



VINEYARD MULCHING OFFER MANY BENEFITS BEYOND WINTER PROTECTION

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Abstract

Context and purpose of the study - Grapevines are susceptible to freezing damage at temperatures below -5°F during the winter season. Preventing winter injury to grapevines is a major challenge in many grape-producing regions. Conventional methods such as hilling-up soil over graft unions have been developed as winter protection methods for preventing vine loss. However, these practices have drawbacks such as soil erosion, vine damage and crown gall development.

Material and methods - Our study involved an alternative method using mulching. Plant-based mulches of wheat straw, corn stover, and miscanthus were applied and evaluated at experimental vineyard sites in Ohio in comparison to the conventional method of soil hilling. Temperatures were monitored at 0 and 10 cm above ground level within the applied mulches and soil from November 2019 to May 2020 and compared to the ambient air temperature monitored at 1.5 m above ground level.

Results - Winter protection with mulches was as effective as with soil hilling. Mulch treatments provided adequate winter protection comparable to the conventional soil hilling method by maintaining the temperatures at the graft unions above -2°C despite the ambient air temperature dropping below -15°C. In addition to winter protection, we observed the following benefits. Weed control improved with mulches vs. soil hilling. We also improved soil moisture to make vines less susceptible to drought periods. Soil properties have, in general, improved when using mulches as compared to soil hilling. Finally, mulches did not have any negative effect on yield or fruit quality. In summary, due to the additional benefits, mulching should be considered in commercial vineyards as it is a more sustainable grape production system.

Keywords: Grapevine, Mulch, Winter Protection, Soil Health, Weed Control, Yield.