

Conservation Landscaping for the Lake Tahoe Basin



Demystifying Irrigation

For Water Conservation
and Water Quality

With more and more areas around Lake Tahoe moving to metered (consumptive) use and tiered water billing structures, irrigation efficiency has never been more important. Choosing the most effective and efficient irrigation system can be a confusing task. Below is some information on typical home irrigation systems.

While there are pros and cons for different types of irrigation, the best way to improve performance of an irrigation system is to keep it well maintained. This includes regular system checks and adjustments to your watering schedule throughout the growing season. Refer to the *Irrigation System Checkup* tip sheet for ways to improve the overall efficiency of your system.

Fixed Spray Sprinkler Irrigation

This type of sprinklers sprays a constant fan of water. The piping is underground and the sprinkler heads pops up when activated under pressure. Their typical range is up to 18 feet.

Ideal uses:

- Seeded areas or lawn
- High traffic areas
- Landscape areas infrequently maintained

Pros:

- Waters a entire area with uniform water application
- Easy to maintain during the growing season
- Tolerates regular foot and equipment traffic when sprinkler heads are properly installed
- Sprinkler patterns vary by sprinkler head-variable arc, rectangular, quarter to full circle

Cons:

- Initial labor investment is high
- Leaky pipes can waste much water
- Repairs may be costly unless properly protected and maintained for freezing conditions
- Standard equipment is not efficient in windy, irregularly shaped, sloped or small areas



that circles around the head. The range is generally larger than fixed spray sprinklers.

Ideal uses:

- Medium to large areas
- Seeded areas or lawn
- Gently sloped areas
- High traffic areas
- Landscape areas infrequently maintained



Pros:

- Higher wind resistance than standard fixed spray heads
- Applies water closer to soil intake rates which leads to less runoff

Cons:

- Same as fixed spray sprinkler irrigation except in windy areas
- Water waste is common when nozzles fittings exceed irrigation needs

High Efficiency Sprinkler Irrigation

Technology is catching up with growing water efficiency demands. There are new products on in the market that increase the efficiency of fixed head sprinkler irrigation. A few such products are: Hunter MP Rotator, Rain Bird HE-VAN and Toro Precision Series spray nozzles. These nozzles retrofit onto existing spray head bodies and can increase efficiency by 30%. These are a great option for residential applications.

Ideal uses:

- Increase efficiency of existing spray heads
- New installations

Rotor Sprinkler Irrigation

This type of sprinkler is similar to fixed sprays in design except that gear driven rotors put out a stream of water

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Pros:

- Higher wind resistance than standard fixed spray heads; larger water droplets and low trajectory spray pattern lead to less overspray, runs off and water waste
- Applies water closer to soil intake rates which leads to less runoff
- Even distribution of water
- Low precipitation rate nozzles corrects low pressure problems



High Efficiency Sprinkler

Cons:

- Shorter radii application than rotor spray irrigation
- Initial expense to retrofit nozzles (sometimes can be offset by local PUD rebate programs)
- Low precipitation rates means longer run times-can run out of time to irrigate at large facilities where there are multiple irrigation zones

Micro-Irrigation

Modern micro-irrigation also known as drip irrigation utilize flexible hosing to direct water to emitters which slowly release water at the surface of the soil. This type of system operates under low pressure and emitters are rated in gallons per hour instead of gallons per minute. Emitters come in different delivery rates and types from micro sprayers to in-line single drip emitters; all having their specific uses. This type of irrigation is very water efficient because it delivers water directly to plants' root zone which minimizes water loss due to runoff, wind, overspray and evaporation.

Ideal uses:

- Shrubs, trees and areas that are more sparingly planted
- Row plantings, irregularly shaped, small, sloped, windy areas and areas next to impervious surfaces

Pros:

- Water efficient
- Directly targets plant roots
- Wind resistant
- Low water pressure requirements
- Low flow rate reduces potential runoff
- Minimal evaporation

- Flow rate can be tailored to each plant depending on water need
- Foliage does not have to get wet, reducing risk of disease
- By not watering areas between plants, weed growth is reduced
- Pressure compensating emitters maintain consistent flow rates where pressure and elevation varies
- Easily adapts to more or less plants and water requirements
- Adapts to multiple water source connections: valve box, sprinkler riser, spigot

Cons:

- Not ideal for lawns and seeded areas
- More difficult to visualize problems in system and issues can go undetected without frequent monitoring
- Pets and children can move emitters away from plants and above ground lines can pose a trip hazard – correctable when partially buried and secured with fasteners
- Small openings in emitters can clog - filters and self cleaning emitters can offset this problem
- Susceptible to damage from rodents and accidental cuts while undergoing landscape projects
- Above ground emitters degrade with sun exposure and require replacement
- Tubing and fittings come in two sizes, can lead to mistaken purchase and mis-matched parts



Micro-Irrigation