Drip irrigation for backyard trees

I left you at the end of [my last blog post](#) with a cliff hanger. I showed a picture of [four Rain Bird valves](#) with combination [DIG filter/pressure regulators](#) and hoses hanging off the bottom. Bet you were sitting on the edge of your chairs – lounge chairs in the garden with mojitos in hand, I hope – waiting to hear what I set up back there. Here in part 3 of this summer's irrigation edition I will describe the back yard irrigation system.

Watering the old avocado trees

Last year before going away for the summer I laid [soaker hoses around our large Fuerte avocado](#). These hoses surround the tree near its drip line (the edge of the canopy), and away from its trunk. Water seeps out of three concentric circles of soaker hoses. It spreads nicely in our loamy soil, rather than going straight down as it would in sandy soil. I ran the soaker hoses from a spigot, and covered them with a 4 - 5 inch layer of avocado leaf mulch.

Manually controlled

In mid-June of 2016, while we were away, Southern California experienced an unusually long heatwave. The person who took care of my garden had to come over to turn on and off the spigot to the soaker hoses. This took hours. So this year, after getting the [Skydrop](#) [smart controllers](#) that can be programmed from afar, my husband constructed a bank of valves that are wired to the controller in the garage. He placed the valves near an existing spigot so it was pretty easy to connect the water and electricity – especially easy for a physicist who plumbs systems containing Helium for a living.

Hoses and emitters

As noted in the earlier posts, our unbearably smart controller operates these four valves. The valves are connected as follows (from left to right in picture above):

1. Avocado at north end of the back yard. A sixty-foot soaker hose circles the tree.
2. Large avocado in center of backyard (shown in picture above). There is a total of 215 ft. of soaker hose - a 90 ft. piece and a 125 ft piece. Since long soaker hoses tend to water unevenly, a y-connector provides water to both shorter pieces.
3. Three citrus trees (orange, Persian lime, Meyer's lemon). [Netafim driplines](#) surround these small citrus trees (away from the trunks and near the dripline).
4. Three fringe trees along the sidewalk. [Netafim driplines](#) run along the narrow garden bed

next to the sidewalk.

How much water?

The next important question is: How often and for how long should I set the controller to water these various zones? These are difficult questions, and I really don't garden this way. I tend to water "as needed." I determine when to water by noticing whether there is even slight flagging (drooping) of leaves. If the leaves perk up when it cools later in the day, I continue to check the soil for moisture and keep an eye on the plant so I can water before drought-stress occurs. I determine how long to water by checking the soil to see how far down the water has penetrated. Since we will be gone for two months, this will not do!

Instead I am systematically setting off zones and checking the depth (and spread) of water over time. I will actually keep track of how long I need to water. Avocado trees have shallow roots and so I want to dampen the soil to about 6 - 9 inches in depth. I will lay four to six inches of avocado leaf mulch under the canopy, but away from the base of the tree. Furthermore, the soil beneath the canopy of this large leafy tree is shaded and loamy. As such, I probably will only water once a month. However, if the summer is especially hot I may water at three-week intervals.

Flow meter

Finally, I purchased a [flow meter](#) to determine how many gallons of water flow per zone per hour. This will help me confirm that the trees get the proper amount of water. My husband, especially good with pipes as mentioned above, will be installing this tomorrow.

I have two weeks to finish this up and program the irrigation brain. Shouldn't be too hard.