

Our State:

Oregon is a place where winemakers are stewards of the land; where quality reigns, sustainability is a lifestyle and where artisan producers believe that careful attention to detail and delicate nurturing produce incredible wines. In just 40 years Oregon has evolved into a world-class wine growing state with 15 approved winegrowing regions located in four sections, and more than 400 wineries producing wine from 72 grape varieties. Three of the four sections have its own soil variations. Below is a detailed description of the soil in each area and how the soil effects wine production.

The Willamette Valley:

The Willamette Valley is split into two sections, the North and South. These AVA sections were established in 1984, and there are six sub-AVAs located in the Northern Willamette Valley. The Willamette Valley is a unique area. Until about twelve million years ago, Western Oregon was on the floor of the Pacific Ocean. Before that, for thirty-five million years under the sea, it was slowly accumulating layers of marine sediment, the bedrock of the oldest soils in the Willamette Valley.

Starting about fifteen million years ago, the pressure created along the coast by the collision of the earth's Pacific Plate and North American Plate gradually pushed western Oregon up out of the sea, creating the Coast Range and the intensely volcanic Cascades Mountains further inland. The Willamette Valley thus began as an ocean floor trapped between two emerging mountain ranges.

During this period of uprising, from about fifteen million to six million years ago, rivers of lava erupting from volcanoes on the east side of the Cascades flowed down the Columbia Gorge towards the sea, covering the layers of marine sediment on the floor of the emerging Willamette Valley with layers of basalt.

The Willamette Valley continued to buckle and tilt under pressure from the ongoing coastal collisions, forming the interior hill chains that are typically tilted layers of volcanic basalt and sedimentary sandstone, such as the Dundee Hills and Eola Hills.

The next geologic activity to add to our soils was the creation of a layer of wind-blown silt (called "loess") on the northeast facing hills west of where Portland sits today. This started as long ago as a million years and may have continued until about fifty thousand years ago. The silts that were blown came from the valley floor in the area, but originally, they derived from the earlier basalts and sediments that had been severely weathered.

Much, much later, about eighteen thousand to fifteen thousand years ago, at the end of the last ice age, the melting of a glacial dam near the location of Missoula, Montana repeatedly flooded the Willamette Valley, creating a lake up to the 400-foot contour level, with only the tops of the two-tone hills sticking out, and leaving behind deep silts.

Thus we have in the Willamette Valley a complex series of soils with interesting and diverse origins:

- **Marine sediments**- were laid down on the floor of the Pacific Ocean
Examples: Willakenzie, Bellpine, Chuhulpim, Hazelair, Melbourne, Dupee
- **Basalts**- originated as lava flows from eastern Oregon
Examples: Jory, Nekia, Saum
- **Ice Age Loess**- silt blown up from the valley floor onto northeast-facing hillsides
Example: Laurelwood
- **Missoula Flood** -deposits brought down the Columbia Gorge as the result of a repeatedly melting glacial dam

The soil in each of the sub-AVAs varies based on location:

- **Dundee Hills**– mostly basaltic but marine sedimentary at the lower elevations on the western and northern slopes
- **Eola-Amity Hill** - mostly basaltic but marine sedimentary at the lower elevations on the western and northern slopes
- **Chehalem Mountains**- basaltic and marine sedimentary on the southern and western slopes; ice-age loess on the northeastern slope
- **Yamhill-Carlton District** - marine sedimentary predominant
- **Ribbon Ridge**- entirely marine sedimentary
- **McMinnville**- primarily marine sedimentary with some basalt and alluvium

The Walla Walla Valley:

The Walla Walla Valley AVA was established in 1984. This region is unique because it includes wineries in both Oregon and Washington. On the Oregon side there are four distinct types of soil throughout the sub-AVAs.

- **Cobblestone river gravels** - deposited in the alluvial fan of the Walla Walla River north of Milton-Freewater. Consists of thick deposits of basalt cobblestone gravels. Made famous by Cayuse, now hosts many vineyards. Representative soil series = Freewater very cobbly loam.
Characteristics: excessively well-drained, rich in iron, calcium, magnesium and other minerals found in basalt, conducts heat and warms up quickly, exposed rocks radiate heat to vines.
- **Deep wind-deposited silt** - blankets uplands above 1100 ft. in elevation. Consists of silt deposited by wind (loess) that was derived by wind erosion of Missoula flood deposits. Chemically distinct from underlying basalt bedrock - contains minerals derived by floods from northern Idaho, Canada, etc. Typical of the upper parts of Seven Hills Vineyard, Sevein Vineyards, Octave, Cockburn Hills. Representative soil series = Walla Walla Silt loam.
Characteristics: well drained, permits deep rooting, easy to precisely control irrigation to achieve optimal fruit qualities.

- **Wind-deposited silt overlying Missoula flood sediments** - consists of 2 to 4 feet of loess (wind-deposited silt) that overlies layers of silt, sand, and gravel deposited directly by the Missoula floodwaters. Coarser textured soils beneath the loess provide mineralogical complexity. These soils are restricted to areas below 1100 ft. in elevation. Typical of the lower parts of Seven Hills Vineyard, Southwind, Birch Creek, Windrow, Anna Marie. Representative soil series: Ellisforde Silt Loam. Characteristics: well drained and more complex than the deep silt loams, but more risk of cold air damage due to lower elevation.
- **Thin silt overlying weathered basalt bedrock** - found on steeper southwest-facing hillsides. Consists of less than 1 ft. of wind-deposited silt that directly overlies fractured basalt. The basalt bedrock is often oxidized and coated with calcium carbonate. Very shallow rooting zone. Mechanical ripping before planting mixes weathered basalt with silt and creates a rocky, mineral-rich, well-drained soil but rooting depth limited to depth of ripping. Typical of Seven Hills block 13 and new plantings by, Cadaretta at Southwind, Leonetti at Serra Pedace, and Cayuse at Canyon #1. Representative soil series: Licksillet very stony loam. Characteristics: chemically, these are the most complex soils in the area. Southwest-facing slopes enhance heat accumulation and soil temperatures.

Southern Oregon:

The Southern Oregon American Viticulture Area (AVA) was established in 2004 and is comprised of the Umpqua, Applegate and Rogue Valley sub-AVAs. The soil in each of the sub-AVAs varies based on location.

- **Rogue Valley – Established AVA 1991**
 - Soils range from sandy loam to hard clay.
 - Considered one of the hottest growing regions in Oregon.
Approximate rainfall: 20-35 inches annually.
 - Similar to France’s Bordeaux region, its warm dry climate benefits Cabernet Sauvignon, Merlot, Chardonnay, Cabernet Franc, Pinot Gris, Malbec and Syrah.
- **Applegate Valley – Established AVA 2001**
 - Soils include decomposed granite derived from stream terraces and alluvial fans.
 - Warmer and drier than the neighboring Illinois Valley but not as warm as the Bear Valley area which follows the I-5 corridor.
 - The Applegate Valley is home to Bordelaise varieties such as Merlot and Cabernet Sauvignon in addition to Syrah and Chardonnay.
 - The Applegate, Illinois and Bear Valleys are considered all sub-sections of the Rogue Valley.

- **Illinois Valley – Not an official AVA**
 - Soils consist of stream-deposited sand, silt and gravel, bench gravel deposits, and glacial moraines.
 - It's higher elevation and coastal influence creates a micro-climate suitable for Burgundian varieties such as Pinot Noir and Chardonnay.
 - Additionally the climate is highly agreeable to Gewurztraminer, Riesling, Pinot Gris and Muscat.
 - Soils consist of stream-deposited sand, silt and gravel, bench gravel deposits, and glacial moraines.
 - Climatically the area is influenced by the high elevation and marine effect.
- **Umpqua Valley – Established AVA 1984**
 - The valley consists of a wide range of soils including alluvial, terrace and upland.
 - Oregon's oldest viticulture region is considerably cooler than the Rogue Valley
 - The area also has the highest annual rainfalls within the SOWA boundaries – 52.5 in Elkton and 33.5 in Roseburg.
 - This climate lends itself well to the Rhone varieties such as Syrah, Viognier and Grenache and the Spanish Tempranillo, Albariño and Graciano.
 - Temperatures may vary as much as 60° in the summer.