Low-Volume Design Formula Sheet

Plant Coefficient
$K_c = K_s \times K_d \times K_m$

Gallons per Square Foot (day)
$\text{Gallons/ft}^2\text{/day} = \frac{\text{flow rate} \times 144 \times \text{run time}}{\text{Spacing} \times 60}$

Canopy area
R = ½ diameter
Area = $3.14 \times R^2$

Flow Rate
$\text{Gallons per minute} = \frac{\text{Gallons per hour}}{60}$

Net Water Requirement (gallons per day)
$NWR = .623 \times A \times K_c \times PET$

Net Water Requirement (in/hr)
$NWR = PET \times K_c$

Gross Water Requirement
GWR = NWR / Efficiency

$GWR = \frac{.623 \times A \times K_c \times PET}{\text{Efficiency}}$

Application Rate (GPH)
GPH = no. of emitters x emitter flow rate

Application Rate (in/hr)
$\text{App. Rate} = \frac{231.1 \times \text{emitter flow rate (GPH)}}{\text{Emitter spacing (s x s)}}$

Run Time
$RT = \frac{GWR \times 60}{\text{App. Rate}}$

Needed Flow per Plant
$\text{Needed flow} = \frac{GWR \times 60}{\text{Run Time}}$