

OREGON'S CHATEAUNEUF DU PAPE: TERROIR OF THE MILTON-FREEWATER FAN GRAVELS

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Where it exits the Blue Mountain foothills, the Walla Walla River has deposited a broad low-relief fan that covers approximately 30 sq. km. The fan is composed predominantly of well- to sub-rounded pebbles, cobbles, and boulders of Columbia River Basalt in a matrix of sand and silt. The presence of ice-rafted erratic rocks indicates that at least the upper few meters of the gravel was deposited concurrently with the late Pleistocene Missoula floods.

Similarities in texture and appearance of these alluvial deposits to those of the famous “galets rousés” (rolled stones) vineyards of France's southern Rhone Valley have inspired the planting of vineyards on the Milton-Freewater fan. Wines derived from grapes grown in these vineyards are considered among the finest produced in the northwestern United States. The high quality of grapes and wines from rocky vineyards has been primarily attributed to two factors; 1) high soil permeability that limits water available to roots and encourages deep root penetration, and 2) heat that is stored by surface rocks and radiated to the vines after sunset. The soils of the Milton-Freewater fan, mapped as the Freewater very cobbly loam, are extremely well drained and their clay content is considerably less than their Rhone Valley counterparts. Viticulturists have further increased the permeability through mechanical raking, which increases the proportion of the largest clast sizes in the upper half-meter. Soil pits in 4-year-old vineyards have revealed root penetration depths in excess of 2 m. Mechanical raking has also greatly increased the surface exposure of the basaltic cobbles, enhancing their absorption of solar energy. Preliminary measurements indicate that air temperatures 1 m above the surface are slightly higher for several hours after sunset in the raked areas of cobbly vineyards when compared to areas that are partially covered by loess or grass. However, based on average ripening season air temperatures, the vineyards of the Milton-Freewater fan are not significantly warmer than non-cobbly vineyards at similar elevations elsewhere in the Walla Walla Valley. The extra heat transmitted by cobbly soils to the shallow part of the root zone may be of more significance than heat transmitted to the aboveground parts of the plant via the air.