A Five Step Plan for Orchard Irrigation.

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Terry Pritchard, UC Extension Irrigation Specialist, has a 5-Step Orchard Irrigation Plan. Here it is…

1. Get a Plan
2. Decide when to start irrigating
3. Use evapotranspiration (ET) estimates to schedule irrigation
4. Monitor irrigation program with "pressure bomb" or soil moisture measurement (Watermarks, etc.)
5. Adjust irrigation timing and/or amount based on monitoring results.

Here's how I would use this information to schedule prune irrigation in Sutter/Yuba Counties.

1. Put a plan in place that you can follow. Use/buy equipment or tools that work for your operation. Then use them regularly and adjust your irrigation as needed.
2. Start watering when trees have used enough soil water to make room in the soil "water bank" for whatever amount of irrigation water you put on in that first set. This avoids wasting water and energy. You need to know the following:
   i. How much water will your soil hold after rainfall or irrigation? Decent, ballpark estimates of this number can be found in the NRCS soil survey for Sutter or Yuba County. Copies and advice on how to use this valuable publication are available by calling me (218-2359).
   ii. How much water the trees are using in the area? Estimations of prune tree water use in the Sacramento Valley are available from the UCCE Tehama County office, courtesy of Allan Fulton, UC Water Resources Advisor for the northwestern Sacramento Valley. This water use is measured as acre inches of Evapotranspiration (ET). That's a combination of surface evaporation (Evapo-) and the amount of water lost through plant leaves (-transpiration).
   iii. How much water do you apply per hour or per set? If you are using a pressurized system -- drop, micro-sprinkler, or impact sprinklers – the company that put in the system should have this information. You could also measure output in the field. If you flood irrigate, soil moisture sensors or hand auger/push probes should tell you how deep your water is getting.

   Here's how Step 2 works: Suppose your orchard soil holds 6" of plant available water in the root zone. Also suppose your irrigation system puts 2" of water in the soil per set. Put on your first irrigation after the orchard has used at least 2" of water. NOTE: If Mild Etch on plum rooted prunes is a concern, I would let the ground dry further before putting on the first irrigation.

3. Once you have started irrigating, use orchard water use estimates – the ET data from Allan Fulton – and the amount of water your irritation system delivers per set or per hour to decide when and how much water to apply.
4. Check to see how your plan is working by testing tree water status using a "pressure bomb". This is the best way to know how dry/wet trees are in your orchard under your irrigation program. If the pressure bomb won't work for your operation, monitor soil moisture using anyone of several proven tools. See Allan Fulton's web site for an excellent review of soil moisture monitoring tools. This information is the "report card" for your irrigation program.
5. Adjust your irrigation program based on the information the monitoring results. A little drier than you want to be? Use longer sets. Wetter than you want? Shorten your sets or wait longer between irrigations.

Every orchard is different. There is no single irrigation plan for all orchards. Terry's plan is a good place to start. Allan Fulton's web site is at: http://cetehama.ucdavis.edu/Agriculture.

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USDA Risk Management Agency

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