Newsletter
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Watering Tips for Mirehaven Residents

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The previous article, *Take the Guesswork out of Programming an Irrigation Controller*, explained how to use an irrigation controller and as Mirehaven residents, you most likely have a Rainbird ESP-TM2 controller. The next steps are to fill in the details to customize your controller programing. Most homes had their front irrigation system installed by Pulte—this controls only one zone of drip irrigation that delivers water directly to the root systems of the plants. When you purchased your home, the plants were newly planted, so the system was programmed for frequent, shallow watering. This program may be okay for a year or so, but as the plants grow and become established, you need to modify the programing to accommodate the larger root systems and the season/time of year. A problem with one irrigation zone that some of you may have already encountered is that the different species of plants in your yards may have different water needs, especially as they grow. This article is intended to help you determine your watering needs using one zone of controlled irrigation that can accommodate the different needs of the plants and season.

1. **Know how much water your plant needs.**

This involves assessing the types of plants on your property and their water needs. These needs change with the season, years after planting, and size. General rules of thumb:

Season

- The water needs of plants vary with type of plant, season, and weather. Therefore, the programming of the controller will need to be changed for each season. A helpful chart on seasonal water needs of plants is posted at: https://www.505outside.com/wp-content/uploads/2020/07/WBTS-_all4_Final_OL_for-PRINT_7_5-x-6.pdf

Age of Plant

- Right after transplanting, all plants will need more frequent watering until they become established and the roots grow out from the root mass into the planting site.
- The following are general guidelines for the time it takes plants to become established after transplanting:
    - Trees (~2-inch caliper [diameter]): ~ 2-3 years
    - Shrubs: ~1 year
    - Perennials: 1 year

- ♦ Annuals: 4-6 weeks

- Newly transplanted plants need to be watered more frequently to replace water lost from sun and wind —you need to wet the rootball deeply and laterally to encourage roots to grow downward and outward. Frequent, shallow watering via the Rainbird program suggested at the time you purchased your Mirehaven home will need to be changed to reflect the water needs of more established plants. As the roots grow and the plants become established in the site, your new irrigation program should reflect the transition to deeper/less frequent watering, moving from daily watering to longer watering every few days or once a week, depending on the plant and season. With a drip irrigation system, you need to "think hours not minutes," watering deeply, but infrequently (1-2 times/week). Keep in mind that additional water may be needed in unusually hot, dry, or windy weather!
- The following Spring watering recommendations will help to set your programming for this season. As you read the chart (Figure 1), note the frequency and depth of watering listed for different types of plants. For example, shrubs should be watered 1-2 times per week to a depth of 18 inches.

Size of Plant

- Placement and number of emitters will need to be changed to effectively water the root systems of the plants—as plants grow, the number of emitters and the volume they deliver should be changed and may need to be moved out away from the main stem/trunk to the functional roots near the drip line of the canopy.

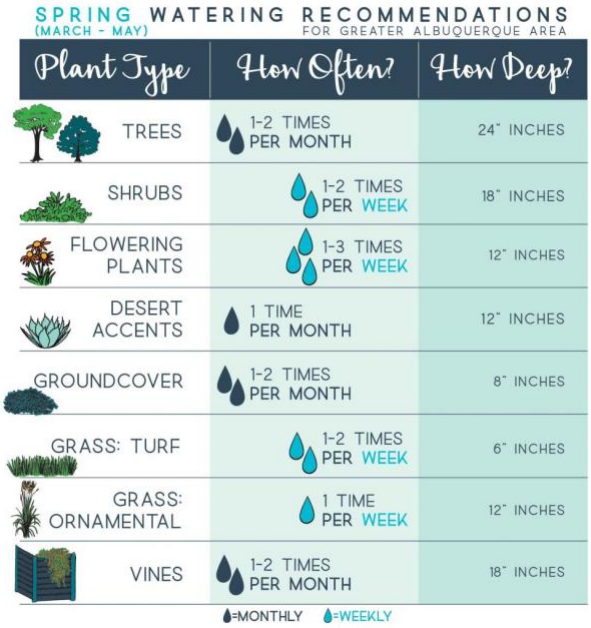

Figure 1. Spring watering recommendations. From the 505Outside website: https://www.505outside.com/wp-content/uploads/2020/07/WBTS-_all4_Final_OL_for-PRINT_7_5-x-6.pdf

2. Know how much water your system applies.

Determining how much water your system is delivering to each plant and the depth to which that water is actually penetrating the soil can be difficult to determine.

- Probe Method: An easy method to determine how deeply water penetrates into your particular soil is to use a probe, which can be as simple as a long-shafted screwdriver, a piece of rebar, or a commercial soil probe. Mark the probe with a pre-measured length based on the correct depth of water penetration for the particular plant you are assessing (e.g., 12 inches, 18 inches). Shortly after a completed irrigation cycle, gently slide or push the probe into the root zone of the plant to check the watering depth. If the probe goes easily into the soil to the pre-measured depth, you have your system set for the proper amount of time to deliver the water that plant requires. If the probe does not penetrate into the pre-

measured depth, you will need to increase your watering time. Repeat this process at several different locations around the plant to check for uniformity of watering. This process needs to be done once for each type of plant, since the amount of water delivered each time should be the same as long as the emitter nozzle, schedule, and water pressure don't change.

- Hole Method: Another method used to determine watering depth is to carefully dig a hole to the depth of watering required by the plant. Run the irrigation cycle and check the hole for depth of water penetration after the cycle to verify the system is delivering water to the desired depth and is set for the correct length of time.
- Soil Type: The type of soil you have influences the way water moves within the soil, so you need to take this into account when programming your irrigation controller. The diagram below (Figure 2) illustrates these differences: water moves to a depth of 12 inches in 15 minutes in sandy soil, but takes about 2 hours to move the same distance in clayey soil. However, note that the water pattern in clayey soil is much wider than in sandy soil. As a consequence, you might need more emitters around plants with sandy soil than those in clay soils. Most of the soils in Del Webb's Mirehaven is compacted sand from construction.

3. Match the system (emitter/drip nozzle) to the plant needs.

If you have one zone regulated by your irrigation controller, which most of us do, you can adjust the amount of water being delivered to each plant by choosing the correct drip emitter nozzle size and number of emitters per plant. Most of the emitters installed in the front yards of Mirehaven are flag drip emitters measuring liters / hour (e.g., 4 L/H, 8 L/H), although you might also have other types of flag emitters that measuring gallons / hour (e.g., 4 GPH, 8 GPH) (Figure 3). To convert flag drip emitters from L/H to GPH or GPH to L/H use the following equations:
1 L/H = 0.26 GPH; 1 GPH = 3.78 L/H.

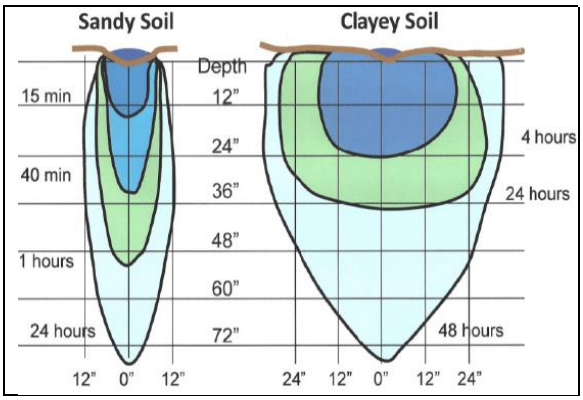

Figure 2. Wetting patterns for sandy and clay soils. (https://www.canr.msu.edu/news/soil_type_influences_irrigation_strategy)

For example, an emitter nozzle of 2 GPH (Gallons Per Hour) should deliver approximately 2 gallons of water per hour. If you have two 2 GPH emitters per plant, the amount of water delivered to that plant would be 2 emitters X 2 gal = 4 gallons per hour. The depth to which the water actually penetrates will also need to be determined, as described above in #2.

As the plants grow, you need to reposition the emitters out away from the base of the plant, increase the amount of water delivered (by changing emitter nozzle—for example, changing from a 2 gph nozzle to a 4 gph nozzle), or add another line and emitter nozzle to the plant. Water should be applied out to and slightly beyond the drip line of the plant canopy.

- The 1-2-3 Rule is a way to remember how deep to water:

a. Small plants (e.g., groundcovers, cacti, desert accents, perennials, and annuals): depth of 1 foot
b. Medium plants (e.g., shrubs): depth of 2 feet
c. Trees: depth of 3 feet

Remember: the frequency will depend on the plant and the season. Not all plants have the same water requirements and several excellent lists of plants and their specific water requirements can be found in the references.

Figure 3. (top) Types of flag drip emitters, top row in L/H; (bottom) in GPH.

4. Use of mulch.

Adding a layer of organic mulch over the root zones of plants (but several inches away from the main stem or trunk) will have postive benefits that include: maintaining soil moisture, moderating temperature, and controlling weeds. Bark is an organic mulch that conforms to ARC Landscape Guidelines.

5. Too complicated for you??

If the processes outlined in this article are more than you want to tackle, you may want to consider modifying the selection of plants in your yard. An option to consider is to select desert, low water use, or truly xeric plants—these plants don't need supplemental water once they are established and generally rely on rainfall for their low water needs. However, they will still require some supplemental watering after transplant and during the time it takes for them to become established in the site. Also, keep in mind they can still benefit from watering once a month during the growing season. Lists of these types of plants can be found in the references.

References- Irrigation

A Guide to Water-Wise Landscaping in New Mexico: The Enchanted Xeriscape
https://www.ose.state.nm.us/WUC/PDF/EnchantedXeriscape2004.pdf

A Water-Wise Guide to Trees
https://www.ose.state.nm.us/WUC/PDF/TreeBrochure.pdf

Irrigation Basics: A Guide to Smart Water Use
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https://wateruseitwisely.com/wateringguidefliplipbook/files/extfile/DownloadURL.pdf

Drip Irrigation 101
https://cals.arizona.edu/backyards/sites/cals.arizona.edu.backyards/files/page16.pdf

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The Complete How to Guide to Xeriscaping, City of Albuquerque
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New Mexico's Enchanted Xeriscape Guide
https://www.ose.state.nm.us/WUC/LearningXeriscape/XeriscapeGuide_ScreenResolution.pdf

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https://documents.cabq.gov/planning/code-enforcement/CodeEnf-Xeriscape101Brochure.pdf