

Managing Cover Crops Under-The-Trellis: A Vital Step Toward Vineyard Sustainability

Report for FS05-192

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Region: Southern

State: Virginia

Principal Investigator:

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Virginia Cooperative Extension

Project Information

Abstract:

Wine grape production is rapidly increasing in Virginia and North Carolina. Current management of 'under-the-trellis' area in vineyards does not have a strategy to preserve and more importantly improve soil structure. Mechanisms in established vineyards are considered difficult due to the permanence and space issues of trellis wires, posts, and permanent vines. The first few years of a vineyard site have minimal implications, as pre-existing soil structure is present; yet vineyards three or more years of age could benefit from preserving and improving soil structure. A natural mechanism to manage soil structure has a wealth of benefits, including: reducing soil compaction, improving soil aeration, improving soil drainage, building of organic matter, and development of beneficial microbial biodiversity in the soil. These benefits are tangible to farmers in terms of improved vine health, such as maintaining vigor over the life span of the vineyard, increasing life span, and maintaining optimum yields while improving fruit quality. The factors accumulate to improve the economic 'bottom line' for farmers. Use of cover crop rotations under the trellis in vineyards three or more years of age is the only solution to improving soil structure in established vineyards. Currently eastern states vineyards do maintain permanent grasses in the drive-aisles for tractor access throughout the season. Cover crops are proven to bring the needed positive benefits to soils, yet their management in vineyards needs exploration and promotion. This project seeks to illustrate the guiding principals of managing cover crops under the trellis in vineyards on the premise that improved soil quality will improve vine health and thus: a) increase life span of the vineyard, b) sustain higher yields, c) improve grape and wine quality, d) reduce chemical inputs. Requirements for use of cover crops in vineyards are complex and need clear definition for grower adoption. This project will solidify the understanding that use of cover crops can meet the numerous requirements for farmer adoption. Cover crops must meet the following system requirements: have low cost of establishment, establish rapidly to out compete weeds; not compete with vines when vines are rapidly growing (water and nutrient competition, actively utilize excess moisture during fruit ripening phase, maintain

low height growth habit, suppress weeds as a mulch when either winter killed or 'manage killed', reduce herbicide applications per season and improve soil aeration, drainage and minimize erosion. Cover crop species used will be: perennial New Zealand White Clover, perennial Dutch White Clover and a companion grass mix (75% 'Essence' Dwarf Perennial Ryegrass & 25% Creeping Red Fescue), New Zealand White Clover (perennial), subterranean clover (annual) and Rape (Brassica napus) (annual).

Research

Participation Summary

Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture or SARE.



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