

Formula #1

$$\text{Precipitation Rate} = \frac{96.3 \times \text{gpm}}{\text{Area \{sq. ft.\}}}$$

Formula #2

$$\text{Precipitation Rate} = \frac{231 \times \text{gph}}{S_e \times S_r \{\text{sq. in.}\}}$$

Formula #3

$$\text{Precipitation Rate} = \frac{1.604 \times \text{gph}}{\text{Area \{sq. ft.\}}}$$

Formula #4

$$\text{Water Need (per period)} = \frac{ET_o \times K_c}{DU \text{ (decimal)}}$$

Formula #5

$$\text{Run Time} = \frac{\text{Water Need}}{\text{Precipitation Rate}} \times 60$$

Formula #6

$$\text{Irrigation Frequency} = \frac{\text{Water Need}}{\text{Avail. Water} \times \text{Root Zone} \times \text{MAD}}$$

Formula #7

$$\text{Max. Syst. Capacity} = \frac{0.0104 \times ET_o \times \text{Area} \times K_c}{DU \times \text{Hrs.}}$$

Formula #8

$$\text{Max. Area of Coverage} = \frac{\text{GPM} \times DU \times \text{Hrs.}}{0.0104 \times ET_o \times K_c}$$

Conversions

Gallons per acre-inch = 27,154

Gallons per square foot-inch = 0.6234

Gallons per cubic foot = 7.48

Formula #9

$$\text{psi} = \text{feet of head} \times 0.433$$

Formula #10

$$\text{feet of head} = \frac{\text{psi}}{\text{feet of head}}$$

Formula #11

$$\text{Selling Price} = \frac{\text{Costs}}{1 - \text{profit \% (decimal)}}$$

Formula #12

$$\text{Profit Margin} = \frac{\text{Sales Price} - \text{Costs}}{\text{Sales Price}}$$

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Formula #12**Estimated Line Source Zone GPH Base on Irrigated Area**

$$= \frac{\text{Irrigated Area \{sq. ft.\} x 144 inches}}{\text{Emitter Spacing \{in.\} x (tubing Spacing \{in.\})}} \times \text{Emitter gph} \div 60 = \text{Zone gpm}$$

Formula #13**Estimated Line Source Zone GPH Based on Total Length**

$$= \frac{\text{Total Tubing Length \{ft.\} x 144 x emitter gph}}{\text{Emitter Spacing \{in.\}}} \div 60$$

Formula #14**Total Feet of Line Source Tubing within Area**

$$= \frac{\text{Irrigated Area \{sq. ft.\} x 12 inches}}{\text{Minimum Row Spacing \{in.\}}}$$

Formula #15**Maximum Feet of Line Source Tubing Based on Flow**

$$= \frac{\text{Max Zone gpm Available x 60}}{\text{Emitter gph}} \times \frac{\text{Emitter Spacing \{in.\}}}{12 \text{ inches}}$$

Formula #16**Number of Line Source Emitters within a Zone**

$$= \frac{\text{Total Tubing Length \{ft.\} x 12 inches}}{\text{Emitter Spacing \{in.\}}}$$

Formula #17

$$\text{Point Source Run Time \{minutes/week\}} = \frac{\text{Water Need of Plant \{gal./wk.\}}}{\text{Total gph per Plant}} \times 60$$