

How to improve irrigation scheduling

THERE ARE MANY FACTORS that determine how well an irrigation system will perform. The core elements considered during the design phase such as head layout, water source information, pipe sizing and sprinkler selection have a profound impact on the system's performance. However, irrigation scheduling, or how long and when we command the sprinklers to run, is often overlooked. Even the best designed systems can be ineffective if the system is run too often or not enough.

So how do we create our irrigation schedule? Once our system is installed we then have the task of creating a schedule that works best in our particular area and for our particular situation. Let's take a look at several things that should be considered when creating an irrigation schedule.

The first thing to determine is how much water needs to be applied to our turfgrass per week. Obviously certain grass types have different water requirements so it's important to research this so you don't under or over water. After you determine how much water your turfgrass requires in a given week, we then work backwards to find out how long we should run each zone of sprinklers. All irrigation manufacturers note the precipitation rate of each sprinkler in inches per hour. This allows us to determine how much water is put down in one hour and is essential in determining how many times we need to run that particular zone to meet our weekly watering requirement. Here is a simple equation from the Irrigation Association that can help you calculate run time:

$$\text{Run Time} = \frac{\text{Gross Water Requirement in Inches of Water}}{\text{Precipitation Rate in./h}} \times 60$$

There are other factors that can determine your water requirement as well. The amount of use your fields are receiving per week, mowing schedule, soil type, root depth and climate conditions are other key elements to include when making this decision. Secondly, determine your start time. There can be many variables that can affect your start time, but three of the most important are temperature, wind and time of day. As the temperature rises during the morning hours so does the wind speed. Temperature can also affect your nozzle performance as the day heats up. This is one of the reasons why early morning is the best time to irrigate. Your turfgrass is also more susceptible to disease by watering late in the evening or at night. By watering infrequently at longer durations you will have much healthier turf.

The third element to effective irrigation scheduling is to abolish the "Set it and forget it" mentality. When the seasons change your watering time should change as well. This is one of the things that can be overlooked the most when maintaining an irrigation system. Many controllers on the market today have a Water Budget or Seasonal Adjust feature that can be used to change the irrigation run times easily by simply adjust-



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ing a water percentage across all zones. This prevents you from having to go zone by zone making countless adjustments. The default on this feature is normally 100%. If you take it up to 110% it will run each zone 10% longer. If you take it down to 80% it will run each zone 20% less. This simple feature can dramatically help the performance of your system.

Finally, consider a Weather Smart system. One of the most important factors in irrigation scheduling is finding the right amount of moisture you need to apply. New advancements have made this process considerably easier. The more accurate systems on the market today work off the principle of Evapotranspiration (ET). ET is the sum of the water lost from the soil surface (evaporation) and water used by the plants (transpiration).

The five factors that make up ET (Evapotranspiration) rainfall, solar radiation, temperature, wind and humidity are the cornerstone elements that can contribute to an effective schedule and they are the benchmark

industry wide. Whether you're using a new state of the art ET device or simply using a rain sensor to prevent irrigation during a rain event, you are dramatically affecting your schedule and the health of your turf if you apply these principles. New state of the art technology has made this process a lot easier and new advancements in irrigation controllers seem to be a regular occurrence.

By implementing a few of these rules and methods mentioned above you can dramatically affect the performance of your irrigation system and greatly improve the health of your turfgrass. ■

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