per tree by shaking and or picking and then weighing all the fruit on a representative tree or two. Weigh a representative sample (at least 100 fruit) and count the fruit to determine the count per lb. Smaller yellow fruit in the sample which are about to drop are not counted. Subtract the desired fruit per tree from the estimated fruit per tree to determine how much to remove. Shake a tree and, and using the same methodology described above, calculate how much fruit was removed. Adjust the shaker and repeat the procedure until the desired amount of fruit is removed. Set the shaker and thin the block. I recommend that a shake time and intensity be determined and then be applied uniformly to uniform blocks. I am not convinced that many people can accurately judge how much fruit is on a tree and how much it should be shaken from the ground or the shaker. The earlier the thinning is performed the more likely it is to give the desired results.

Concerns related to shake thinning include:

- 1) More valuable larger fruit in the top of the tree is removed disproportionately to the smaller less valuable fruit in the lower part of the tree. *While this may be true to some extent, research has consistently shown improved average fruit size for thinned compared to unthinned trees.*
- 2) Over thinning. *In reality, this is pretty difficult to do assuming the crop set is large and thinning is necessary. This is because a small crop of large fruit is usually worth more than a large crop of small fruit.*
- 3) Trunk damage from shaking. *With reasonable care, this risk should be no greater than at harvest time.*
- 4) Damage to fruit. *Minor skin damage has not been a problem for fruit that is dried. Shake thinning is not recommended for fruit that is to be sold fresh.*
- 5) Possible elevated fruit brown rot due to the possibility of shaken fruit developing brown rot and then serving as inoculum for fruit on the tree. *In order for this to happen, conditions would have to be conducive to brown rot development during and shortly after thinning. This is usually not the case at this time of year and this has not been observed to be a problem. Where possible, delay irrigation after thinning so fallen fruit can dry out.*

Spring Irrigation Management

Richard Buchner, UC Farm Advisor, Tehama County

Allan Fulton, UC Farm Advisor, Tehama County

For most orchards, recent winter/spring rainfall was not adequate to recharge orchard root zones. Accumulated rainfall (Table 1) for the 07/08 year was 14.51 inches compared to 16.19 inches of accumulated evapotranspiration. January was the heaviest rainfall month and some of that water might have improved deep storage if it got below roots of resident vegetation.

<u>Month/Year</u>	<u>Rainfall (in)</u>	<u>Evapotranspiration (in)</u>
October 2007	.94	3.45
November 2007	.42	2.45
December 2007	2.6	1.57
January 2008	8.37	1.18
February 2008	2.07	2.02
March 2008	.11	3.77
April 2008	<u>0.00</u>	<u>1.75</u>
	14.51	16.19

Table 1. Rainfall and evapotranspiration measured at the Tehama County CIMIS weather station. Local CIMIS stations can be checked to compare other rainfall areas.

In orchards with significant resident vegetation or cover crops, orchard floor vegetation has depleted most if not all available moisture. Carefully monitor soil moisture as trees leaf out and start competing for available soil moisture.

Early observations suggest very good crops in Sacramento Valley prune orchards. Irrigation and crop load management will be important to maximize fruit size. Many ways exist to help make water management decisions.

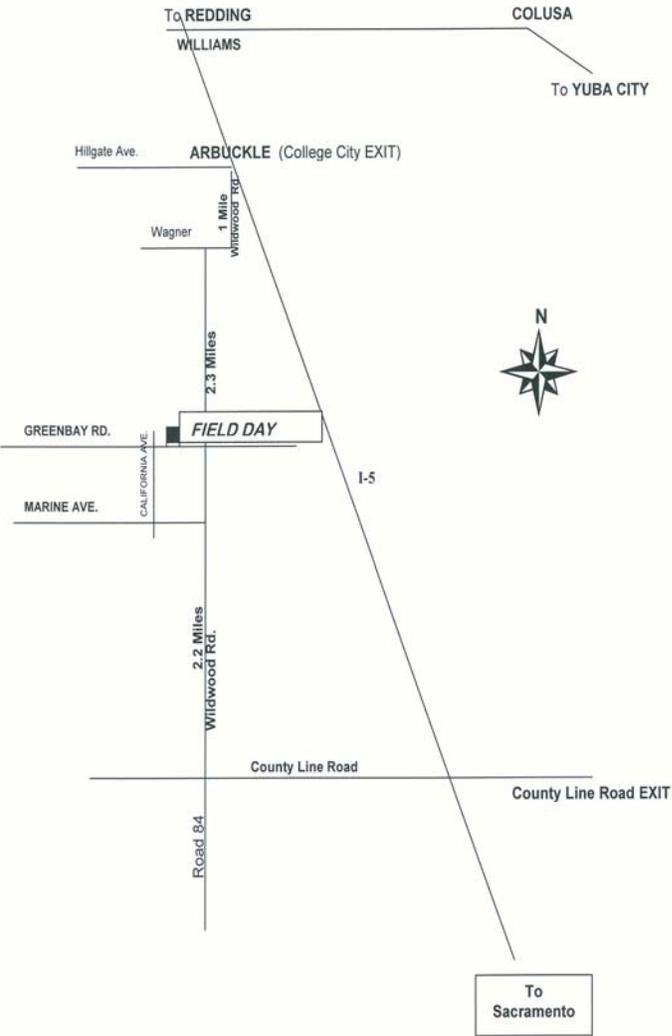
as an early season tool to estimate the approximate harvest date for Improved French prune. GDH 30 days after bloom are available at the UC Fruit & Nut Research and Information Center web site (<http://fruitsandnuts.ucdavis.edu>). Select 'Weather Services,' then 'Harvest Prediction Model.' Select the location of the nearest California Irrigation Management Information System (CIMIS) weather station (click directly on the weather station location, not the county) and enter the date of full bloom. The table shows the accumulated GDH during the first 30 days after bloom. With this number, use Figure 1 to determine how many days there will be from full bloom to harvest.

For the 2008 season, using March 18th as the full bloom date, early predictions suggest that GDH for the Sacramento Valley will be close to 6000. That would estimate about 160-170 days from full bloom to harvest placing harvest about the last week of August. This is only an estimate and your own bloom date and data from your nearest CIMIS station will give you a better estimation of your own harvest.

Data for peach indicate that fruit size is more difficult to obtain when the GDH 30 is above 6000 whereas fruit sizes are generally better when spring temperatures are cool and GDH 30 is less than 6000. We believe that similar relationships probably hold for prunes, so if spring temperatures 30 days after full bloom are warm take special care to monitor your crop loads and thin accordingly. (Lopez, Johnson and DeJong, *California Agriculture* 2007 <http://CaliforniaAgriculture.ucop.edu>)

¹ Pomologist, UC Davis, ²UC Farm Advisor Solano/Yolo Counties, ³ IRTA, Lleida, Spain

Map to Nickels Field Day



Nonprofit Organization
 U. S. Postage Paid
 Orland, CA 95963
 Permit No. 63

Glenn County
 Cooperative Extension
 P. O. Box 697
 Orland, CA 95963

LUNCHEON RESERVATION FORM

Cost: *\$12.00/person (Prepaid Reservation)*
 \$15.00/person at the door

Make checks payable to: *Pierce Youth Foundation*

Mail to: *Pierce Youth Foundation*
 P.O. Box 1349
 Arbuckle, CA 95912

Please return this form & your check by May 2.

Name:		
Address:		
City:	State:	Zip:
Phone:		
Name(s) of Attendees(s):		
Total Amount Enclosed:		