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DO TRELLIS SYSTEMS MODIFY GRAPE'S HEALTH BENEFICIAL PROPERTIES?

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Honors Undergraduate Thesis

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Abstract

The objective of this research was to find the optimal combination of grape variety and grapevine training systems to maximize the health beneficial properties of cold hardy table grapes from harvest to cold storage until consumption. This research is important because not enough consumers intake the recommended amounts of fruits and vegetables to maintain health and prevent chronic disease. By learning the best way to preserve the health benefits in grapes over time, consumers will have consistent access to fruit with highly preserved nutritional, antioxidant, and phenolic properties. We analyzed two seedless grape varieties, Mars and Canadice, grown using two different grapevine training systems, Modified Munson and Vertical Shoot Positioning. The grapes were harvested at technical maturity and placed in a cold storage for post-harvest study (following procedures similar to commercial production). Grape samples analyzed at harvest, as well as at one-, two- and three-weeks post-harvest. Soluble solids content (Brix), titratable acidity, total phenolics, and antioxidant potential were determined. Our results indicate that both the grapevine training system and cold storage have an effect on the health beneficial qualities of the grapes. The Mars grapes grown using Modified Munson maintained greater phenolics, antioxidant potential, and Brix over time, however the levels did still decrease over time in cold storage. Knowing how these factors influence the phenolics and antioxidant potential of the grapes can play a role in guaranteeing that commercially produced grapes maintain the maximum health benefits for consumers, even if it takes time for the fruit to get to their homes.