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SACRAMENTO VALLEY REGIONAL PRUNE NEWSLETTER

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FIELD SIZING FRENCH PRUNE

Richard P. Buchner UC Farm Advisor, Tehama County

Undersized prunes have marginal, if any, value and usually represent a net loss because of costs to haul, dry and market order payments for prunes with little or no value. Several methods are available to regulate cropping and encourage larger fruit size. Pruning, mechanical thinning, cultural practices and field sizing at harvest, are some of the possibilities. Crop control during the season is the preferred method because the tree does not have to invest resources in producing prunes with little or no value. Field sizing at harvest is a last resort and by no means a substitute for in-season crop sizing techniques.

Harvest sizing to eliminate undersized prunes is not a new idea. Tulare County Farm Advisor Steve Sibbet did some of the first evaluation in 1986. Buchner et. al evaluated harvest sizing in Tehama County in 1996, 1997 and 1998. Our experience with harvest sizing is based upon those experiments. The goal of field sizing is to improve the value of the remaining fruit enough to exceed any value from the weight loss due to removing undersized prunes. In 1997 we evaluated a one inch bar sizer and improved profitability $10.39 per dry ton. Success depends upon selecting and maintaining the correct chain or bar size for individual harvest conditions. Watch what's going on the ground and adapt accordingly. Here are several suggestions/cautions for separating out undersize prunes.

- Sugar and pressure. As fruit accumulates sugar and softens, a sizer is more likely to remove fruit with value.
- Price schedule affects the value of removed fruit. Decide which sizes to remove and select the correct opening to remove target prunes. Be prepared to change or remove sizers as fruit conditions change.
- How much undersized fruit needs removal? If the amount of undersize fruit is relatively small it may not be economical to invest time and energy to remove it.
- If harvest speed is reduced and/or custom harvest costs increase, it may not be a good choice to remove undersize fruit.
- Harvest timing. High sugar prunes are more likely to have value.
- Equipment logistics. Flexibility is necessary when using sizers. They need to be kept clean to function properly. Overloaded sizers can not be expected to work properly.
- Growers who use harvest sizers to remove undersized prunes need to carefully monitor discarded fruit particularly if larger size openings are selected. Larger openings are more typical early in the harvest. As harvest progresses, sizer openings are often decreased or sizers are completely removed.

Estimation of French Prune Harvest Date in the Sacramento Valley

Carolyn DeBuse, UC Farm advisor, Solano/Yolo Counties

Planning harvest can be challenging when you watch the weather and try to compare this year to other years while only feeling sure of your estimation as harvest nears and fruit pressures drop. To make it easier, a new harvest prediction model that uses growing degree hours accumulated in the first 30 days after bloom (GDH30) can be used to predict harvest date. Table 1 shows the model's estimated harvest dates in the Sacramento Valley using collected bloom dates from different counties, weather data from that county's CIMIS station and the GDH30 calculator from the 'Fruits and Nuts Research and Information Center' website. The overall picture for this year suggests cool temperatures following bloom lengthened the fruit development time which will delay harvest by a week or more.

*Note that your weather conditions and microclimate could be cooler or warmer than the weather near the CIMIS station used for this estimation. Included in the table are two Solano areas that are near each other but have very different spring temperatures.

What does this mean to you?

Plan for a later harvest

Don't be too eager to turn off your irrigation to dry trees for harvest

Don't feel pushed to harvest when your sugars are low and your pressure is still above 4-5 PSI

More information on the 'Harvest Prediction Model' can be found at http://fruitsandnuts.ucdavis.edu/files/49108.pdf

Table 1. Estimation of French prune harvest date in the Sacramento Valley for 2008. Estimations were made using the 'Improved French Harvest Prediction Model'

County	Full bloom date	GDH30[a]	Estimate of number of days to maturity	Estimate Harvest Date
Tehama	18-Mar	5,903	165	31-Aug
	23-Mar	5,794	167	7-Sep
Butte	18-Mar	6,221	164	30-Aug
	23-Mar	6,172	164	4-Sep
Glenn	19-Mar	6,240	164	31-Aug
	23-Mar	6,050	165	5-Sep
Colusa	16-Mar	6,102	164	28-Aug
	23-Mar	6,247	164	4-Sep
Sutter	16-Mar	5,804	167	31-Aug
	23-Mar	6,001	165	5-Sep
Yuba	16-Mar	6,404	163	27-Aug
	23-Mar	6,577	162	2-Sep
Yolo	17-Mar	5,866	167	1-Sep
	23-Mar	5,853	167	7-Sep
Solano (Winters)	17-Mar	7,120	159	24-Aug
	23-Mar	6,796	160	31-Aug
Solano (Dixon)	17-Mar	5,292	166	31-Aug
	23-Mar	5,302	166	6-Sep

[a] GDH30 is the growing degree hours accumulated in the first 30 days after full bloom. Calculations were done using the Fruits and Nut Research and Information website 'Weather Services' and temperature data gathered by CIMIS.

Managing Fruit Brown Rot in Prunes

Franz Niederholzer, UC Farm Advisor, Sutter/Yuba Counties and
Jim Adaskaveg, Professor, Plant Pathology, UC Riverside.

Brown rot in harvested fruit can be costly due to direct crop losses and hand-sorting charges. Weather conditions, especially rain and/or high humidity, are key factors influencing potential for brown rot infection. However, there are strategies that growers can implement to manage brown rot while keeping costs down.

Avoid, where possible, orchard conditions that promote fruit brown rot infections. These include:

- High nitrogen (N) levels. Avoid excess N fertilization.
- Fruit damage (split fruit, insect damage, etc.). Prevention of insect damage (peach twig borer, leafroller, etc.) is key to high level of control of brown rot on prunes. Split fruit is also vulnerable to brown rot infection. Use proper irrigation management to avoid split fruit. Monitor and control peach twig borer and/ or leaf roller to avoid fruit flesh damage that allows disease entry into the fruit. (See IPFP binder, available at local UCCE office, for details on insect management and irrigation scheduling.) Check for split fruit and insect damage when considering a preharvest fungicide application.
- Late harvest. Growers must balance the risk of increased brown rot infection with the economic benefit (lower dry away) of harvesting at lower fruit pressures.
- Clustered fruit. In heavy crop years, shaker thinning will reduce cropload and improve fruit size.., Shaker thinning can provide an additional benefit by reducing the number of fruit clusters.
- High disease pressure. High inoculum levels increase disease risk, but, by summer there is no way of economically reducing orchard spore counts. Reduce preharvest disease pressure by using an effective bloom spray program and, when possible, directing pruning crews to remove fruit mummies. Even with a good bloom spray program, fruit rot infections can develop when rain or high humidity occur as fruit matures

Evaluate the economics of your operation. Determine which blocks are worth protecting. Where is the best crop? Do you want to spend the money to protect all your orchards? [Note: If fruit brown rot levels are high in an orchard at harvest, make a note to pay particular attention to bloom fungicide program next spring and to tell pruners to remove mummies as they prune each tree.]

Where needed, chemical controls should be applied at the proper timing. Using sprays for fruit brown rot control is expensive and may not always be successful. Registered fungicides protect uninjured fruit from brown rot infection. Fungicides must be applied before infection occurs, and can not adequately protect injured fruit. Unnecessary sprays waste money and increase the risk of fungicide resistance.

If you need to spray:

- **Use an effective material.** Field research by Dr. Jim Adaskaveg showed some fungicides work better than others for fruit brown rot control. Orbit/Bumper, Indar, and Pristine are ranked highest for fruit brown rot control. Elevate, Vangard and Scala are less effective. Spray timing in this study was 1-2 weeks before harvest.
- **Add light summer oil (415 wt. spray oil) to the tank.** Tank mixing spray oil with Orbit, Pristine, or Elevate significantly improved fruit brown rot control. A rate of 1-2 gallons of oil per 100 gallons of water was used in those trials. Oil is not suggested if you plan to fresh pick because it affects fruit appearance.
- **Alternate fungicide chemistry** to reduce the risk of fungicide resistance. Repeated use of a single chemistry will lead to pesticide resistance. Brown rot resistance to AP fungicides (Group 9) such as Vangard and Scala was found in a single orchard in Butte County in 2007. This discovery is a wake-up call to growers and PCAs regarding fungicide resistance management in prune production.

  Different pesticide names don't mean that the chemistry is different. Orbit, Bumper, and Indar all work the same. Alternating with these products is like switching from Pepsi to Coke – you are still using essentially the same material. Follow the simple numbering (FRAC Group No.) system on each fungicide label to identifying different modes of action. Use an effective brown rot fungicide with a different code number each time you treat. We suggest using a fungicide for preharvest treatment that was not used at bloom. Talk with your PCA or local UC Farm Advisor to learn more about fungicide resistance program.
- **Get good spray coverage**. Poor spray application wastes time and money. Calibrate your sprayer at least once a year. Drive slow (2 mph) when the canopy is dense. Set spray nozzles to target the tree canopy. **Every-other-row spraying = every-other-row control + increased risk of fungicide resistance.**

Sutter Harvest Parameters: Suggestions for 2008 and a look at ongoing testing

Carolyn DeBuse, UC Farm Advisor, Solano and Yolo Counties

The new prune variety Sutter is in its early years of commercial planting. After Sutter's release in 2000, orchards were planted throughout the prune growing areas of California effectively improving our experience with how the variety performs. The variety has several positive attributes. First, Sutter is a high sugar prune averaging 2 ° Brix higher than French grown at the same location. In addition, Sutter harvests 7-10 days earlier than French allowing growers to spread their harvest. Presently, the oldest orchards are 5th to 6th leaf and just starting to come into full bearing. With harvest approaching, it is a good opportunity to discuss what we have observed from previous harvests and make suggestions for 2008.

Growers have been harvesting Sutter using the same harvest parameters as French starting when average fruit internal flesh pressure is 3-4 PSI. In 2006 and 2007, we observed that French harvest parameters do not work well for Sutter. Sutter harvested at this pressure was found to slab and bleed on drying trays making it hard to clean trays resulting in an unsuitable dried fruit. When Sutter is harvested at ' higher pressure ' it dries well resulting in a high quality prune.
A cooperative effort is underway with Sunsweet, UC Dried Plum/Prune Development Program and UC Cooperative Extension working together to fine tune Sutter's harvest parameters and drying protocol. The experiment will include three harvests at different flesh pressure, 7-8 PSI being the highest and 2-3 PSI being the lowest. For each harvest, Sunsweet will dry half of the fruit at normal drying temperatures and half the fruit at a lower temperature using a longer drying time. A dried quality evaluation will assess the best harvest time and drying practice.

Sutter Growers: In planning Sutter harvest, test fruit pressures at frequent intervals after the fruit has reached full color so that you will not miss your optimal harvest timing. Harvest at a higher pressure than you have previously done with French. My best estimation is to harvest Sutter when fruit pressures are in the 5-7 PSI range.

Blue Prune Drop and Leaf Scorch

Bill Krueger - UC Farm Advisor, Glenn County

Blue prune drop and, in some cases, an associated leaf scorch often develops following the rapid onset of high temperatures in June or July. Damaged prunes develop color prematurely and may drop from the tree. More sun exposed fruit are more affected such as fruit in the top or south side of the tree. Often the sun exposed side of the fruit will be sunken or flattened. Leaf scorch may develop in leaves and twigs near the damaged fruit. When damaged leaves dry, the veins may be a darker brown than the rest of the leaf.

The problem is associated with heat stress. Under certain conditions, excessive heat results in damage to the fruit which may produce a toxin which is transported to spurs, leaves and shoots resulting in the leaf scorch symptoms. Leaf scorch symptoms are always associated with damaged prunes. They do not occur in areas of the tree where there was no fruit or on young trees without crop.

Anything which affects fruit temperature can have an effect. This could include:

1. Irrigation – Drop and particularly scorch are generally more severe on shallow soils with limited water holding capacity or in orchards which were towards the end of their irrigation cycle at the onset of heat. Adequate moisture insures maximum evapotranspiration and cooling of the plant.

2.. Tree Position or Location - Leaf scorch is usually worse on border trees, or on the south side of individual trees (areas with greater sun exposure).

3. Cultural Practices - It is felt that the problem is less severe in orchards with cover corps than in clean tilled or drip irrigated orchards. Evaporation from the cover crop would be expected to contribute to cooling of the orchard.

4. Nutrition - While the problem does not appear to be directly related to potassium deficiency, anything which adversely affects tree health and condition could contribute to higher tree and fruit temperatures.

While we don't have any sure ways of preventing this problem , making sure trees are healthy, vigorous and well supplied with water should help. Because the damage is caused by heat and not a disease, it should not continue to expand in the tree. Damaged wood should be pruned out during the dormant season.

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