

Auditing irrigation systems

By Sam Bauer, Extension Turfgrass Educator sjbauer@umn.edu

Auditing your irrigation system is an important practice for maximizing water use efficiency in the home landscape. Audits entail checking for irrigation uniformity and converting minutes of irrigation to inches of water applied. A basic irrigation audit should be performed every spring as systems are charged up for the growing season. Below is a step-by-guide to auditing home lawn irrigation systems.

Step 1: System inspection

Run each irrigation zone. Look for broken sprinklers, low water pressure and arcs or angles of water spray that are distributing water where it is not needed (i.e. on streets). Replace sprinklers, correct water pressure accordingly, and make adjustments to the water distribution so your system is supplying water only where it is needed.



REPLACE BROKEN AND LEAKY SPRINKLERS

Step 2: Performance testing

Performance testing involves placing catch cans on the lawn in an evenly spaced grid pattern throughout an individual irrigation zone. Can should be placed 5 to 8 feet apart for small area spray-sprinklers and 10 to 20 feet apart for large area rotor-type sprinklers. A minimum of 20 cans should be used for each irrigation zone- more cans allow for greater accuracy. Tuna or coffee cans work well for this, or you can purchase specialized cans for conducting audits.

After the catch cans are placed throughout an irrigation zone, run the zone for a set amount of time (30-60 minutes). A longer run-time provides more accurate results. Next, measure and record the depth in inches of water in each can. Repeat this procedure for each individual zone of your irrigation system.



PLACE CATCH CANS ON A GRID PATTERN

Step 3: Uniformity calculations and scheduling zones

To calculate the precipitation rate of each irrigation zone, calculate the average depth of water in the catch cans for one hour of run time. For example, if the average depth of our 20 cans was 0.75 inches and we ran the zone for 30 minutes, our precipitation rate would be 1.5 inches per hour. For uniformity calculations, take the average depth of the lowest 25% of cans (in this case the five lowest cans) and divide by the overall average of all cans. For example, if the average of our five lowest measuring cans is 0.5 inches, divide 0.5 by 0.75 = 0.67 or 67%. Irrigation systems with lower than 60% uniformity should be adjusted for more uniform coverage.



MEASURE THE DEPTH OF WATER IN EACH CAN

Once you have calculated the precipitation rate for each zone, you can set the run times. If your goal is to apply 0.5 inches in one irrigation cycle and the precipitation rate is 1.5 inches per hour, set the zone for 20 minutes.

For more information:

U of M Extension Lawn Care: www.extension.umn.edu/turfgrass

U of M Turfgrass Science Blog: www.turf.umn.edu

Conducting an Irrigation Audit: www.irrigation.org/Resources/Audit_Guidelines.aspx