Is your irrigation system operating at top efficiency?

As a major user of water, the green industry is in the spotlight. Save money—and our resources—by checking out your irrigation system.

■ If you or your department are under pressure from your superiors to cut costs, one of the ways might be taking a thorough look at your irrigation system and either recommending changes or consulting an irrigation designer.

"An irrigation system that is designed and installed correctly can save substantial amounts of money during the operational life of the system," says Kurt Hall of Water Management Specialists, Houston, Tex. "In most cases, the additional cost it would take to make the system water- and cost-efficient are returned in less than a year."

For instance, just using a triangular head pattern instead of a rectangular one is saving the city of Houston $751.16 per month (see tables).

Many irrigation systems are installed without any consideration for the operations costs, Hall contends. Some of the reasons for this sad commentary on water conservation include:

- lack of design skill or knowledge;
- lack of the basic understanding of the relationship between plants and water;
- designing to a pre-conceived irrigation budget;
- lack of familiarity with new techniques and products;
- not designing to the "big picture" (establishing precipitation rates, and irrigation schedules developed for the design);
- designing to installation cost instead of long-term and operational costs.

"The underlying reasons for poor irrigation design," Hall says, "can be broken down into lack of knowledge, skill and training; and profit motivation. When these two are combined, the results can be horrific."

1) Is the system designed for the application? There is no such thing as one size fits all.

2) Have the components been teamed efficiently? Make sure sprinkler heads, for instance, are fitted into the design just for easier maintenance.

3) Are manufacturer's specifications followed? The manufacturer knows much more about its own products than even the irrigation designer/contractor.

4) Would more heads with a more conservative design be more efficient? A poorly designed system will always cost you extra.

5) Are borders respected? Spraying over concrete and other borders just to reduce the number of heads in the design costs more money than proper design.

6) Are water shut-off devices and moisture sensors part of the design?

These devices will easily pay for themselves over a very short period of time, Hall says. Their installation cost is minor.

Hall: save 35-45% on water bills.

7) Have you calculated irrigation schedules? "A very conservative dollars savings amount that can be attributed to irrigation schedules is 35-45 percent of the monthly average water bill," Hall contends.

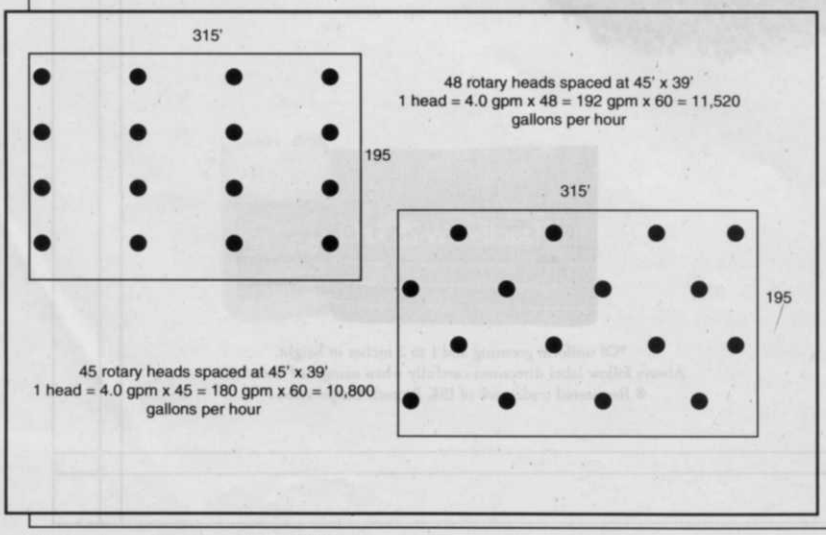
"It would take volumes to list all of the wrong things that are done. However, here are the biggest problems:

- Head placement that has been "guessed" or "eye-balled."
- Shrubbery zones mixed with turf zones.
- Spray heads mixed with rotary heads.
- Schedules that have not been calculated for the design; for instance, 30 minutes for rotors and 15 minutes for spray."

Water is a scarce and valuable resource. If you have any doubts as to the efficiency of your system, the money you spend now could result in multiple savings over the next few years.

Hall gave a presentation on "Designing for Irrigation Efficiency," from which this article is taken, at the Irrigation Association's annual International Exposition & Technical Conference in New Orleans late last year.

—Jerry Roche



Design Efficiency -VS- Operational Efficiency

Note: Head Spacing and Pressure Constant @ 45' x 39' @ 40 PSI.

Note: Data derived from Hunter Industries Profiles Software

Style	Driest	Wettest	Precip. Rate	Sched. Coeef.
Square	.10	.34	.20	2.05
Triangular	.12	.29	.20	1.64
				.41

Water Cost Values: .0046 per Gal.
(Irrigate Rate; Water Only,No Sewage) 1

Water Cost and Gallonage to Apply 6" of Water during the month of July 2

Source: (1) City of Hoston 10/27/92 (2) Texas Water Dev. Board

Style	Hrs	GPH (Heads)	TTL Gal	Water $	TTL Month $
Square	42.3	11,520	487,296	.0046	$2,241.56
Triangular	30.0	10,800	324	.0046	$1,490.40
			163,296		$ 751.16

This savings possible by designing the system to peak efficiency and utilizing industry available software. Additional savings possible due to correct irrigation scheduling.