

# Desired Soil Properties for Vineyard Site Preparation

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Prospective growers need to conduct a soil test, the season before planting to provide information on soil pH status, liming and fertilizer requirements. A soil test conducted the season before planting will provide information on soil chemical and physical properties. For prospective vineyards, soil samples should be taken at two depths: 0"- 8" and 8"-16" in an 'X' pattern. The samples collected at these two depths should be analyzed separately. Desired soil chemical properties for vineyards are listed in Table 1 below.

**Table 1. Desired soil chemical properties for vineyards.**

Chemical properties	Value range
Soil pH	pH: 5.5 to 6.8
Organic matter %	%: 2-3
Phosphorus	P: 40-50lbs/A
Potassium	K: 250-300 lbs/A
Magnesium	Mg: 200-250 lbs/A
Zinc:	Zn: 8-10 lbs/A
Boron:	B:1.5-2.0 lbs/A



Your County Extension Agent can provide information on soil fertility and fertilizer needs for the first year vineyard. If

soil pH is below pH 5.5, an application of agricultural ground limestone to raise the soil pH to desired levels is recommended. The University of Kentucky, Department of Agronomy Publication (AGR-1) 'Lime and Fertilizer Recommendations' (<http://www.ca.uky.edu/agc/pubs/agr/agr1/agr1.pdf>) provides detailed information on how to ameliorate the soil pH.

Soil physical properties indicate the potential vigor of a site. Although cultural methods exist to ameliorate soil physical properties (e.g., sub-soiling, irrigation and fertilizer management); prospective vineyardists need to consult the USDA, Natural Resources Conservation Service Soil Survey specific for their county and select high potential sites. Desired soil physical properties for vineyards are listed in Table 2 below.

**Table 2. Desired soil physical properties for vineyards.**

Low-potential sites	High potential sites
Impervious rock layer with shallow soil depth (<30")	No impervious rock or other barriers. Deep soil (>30")
Sandy to sandy loam texture, or high proportion of stone (> 2-mm diameter)	Clay loam to light clay texture; (<5% stone by volume)
Weak soil structure in the sub-soil	Well-aggregated soil; aggregates stable in water
Poorly drained subsoil (gray colors and orange-red mottles)	Well to moderately well drained soil throughout the soil profile