Catch Can Test

Conduct a simple catch-can test and find out the application rate of your sprinkler system. This will help you determine if you need to alter the system.

Supplies:

· Twenty (20) straight-sided containers of the same size
· Ruler
· Stopwatch, watch or kitchen timer
· This record sheet
· A pen or pencil

Step 1: Place the containers randomly underneath the spray pattern of one zone. You will need to repeat these steps in each zone.

Step 2: Turn on the sprinklers in that zone for 15 minutes.

Step 3: Turn off the sprinklers and measure the depth of the water you collected in each container.

Step 4: Record the amount of water (in inches) that you collected for each container.

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Total of All Containers in Inches ___________

Step 5: Compare each container’s water content to determine if the amount is the same between them. If any discrepancies exist, changes will need to be made to sprinklers or piping so that the water is applied uniformly in the zone. Alterations need to be finished prior to continuing.

Some questions to ask yourself:

a. Are there areas receiving much more water than others? Much less water?
b. Do any sprinklers need to be added or changed so that water is applied evenly?
c. Are sprinklers throwing water over 80 percent or more of the distance to adjacent sprinkler heads? They should cover head-to-head (100%)

Step 6: Take the total volume of water collect from all containers (from Step 4) and divide by the number of containers to obtain the average depth of the containers in that zone.

• \[
\frac{\text{(Total of all containers) \hspace{1cm}}}{\text{(number of containers used) \hspace{1cm}}} = \text{(zone’s average water depth in inches) \hspace{1cm}}
\]

Step 7: Multiply the zone’s average water depth by four to obtain the zone’s hourly rate of application.

• \[
\text{(Zone’s average water depth) \hspace{1cm} \times 4 = (zone’s application rate in inches per hour) \hspace{1cm}}
\]
Step 8: Repeat for each zone. The catch-can test should be repeated any time the sprinkler system changes, such as the addition of sprinklers, valve replacement, or water source change.

If Needed: To change an application rate from inches per hour to gallons per minute, use the following equations:

\[
\text{_____ in/hr} \times \frac{1 \text{ ft}}{12 \text{ in}} \times \frac{1 \text{ gal}}{0.1337 \text{ ft}^3} = \text{_____ gal/hr per sq ft.}
\]

\[
\text{_____ gal/hr per sq ft ÷ 1 hour/60 minutes = _____ gal/minute per sq ft}
\]

Multiply your result by the square footage being watered by each sprinkler head:

\[
\text{_____ sq ft area per head} \times \text{_____ gal/min per sq ft} = \text{_____ gal/min per head}
\]

**Distribution Uniformity**

Or Sprinkler Efficiency is a measure of how evenly an irrigation system applies water to a given area.

Step 1: Take the lowest 5 readings from Step 4 in the Catch Can Test. (If you did not do 20 cans, take the bottom quarter.)

1_____ 2_____ 3_____ 4_____ 5_____  

Step 2: Find the average of the lowest 5 readings in Step 1.

- (Total of lowest 5 containers) ________________________ ÷ 5 = (zone’s lowest average water depth in inches) _____________________

Step 3: Divide the lowest average water depth obtained in Step 2 by the average of all 20 obtained in Step 6 of the Catch Can Test.

- (Zone’s lowest average water depth in inches) _____________________ ÷ zone’s average water depth in inches = ___________________

Step 4: Multiply this by 100. This is the distribution uniformity.