

4ETa ZONE INFORMATION AND MAP

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The 4ETaZone (Evapotranspiration) sub-area maps were first issued in a September 1984 Plant Materials Tech Note (TN-PM-30) by then Fresno Area Agronomist Clarence Finch, and Davis Soil Scientist John Rogers, for use in determining the proper dryland vegetative recommendations in California. The information in the Tech Note was taken from the original publication in "Hilgardia" Vol 32, Number 10, May 1962: *The Use of Calculated Actual and Potential Evapotranspiration for Estimating Potential Plant Growth*, by Rodney J. Arkley and Rudolph Ulrich.

4ETa Zone Correspondence to Precipitation Range	
4ETa Zones	Effective Precipitation Range (inches)
b	18-21
c	15-18
d	12-15
e	9-12
f	6-9
g	3-6
h	0-3
i	Irrigation Required

**Definition of 4ETa Zones and Rationale for Non-Irrigated Plantings
(i.e., zones where no irrigation is typically needed, due to sufficient soil moisture
from natural precipitation, for selected suites of plants that are adapted to these
minimum-level precipitation zones)**

There are seven designated, 4-inch-range evapotranspiration zones in California where no irrigation is required for certain species. A "4ETa Zone" is defined and delineated as a 4-inch range of actual annual evapotranspiration, corresponding in essence to a zone of annual precipitation and available water capacity (in inches). It represents a graphic estimation and depiction of the inches of available soil moisture for plant use. See CA Plant Materials Tech Note 30, September 1984.

The 4ETaZone Tech Note and associated maps provide non-irrigated (dryland) planting recommendations for different parts of an MLRA, as based on and guided by 4ETa Zones. Actual evapotranspiration (ETa) is determined by comparing the potential evapotranspiration with the water available from precipitation and stored soil moisture. The number 4 was selected as a base value (starting at 0-3 inches) to represent the range of stored inches of moisture available in a typical soil profile where selected, non-irrigated (dryland) grain and annual grasses can establish and maintain without irrigation supplementation. In the context of this interpretation, 4ETa zones more closely represent the actual soil moisture retained in our non-irrigated (dryland) soils. As an example, 4ETa Zone d (12" - 15") designates a precipitation / evapotranspiration zone

that typically exhibits 12 to 15 inches of available soil moisture for plant establishment and growth.

In the Mediterranean climate zone typical of California MLRA's 14, 15, 16, 17, 18, 19, and 20), many perennial plants can establish and grow in 4ETa Zone e (9" - 12"), as well as in more moist 4ETa Zones d, c, and b. However, some proportion of these plants will typically not establish and survive in drier Zones f, g, or h, because sufficient annual moisture is not available to establish or maintain the plant under non-irrigated (dryland) conditions.

Based on the definitions and interpretations of 4ETa zones provided above, one or more applicable 4ETa zones are displayed in an individual specie's plant record (sing PLANT EDITOR) within the eVegGuide. These zones represent the ***climatic*** zone(s) of dryland (non-irrigated) adaptation for a given species, based on available research and literature ratings, and on field experience by Area and State Specialists.

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