

# Landscape and IRRIGATION

## Irrigation Programming for Water Management

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Water is one of Earth's most precious resources and its availability is vital to the green industry. Recent increases in the price and availability of water have focused greater attention on landscape irrigation water conservation.

Automatic irrigation controllers can waste water if programmed incorrectly or left to operate regardless of the current weather conditions. "Smart" controllers are available that automatically adjust programming based on weather or site conditions. Whether your irrigation system is controlled by a Smart or standard controller, you still need to program it correctly so it can satisfy the landscape's water requirement and not waste water.

An excellent irrigation training program is available through the Irrigation Association. The Certified Landscape Irrigation Auditor Program teaches you how to collect site information, measure irrigation efficiency, calculate irrigation run times, and create water-efficient irrigation programs.

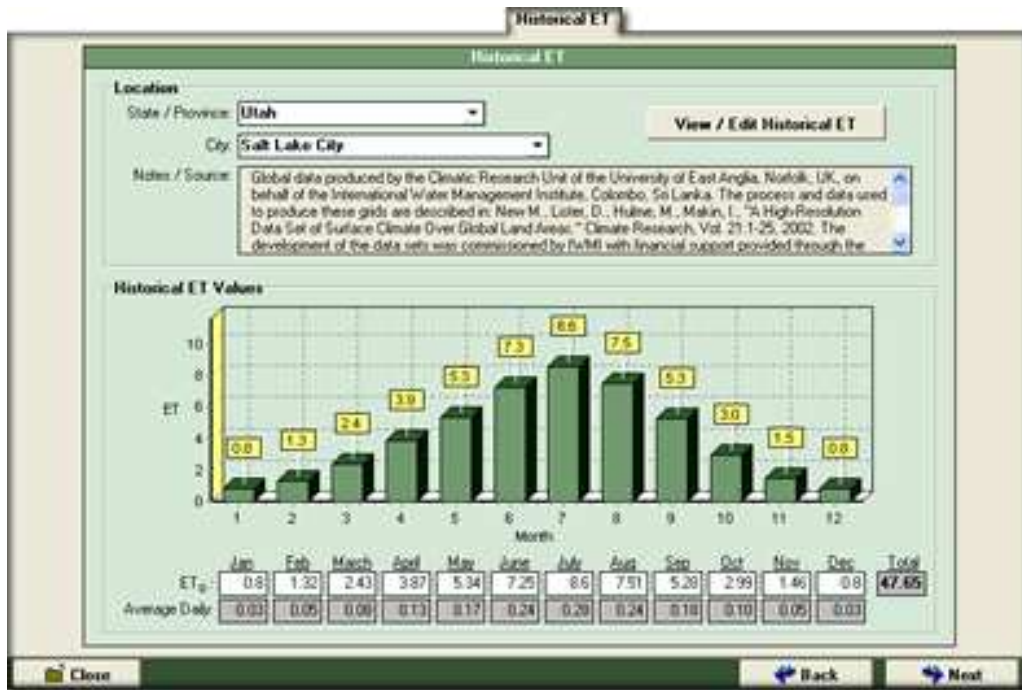
A free irrigation programming tool, the Rain Bird ET Manager Scheduler Software, is available for download at <http://www.rainbird.com/ETManager>

This application is used to program Smart controllers, but can also be used for standard controller programming. This tool helps you create water-efficient irrigation programs for most makes and models of irrigation controllers.

The program contains historical evapotranspiration (ET) data for all major cities in the United States and Canada. ET is the quantity of soil moisture lost from the plant root zone through evaporation and plant transpiration. If you know how much water was lost since you last irrigated, you will know how much irrigation water to apply to bring the soil moisture levels back to desired levels.

The screenshot displays the 'ET Manager Settings' window, which is divided into two main sections for 'ET Manager Valve Group "A" Settings' and 'ET Manager Valve Group "B" Settings'. Both sections are currently set to 'Enabled'. Each section includes a 'Description' dropdown (Turf for A, Shrubs for B), a 'Soil Type' dropdown (Sandy Clay Loam), and a 'Root Depth' spinner (7 for A, 10 for B). Below these are 'Irrigation Amount' and 'Landscape Adjustment %' spinners. A note indicates that the WRSF may broadcast a seasonal landscape adjustment factor. The interface also features an 'Available Watering Days' section with a dropdown set to 'All' and checkboxes for days of the week (Sun-Fri checked). The 'Effective Rain Settings' section includes 'Max Hourly Rain' (0.3 inches) and 'Saturation Allowance' (A: 0.26 inches, B: 0.30 inches). The 'Weather Interrupts' section has 'Temperature Interrupt' (35°F), 'Wind Interrupt' (20 MPH), and 'Rain Interrupt' (24 Hour: 0.3 inches, 1 Hour: 0.1 inches). At the bottom, there are 'Close', 'Back', and 'Next' buttons.

Accurate collection of site data is critical to the creation of water-efficient irrigation programs. The necessary data includes plant type, soil type, plant root depth and days per week available for irrigation. The information you enter, along with the historical ET for the area, will be used to calculate the total water available to the plant and the number of days between watering.



Deep watering less often is preferred over shallow watering every day. Plants with a deeper roots have more water available in the root zone, so they can be watered less often. Plants with a shallow root depth, like annuals, will need to be watered more frequently.

You will also need to collect information about each zone of the irrigation system. The program includes a database of all major makes and models of sprinklers, detailing the flow rate and radius of throw at various operating pressures. This

information is used to calculate each zone's precipitation rate (PR), which is the average inches of water the sprinklers will apply to the landscape in one hour's time.

PR will determine the zone run time required to replace the soil moisture lost to ET. Zones with a lower PR, like rotors, will require a longer run time. Zones with a higher PR, like spray heads, will have a shorter calculated run time.

Each zone will have a water distribution uniformity (DU) expressed as a percentage. This is a measurement of the sprinklers' water application efficiency. You can measure the DU through a catch-can test or use the typical DU suggested in the program for each type of sprinkler. Zones that distribute water less efficiently due to improper pressure or spacing will require an increase in run time.

Soils that have small particles, like clay, accept water at a slow rate. Soils that have large particles, like sand, accept water at a much faster rate. The soil type and slope information will be used to calculate the maximum number of minutes water can be applied without runoff. Soils with slow intake rates will require shorter run times with multiple start times. Controllers that include a Cycle and Soak feature can be programmed to do this automatically without the need for multiple start times.

The summary report created by the ET Manager Scheduler Software includes the required information to program the controller to meet the peak month average watering requirement. You will need to add or remove program start days increase or decrease the total amount of water applied per week to adjust for seasonal changes.

Some controllers include a Seasonal Adjust feature that adjusts the station run time up or down by percentage, by program, or for the entire controller. Adding or removing start days is the preferred method to achieve deep watering less often and save water.

Using this tool to program the irrigation controllers on your sites will result in healthier landscapes and lower water bills. Do your part to conserve water and adjust the programming on controllers on your sites frequently.

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