

- **Achieving Efficient Landscape/Turf Irrigation**

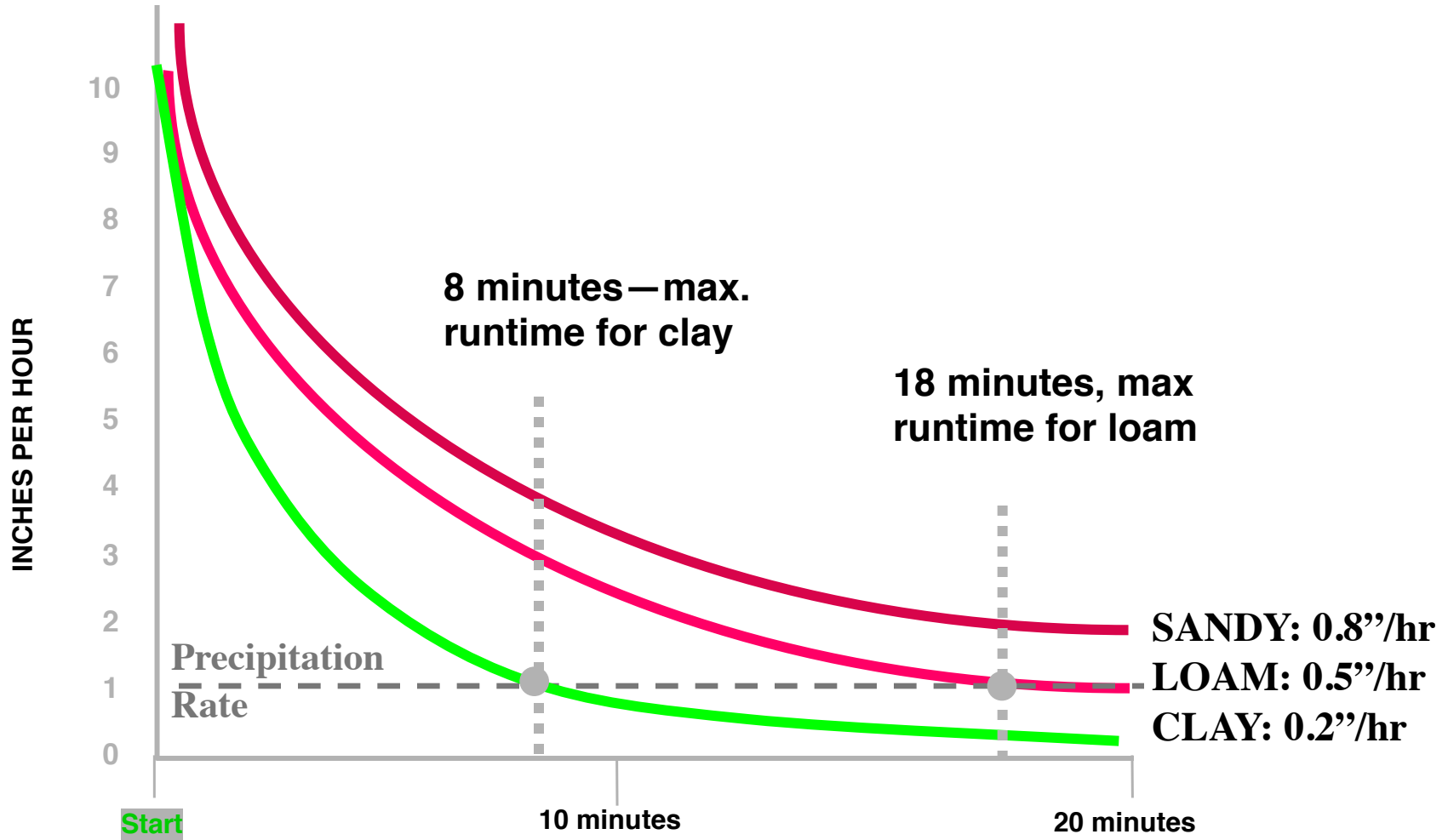
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Professional Stewards of our water: ask, do you—

- Understand plants, their water use, and soils?
- Develop quality designs, install correctly, and do routine maintenance?
- Understand how much water is being applied during a watering event and then schedule accordingly?
- Update older systems using devices/components that help conserve water?

Ask: what about soil infiltration rate?



Does the contractor--

- ***Understand***

- pressure (psi), flow (gpm), velocity (fps)
- sprinkler precipitation rate (PR)
- observe site specifics
- water saving components
- distribution uniformity (DU) and efficiency

What about PSI?





System PSI too high



System psi too low

What about flow?



- How much water is going down per unit of time, precipitation rate (PR)?
- At least use the product catalog to figure PR.

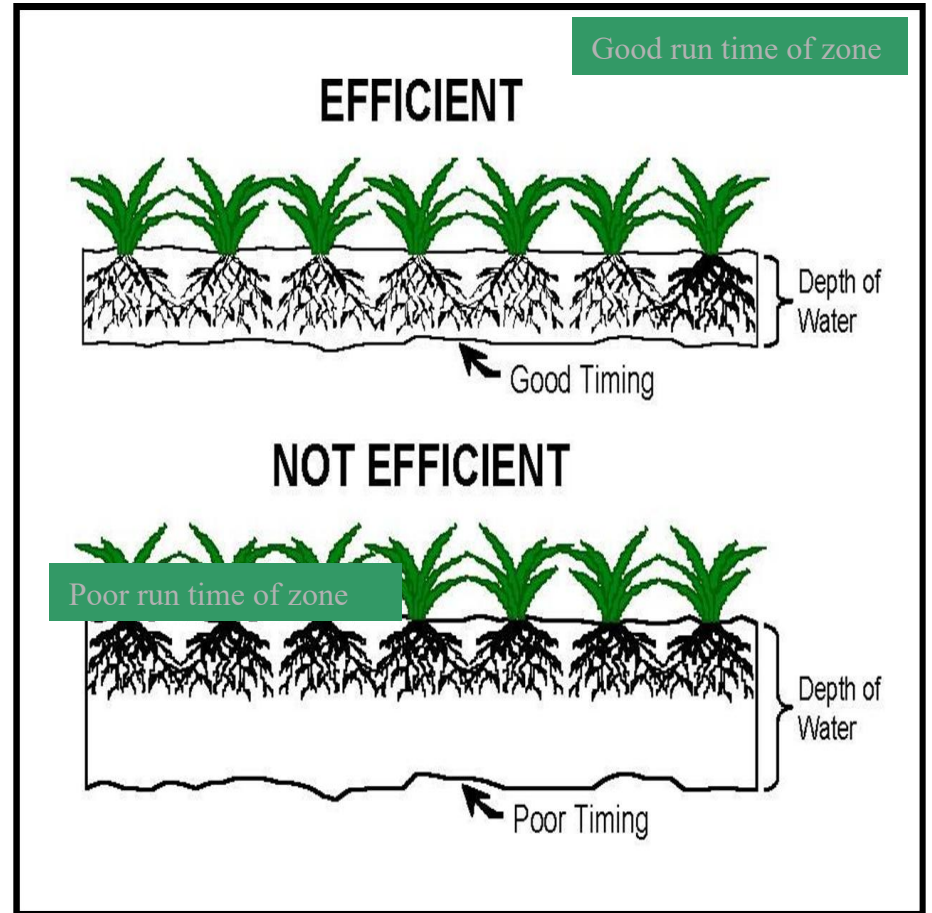
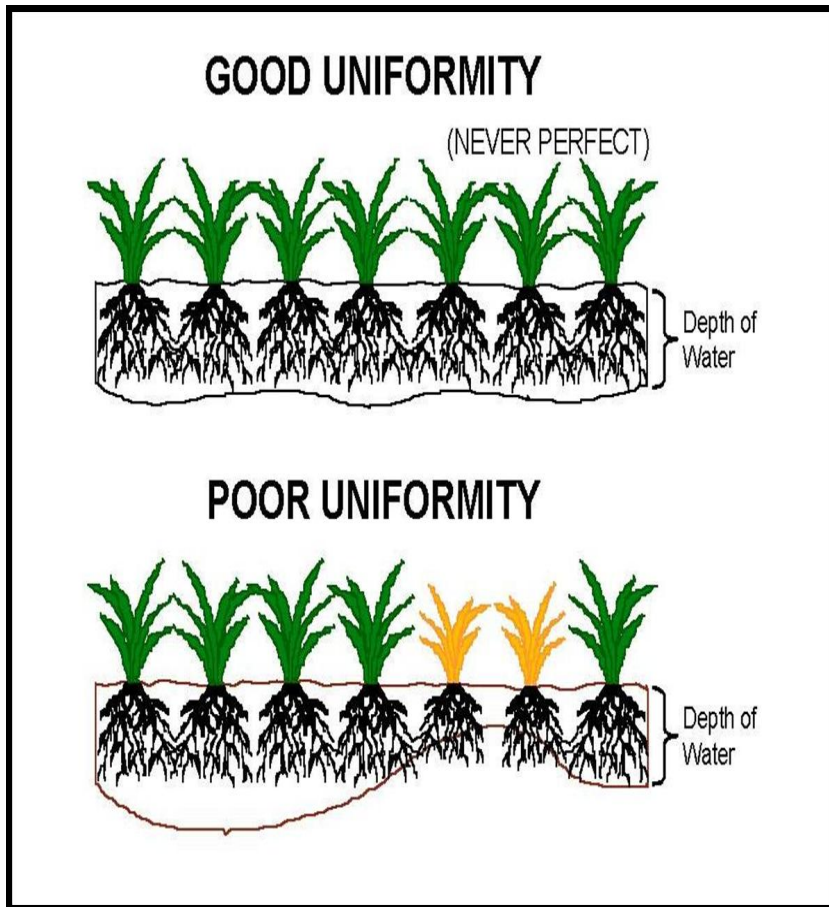
Distribution uniformity (DU)

- How evenly water is applied over an area.
- Equal water on each square foot of soil surface would be 100%
 - the minimum acceptable for turf is ~70-80%
 - the average residential or commercial system is ~50% or less.

Factors Influencing Uniformity

- Pressure
- Wind direction and speed
- Mechanical nature:
 - Sprinkler type, spacing, rotation speed, flow rate (gpm)

Uniformity & Efficiency



Watering efficiency=good system management

- **Influencing factors:**

- Overspray/runoff
- Zone runtimes
- Broken sprinklers

Proper installation

- Critical for a cost-efficient, easily maintained, water conserving, long-lasting system.
- Too many contractors install without regard to safety, longevity, ease of maintenance & efficiency.
- As-built plans should always be provided to clients.

Watering more than the plants



Improper Sprinkler Installation



Too low

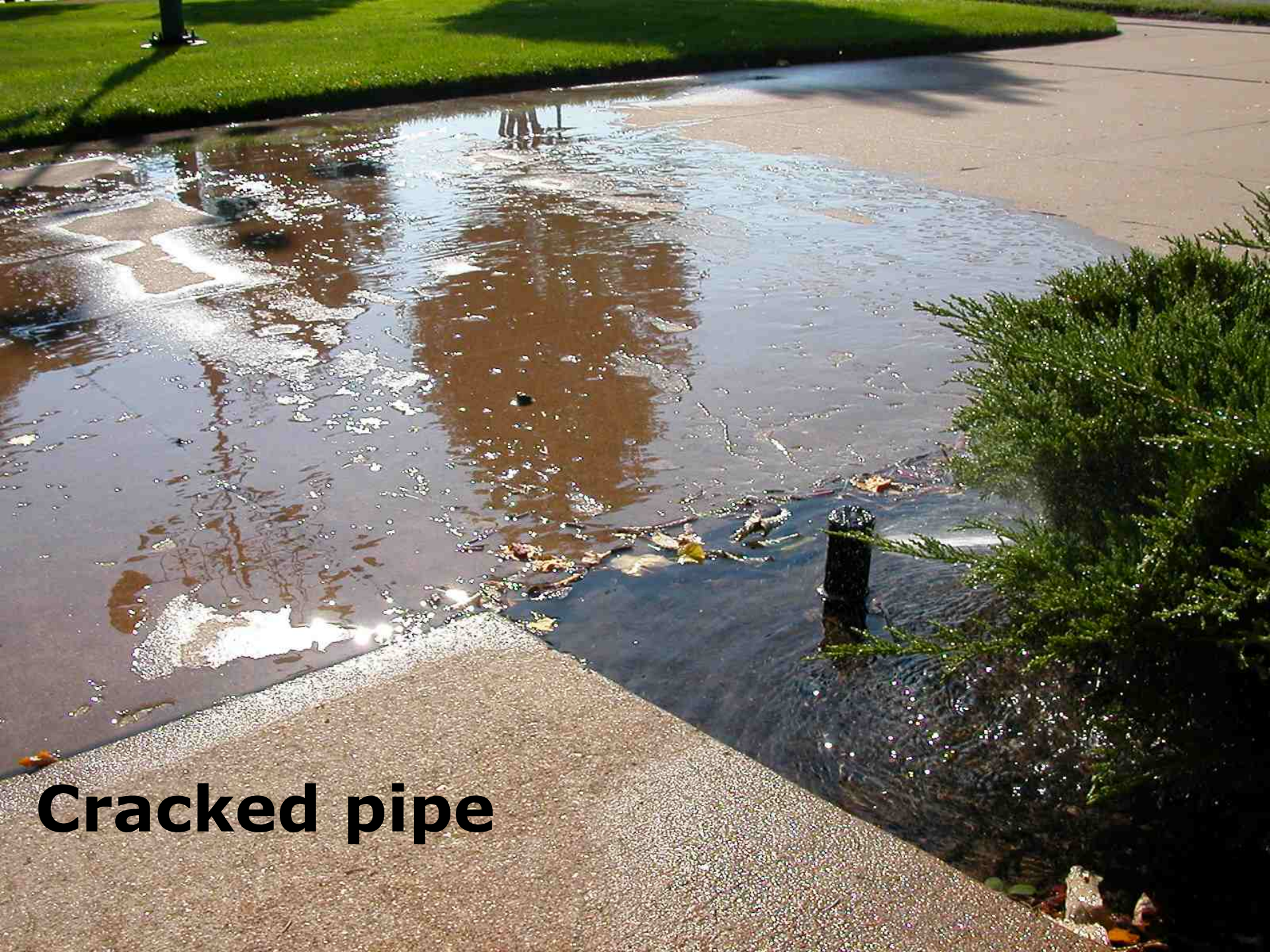


Too high



Correct

**SYSTEMS NOT PROPERLY
MAINTAINED**



Cracked pipe



**Incorrect Arc
Adjustment**



**Simple adjustments
make a big
difference.**

- **Typical homeowners do not think about adjusting runtimes for seasonal changes. Does your contractor?**



**MOST PEOPLE DO NOT
KNOW HOW MUCH WATER
(PR) IS APPLIED DURING AN
IRRIGATION EVENT**

- **Scheduling sprinkler runtimes without knowing the precipitation rate (PR) is like trying to estimate your arrival time without knowing how fast you are traveling.**

PR rates are NOT equal

- High: 1.0 in/hr or more

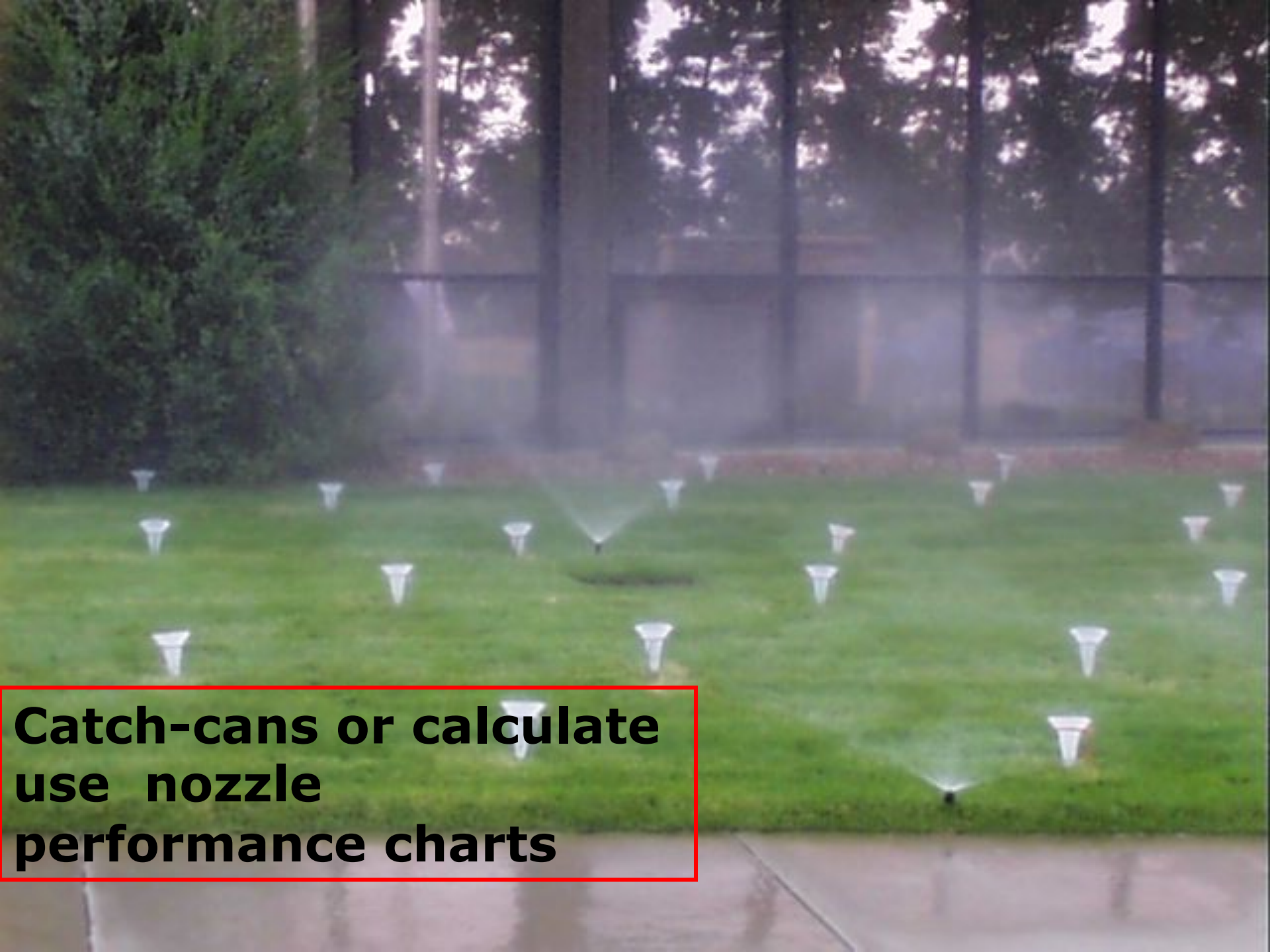


- Medium: 0.5 to 1.0 in/hr



- Low: 0.5 in/hr or less



A photograph of an irrigation system in operation on a green lawn. Numerous white, funnel-shaped catch-cans are placed in a grid pattern across the grass. Several nozzles are visible, spraying water in a fan shape. In the background, there is a large building with a glass facade and a dark metal frame. The scene is captured during the day, with some shadows cast on the grass.

**Catch-cans or calculate
use nozzle
performance charts**

**UPDATE OLDER SYSTEMS
AND NEW SYSTEMS USING
PRODUCTS NOW AVAILABLE
TO HELP CONSERVE WATER**

Update equipment

- Climate-Based Irrigation Controllers
- Rain or/ Soil Moisture Sensors
- Low Precipitation Rate Sprinklers
- High Application Uniformity Products

Popular Water Savings Upgrades

	Cost of Product*	Annual Gallon Savings	Annual Cost Savings	Return on Investment (ROI)
Controller Upgrade	\$400	80,000	\$400	1 year
Rain-Off Sensor	\$120	24,000	\$120	1 year
Ultra-Low Flow Toilet	\$350	14,162	\$70	5 years
High-Efficiency Clothes Washer	\$1,500	8,176	\$40	37 years
High-Efficiency Showerhead & Faucet Aerator	\$50	2,993	\$15	3 years
Faucet Aerators	\$9	1,752	\$9	1 year
High-Efficiency Dishwasher	\$500	1,250	\$6	80 years

*Cost is for residential application and does not include installation cost.

Check valves prevent low head run-off



Sprinkler drain check valves

Check valves to control low head drainage.

Can save 1000s of gallons/year



Sprinkler pressure regulation



**Non-Pressure
Regulated**

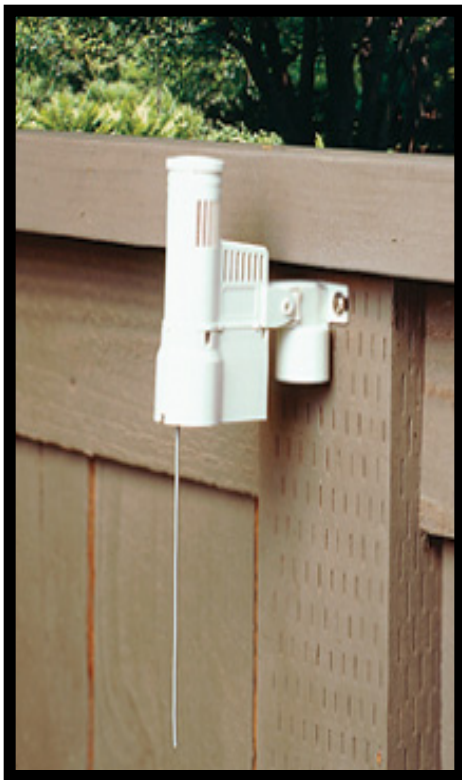


**Pressure
Regulated**

Pressure Regulated Valves



Rain and Weather Sensors



Weather stations and SMART Controllers



Soil-based sensor (SMS)

- Monitor soil moisture level—like driving a car without a gas gauge
- When soil moisture levels reaches a critical low value, irrigation applied

Subsurface Drip vs. Sprays

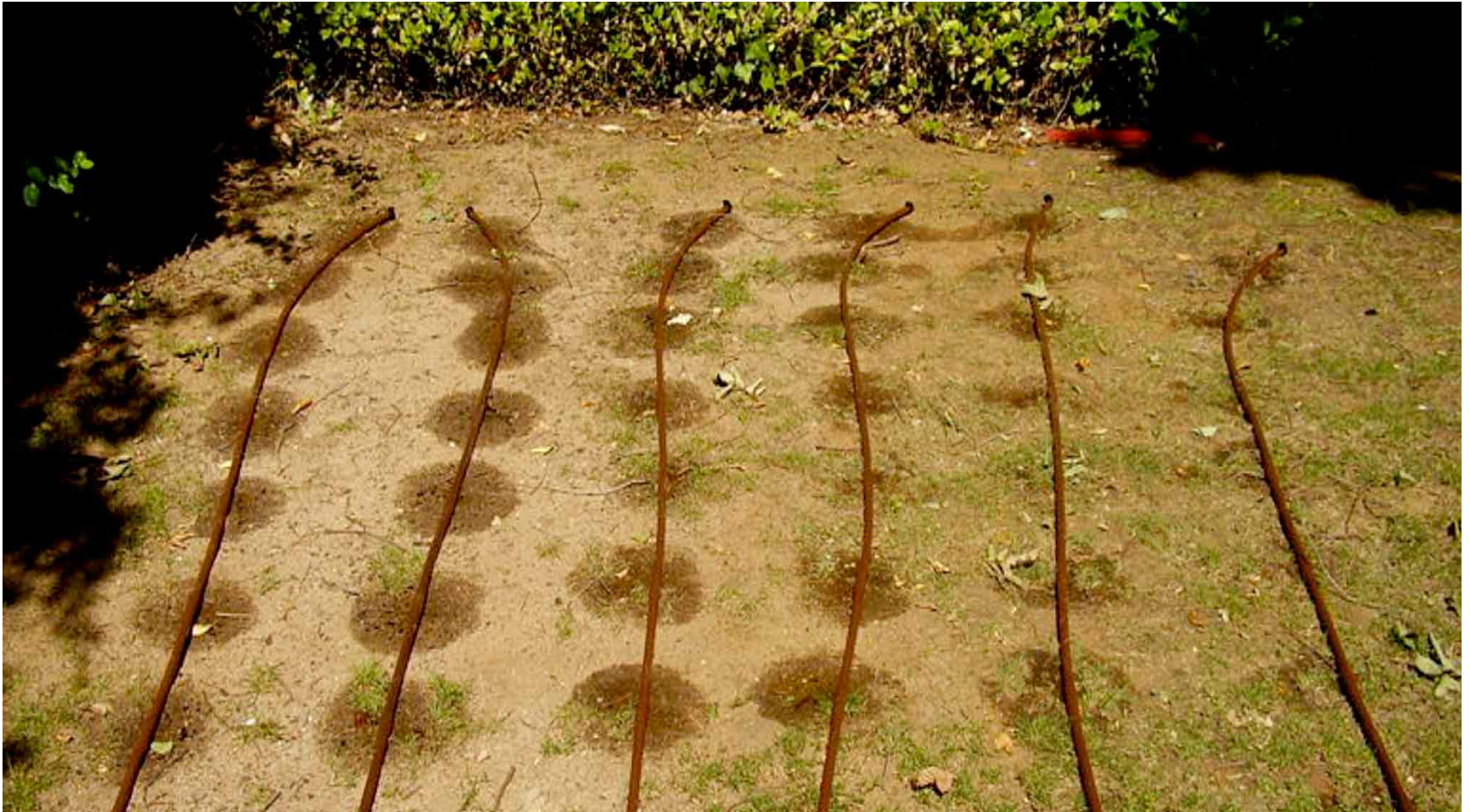
SSDI



•Spray sprinklers



Inline Drip Wetting Pattern



In Summary—to water well—

- Gain an understanding of plant water use and soil
- Install quality designed systems
- Proper and routine system maintenance
- Update older systems; on new systems use devices to help conserve water
- Employ auditing practices to discover how much water is applied during a watering event, then schedule accordingly

THANK YOU