

Home Sprinkler Systems: Using your Sprinkler Controller's Seasonal Percentage Adjust or Water Budget Feature to Water Established Cool-Season Lawns: Rifle, Coloradoⁱ

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Quick Facts:

Most irrigation controllers (clocks) have a seasonal percentage adjust or water budget feature which allows the controller to automatically change the amount of water your lawn receives each month of the growing season.

In Rifle, the greatest lawn water demand occurs during the month of July.

By seasonally adjusting water applications to your lawn, you will save water, save money, and have healthier grass.

A rain sensor will prevent watering when adequate rain has fallen, resulting in even greater water savings.

ET_0 is the amount of water required by a cool-season lawn such as Kentucky bluegrass.

Introduction:

Based on historical weather and ET_0 dataⁱⁱ the total yearly water demand for a cool-season lawns such as Kentucky bluegrass or tall fescue for Rifle, Colorado is approximately 42 inches. The amount required each month differs and the amount applied should be based on the requirements of the turf. This fact sheet explains the process for setting your irrigation controller so the proper amount of water is applied each month of the growing season.

The Procedure:

Step 1: Ensure the time and date settings on the irrigation controller are correct. Correct if necessary.

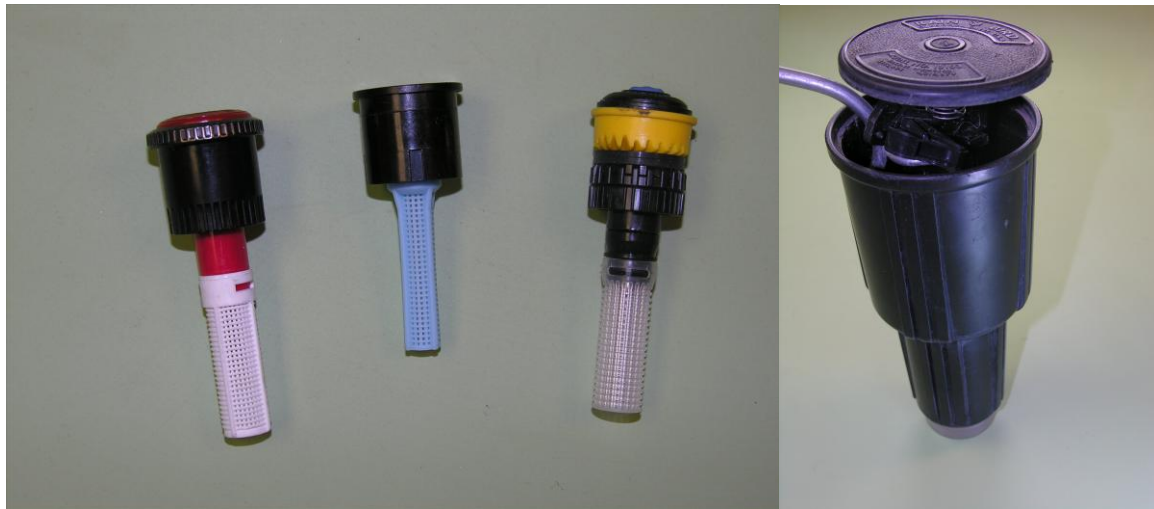
Step 2: All the zones/stations with established turf areas should be on the same program, i.e. Program A. Trees and shrubs, flower beds and newly-seeded lawn areas need to be on different programs as they require different amounts of water and a different watering schedule than lawns.

Step 3: Set the program start times for established turf to three, four or five start times. Allow 1 to 2 hours between start times. If your controller only has three start times, use all three. If water runs off the lawn or puddles in low spots increase the number of start times and reduce the time for each watering as indicated in the Step 4 below. When the controller is set properly, water will not run off the lawn or puddle. Aerating the lawn annually (spring and/or fall) promotes water penetration and reduces runoff. More information on aeration is available at <http://www.coopext.colostate.edu/TRA/PLANTS/core.shtml>.

Start Time 1	set for 10:00 p.m. ⁱⁱⁱ
Start Time 2	set for 11:00 p.m.
Start Time 3	set for 12:00 midnight
Start Time 4	set for 1:00 a.m.
Start Time 5	set for 2:00 a.m.

Step 4: Set each zone/station run time based on the number of start times you selected and the type of nozzles in your irrigation system. Spray-type nozzles apply a large amount of water in a short period of time, so total run time will be less than for other types of sprinklers. Rotor, impact, and multi-stream rotary heads apply water more slowly than spray nozzles, so station run times will be much longer. For this reason, it is essential that you know what type of nozzle/sprinkler heads you have before programming your irrigation control clock.

Nozzle Type:



Rotary-stream nozzle; spray nozzle; rotary-stream nozzle An impact nozzle

Spray Nozzles: The average efficiency of these nozzles is 55% with an application rate of 1.6 inches/hour. If a zone has multi-stream rotary nozzles (MP Rotators, for example) use the information in the next section.

- 1) It will take 7 hours, 63 minutes to apply the proper amount of water to the lawn during the month of July.

- 2) If you water every three days^{iv} (10 times per month) each zone will need to run for a total of 45 minutes per watering day. Since most sprinkler controllers do not allow for this type of schedule skip the day you normally mow the lawn.
 - i) Length of run time:
 - i. for three run times set the time for 15 minutes (change to four times if surface runoff occurs)
 - ii. for four times set the time for 11 minutes (change to five times if surface runoff occurs)
 - iii. for five times set the time for 9 minutes
 - ii) Schedule an hour between each watering time to allow the water to soak in before the next scheduled time of water application.^v

Rotor, Impact and Multi-Stream Rotary Nozzles: These nozzles have an application rate of about 0.5 inches per hour and are 70% efficient. Note: an irrigation audit will determine the exact application rate.ⁱⁱ

- 1) It will take 19 hours, 17 minutes to apply enough water to the lawn during the month of July.
- 2) Watering every three days² (10 days per month) requires running the zone for a total of 1 hour, 53 minutes each watering day. Since most sprinkler controllers do not allow for this type of schedule skip the day you normally mow the lawn.
 - 1)
 - a. Length of run time:
 - i. for three run times set the time for 38 minutes (change to four run times if surface runoff occurs)
 - ii. for four run times set the time for 28 minutes (change to five run times if surface runoff occurs)
 - iii. for five run times set the time for 23 minutes
 - b. Schedule an hour between each watering time to allow the water to soak in before the next scheduled water application begins.

Step 5: Set the seasonal percentage adjust/water budget feature for each month as designated below.

Month	Setting required
April	54%
May	74%
June	96%
July	100%
August	88%
September	67%
October	43%

The percentages given above are based on historical averages for Rifle. If your controller setting is in increments of 10 percent, round up to the next higher percent. If you feel the lawn is not receiving enough water increase the water budget percentage. If you feel the lawn could do well with less water reduce the water budget percentage.

Smart Controllers

'Smart' controllers use weather data and on-site information to adjust watering times and frequency. Consider upgrading to a Smart controller to improve the efficiency of your system. See http://www.coopext.colostate.edu/TRA/PLANTS/Smart_Controllers.shtml for more information.

Additional CSU Fact Sheets on Irrigation:

- 4.722 [Irrigation: Inspecting and Correcting Turf Irrigation System Problems](#)
- 4.719 [Home Sprinkler Systems: Preparing Your Sprinkler System for Winter](#)
- 4.714 [Home Sprinkler Systems: Backflow Prevention Devices](#)

ⁱ These recommendations are based on the following historical ET_o rates for Rifle, Colorado: Apr 3.59; May 4.95; Jun 6.42; Jul 6.71; Aug 5.88; Sep 4.48; Oct 2.9. Numbers are in inches.

ⁱⁱ To further fine tune your irrigation system the exact precipitation rate for each zone is needed.

ⁱⁱⁱ Research confirms the hours between 10 p.m. and 6 a.m. is the best time to water in order to prevent turf diseases. For more information visit <http://www.coopext.colostate.edu/TRA/PLANTS/leafwet.shtml>

^{iv} Watering no more than every three days during the heat of the summer helps retain deeper roots necessary for drought resistance.

^v Separating each start time permits the water to soak in before the next application of water. This is particularly critical to prevent runoff, especially on slopes and next to streets.