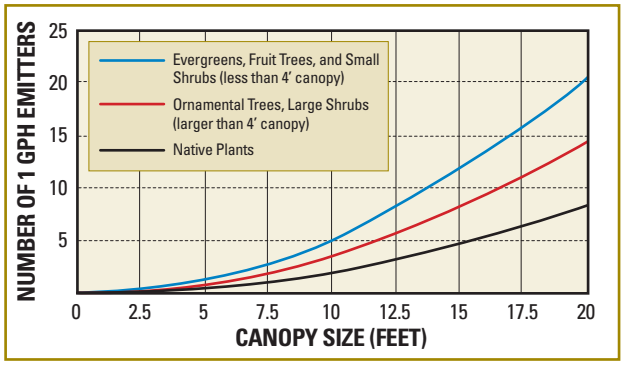
POINT SOURCE
DESIGN

IRRIGATING TREES, SHRUBS AND NATIVE PLANTS

For trees, shrubs and native plants with wide and/or random spacing requirements, point source drip irrigation is the perfect alternative. In landscape areas that are sparsely planted, irrigating within the plant's canopy conserves water and inhibits weed growth in the areas with no plants. Depending on the plant's canopy size and soil type, the number of point source emitters can be easily determined.

SIMPLIFIED DRIP DESIGN GRAPH



APPROXIMATE WETTED DIAMETER and WETTED AREA PER EMITTER (PER SOIL TYPE)

EMITTER FLOW RATE	WETTED DIAMETER PER EMITTER (FT.)			WETTED AREA PER EMITTER (SQ. FT.)		
	CLAY SOIL	LOAM SOIL	SANDY SOIL	CLAY SOIL	LOAM SOIL	SANDY SOIL
0.5 GPH	5 - 7	3 - 5	2 - 3	20 - 38	7 - 20	3 - 7
1.0 GPH	7 - 8	5 - 6	3 - 3.5	38 - 50	20 - 28	7 - 10
2.0 GPH	8 - 9	6 - 7	3.5 - 4	50 - 64	28 - 38	10 - 13

Emitter flow rates have an impact on the soil's ability to absorb water. The lighter the shaded box indicates the more desirable flow rate given the soil selection.

$$\text{Number of Emitters per Plant} = \frac{\text{Plant Canopy (square feet)} \times 0.75}{\text{Wetted Area per Emitter (square feet)}}$$

For example:

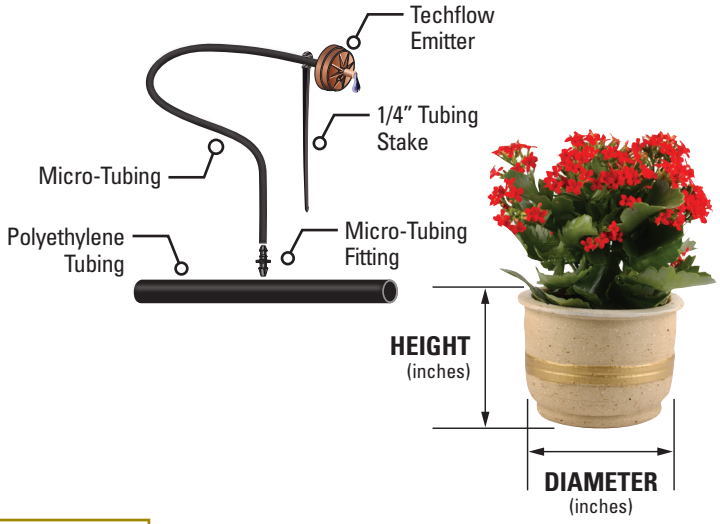
- Tree with 16' canopy in a loam soil.
- Plant root zone = $(16')^2 \times 0.7854 =$ $256 \times 0.7854 = 201$ square feet.
- Number of 1.0 GPH emitters required = $201 \times .75/24 =$ $150.8/24 = 6.28 = 6$ - 1.0 GPH emitters.

IRRIGATION DURATION

CLIMATE	RUN TIME (HOURS)
VERY COOL	1.3
COOL	2.6
MODERATE	3.5
HOT	4.2
HIGH DESERT	5.1
LOW DESERT	5.9

IRRIGATING CONTAINERS

The correct watering of containers can be difficult when using a hose, sprinklers or sprays. Either not enough or too much water is applied; or the frequency of watering is inefficient to promote a healthy environment for the plant to thrive. By using a point source drip irrigation system, the emitter can easily be installed in each container and operated for the correct time and frequency to insure the correct amount of water is applied for healthy plant growth.



$$\text{Surface Area} = \text{Diameter (m.)} \times .7854$$

$$\text{Container Size (gallons)} = \frac{\text{Surface Area (sq. in.)} \times \text{Height (inches)}}{231}$$

CONTAINER IRRIGATION (FREQUENCY)

CLIMATE	SANDY SOIL	LOAM SOIL	CLAY SOIL	POTTING SOIL
VERY COOL	2 DAYS	3 DAYS	8 DAYS	2 DAYS
COOL	1 ½ DAYS	2 DAYS	6 DAYS	DAILY
MODERATE	1 ½ DAYS	2 DAYS	6 DAYS	DAILY
HOT	DAILY	2 DAYS	5 DAYS	DAILY
HIGH DESERT	DAILY	1 ½ DAYS	4 DAYS	DAILY
LOW DESERT	DAILY	DAILY	3 DAYS	DAILY

CONTAINER IRRIGATION (EMITTER FLOW RATE and RUN TIME)

CONTAINER SIZE (GALLONS)	EMITTER FLOW (GPH)	SANDY SOIL (IN MIN.)	LOAM SOIL (IN MIN.)	CLAY SOIL (IN MIN.)	POTTING SOIL (IN MIN.)
1	0.5	3	5	11	2
2	0.5	6	10	20	4
5	1.0	9	15	30	6
15	1.0	25	40	90	18
25	1.0	40	75	150	35