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FRUIT AND NUT NOTES

TEHAMA COUNTY **MAY 2008** Volume 2

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Luncheon Reservation Form

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

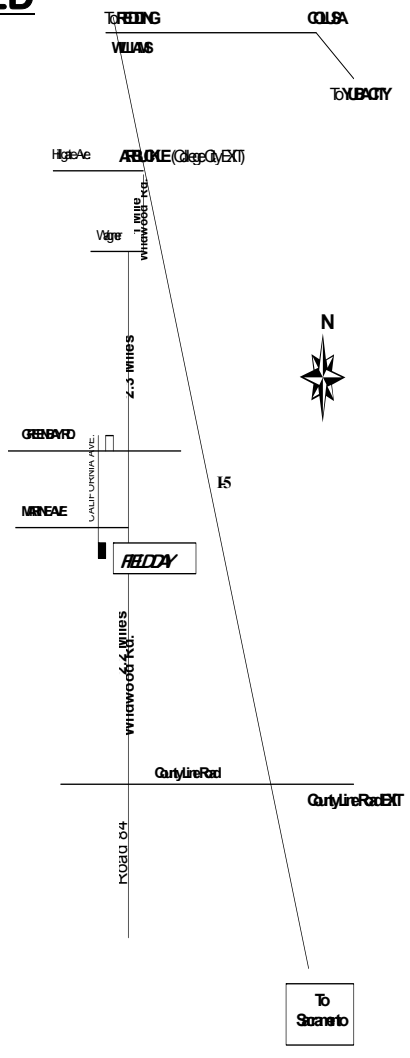
Make checks payable to: *Pierce Youth Foundation*

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

Please return this form or a copy, along with your

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

MAP TO NICKELS FIELD DAY



31st Annual Nickels Field Day

Thursday May 8th 2008

Nickels Soil Lab
Green Bay Road
Arbuckle

8:30 am **Registration**

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

9:00 am **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—Noon

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

Luncheon Speaker- Dave Baker, Blue Diamond Growers "Current Market Conditions"

Program organized by John Edstrom, Farm Advisor
University of California Cooperative Extension

PCA & CCA credits pending

UNIVERSITY of CALIFORNIA
Agriculture & Natural Resources

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 (Figure 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.

Month/Year	Rainfall (in)	Evapotranspiration (in)
Oct 07	.94	3.45
Nov 07	.42	2.45
Dec 07	2.60	1.57
Jan 08	8.37	1.18
Feb 08	2.07	2.02
Mar 08	0.11	3.77
April 08	0.00	1.75
	14.51	16.19

Figure 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. Soil moisture measuring tools are available and the water based models help predict actual water use. However, in situations where water deliveries are reduced, moisture stress is not easy to quantify or manage.

Prune fruits continue to increase in size from bloom until about early August. Significant water stress from bloom through the end of fruit sizing has been shown to negatively impact fruit size. Moisture stress following termination of fruit size is thought to improve fruit dry ratio. This may offer an opportunity to save some irrigation water. Irrigate adequately until fruit size then decrease water application. Tagging and measuring 20-30 fruit might be a useful way to discover when fruit sizing is complete.

Early season moisture stress followed by irrigation usually results in end cracks. The sudden increase in tree water status from irrigation increase fruit flesh pressure resulting in the end crack. If possible, avoid moisture stress in spring and early summer (particularly May and June). Irrigation cutbacks after end crack danger might be a reasonable compromise.

Recent advances in Midday Stem Water Potential (MSWP) have provided a technique to actually measure tree water status. MSWP allows for more precision in measuring and managing deficit irrigation management. The technique involves placing leaves in light blocking water impervious foil bags. Bagged leaves are left on the tree for 10 minutes to allow enough time for the leaves to equilibrate with the tree water system. After leaves equilibrate they are removed, left in their protective bags and placed into a pressure chamber. The operator slowly increases chamber pressure until water just starts to flow from the cut leaf petiole. The chamber pressure represents the tree water status. The technique works very well but is expensive to purchase the equipment (pressure bomb), requires training a skilled operator and a commitment to collect and evaluate the information. Charts from UC are available to interpret tree response to measured values. Contact your local farm advisor for additional information.

Using Spring Weather Data to Predict Harvest Date for "Improved French" Prune

Ted DeJong[1], Carolyn DeBuse[2] and Gerardo Lopez[3]

For peach, Japanese plum, and nectarine accumulated temperature (growing degree hours or GDH) during the first 30 days after full bloom is highly correlated with the number of days between full bloom and harvest. This means that fruit maturity date can be predicted by knowing the bloom date and GDH accumulation 30 days after full bloom. To discover if a similar relationship exists for prune, harvest dates for Improved French prune in Yolo and Fresno counties, over the last eight years, were correlated to the associated accumulated GDH 30 days after full bloom for each year. Researchers found that Improved French prune is similar to other *Prunus* species and GDH 30 days after full bloom can predict harvest date for Improved French (Figure 1).

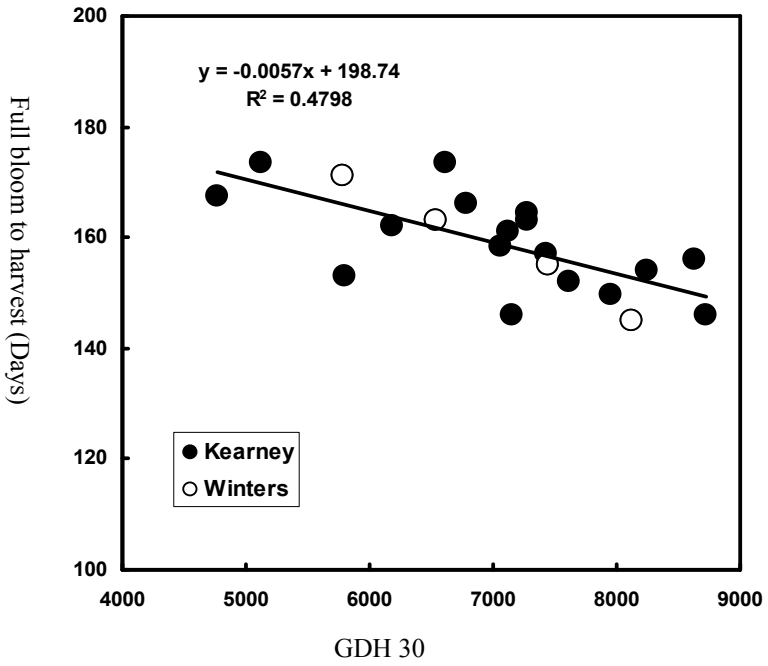


Figure 1. Relationship between growing degree hours (GDH) 30 days after full bloom and the number of days from full bloom to harvest for the cultivar 'Improved French' at Kearney and Winters

This relationship indicates that spring temperatures during the first 30 days after full bloom govern fruit developmental rate and are a major factor in determining the harvest date in any given year. This relationship can be used 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, [2]UC Farm Advisor Solano/Yolo Counties, [3] IRTA, Lleida, Spain

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 overestimate 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, 308 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.*

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 looses 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.

- 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.]
- 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.
- 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.

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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.

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and
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PRUNE NEWSLETTER

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