# Turf Evaluation Procedure

## Materials/Tools

* 24 containers (they need to be the same, soup cans or freezer containers will work). These are commonly called catchments, catch can, or catch cups.
* Graduated cylinders (100 ml or 250 ml)
* 100’ tape measure
* Wire flags
* Watch/Smart phone

**Optional:**

* Pressure gauges

## Initial Observations

An important part of understanding how an irrigation system performs is to observe the site and irrigation system in operation. Make notes and take photos. Some basic things to look for are:

* Dry and wet spots (look for water grass and other weeds)
* Type of sprinkler heads: pop-up, rotor, impact
* Make/Model/Nozzle size of sprinklers.
* Overspray (watering of concrete or buildings)
* Sprinklers that don’t rotate
* Head not rotating to properly cover the area (arc is set wrong)
* Crooked sprinklers, buried (too low) sprinklers
* Broken sprinklers (head missing or does not pop up)
* Plugged sprinklers
* Miss-matched heads or nozzles

### Rating of Lower Quarter Distribution Uniformity (DULQ) for Sprinkler Zones

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type of Zone**  | **Excellent (%)** | **Very Good (%)\*** | **Good (%)** | **Fair (%)** | **Poor (%)\*\*** |
| Fixed Spray  | 75 | 65 | 55 | 50 | 40 |
| Rotor  | 80 | 70 | 65 | 60 | 50 |
| Impact  | 80 | 70 | 65 | 60 | 50 |

\* Irrigation Association Minimum Acceptable Standard

\*\* DU’s below this level should not be used to schedule irrigations.

## Procedure

1. Review the data collection forms.
2. Start the sprinkler system and mark the sprinkler locations with the flags. Test the pressure at various sprinklers is possible. Turn off the system.
3. Set out the containers typically 2’ from each head and between sprinklers. The key here is to collect a representative sample of all areas. Containers should be level. Don’t place containers behind trees (in the shadow of a sprinkler). Use a MINIMUM of 8 containers. USE 16, 20 or 24 containers for better results.
4. Start the system and run long enough to catch measurable water in all the containers. Typically for spray heads 5-10 min, for rotors 30-45 min.
5. While the test is running:
	1. Measure the site with the tape and draw a map. Indicate the location of each sprinkler with a circle. Note the dimensions of the area and spacing of the sprinklers on the map.
	2. Draw the approximate location of each container (use an “X”). No need to measure.
	3. Determine the make/model of the sprinklers and if possible the nozzle size. Note this on the map.
	4. Note other factors that might affect your test like wind, low pressure, plugged sprinklers, leaning sprinklers.
6. Turn off the system and record the run time on your data sheet.
7. Carefully pour the water from each container into the graduated cylinder and record the volume on your data sheet. Note some containers are graduated so no graduated cylinder is needed.
8. Determine the area of the container opening in square inches. Area = π R2 for round containers. Record this on your data sheet.
9. Use the online tool to analyze the data.
10. Compare your results to the standards above. How does the site “measure up”?

**Area Map**

Sketch the area being audited. Note sprinkler and catchment locations. Locate controller location(s) and zones (- - - line), major features, direction.



**Precipitation Rate Analysis Worksheet**

|  |  |  |  |
| --- | --- | --- | --- |
| Location |  | Date |  |
| Start time |  | Stop time |  | Elapsed time (min) |  |
| Catchment area (sq. in) |  | System Pressure |  |
| DU (calc): |  | Average PR (calc) |  |

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| **Container #** | **Volume (ml)** |
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| **Container #** | **Volume (ml)** |
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