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ORCHARD FACTS

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Sacramento Valley Prune Newsletter

What Can You Do Now To Produce The Largest Prunes Possible?

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Delivering small prunes will have no or limited value, but will incur hauling and drying costs and industry assessments. Delivering large prunes with good economic value is a season long endeavor. It starts with controlling large crops first with adequate pruning and then mechanical thinning if necessary. Nutrition and irrigation must be optimal throughout the season to ensure optimal fruit sizing. At this point in the season the options for insuring good fruit size are more limited. Following are some considerations for getting the best out of what you have.

Nutrition. Make sure that your crop is adequately supplied with potassium (K). Heavy crops can draw down potassium levels rapidly. Leaf levels have been observed to go from 1.6 per cent K in July to 1.0 by early August under heavy cropped conditions. If the crop runs short of K before the prunes are ready to harvest, dry size could be reduced. Foliar potassium sprays can be applied through July and are advisable on heavily cropped trees with marginal K levels.

Irrigation. Make sure your orchard is well irrigated during July. Water stress before fruit maturity can adversely affect fruit sizing. While it may not increase sizing potential, mild to moderate levels of water stress near harvest in August can help achieve desirable sugar content in fruit and reduce "dry-away" (drying costs). Developing moderate stress shortly before harvest may improve drying ratio by beginning the drying process on the tree.

Harvest timing. Ideally prunes are harvested when soluble solids reach 24% and fruit pressure drops to 3-4 lbs. Green tonnage peaks at this point and begins to decline as fruit drop increases. Dry tonnage decreases to a lesser degree because it is partially offset by an improved drying ratio. Harvest costs are reduced with later harvest due to reduced green tonnage (assuming costs are per green ton and not per acre or per tree). Blocks with light crops may achieve good soluble solids while fruit is still greater than four pounds

pressure and are good candidates for earlier harvest. Blocks with heavy crops will generally have better returns when harvest is later than normal. Risks of later harvest include weather events, such as high winds, which can increase drop, potential increased losses if brown rot is developing in the orchard and limited harvester and dryer capacities which can further delay harvest.

Sizing at harvest. Harvest sizing is a last resort for improving fruit size in your crop but should be considered when fruit sizes are less than optimal. This technique is described in a companion article in this newsletter.

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 Sibbett 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.

Managing Fruit Brown Rot in Prunes

Franz Niederholzer, UC Farm Advisor, Sutter/Yuba Counties

What can growers do this summer to protect their prune crop from fruit brown rot at harvest? While weather is a major (and unmanageable) factor in determining if fruit brown rot is a problem at harvest this year, here are some things growers can do to get the best production from a block while avoiding damaging losses.

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

1) High nitrogen (N) levels. Avoid excess N fertilization.
2) Clustered fruit. In heavy crop years, thinning can help reduce clustering of fruit and brown rot risk.
3) Fruit damage (split fruit, hail damage, and/or insect damage). Proper irrigation management and insect management is needed (See IPFP binder, available at UCCE office in Yuba City, for details on both topics.)
4) Late harvest. Growers must balance the risk of the spread of brown rot infection in each block with the economic benefit (lower dry away) of harvesting at lower fruit pressures.
5) High disease pressure. By summer time, there is no way of economically reducing spore counts in a block. [This should be done by mummy removal during the winter and properly timed fungicides at bloom.]. Even with a good bloom spray program, fruit rot infections can occur as fruit mature if rain or high humidity occur in the weeks before harvest. *Fruit thinning followed by rain or irrigation can increase brown rot spore levels in an orchard.*

Evaluate the economics of your operation. Determine which blocks are worth protecting with expensive fungicides. Where is the best crop? Do you want to spend money to protect all blocks? If fruit brown rot levels are high in an orchard at harvest, plan to remove mummies between harvest and bloom the following year to reduce spore levels in the block. Where needed, apply chemical controls at the proper timing. Chemical fruit brown rot control is expensive and not always successful under the best of conditions. Registered fungicides only protect uninjured fruit from brown rot infection. They must be applied before infection occurs, and cannot protect injured fruit. Dr. Beth Teviotdale, UCCE Pathologist Emeritus, suggests that if chemical control is needed and two sprays before harvest are affordable, spray twice:1) sometime between early June and mid July (research data give no clear picture of best spray timing during this 5-6 week period) and 2) two to three weeks before harvest. If chemical control is needed and only one spray before harvest is affordable: spray 2-3 weeks before expected harvest.

Recent research by Dr. Jim Adaskaveg, UC Riverside Professor of Plant Pathology, shows that higher spray volumes (160 gpa) provided better fruit brown rot control than lower spray volumes (80 gpa). Dr. Adaskaveg also found that including 1-2% 415 spray oil (1-2 gallons of oil per 100 gallons of water) in the tank with the fungicide improved fruit brown rot control.

Good spray coverage is essential for the best possible results with available fungicides during summer when tree canopies are most dense. Proper nozzle arrangements and slow (2 MPH) tractor speeds can make the difference between the best possible disease control and waste of time and money.

Spotted Winged Drosophila: New Damaging Pest in Prunes?

Franz Niederholzer, UC Farm Advisor, Sutter/Yuba Counties with information from Bob Van Steenwyk, UC Extension Specialist

This article is intended to alert prune growers to the possibility of a damaging new pest in prune orchards this harvest – spotted winged drosophila. This pest has only been a recognized pest in California cherries and other fruit since May 2009, but it devastated fruit in unsprayed cherry trees in the Sacramento Valley this year. Plums and peaches are also reported to be hosts to this pest. However, this pest is believed to be a cool season pest. Temperatures above 86ºF are reported to reduce fly activity and reproduction. Will it be a problem for prune growers this year? No one knows for sure, but it is important for growers and PCAs to know about this potentially damaging new pest and watch for it this harvest season.

Spotted winged drosophila (SWD) is a small vinegar fly (see photo of adult flies on raspberry). Male flies have a dark spot on the end of each wing. Females have clear wings. The female SWD has a very strong ovipositor (egg laying organ) and she can lay her eggs in ripening, firm fruit as well as soft, overly ripe fruit. After hatching, the fly maggots feed on the fruit, making it unmarketable and increasing the chance of fungal infection.

The environment has a strong affect on SWD activity. Flies are most active at 68ºF and their activity is reduced above 86ºF. Male flies are reported to be sterile at temperatures above 86ºF. Without water, adult flies die within 24 hours.

SWD 2010 management **recommendations for California <u>cherry growers</u>** were as follows:

- Make traps from 1 liter soda bottles with 3/16” holes drilled in the sides and baited with apple cider vinegar and hang in trees to trap adult flies. Hang the traps once fruits start to change from green to straw color.
- Check traps twice weekly, looking for male flies, which are easy to identify by their spotted wings. A hand lens or strong (3x reading glasses) helps when checking for males.
- If any males are caught, spray the entire orchard (see information below showing effective pesticides) once the fruit changes from straw to pink color. Repeat applications every 7-10 days until harvest.
- Check for damaged fruit through harvest, paying special attention to late harvested (soft) fruit.
- Remove unharvested fruit from the orchard, especially early ripening pollenizer cherries, as that fruit can host SWD.

There are reports of fruit damage from SWD in cherry orchards where traps did not catch any flies. This makes it difficult to use trap data to decide whether or not to spray. If you catch SWD, you have a problem. If you don’t catch flies you may not have a problem, but you can’t be sure until you see damaged fruit. Then it may be too late.

So, what is known about the potential for SWD damage to prunes in the Sacramento Valley this summer? We know SWD is present in the Sacramento Valley. This pest can infest plums and peaches. Larvae have been

found in unsprayed cherry fruit in Butte, Sutter, Yolo and Solano Counties as well as foothill areas east of Sacramento. The summer heat we are now experiencing may reduce or possibly eliminate SWD activity. Damage to early season peaches and plums has not been reported, so far this year, in areas where cherry damage was extensive this spring.

What can a grower do? Talk with your PCA and packer. Monitor for adult flies with traps and watch fruit for signs of damage. Spray if you find SWD in your orchard.

Please let your local UC farm advisor know if you spot this pest in your prunes.

What pesticides work best on SWD? Based on work in cherry, effective pesticides for SWD control and currently labeled for prunes include:

- Diazinon (1B)
- Delegate (5)
- Leverage (3A + 4A)
- Mustang (3A)
- Baythroid XL (3A)

Recent research from Oregon indicates that the organophosphates (diazinon, malathion, etc.) provide the longest residual protection (14 days) compared with pyrethroids (Mustang, Baythroid, etc.) and spinosads (Delegate, Entrust, etc.). New materials (Delegate, etc.) may not have MRLs for overseas markets. Some markets may not accept fruit treated with certain pesticides, even though an MRL exists. Please check with your packer regarding export tolerances (MRLs) for any or all of these products.

Check with your packer before spraying. If you spray more than once, rotate pesticide chemistries to limit the potential for resistance development. The number/letter following each pesticide material listed above indicates the resistance management group for each pesticide. Rotate between these groups when spraying. For example, if you spray Mustang, reapply with Delegate – but, be sure your packer has cleared all materials you plan to spray.

Additional information on SWD is available on the internet:

http://www.ipm.ucdavis.edu/EXOTIC/drosophila.html

http://www.ipm.ucdavis.edu/PDF/PMG/SWD-ID-Dsuzukii.pdf

http://ucanr.org/blogs/strawberries_caneberries/index.cfm

http://www.ipm.ucdavis.edu/IPMPROJECT/workshop-spottedwing_drosophila.html

http://swd.hort.oregonstate.edu/research_reports

Adult spotted wing drosophila on a mature raspberry fruit.

Photo courtesy of Ed Show, Driscoll Strawberry Assoc.

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