

WEEKLY CROP EVAPOTRANSPIRATION (ET) ESTIMATES (INCHES PER WEEK)

For the week June 29, through July 6, 2001

West of Sacramento			East of Sacramento	
Weekly Water Use	Accumulated Seasonal Use	Crop (Leafout Date)	Weekly Water Use	Accumulated Seasonal Use
1.78	25.76	<i>Pasture-Turf</i>	1.77	24.64
1.71	25.03	<i>Alfalfa</i>	1.70	23.89
1.34	19.46	<i>Olives*</i>	1.33	18.59
1.71	23.34	<i>Almonds (3/1)*</i>	1.70	22.27
1.71	22.64	<i>Prunes (3/15)*1.03</i>	1.70	21.66
1.71	20.59	<i>Walnut (4/1)*</i>	1.70	19.66
0.0	4.44	<i>Rainfall (3/1)</i>	0.00	3.88

*Estimates are for mature orchards with more than 60 percent ground shading at 12:00 noon (usually, 6th leaf or older). The orchard floor condition is managed by some combination of strip applications of herbicides, frequent mowing of tillage, and water stress in the middles where water is not applied. Weekly estimates of ET can be as much as 25 percent higher in orchards where covercrops are planted and managed for maximum growth. Estimates are for healthy trees where water stress is undesirable. They will overestimate irrigation needs for disease infected trees and where mid to late season stress is desirable such as for reducing moisture content of fruit and increasing sugar content in prunes, and managing hull split in almonds. Estimates are based on 100 percent irrigation efficiency so consider irrigation uniformity and other possible losses of applied water. Typical microsprinkler and drip irrigation efficiency for a well designed system is 85 to 90 percent. Irrigation efficiency for flood and impact sprinklers is commonly about 70 percent.

Tips for using the ET estimates:

For Microspinkler:

Equation to convert from ET in inches/week to gallons/tree/week:

$$\text{ET (gallons/tree/week)} = \text{Weekly ET} \times 0.623 \times \text{St} \times \text{Sr}$$

Weekly ET = selected from table above

St = spacing between trees in feet

Sr = spacing between rows in feet

Equation to calculate weekly irrigation time (based on 100 percent irrigation efficiency):

$$\text{Weekly Irrigation Time (hrs)} = \text{ET (gallons/tree/week)} / \text{Discharge rate from microsprinklers or drippers for each tree (gph)}$$

For Flood and Sprinkler Irrigation:

Equation to calculate average depth of applied irrigation water for an irrigation:

$$D = (Q \times T) (449 \times A)$$

D = Depths of water applied in inches (acre-inches/acre)

Q = Flood or sprinkler system flow rate from turnout or pump (gallons per minute)

T = Total time to irrigate the orchard in hours

A = Number of irrigated acres in orchard

(449 is a necessary conversion factor)