Proper Irrigation on Sports Fields

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Irrigation Efficiency

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Why is this Important?

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Benefit of irrigation efficiency is that it can reduce waste from overwatering while minimizing runoff of potential chemicals. From a sustainability perspective, this is important since runoff can leach turf nutrients and contaminate to nearby water sources and natural habitats.

Matched Precipitation

Matched precipitation rate (MPR) is a term that is used to calculate the amount of precipitation in a given area is uniform. In order to be "matched" all sprinkler heads in a given zone must have the same rate of precipitation.

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Why is this important?

Calculating a precipitation rate will help determine how much irrigation time is needed, allowing you to set the system up to meet those requirements. It can also help you determine the nozzle size, head spacing and runtime for the system.

I-25 ROTORS

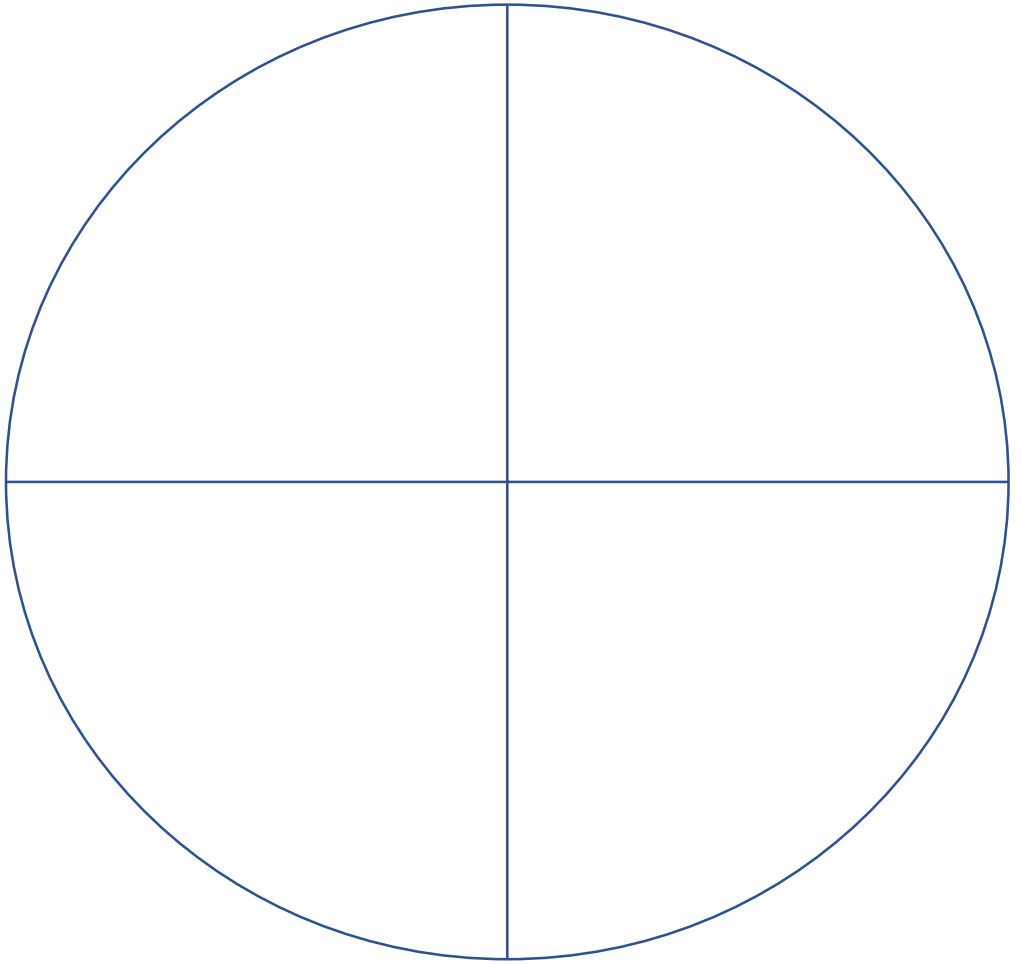
I-25 STANDARD NOZZLE PERFORMANCE DATA

Nozzle	Pressure	Radius	Flow	Precip in/hr	
	PSI	ft.	GPM	■	▲
04 Yellow	40	40	3.8	0.46	0.53
	50	41	4.3 4.7	0.49	0.57
	60	42	5.1	0.51	0.59
	70	43		0.53	0.61
07 Orange*	40	45 47	6.6	0.63	0.72
	50	48	7.0	0.61	0.70
	60	49	7.5	0.63	0.72
	70		7.9	0.63	0.73
08 Lt. Brown	40	47	7.7	0.67	0.77
	50	49 50	8.3 9.2	0.67	0.77
	60	51	9.9	0.71	0.82
	70			0.73	0.85
10 Lt. Green*	50	51	10.1	0.75	0.86
	60	52	11.1	0.79 0.83	0.91
	70	53	12.1	0.85	0.96
	80	54	12.9		0.98
13 Lt. Blue	50	53	11.2	0.77	0.89
	60	54 55	12.3	0.81	0.94
	70	55	13.3	0.85	0.98
	80		14.3	0.91	1.05
15 Gray*	50	56 57	13.4	0.82	0.95
	60	57	14.3	0.85	0.98
	70	58	15.2	0.90	1.04
	80		16.4	0.94	1.08
18 Red	50	58 59	14.5	0.83 0.87	0.96
	60	62	15.7	0.85	1.00
	70	63	16.9	0.88	0.98
	80		18.2		1.02
20 Dk. Brown*	60	62	17.8	0.89	1.03
	70	63	19.2	0.93	1.08
	80 90	64	20.5	0.96	1.11
		65	21.8	0.99	1.15
23 Dk. Green	60	64	21.9	1.03	1.19
	70 80	65	23.6 25.6	1.08	1.24
	90	66	27.0	1.13	1.31
		67		1.16	1.34

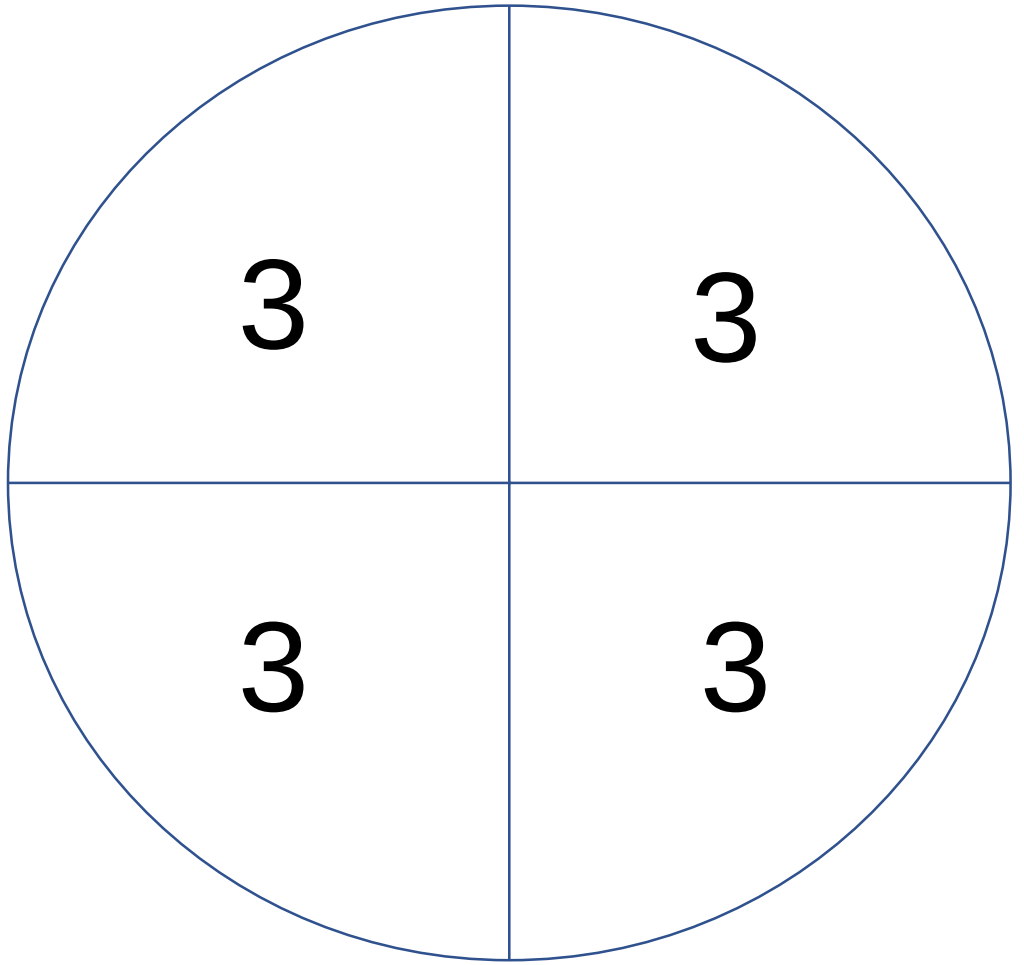
I-25 HIGH-SPEED NOZZLE PERFORMANCE DATA

Nozzle	Pressure	Radius	Flow	Precip in/hr	
	PSI	ft.	GPM	■	▲
04 Yellow	40	37 38	3.8	0.53 0.57	0.62
	50	38 39	4.3 4.7	0.63	0.66
	60		5.1	0.65	0.72
	70				0.75
07 Orange*	40	40	6.6	0.79	0.92
	50	41	7.0	0.80	0.93
	60	42	7.5	0.82	0.95
	70	44	7.9	0.79	0.91
08 Lt. Brown	40	42	7.7	0.84 0.86	0.97
	50	43	8.3 9.2	0.91	1.00
	60	44	9.9	0.94	1.06
	70	45			1.09
10 Lt. Green*	50	46 48	10.1	0.92	1.06
	60	49 50	11.1	0.93 0.97	1.07
	70		12.1	0.99	1.12
	80		12.9		1.15
13 Lt. Blue	50	48 49	11.2	0.94	1.08
	60	51	12.3	0.99 0.98	1.14
	70	51	13.3	1.06	1.14
	80		14.3		1.22
15 Gray*	50	49	13.4	1.07	1.24
	60	51	14.3	1.06 1.04	1.22
	70	53	15.2	1.08	1.20
	80	54	16.4		1.25
18 Red	50	50	14.5	1.12	1.29
	60	53 55	15.7	1.08	1.24
	70	57	16.9	1.08	1.24
	80		18.2	1.08	1.25
20 Dk. Brown*	60	53 56	17.8	1.22	1.41
	70	58 59	19.2	1.18	1.36
	80 90		20.5	1.17	1.35
			21.8	1.21	1.39
23 Dk. Green	60	56 58	21.9	1.34	1.55
	70 80	60	23.6 25.6	1.35	1.56
	90	61	27.0	1.37	1.58
				1.40	1.61

Matched Precipitation

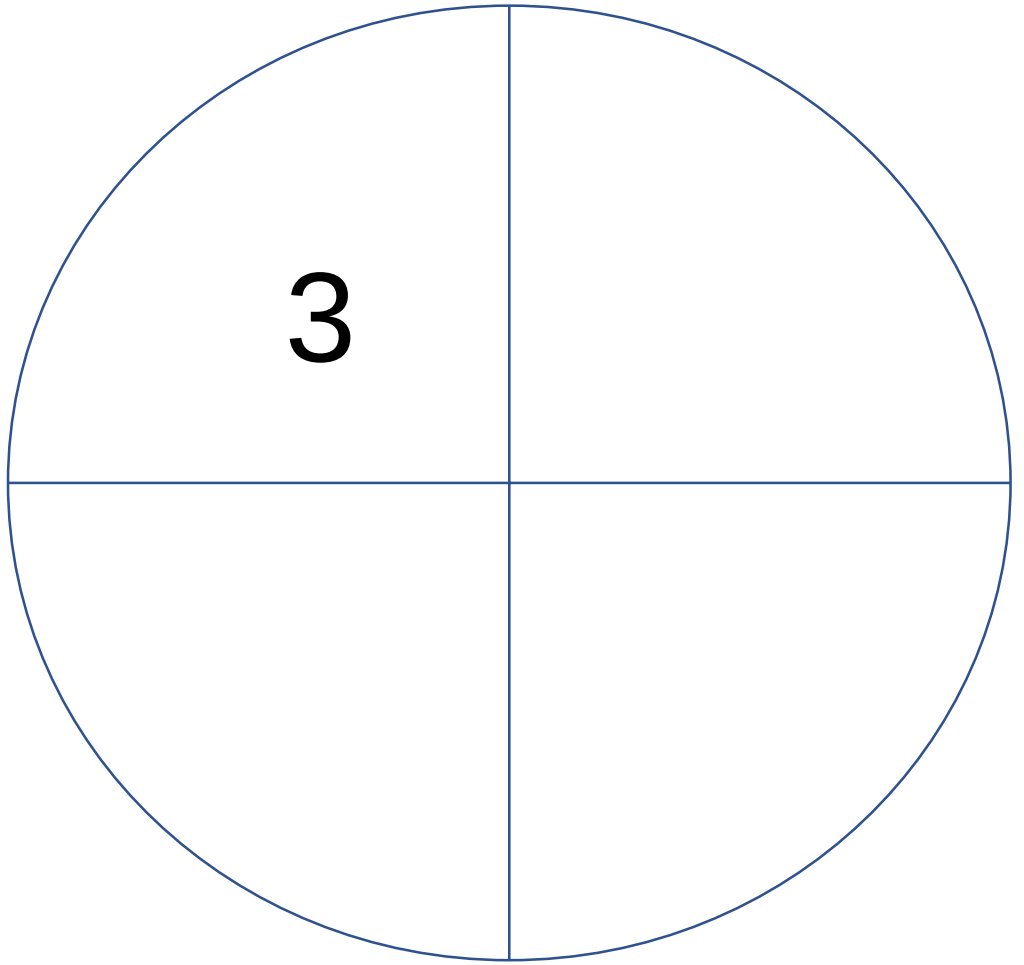


Matched Precipitation



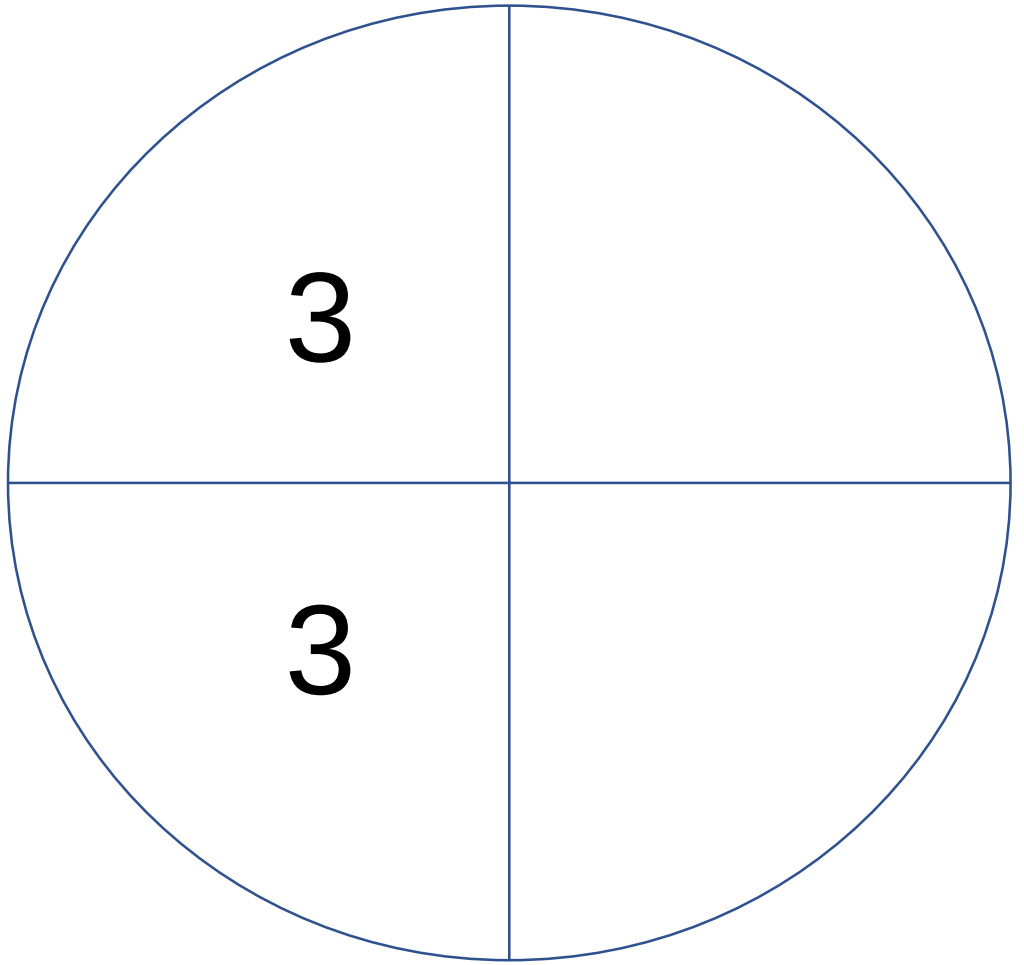
Matched Precipitation

1/4 Head



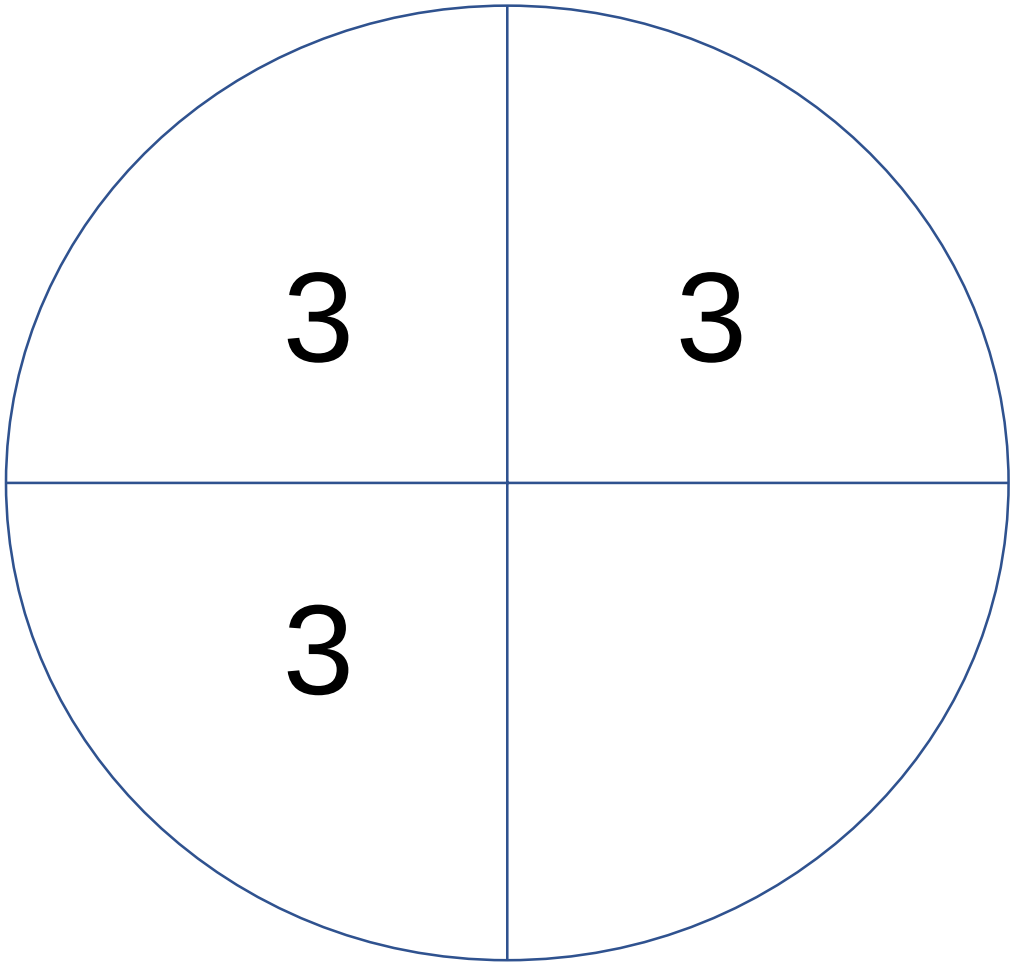
Matched Precipitation

1/2 Head



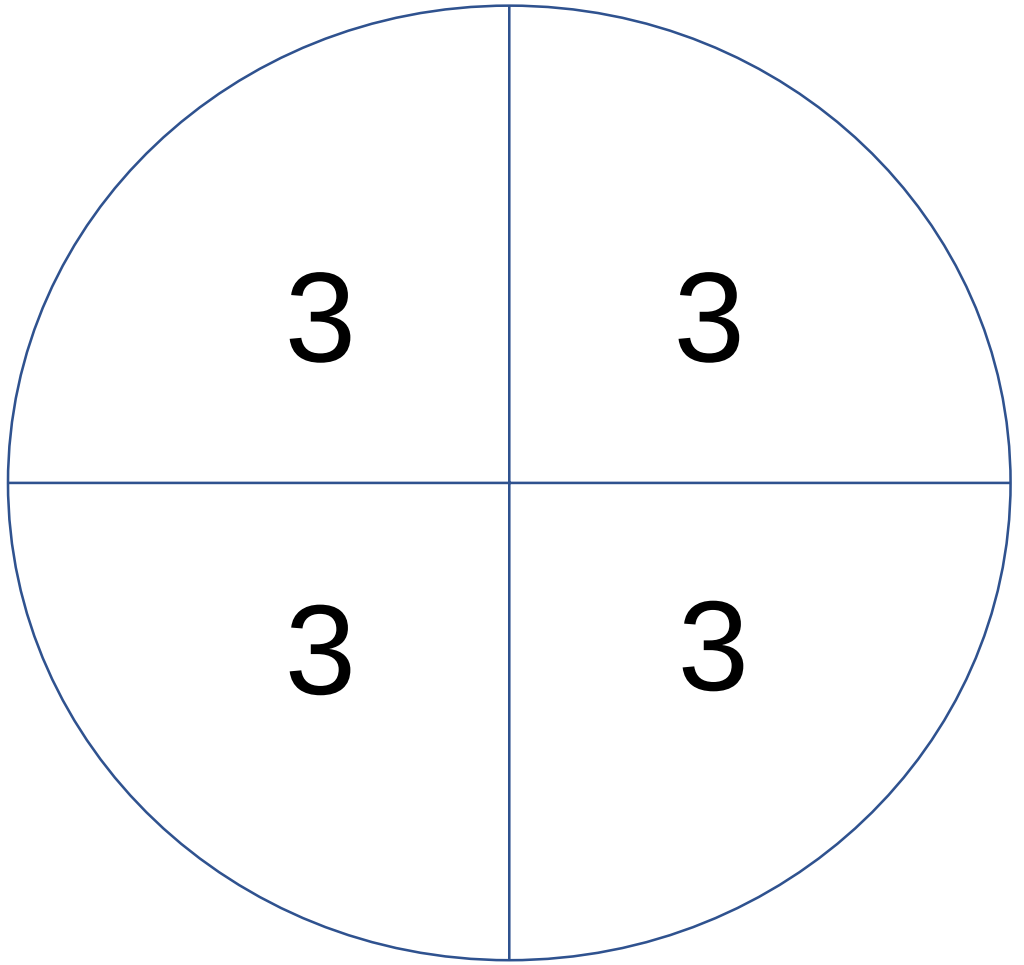
Matched Precipitation

3/4 Head



Matched Precipitation

Full Head



Application Rate

The application rate is the depth of water applied by an irrigation system over a certain period of time and is typically expressed in inches per hour (in/hr).

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The application rate of a sprinkler system must match the intake rate of the least porous soil in a field. If the application rate exceeds the soil intake rate, water will run off the field or relocate within the field, resulting in over and under watered areas.

Matching sprinkler application rates to the soil intake rate can be difficult though. The rate at which water infiltrates into soil is complex. First, the intake rate varies with time, being higher when water is first applied and decreasing as the soil obtains more moisture

Cycle Soak

The best way to water your lawn is to use the “cycle and soak” method. This method breaks up your watering time into smaller cycles, allowing the water to soak into the soil. If an area is watered too fast for too long, many soils can’t absorb it, resulting in runoff.

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Why is this important?

This practice can keep more water on the landscape and reduce water waste caused by runoff. If your sprinklers are applying water faster than it can be absorbed, irrigation water may pool or run off the ground before it can be consumed by turf roots.

Evapotranspiration

Evapotranspiration is a combination of evaporation and transpiration, measured in order to better understand crop water requirements, irrigation scheduling, and watershed management. The two key components of evapotranspiration are:

Evaporation: the movement of water directly to the air from sources such as the soil and water bodies. It can be affected by factors including heat, humidity, solar radiation and wind speed.

Transpiration: the movement of water from root systems, through a plant, and exit into the air as water vapor. This exit occurs through stomata in the plant. Rate of transpiration can be influenced by factors including plant type, soil type, weather conditions and water content, and also cultivation practices.

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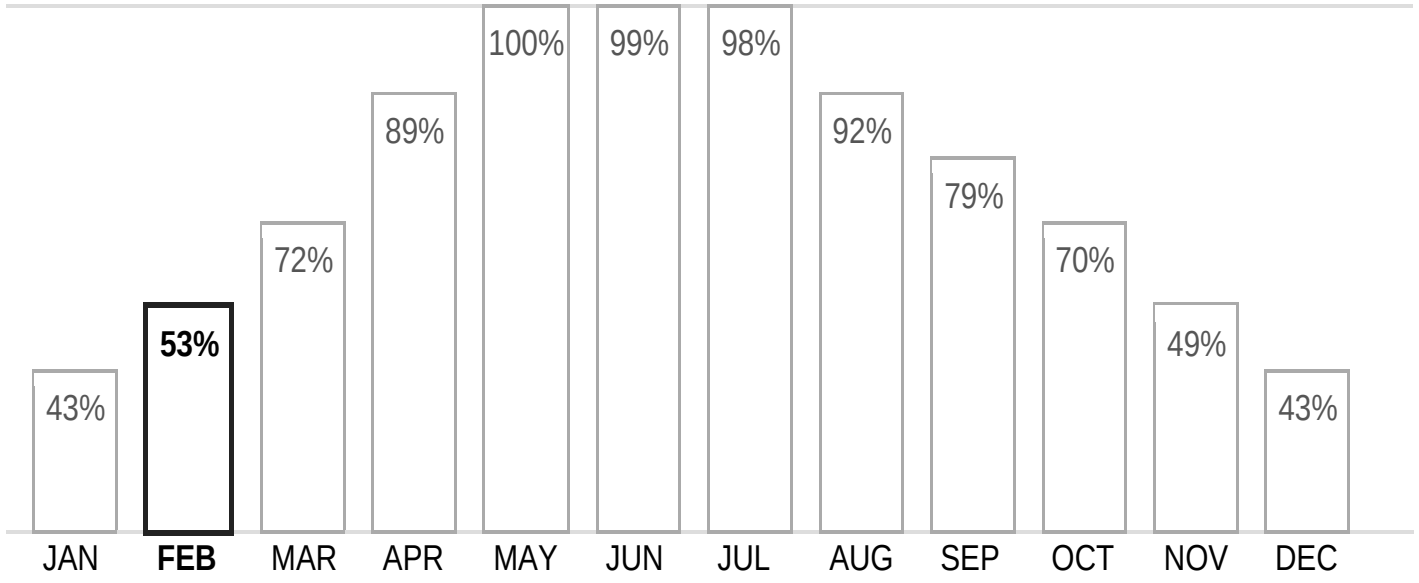
Why is this important?

ET provides an accurate calculation of the amount of water needed for specific weather and a specific set of plants, eliminating waste, and offering direct savings on water and indirect savings on turf and maintenance expenses.



For instance, during hotter times of the year, the landscape may require a bit more water. Seasonal Adjust can be increased so the stations run longer than the programmed time. Conversely, as fall approaches the Seasonal Adjust can be reduced to allow for short watering durations. This overall percentage based change applies globally to all Run Times on the controller. For example: If your Run Times in the summer are set for 1 hour and you adjust the Seasonal Adjust to 50%, your Run Times will now change to 30 minutes.

ROTARY CLOCK 1

Ocala, FL · Prepared by Kirk Robinson on January 29, 2024

Controller information

Name: Rotary Clock 1
Model: ICC2
Monthly peak ET for this controller: 6.47
Total number of stations: 14
Number of days this controller runs: 3 per week

Run Time

- Program A: 1584 minutes (12.32 inches) per week Total run time, all programs: 26.4 hours per week
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Programs

Program A - Turfgrass

NAME	PLANT TYPE	KC	SPRINKLER TYPE	PR (IN/HR)	CYCLES	CYCLE TIME (MIN)	RUN TIME (MIN/DAY)	RUNS (DAYS/WEEK)
1. Field 1 left field	Warm Season Turfgrass	0.6	Rotors .4"/hr (10mm/hr)	0.4	2	22	44	3
2. Field 1 left center	Warm Season Turfgrass	0.6	Rotors .4"/hr (10mm/hr)	0.4	2	22	44	3
3. Field 1 right center	Warm Season Turfgrass	0.6	Rotors .4"/hr (10mm/hr)	0.4	2	22	44	3
4. Field 1 right	Warm Season Turfgrass	0.6	Rotors .4"/hr (10mm/hr)	0.4	2	22	44	3
5. Field 2 left field	Warm Season Turfgrass	0.6	Rotors .4"/hr (10mm/hr)	0.4	2	22	44	3
6. Field 2 center field	Warm Season Turfgrass	0.6	Rotors .4"/hr (10mm/hr)	0.4	2	22	44	3
7. Field 2 right field	Warm Season Turfgrass	0.6	Rotors .4"/hr (10mm/hr)	0.4	2	22	44	3
8. Field 3 left field	Warm Season Turfgrass	0.6	Rotors .4"/hr (10mm/hr)	0.4	2	22	44	3
9. Field 3 center field	Warm Season Turfgrass	0.6	Rotors .4"/hr (10mm/hr)	0.4	2	22	44	3
10. Field 3 right field	Warm Season Turfgrass	0.6	Rotors .4"/hr (10mm/hr)	0.4	2	22	44	3
11. Common	Warm Season Turfgrass	0.6	Rotors .8"/hr (20mm/hr)	0.8	2	11	22	3
12. Common	Warm Season Turfgrass	0.6	Rotors .8"/hr (20mm/hr)	0.8	2	11	22	3
13. Common	Warm Season Turfgrass	0.6	Rotors .8"/hr (20mm/hr)	0.8	2	11	22	3
14. Common	Warm Season Turfgrass	0.6	Rotors .8"/hr (20mm/hr)	0.8	2	11	22	3