



Vineyard Water Use in Lake County, California
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Introduction

In 2013, wine grapes were the most widely planted (8,719 acres)¹ and highest farm gate value crop (\$61,3440,390)² in Lake County, California. Nearly all of these vineyards are irrigated, and many vineyards in lower areas are also frost protected with water applied by sprinklers. This is a brief summary of vineyard water use in the two most important wine grape production areas in Lake County.

Big Valley:

Principle wine grape variety: Sauvignon blanc

Frost protection: Average 10.4 frost protection events per year, with overhead sprinklers, 5.88 hours of frost protection @ .1 inches precipitation per hour = 6.12 acre inches

*Note: This is highly variable based on data from 1999 to 2014 in which there were 171 events total where temperatures were 33 degrees F or lower. Range of frost events per year were 1 (2014) to 20 (1999). (Source: UC IPM Weather Data Web Site). Grower records indicate that average duration of frost protection=5.88 hours per event. (Source: LCWGC Survey, Grower Practices and Records, 2014)

Irrigation: Based on 691 vines per acre (7' x 9' spacing) drip irrigation, July 1-September 9, 9 hours per week, 0.229 inches per week = 2.29 acre inches

Post harvest irrigation (optional): 24 hours of overhead sprinkling, 0.1 inches precipitation per hour = 2.4 acre inches

TOTAL: 10.81 acres inches or 0.9 acre feet

Note regarding frost protection: Many years the vineyards' soil profiles are at field capacity or saturation in the spring from winter precipitation when frost protection water is applied. In those cases, water is likely to percolate through the soil profile, eventually helping to recharge the water table, and will be available for reuse. If the soil is below field capacity, the application of frost protection water will charge the soil reservoir (available water holding capacity) and be utilized by the vine for plant growth.

Red Hills:

Principle variety: Cabernet sauvignon

Frost protection: 0 inches, most places have no overhead sprinklers and limited water for irrigation.

Irrigation: Based on 908 vines per acre (6' x 8' spacing), irrigation is done from mid-June to late September, 17 hours per week (.57 acre inches), 14 weeks = 8 acre inches (includes post harvest applications)

TOTAL: 8 acre inches or 0.66 acre feet

Comparative Use of Water (Average) of Irrigated Crops Around California*

Crop	Location	Amount of water used in acre inches/ year
Wine Grapes	Red Hills, Lake County	8
Wine Grapes	Big Valley, Lake County	11
Wine Grapes	San Joaquin County	18
Table Grapes	San Joaquin Valley	36
Walnuts	Sacramento Valley	36
Almonds	Sacramento Valley	38
Alfalfa	Sacramento Valley	42
Avocados	Riverside/San Diego Co.	42
Peaches	San Joaquin Valley	44
Rice	Sacramento Valley	60

*Source: Most current UC Davis Agricultural Economics Department/ UC Cooperative Extension Cost Studies <http://coststudies.ucdavis.edu/>

Data Sources:

1. UC IPM Weather Data Web Site, <http://ipm.ucdavis.edu/WEATHER/index.html>, and grower records of actual frost protection, 2007-2014.
2. Survey, Grower Practices and Records, 2014, Lake County Winegrape Commission.

Literature Cited:

1. California Grape Acreage Report, 2013 Crop. California Department of Food and Agriculture, Sacramento, California. Table 12, page 42.
2. 2013 Lake County Crop Report. Lake County Department of Agriculture, Lakeport, California. Page 2.