

BMP'S AND IRRIGATION COMPONENTS

Irrigation Chapter of the FNGLA
Horticulture Certification Manual

WHAT IS A BMP?

- BMPs are Best Management Practices that help preserve and protect our natural resources.
- The BMPs for Irrigation include the conservation and protection of our waterways.
- The use of irrigation best management practices promotes proper irrigation design, construction and management. This leads to reduced water use, the protection of aquatic sources, better plant development, economic savings to the end user, and efficient fertilizer use.

WHAT IS IRRIGATION MANAGEMENT?

Knowing when and how much to irrigate to
reduce fertilizer and pesticide movement.

HOW MUCH WATER IS REQUIRED FOR A PLANT?

- ◉ Water required is equal to the water loss or used during plant growth.
- ◉ **Evapotranspiration:** water loss attributed to soil evaporation and plant transpiration.
- ◉ Plants generally need more water during seed/fruit/flower production and not as much during dormant periods.

VISUAL INDICATORS TO DETERMINE THE WATER NEED FOR TURF

- ◉ Grass has a dull, bluish gray color.
- ◉ Foot Tracks remain in the grass.
- ◉ Turf leaf blades are folded in half on at least one-third of the site.
- ◉ Soil samples from the root zone are dry and crumbly.
- ◉ Indicator landscape plants , impatiens, azaleas, have drooping leaves.

PREVENTING EXCESS IRRIGATION

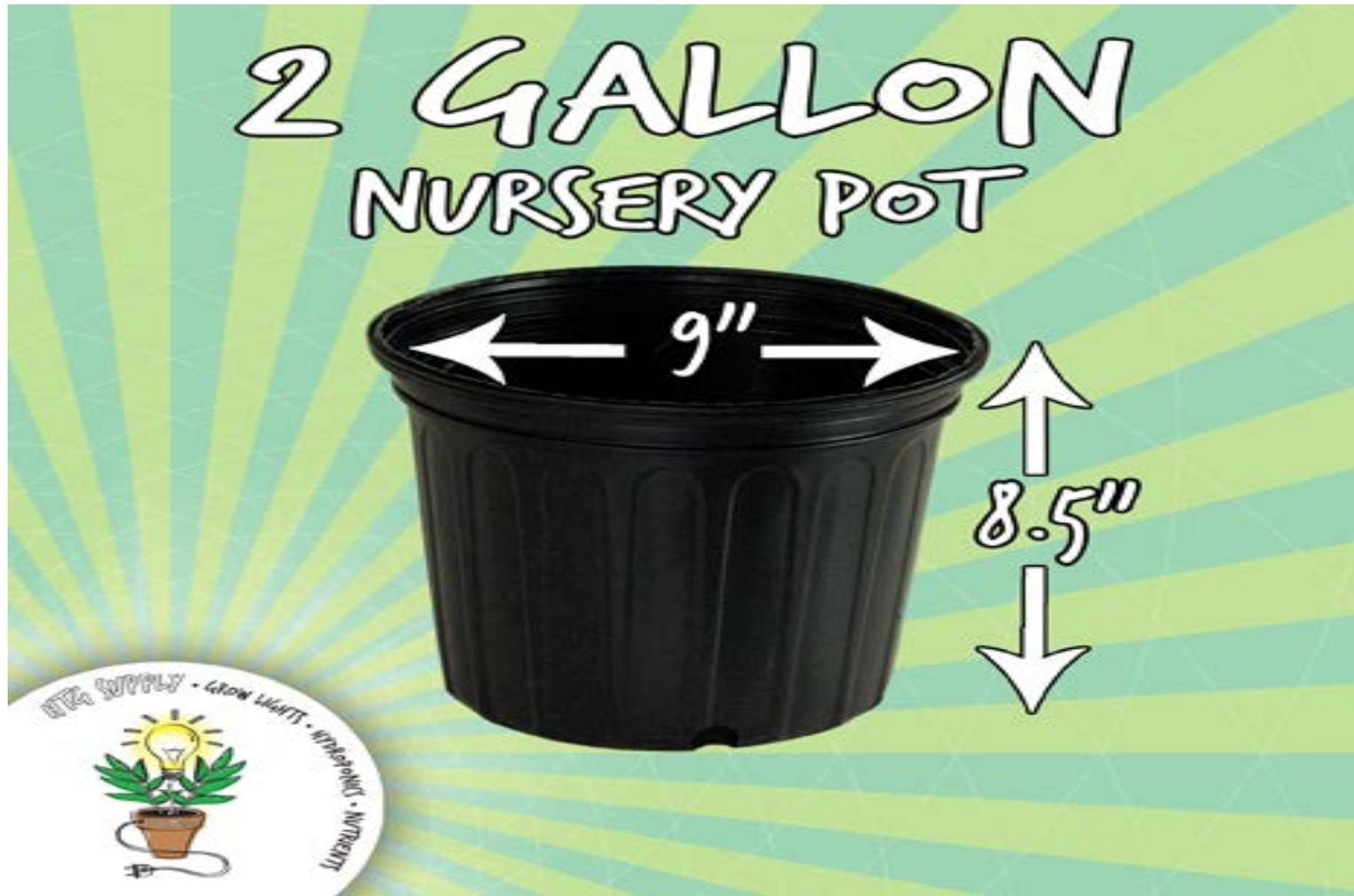


- Observe visual runoff or puddles
- Adjust timers on water timers
- Rain shut off devices
- Flow meters can be installed.
- Catch- Can Test

HOW MUCH WATER SHOULD BE APPLIED?

- ◉ Enough water to penetrate the average depth of a container or root system of a plant.
- ◉ One inch of water would penetrate down to 12" deep for sandy soil, loam soil would penetrate to about 6" deep.

WOULD ONE INCH OF WATER IN THIS LOAM SOIL REACH THE BOTTOM OF THE CONTAINER?



IRRIGATION SYSTEM DESIGN

Three main components:

- 1. water supply, (water source, pump, filters, and valves)
- 2. water conveyance (mainline, manifold, lateral and spaghetti tubes)
- 3. Distribution equipment (sprinklers, rotors, and micro-irrigation devices).

IRRIGATION COMPONENTS



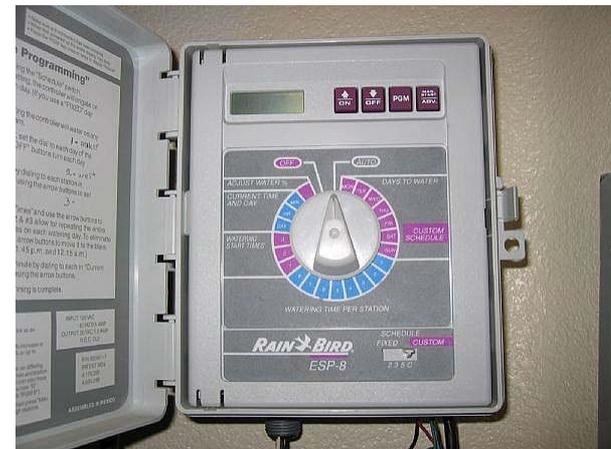
Rotor



Drip Emitter



Manifold



Irrigation timer

MICRO IRRIGATION

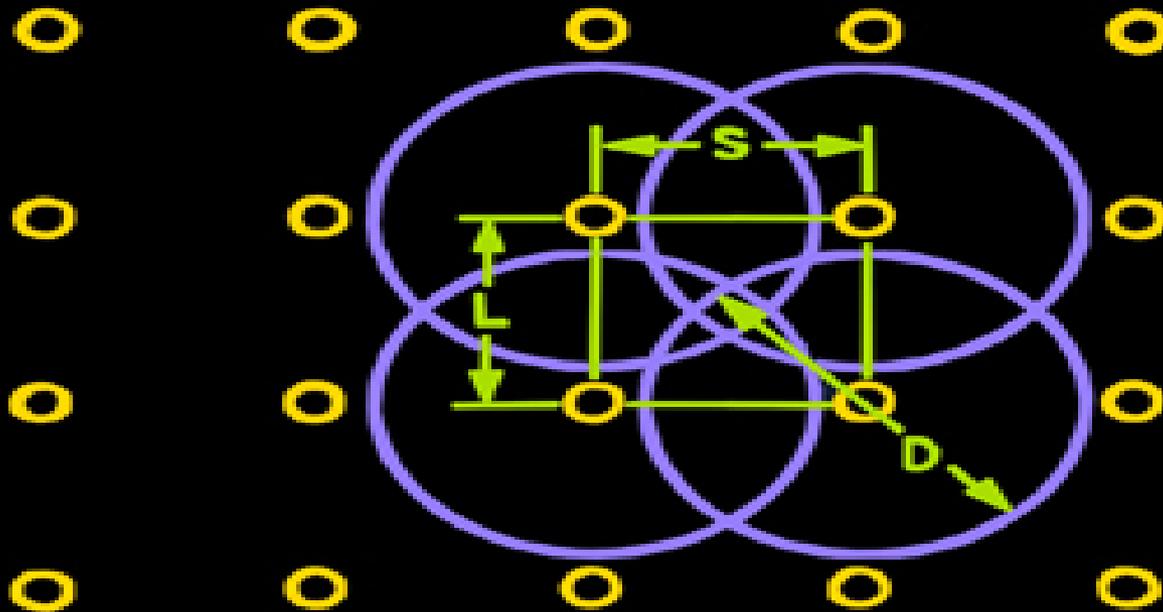


Drip and Trickle Irrigation

Benefits: small quantities of water applied, less evaporation, can be applied any time of day.

SQUARE SPACING

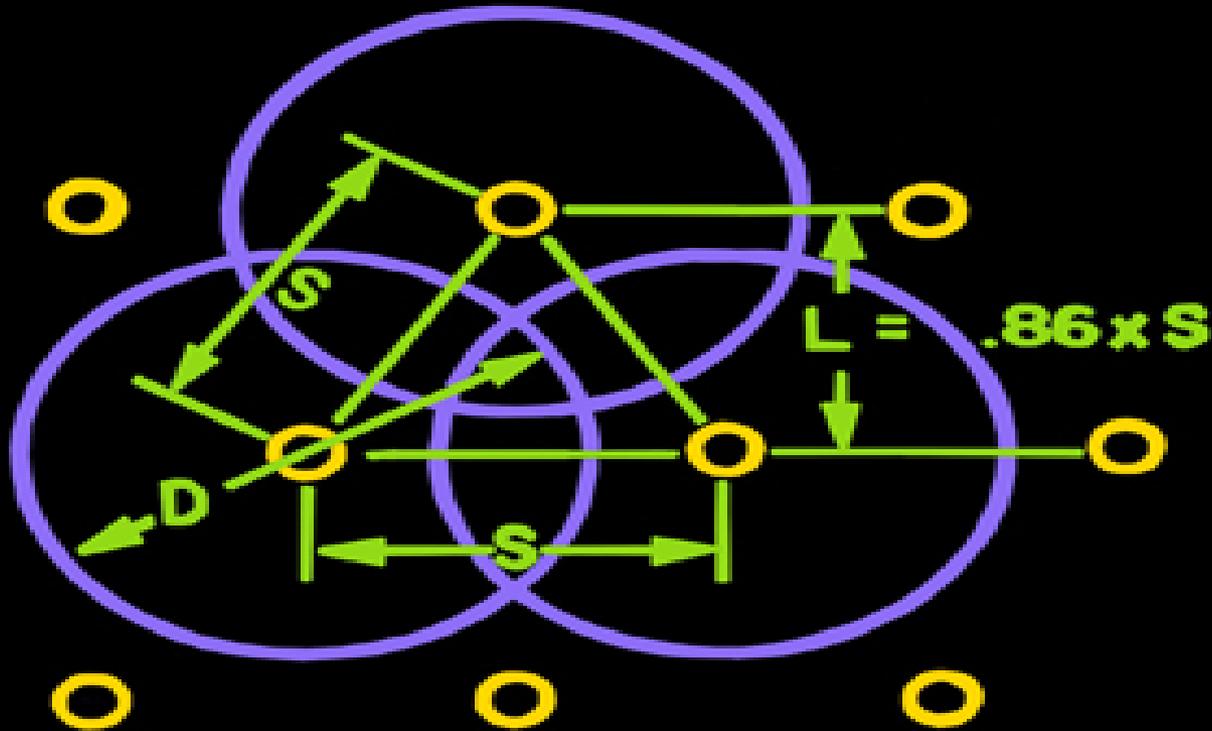
Recommended Spacing $S=L$
50% to 55% of D



S — Distance between sprinklers on lateral
 L — Distance between lateral lines

TRIANGULAR SPACING

Recommended Spacing
 $S = 55\% \text{ to } 60\% \text{ of } D$



WHO CONTROLS PERMITTING AND REGULATION OF IRRIGATION?

- ◉ Florida's Five Management Water Districts, Florida Department of Health, local governments and Florida Department of Environmental Protection require permits for installation of irrigation systems.
- ◉ 1. Florida Department of Environmental Protection oversees that Best Management Practices are followed regarding irrigation.