

# SOUTHERN OREGON AVA LANDSCAPE AND CLIMATE FOR WINE PRODUCTION

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## **Abstract**

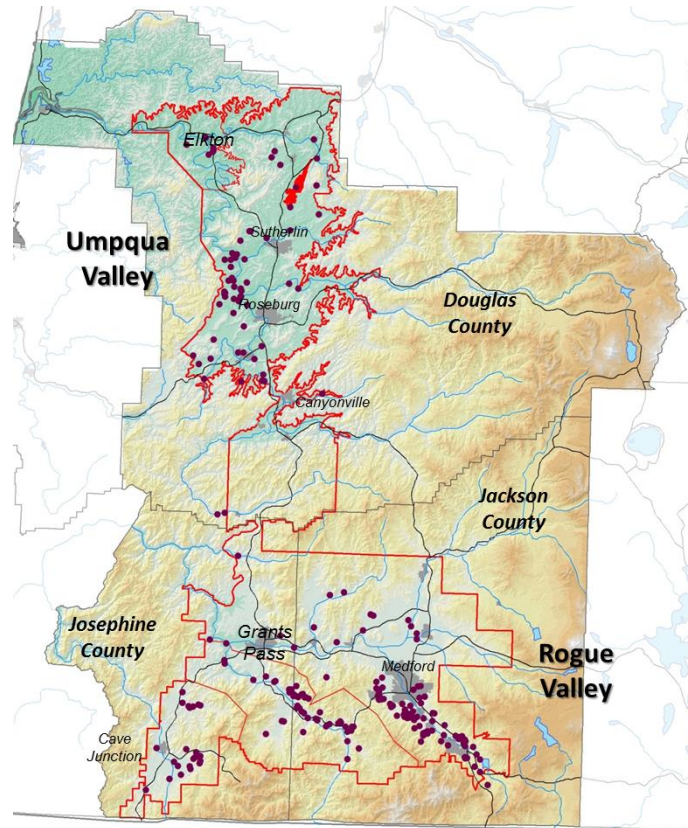
The Southern Oregon American Viticultural Area (AVA) consists of the Applegate Valley, Rogue Valley, Umpqua Valley, Elkton Oregon, and Red Hills of Douglas County sub-AVAs (Figure 1) that are some of the many winegrape producing regions found within the intermountain valleys along the west coast of the United States. The landscape of the Southern Oregon AVA is extremely diverse, coming from the joining of three mountain ranges of varying ages and structure: the Klamath and Siskiyou Mountains to the southwest to southeast, the Coastal Range to the west, and the Cascades to the east and north. The Klamath Mountains extend through the south and southwestern portion of the AVA and consist of complex folded and faulted igneous and metamorphic rocks that are the oldest in the region. The Cascade Mountains to the east consist of the younger High Cascades and the older, more deeply eroded Western Cascades that make up the eastern boundary of the AVA. The region is protected from the ocean largely by the Coastal Mountains, which are composed of mostly oceanic sedimentary rocks and volcanic islands that were accreted to the landscape over the last 50 million years. The Rogue Valley AVA is drained mainly by the Rogue River and its major tributaries; the Applegate River, the Illinois River, and Bear Creek, while the Umpqua Valley AVA is drained by hundreds of smaller tributaries of the North and South Umpqua Rivers.

The agricultural landscape of the Southern Oregon AVA is mostly comprised of valley lowlands with some isolated hills, stream terraces or benches, and footslopes of alluvial fans scattered by hilltops and ridges. Vineyards in the region are found on flat to very steep slopes (up to 40% or more) that are distributed along isolated hills, stream terraces or benches, and at the foot of alluvial fans. Elevations of potential and existing vineyard sites range from approximately 60-90 m in the northwestern portion of the Umpqua Valley AVA to 800 m and possibly higher in the Bear Creek Valley of the Rogue Valley AVA. Most current vineyards are planted to ~180 m in the Umpqua Valley AVA and ~450 m in the Rogue Valley AVA.

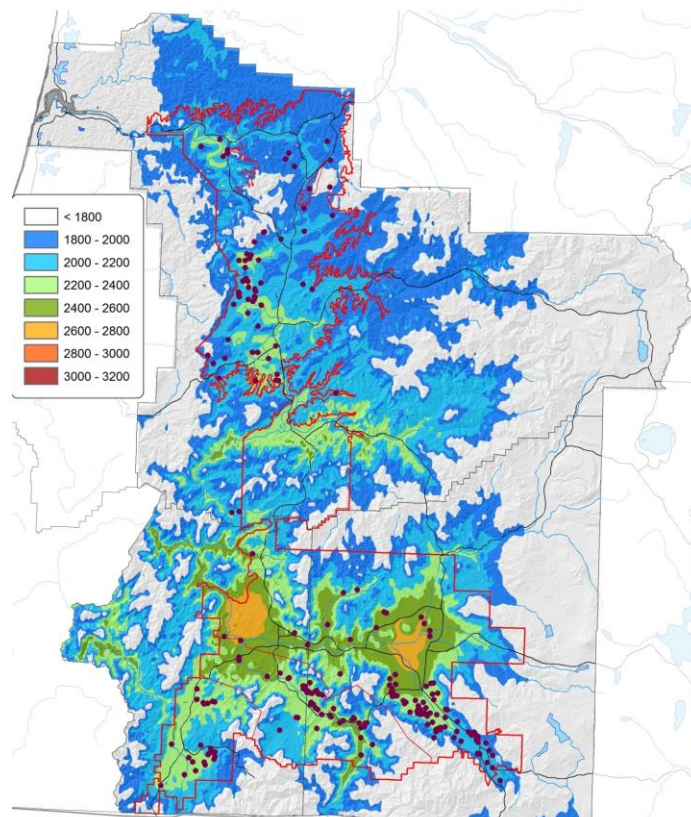
From the diverse geology of the region comes a widely varying mix of metamorphic, sedimentary, and volcanic derived soils. The lower elevations of the valleys are mostly deep alluvial material or heavy clays while the hillside and bench locations have mixed alluvial, silt, or clay structures. Complex faulting, especially in the western portion of the Rogue Valley AVA and southern portion of the Umpqua Valley AVA, can produce large variations in soil types over areas the size of a vineyard. Drainage and moisture-holding capacity vary greatly by soil type, and while most soils in the region do retain water into the growing season, available water for irrigation during mid to late summer growth is generally needed. Soil fertility is generally sufficient for winegrape production but varies greatly over the region with issues generally related to either imbalances of nitrogen, calcium, potassium, phosphorous, magnesium, boron, or zinc. Soil pH also varies from region to region (roughly from 4.5 to 7.0) and is mostly due to differences in climate and parent rock material. In general, the soils in the northern and western portions of the Southern Oregon AVA are slightly more acidic than those of the south as a result of more rainfall and greater leaching potential.

From a climate perspective the Southern Oregon AVA offers the most diverse growing conditions in Oregon and arguably in the United States. Heat accumulation varies from cool climate suitability in the northern Umpqua Valley and Illinois Valley (~2100-2400 GDD, F° units) to intermediate values in the central Umpqua Valley and Applegate Valley (~2400-2700 GDD) to warm climate suitability in the Bear Creek and Rogue River region (~2700-3000 GDD) (Figure 2). The Umpqua Valley AVA in general has longer frost-free periods (~180-220 days) and milder growing seasons, experiencing precipitation values that average 750 to 1500 mm from south to north. The Rogue Valley AVA has the higher elevations, that along with their general north-south trending valleys, and their proximity to the Pacific Ocean and intervening topographical barriers create a climate transect of wetter and cooler conditions in the western parts of the region to the warmer and drier eastern areas. Precipitation varies from 300-600 mm in most of the vineyard areas in the Rogue, declining in amount from west to east (all of the Southern Oregon AVA experiences less than 15 percent of the total precipitation occurring during the growing season of April through October). The frost-free growing season is shorter in the Rogue Valley AVA (~145-185 days) due to higher elevations that bring later and earlier frost potential in the spring and fall, respectively.

**Keywords:** *climate, terroir, Southern Oregon, Rogue Valley, Applegate Valley, Umpqua Valley*



**Figure 1: Southern Oregon AVA and sub-AVAs of the Rogue Valley, Applegate Valley, Umpqua Valley, Elkton, and Red Hills of Douglas County. Vineyard locations as of 2012 are shown as purple dots.**



**Figure 2: Southern Oregon AVA 2000-2012 growing degree-days (Apr-Oct, base 50°. Vineyard locations as of 2012 are shown as purple dots.**