

Impact of fertigation with marine extracts on Syrah grape berry composition and yield

The practice of amending soil with fish and seaweed has been observed in traditional and organic agriculture systems worldwide. Along the Galician coast of Spain, some grape growers have been incorporating drift seaweed into their soil for centuries. Seaweed is naturally rich in abscisic acid, the hormone that is responsible for triggering ripening in grapes. Plant-based extracts rich in amino acids and hormones have been shown to increase anthocyanins in Tempranillo grapes when applied through drip irrigation systems. The purpose of my Masters Degree thesis is to evaluate whether fertigation with marine extracts has an impact on fruit yield, berry size, vigor, total soluble solids, pH, titratable acidity, anthocyanins, and tannins. If any of these factors are significantly affected by one of the treatments, it could indicate whether these products can influence the flavor and character of finished wines.

The experiment is being carried out at the Trestle Vineyard on the California Polytechnic University campus in San Luis Obispo, California during the 2009 and 2010 growing seasons. Three marine extracts were tested— fish, seaweed, and a fish/seaweed blend, along with an untreated control. The four treatments were replicated four times. To simulate fertigation, the amount of extract that each vine would receive with the manufacturer's recommended application rate was measured into plastic bottles, diluted with water, and poured underneath the drip emitters of the treated vines during the scheduled irrigations at berry set and veraison.



At harvest time, all of the fruit was picked, weighed, and sorted into subsamples for fruit chemistry analysis. Most of the analysis was carried out by myself with University-owned laboratory equipment, with the exception of tannins and anthocyanin concentration. That required shipping fruit to ETS labs in St. Helena, California. With the help of Rhone Rangers, I was able to cover \$1200 worth of laboratory fees in 2009 with enough money leftover to pay for most of my lab fees in 2010. By this time next year, my written thesis will be complete with 2 years of fruit composition and yield data. I sincerely appreciate the support of Rhone Rangers and all of the donors that contributed to the scholarship fund. I hope that the scholarship program at Rhone Rangers can continue to fund studies such as this that may lead to new insights and advancements in Rhone grape growing and winemaking.

By Jon Martin

If you have any questions or comments, feel free to email me at jonwmar@gmail.com. Thank you again for your support!