

SONOMA COUNTY CLIMATIC ZONES

The major climatic influence in Sonoma County is determined by the marine (ocean) air flow and the effects of the geography in diverting that air flow. During an average summer there are many days when fog maintains a band of cold air all along the coastline and cold breezes blow a fog bank in through the Petaluma gap northward toward Santa Rosa, and northwestward toward Sebastopol. It also moves around Sonoma Mountain, not quite reaching Glen Ellen. This fog bank is accompanied by a rapid decrease in temperature which can be as much as 50°F. The time of day when this occurs and the duration of the fog designates three distinct major climatic zones.

Several microclimates also exist especially near the borders of the 3 major zones. Microclimates can be designated by elevation, air drainage, proximity to mountain peaks, and sun exposure. Chilling hours (below 45°F) range from 700 to 1,850 hours and average 1,300 hours per year from March to November.

MARINE: The marine zone is under direct ocean influence, lying west of the first mountain ridges of the coast below 1,000 ft. and extending inland through river canyons and the Petaluma gap to Sonoma Mountain. Degree Days ¹ per year average 2,185, but range from less than 1,800 to 2,800 depending on the year. This zone also has less than 800 hours between 70' and 90' F during the growing season. It is the coolest of the three local climatic zones. Average water use is 24 inches per acre from April to October.

COASTAL COOL: The coastal cool zone includes a narrow band of ridge tops along the coast above 800 to 1,000 ft., the areas east of the western hills of Sebastopol, areas bounded on the north by the Russian River, and the northern and southern portions of the Valley of the Moon. Cold foggy air is diverted by Sonoma Mountain and the Santa Rosa plain in the south; western and eastern mountains contain it, and hills and distance (time) reduce its northern migration. This climatic zone averages 2,582 degree days per year but can range from 1,900 to 3,600 depending on the year. It has 800 to 1,100 hours between 70' and 90' F per year. Average water use is 32 inches per acre from April to October.

COASTAL WARM: The coastal warm zone is protected from the early fog bank by elevation, mountain ranges, and distance (time). It averages 2,920 degree days per year but ranges from 2,100 to 4,200 depending on the year. This zone has over 1,100 hours between 70' and 90' F and very little fog during the growing season. It is the warmest of the three climatic zones. Average water use is 36 inches per acre from April to October.

¹ Degree Days are calculated by adding daily maximum and minimum temperatures and dividing by two to get the average daily temperature. A minimum threshold temperature of 50°F is subtracted from the daily average to get the degree day figure for that day. Daily degree days are added up for the entire growing season, April 1 to October 31.

*Climatic data for this map was developed over a period of 30 years by R.L. Sisson, retired Sonoma County Farm Advisor.

**Current climatic data and map were developed by Paul Vossen, Sonoma County Horticulture Farm Advisor, University of California, 1986.
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