Prune Crop E-Newsletter
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# Sutter/Yuba area prune crop update, 2018

*Franz Niederholzer, UCCE Farm Advisor, Colusa and Sutter/Yuba Counties*

**Got a crop?** Prune bloom finished more than a month ago and fruit are growing fast. Prune growers now have a chance to check cropload after a bloom that ranged from cold and windy to hot and dry.

The crop in the Hwy 20 corridor looks better than I thought, given the light bloom in general and late heat that sent temperatures into the low 80's in the last week of March. A grower in south Sutter County counting fruit in his trees last Friday (April 27) found 5,000 to 10,000 prunes/tree—a good to excessive set for that orchard. He started thinning over the past weekend, with the fruit coming off without excessive shaking. Interesting point; in this particular orchard, the section with more clay was very wet last spring and set a light crop. That same section is showing a better crop this year compared to the part of the block that cropped heavily last year.

If they haven't already, growers should check the number of fruit per tree across their orchards as soon as possible, paying particular attention to any parts of the orchard that set a light crop last year. **Thinning might be a valuable option in more blocks than bloom conditions suggested.**

I have included an article on cropload check/thinning by Dr. Dani Lightle, UCCE Farm Advisor in Glenn, Butte and Tehama Counties in this newsletter.

If you have any questions about checking cropload or thinning, consider attending the field meeting on Friday, May 4 (see the meeting notice in this newsletter), talk with your packer or call me (Franz) at 530.218.2359.

Thinning prunes in Sutter County, April 30, 2018

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**Late harvest this year?** More than ten years ago, Dr. Ted DeJong and his lab group in the Plant Sciences Department at UC Davis developed a model predicting harvest date from bloom date and heat units (Growing Degree Hours – GDH) in the 30 days right after bloom. The predicted harvest date is consistently on the early side -- a few days to a week ahead of actual harvest -- but it gives a good idea of general harvest timing (early, "normal", or late). This year, the model is predicting harvest will start the last week of August for orchards in the Yuba City area where full bloom ranged from March 20 to 28. Bottom line: there's a good chance that harvest will be later than "normal" this year. This is something to keep in the back of your mind as the season progresses.

## Thinning Prunes

*Dani Lightle, UCCE Orchards Advisor, Glenn, Butte & Tehama Counties*

Will you need to thin prunes this year? In order to keep fruit from falling through the sizer, you need to do some legwork and estimate your fruit set. If needed, thinning should occur roughly around the same time as 'reference date', or the point at which 80-90% of the fruit have a visible endosperm. The endosperm, a clear gel-like glob, will be found in the seed on the blossom end of the prune (Figure 1) and is solid enough to be removed with a knife point. Typically, the reference date occurs in late April or early May, approximately one week after the pit tip begins to harden. The earlier the thinning is done, the greater effect it will have on final fruit size at harvest, though if you thin too early, you may damage the trees without removing the desired number of fruit.

Figure 1. Extraction of the endosperm on a developing prune.

To decide whether to thin, **estimate** the number of fruit per tree to produce your desired crop, **determine** the number of fruit on a few (3) representative trees, at or just before reference date, and, using those numbers, **decide** if you need to thin. **Calculate** how much fruit needs to come off if thinning is needed. Finally, **shake** if thinning is needed. Below I walk through the math, step by step.

1. **Estimate** the targeted tonnage from a given block by considering orchard history, age, etc. Let's assume a target of 4 tons/ac, and shoot for 60 dry count/lb. From there, we calculate a targeted number of fruit per tree:

(Dry pounds per ac x Dry count per lb) ÷ Trees per ac = Target number fruit per tree

$$8{,}000\,\frac{lbs}{ac} \times 60\,\frac{count}{lb} \div 150\,\frac{trees}{ac} = \ 3{,}200\ fruit/tree \text{ (target)}$$

2. **Determine** the actual number of fruit in a sample tree and compare that number to the target of 3,200 fruit. Ideally, you would repeat this procedure on 3 trees, representative of most trees in the orchard, to ensure accuracy. Place a tarp under the tree and mechanically shake off as much fruit as possible, then hand strip any remaining fruit. Collect all the sound fruit from the tarp and weigh them (for easy math, let's assume right now it weighs 100 lbs). Take a 1-lb subsample of the fruit and count how many sound fruit are

in a pound (here, we'll assume 90 fruit/lb). Don't count fruit that looks like it wouldn't have stayed on the tree (if you hadn't have stripped it off). These fruit are light green or otherwise look slightly "off" compared to the strong fruit that will make it to harvest. Then use those numbers to determine the total number of fruit per tree:

Total tree fruit weight x Number of prunes per lb = Total number of fruit per tree

$$100lbs \times 90\frac{fruit}{lb} = 9{,}000\ fruit/tree \text{ (actual)}$$

3. **Decide** if you need to thin. Subtract the number of fruit needed at harvest from the number of fruit on the tree now (at reference date). In this example, you have approximately 2.8 times the number of fruit on the tree as desired to hit the target of 60 dry count/lb, and you may consider thinning the orchard. You don't want to simply remove all those fruit though, because you need to account for natural fruit drop and variability in fruit per tree across the orchard. Estimates of natural fruit drop range from 10%-40%. This is an area where you need to account for orchard history, as well as your own risk threshold. Many growers prefer to leave approximately 50% more fruit on the tree than the target amount. This means that we need 50% more fruit on the tree after mechanical thinning than we want remaining on the tree at harvest:

Target number prunes per tree x (1.5% fruit drop buffer) = Adjusted number fruit per tree

$$3{,}200\ x\ 1.5 = 4{,}800\ fruit/tree \text{ (adjusted target)}$$

4. **Calculate** how many fruit to remove by subtracting the adjusted target number from the actual number of prunes on the tree:

Actual fruit per tree – Adjusted target fruit per tree = Number fruit to remove

$$9{,}000\frac{fruit}{tree} - 4{,}800\frac{fruit}{tree} = 4{,}200\ fruit/tree\ to\ remove$$

5. **Shake** (if needed). Use harvest machinery (shaker) to remove the approximately 4,200 excess fruit. Shake a tree for one second, and following the steps above, calculate how many fruit were removed. If needed, increase the shaking time until the desired numbers are removed. Typical shaking time is 2-4 seconds; avoid shaking for longer than 6-7 seconds to prevent unnecessary damage. Once you've calibrated your shaking time, go through and thin the block. If you are thinning for more than a week, check fruit per tree and green fruit per pound every few days to make sure that your shake time doesn't need to be adjusted down as fruit grow.

**Submitted by:**
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