

Final Plain Language Research Summary - AgriScience Grape & Wine Cluster 2018-2023

Activity: Water and nutrient management strategies, and health promoting natural products can reduce the competition between grapevine and cover crops and enhance health and productivity of vineyards

Principal Investigator(s): Mehdi Sharifi (AAFC Summerland), Francisco Diez (Perennia Food & Agriculture Inc.)

This study aimed to investigate the use of Soil Water Retention Technology (SWRT; U shape membranes installed 50 cm deep in both sides of a newly established vine row) and biochar-compost mixture inter-row applications to improve soil water holding capacity and reduce competition for water and nutrients between grape vine and cover crops. The impact of various management strategies such as vermicompost, vermicompost tea, and Stella Maris (seaweed extract) application rate, method, and frequency of application on grape yield, fruit quality, plant nutritional status, and plant and/or soil health was investigated. SWRT has the potential to enhance water usage efficiency in sandy soils, according to the research findings. Biochar-compost increased soil C and N levels while also increasing soil water retention capacity. Cover cropping improved carbon sequestration and nitrogen supply in vines. The use of foliar vermicompost tea improved fruit quality and reduced the requirement for powdery mildew spray. Under-vine vermicompost application increased yield as well as soil C and N concentrations. Foliar use of seaweed extract improved grapevine resistance to environmental stressors.