

IRRIGATION MANAGEMENT

In order to determine how efficiently we are able to manage our irrigation system, we have to be able to measure and compare the performance of sprinklers at different locations on the golf course. One of the measurements used is the precipitation rate. By knowing how to calculate the precipitation rate, we can determine how many inches per hour of water are being put out in any area on the golf course. The amount of water that a sprinkler puts out determines how long that sprinkler needs to operate. If the precipitation rate differs from one area to the next, then this becomes one factor that causes station run times to be different.

The precipitation rate is calculated using the following formula -

Prec. rate (in./hr.) =

96.3 x GPM of the spklr.

(Spacing) X (Spacing)

This formula is for sprinkler systems with square spacing. Typically, triangular spacing provides better uniformity, so many of the more current systems use triangular spacing. The formula for this type of system is -

Prec. Rate (in./hr.) =

96.3 GPM of the Sprklr.

(Spacing)X(Spacing) X .866

We can compare the precipitation rates for a square spaced system with a triangular system in the following example. Assume a 20 GPM sprinkler with 65' spacing.

$$\text{Square-- } \frac{96.3 \times 20}{(65) \times (65)} = .456$$

$$\text{Triangular-- } \frac{96.3 \times 20}{(65) \times (65) \times .866} = .523$$

Since the square spaced system has a lower prec. rate, this system would require longer run time to put down the same amount of water.

These calculations can also be used to compare stations on a golf course if the spacing is different. If we use the same triangular spacing as above, 65' and a 20 GPM sprinkler, our prec. rate is .523 for station 1. If the next station on the fairway is spaced at 71', then the prec. rate would be-

$$\frac{96.3 \times 20}{(71) \times (71) \times .866} = .441$$

This is approximately 16% lower than the station next to it. If we were trying to put 1" of water per week on that fairway, then station 1 (65' spacing) would require 114 minutes of water during the week. Station 2 (at 71' spacing), would require 136 minutes of water during the week. If we water 5 nights a week, then station 2 requires a run time 4 minutes longer than station 1. By trying to determine the right amount of water for each location, we can come closer to providing the most consistent playing conditions possible.

Editor's Note: Please send your questions and/or comments to the editor in response to this monthly column .

THANKS MIKE

Many thanks to **Michael Garvale, CGCS**, and the staff at Palo Alto Hills CC for the fine accommodations and food for the November meeting. The weather was terrific. We received respirator safety training from **Carey Krefft**, and all who attended are now within the pesticide laws and regulations.