



# Drought Information

*compiled by UCCE Advisors  
for agriculture and consumers*

## Management of Limited Water Supply in Vegetable Crops

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Water is scarce in western Fresno County. While a limited water supply is not new to this production area, in third year of drought and a lack of water from Westlands Water District, wise water management is especially important this season. In vegetable crops, applying less than optimum amounts of water generally results in yield reductions, but there are ways to limit the likelihood and/or rate at which this yield reduction occurs.

The amount of water needed for optimum production of a given vegetable crop depends largely upon the environment, efficiency of the irrigation system and soil type.

The influence of the environmental condition on the water requirement of plants is expressed as evapotranspiration (ET), which is a measurement of the transpiration from the leaves and evaporation from the soil. California Irrigation Management Information System (State Department of Water Resources) calculates reference crop ET (ET<sub>o</sub>), which is evapotranspiration of irrigated grass using site specific climate data. Crop coefficient (K<sub>c</sub>) accounts for differences between crops and stage of crop development. For water requirement of a specific crop (ET), multiply K<sub>c</sub> of that specific crop and stage of development by ET<sub>o</sub>.

The total amount of water that must be applied to satisfy the ET of a crop will take irrigation efficiency into consideration. For example, if the irrigation system is 80% efficient, the amount of water to be applied is  $ET/0.8$ . A few conditions that could result in lower irrigation efficiencies including improper pressure for the drip tape used and variable soil textures. In furrow irrigation, very long row lengths, improper slope and low spots in the field can result in lower irrigation efficiencies, and therefore increase the amount of water needed for maximum yield.

Fine textured soils, such as clay loams, have greater water holding capacity than soils that are mostly composed of larger particles, such as sands or sandy loams. Therefore, less frequent irrigations are required for these fine textured soils. Furthermore, crops grown in fine textures soils will suffer less due to a longer than optimum irrigation interval. Techniques for saving water, such as an early cutoff or reduction of water applied are much more likely to be successful in a clay loam soil as compared to sandy soil.

While it is likely that irrigation less than optimum will impact yields, by increasing efficiencies and careful scheduling water can be saved with minimum reduction in yield in many cases.

[Click here to link to UCCE Vegetable Crop website](#)