

Micro-irrigation, the basics

FAST FACT

Micro-irrigation allows precise application of water where needed and saves water outdoors when properly used.

What is micro-irrigation?

Micro-irrigation, commonly referred to as “drip” or “low-volume” irrigation, offers a way to improve landscape quality while saving water. When designed and used correctly, this approach can improve the efficiency of landscape irrigation through the precise application of water. Micro-irrigation emitters have a maximum flow rate of 30 gallons per hour (gph), or 0.5 gallons per minute (gpm). In contrast, traditional spray and rotor sprinklers can apply water at a rate of more than 3 gpm. Generally used for landscape irrigation and potted plants, micro-irrigation is not recommended, and in some places prohibited, for use on Florida lawns.

Benefits of micro-irrigation

With proper design, operation and maintenance, micro-irrigation systems can have many benefits, including:

- Decreased water loss from evaporation, wind and runoff
- Minimized pest problems, such as weeds and diseases, by applying water to the root area of the plant



Types of micro-irrigation



Micro-sprays

Irrigate more area per emitter than other types of micro-irrigation. These devices come in a variety of nozzle sizes and spray patterns. Generally visible in the landscape.



Drip emitters

Used for precise applications, such as in potted plants, hanging plants or where plant materials are spaced far apart. May or may not be visible in the landscape.



In-line drip tubing

Used where plants are installed in rows or close together. Typically placed below the mulch, reducing its visibility.

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- Increased water application efficiency when retrofitting in-ground sprinkler systems
- Easy connection to hoses or outdoor spigots
- Flexibility in meeting variable water needs of new, maturing and established plants
- Minimized erosion when watering plants on steep slopes
- Compliance with local water conservation codes and ordinances

Operating your system

Landscapes generally should be irrigated as needed. A visual plant check (wilting leaves) combined with a soil check (feel for moisture below the soil surface) is an effective way to determine if a plant needs water. Many plants may require 3/4 to 1 inch of water per week during the growing season. Your irrigation system's operating schedule should be adjusted based on the type of micro-irrigation. (Micro-irrigation emitters deliver water at rates between 0.5 and 30 gallons per hour, and application rates — applied in inches per hour — will also vary. Adjust irrigation operating schedules appropriately.) Other irrigation considerations include the following:

• Plant maturity

When watering newly installed plants, irrigate frequently for short durations to promote root development. Over time, gradually decrease watering frequency while increasing the duration to promote a deeper, more drought-tolerant root system. Once the plant has developed a substantial root system, watering can be reduced to an “as needed” basis.

• Weather variations

Reduce irrigation frequency during periods of slow plant growth (typically December to February) and rainy months (typically July through September).

• Soil type

Plants grown in sandy soils may require more frequent watering and/or closer emitter spacing than those in loam or clay soils.

• Sun and shade patterns

Due to lower evapotranspiration rates, plants in shady areas may require less frequent irrigation than those planted in sunny areas of the landscape.

• Plant type

Plants are grouped into one of three water-use categories, or hydrozones: oasis (high water requirements), drought-tolerant (medium water requirements) or natural (low water requirements). When watering plants, irrigate according to specific hydrozone requirements.

Ongoing maintenance

To properly maintain the system:

- Periodically inspect plants for signs of over- or underwatering, such as wilting and/or changes in leaf color; adjust emitters or timer/controller as necessary.
- Check soil wetting patterns around individual plants to ensure that at least half of the root zone area is covered. Whole root zone coverage is preferable.
- Inspect and clean filters and emitters on a regular basis. Flush the system every two months to discharge debris.
- As plants grow, inspect emitters and move them away from the original planting area.
- Reset irrigation controller seasonally to adjust to changes in plant water needs.
- Replace battery in automatic timer twice a year.
- When replacing parts, use only parts specified by the equipment manufacturer.

Controller information

- Monitor irrigation times to prevent overwatering. If standing water or excessive runoff occurs, reduce irrigation time and/or frequency.
- Use a multi-program controller on automatic systems that will enable micro-irrigation zones to run on their own program.
- Add a timer to manually controlled systems to avoid the possibility of forgetting to turn the system off.
- Install a rain shutoff device or a soil moisture sensor to avoid unnecessary watering.



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St. Johns River Water Management District • P.O. Box 1429 • Palatka, FL 32178-1429
Phone: (386) 329-4500 (Palatka headquarters) • On the Internet: www.sjrwmd.com