

***Variations in soil chemistry of premier vineyards of the Columbia Basin, Washington: implications for terroir.***

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**Abstract:**

The Columbia River Basin of Washington is the second most productive wine region in the United States. Most Columbia Basin vineyards lie within the Columbia Valley and Columbia Gorge American Viticultural Areas (AVAs), which together include 46,862 sq. km. in Washington and north-central Oregon. Eight sub-AVAs have been recognized within the Columbia Valley AVA. These AVAs contain many soil types, which have implications for the terroir of the vineyards.

Most soils in the Columbia Basin are derived from granitic loess, which overlies basaltic bedrock and/or Pleistocene Missoula Floods deposits. The influence of the underlying Miocene Columbia River basalt bedrock on soil chemistry is highly variable and is controlled by loess thickness, as well as the topography and degree of weathering at each site. Soil samples analyzed in this study were collected from premier vineyards in the summer of 2010. The 65 samples are primarily from the Columbia Valley AVA. Sampling sites were selected to be representative of each vineyard and vineyards were selected to be representative of the variations in terroir within their AVA. Multiple samples were taken from vineyards with large spatial extents and/or variations in elevation. The samples were analyzed for texture, bulk chemistry, and plant-available nutrients.

The textural and chemical analyses from each site in the Columbia Basin were compared to determine the range of values within each AVA and to discern any AVA-specific trends and the relative influence of basalt bedrock. The results from the Columbia Basin sites were also compared to sites outside the basin.