

## California Climate Zones for Growing Temperate Tree Fruits and Nuts

University of California scientists "divide" the state into six main agricultural districts for production of temperate fruit and nut crops

- San Joaquin Valley
- Sacramento Valley
- Central Coast
- North Coast
- Sierra Nevada Foothills
- Southern California

The six regions and their important climatic characteristics with respect to growth of temperate fruit and nut crops are described below.

### San Joaquin Valley

In this region, the *maximum* temperate during the hottest months of the year (June - August) may exceed 104°F. Average temperatures in July and January in Stockton in the northern part of the valley are 75°F and 45°F, respectively; whereas, average temperatures in July and January in Bakersfield in the southern part of the valley are 84°F and 47°F, respectively. More than 80% of the area's precipitation occurs in the winter, with an average 5.7 inches per year at Bakersfield and 14.3 inches at Stockton. Dense fogs lasting a week or more are common in the winter. This region is relatively flat due to alluvial deposits from several California rivers (Stanislaus, Tuolumne, Merced, Fresno, San Joaquin, Kings, Kern, and Kaweah). Temperate tree fruit and nut crops grown here commercially include almond, apple, cherry, chestnut, fig, kiwifruit, loquat, nectarine, olive, peach, pear, pecan, persimmon, pistachio, plum, pomegranate, prune, quince, and English and black walnut. (Note that the San Joaquin Valley is also the most important area in the state for production of citrus fruits and grapes.)

### Sacramento Valley

In this region, which includes the cities of Sacramento, Marysville, Oroville, Paradise, Redding, and Chico and the surrounding areas, the winters are cool and moist with fogs that may last for a week or more; summers are clear, hot, and dry. Average temperatures in July and January in Sacramento are 75°F and 45°F, respectively. Annual precipitation in Sacramento averages 17.2 inches; whereas, annual precipitation in Redding in the northern part of the Sacramento Valley averages 40.9 inches. Like the San Joaquin Valley, this region is relatively flat. It is drained by the south-flowing Sacramento River, which is joined by rivers from the Sierra Nevada. The main temperate fruit and nut crops grown commercially in the Sacramento Valley are almond, apple, apricot, kiwifruit, olive, peach, pear, pecan, pistachio, plum, prune, and English and black walnut. Some wine grapes and cold hardy citrus are also grown.

### Central Coast

The Central Coast extends from the San Francisco Bay area Contra Costa County south to the mountain ranges of Santa Barbara County. The climate in this area is influenced by the Pacific Ocean. Salinas, which is about 10 miles from the ocean in Monterey County, has an

average January temperature of 50°F and an average temperature of 73.9°F in September. Annual precipitation in Salinas averages 13.7 inches. The region generally has a mild climate with cool summers on the coast, where fog is common, and warm summers in the interior, but not as warm as the Sacramento Valley. Although frosts are infrequent in the winters near San Francisco, low-lying areas in the interior of this region can have temperatures below freezing. Winter protection and site selection can be critical factors in some locations in this region. The main temperate fruit and nut crops grown commercially in this area are almond, apple, apricot, cherry, pear, plum, prune, olive, and English and black walnut. It is also a major wine grape, and berry production area.

### **North Coast**

The North Coast is the wettest region of the state. Annual precipitation averages 25 to 80 inches, which causes some disease problems in the spring during bloom and root rot problems due to excess soil moisture. The North Coast has a rugged terrain with coastal plains and a few small valleys. The main temperate tree fruit and nut crops grown commercially in this region are apple, pear, prune, olive, and English and black walnut. It is also the primary wine-growing region of the state.

### **Sierra Nevada Foothills**

This region is a narrow, hilly area on the East Side of the San Joaquin and Sacramento Valleys. Although commercial production has declined in this region due to competition from higher-yielding orchards in the Central Valleys, home gardeners can grow many temperate fruit and nut crops in this region at elevations ranging from 500 to 3,000 ft. In many locations in this region, soils are shallow and rocky, but a few narrow valleys have alluvial, valley bottom, and terrace soils. Annual precipitation ranges from 20 to 40 inches. Spring frosts, especially at the higher altitudes, do cause production problems. The main temperate fruit and nut crops grown commercially in this region are apple, cherry, peach, pear, pistachio, quince, persimmon, plum, prune, olive, and English walnut.

### **Southern California**

The Southern California coast extends from San Diego to San Luis Obispo and includes Santa Barbara, Ventura, western portions of Los Angeles County and Orange County and San Diego. The Southern California coast is influenced by the Pacific Ocean and has a mild climate due to the marine air. Summers are moderate in temperature and coastal fog is common. Hot, dry winds, known as 'Santa Ana's' can be damaging here and in the inland areas of Southern California. Inland Southern California includes Riverside, San Bernardino, Pasadena, Glendale, Burbank, the San Fernando Valley, Ojai Valley, and Santa Paula. The interior is more subject to hot, dry desert air than the coast and is considerably warmer. Annual rainfall along the northern coast can be as high as 16 inches in Santa Barbara and as low as 9 inches in San Diego. Droughts are not uncommon, and all crops are irrigated. The main temperate fruit and nut crops grown commercially in this region are apple, macadamia, olive, peach, persimmon, and English walnut. Since winters along the Southern California coast and interior are usually mild and often frost-free, temperate tree fruit varieties with low winter chill requirements are usually chosen because the low latitudes in this region receives a more limited number of total hours at 45°F, which are necessary to mature fruit, than other regions in the state.

From **Growing Temperate Tree Fruit and Nut Crops in the Home Garden**. Paul Vossen, Tree Fruits and Nuts Farm Advisor Sonoma and Marin Counties UCCE.