

Micro Irrigation






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Drip/Micro Irrigation

- Low volume / low flow
- Facilitates daily or more frequent irrigation to reduce plant moisture stress
- Low pressure requirements (10-15 pounds per square inch (psi) pressure and low flow rates (gallons per hour (gph) instead of gallons per minute (gpm))

Micro-Irrigation



<h3>Advantages</h3> <ul style="list-style-type: none"> • Water conservation • Control of soil moisture • Use of small or low flow water sources • Reduced weeds • No conflict with land use • Better performance on slopes • No spray on buildings 	<h3>Disadvantages</h3> <ul style="list-style-type: none"> • High maintenance requirement • Limited coverage / applications • Limited supply of moisture in all the root zone • Filtration and pressure control is critical • Exposure of equipment to elements and vandalism • Non visible watering
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Filters



• *Most important part of a micro-irrigation system*

- Strainers
- Filters
 - Mesh size
 - Manual or self-cleaning




Pressure Regulators

- Typically needed for most installations, due to low pressure requirements of micro irrigation systems
- Install downstream of filter
- Once operational, adjust pressure if using a manual regulator

Micro-Emitters

- Drip Emitter
- Micro Spray Emitter

Gallage Factors (GF)

Maximum ETo ^a in/day	Irrigation Efficiency %	GF - Gallage Factors (PF = 1.0)												Per Sq. Ft.	
		Plant Canopy Diameter - Feet													
		1	1.5	2	2.5	3	3.5	4	5	6	7	8	10		12
.20	.80	.12	.20	.49	.76	1.1	1.5	2.0	3.1	4.4	6.0	7.8	12.2	17.9	.16
	.85	.12	.20	.48	.72	1.0	1.4	1.8	2.6	4.1	5.6	7.4	11.5	16.6	.15
	.90	.11	.24	.45	.68	1.0	1.3	1.7	2.7	3.9	5.3	7.0	10.9	16.7	.14
.25	.80	.15	.34	.61	.88	1.4	1.9	2.5	3.8	5.5	7.6	9.8	15.3	22.6	.19
	.85	.14	.32	.58	.80	1.3	1.8	2.3	3.6	5.2	7.1	9.2	14.4	20.7	.18
	.90	.13	.31	.54	.76	1.2	1.7	2.2	3.4	4.9	6.7	8.7	13.6	19.6	.17
.30	.80	.16	.41	.73	1.2	1.7	2.3	3.5	4.6	6.6	9.0	11.7	18.4	26.4	.23
	.85	.17	.39	.69	1.1	1.6	2.1	3.4	4.3	6.2	8.5	11.1	17.3	24.9	.22
	.90	.16	.37	.65	1.0	1.5	2.0	3.2	4.1	5.9	8.0	10.4	16.3	23.5	.21

Smoke Bush in New Orleans
 ETo = 0.24 in/day; 85% Efficiency; 5-6ft diameter shrub
 GF = 5.2


Micro-Irrigation Plant Factors

Plant Factor (PF)	Plant Types
1.00	Small shrubs (under 4 ft. diameter) Groundcover Evergreens Vines
0.80	Mature trees
0.70	Shrubs (over 4 ft. diameter) Native plants (newly planted) Shrubs (native to humid areas)
0.40	Established plants (native to area)

Smoke Bush: Native Cultivar; 5-6 ft diameter

Example: Smoke Bush in N.O.

- Average ETo = 0.24 in/day
- PF = 0.70
- Gallage Factor (GF)
 - 6 ft diam
 - ET = 0.25
 - 85% efficiency
 - GF = 5.2
- $GPD = GF * PF$
 - $GPD = 5.2 * 0.7$
 - $GPD = 3.6$ gpd



Smoke Bush (5-6 ft diameter)

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