EFFECT OF SEAWEED EXTRACT ON FRUIT SET, YIELD, AND QUALITY IN PINOT NOIR WINEGRAPE

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ABSTRACT

Certain winegrapes cultivars, such as Pinot noir can be difficult to set to desired levels. Additionally, set can be low in cold, hot, or wet weather. Growers often look for ways to increase set within a bunch (i.e. decrease shatter). Seaweed extracts from Ascophyllum nodosum have the potential to improve fruit set. *Ascophyllum nodosum*, native to the north Atlantic, has been studied extensively, and survives under extreme growing conditions. Acadian extracts are processed with fresh *Ascophyllum nodosum*, using a proprietary alkaline extraction process. Seaweed extracts are used to stimulate metabolic processes and help the plant to exploit nutrients that are unavailable, as well as improve nutrient uptake, and improve water stress tolerance. Seaweed extracts can also stimulate PGR’s within the plant. All of these effects may increase the overall health of a plant, resulting in a healthier, less stressed plant which may be more likely to set fruit. The objective of this study is to determine if season long applications of Acadian LSC will enhance cluster architecture, set and yield of winegrapes.

A Pinot noir vineyard in San Luis Obispo County CA was selected for this trial. This vineyard is known to have production issues stemming from a loss of grapes post bloom due to shatter (initial loss of small berries from the rachis). A replicated strip trial was began in 2006. Seven in-season treatments of foliar and soil applied Acadian LSC at 3 pints per acre were applied. The control consisted of grower standard practices, which were also applied to the Acadian treatment.

In 2006, Early season shoot length was significantly longer in Acadian treated vines compared to the control vines (Figure 1). This was particularly beneficial in this vineyard where the vines are somewhat weak.

![Figure 1. Average shoot length 30 days after treatment was measured in 2006. Lowercase letters indicate significant differences between treatments (p≤0.1).](image-url)
When evaluated for shatter shortly after fruit set, Acadian treated vines had 47% more berries per bunch than did the untreated control (Figure 2).

![Bar chart showing number of berries per bunch](chart1.png)

Figure 2. The number of berries per bunch was counted in the Acadian treated and control vines. Lowercase letters indicate significant differences between treatments (p ≤ 0.1).

As expected, based on the shatter rating, treated bunches were also heavier than the control bunches (Figure 3).

![Bar chart showing bunch weight](chart2.png)

Figure 3. Bunch weights were measured at veraison in each year.
The average rachis length of bunches on treated vines was numerically longer in 2006, and statistically significantly longer in 2007 (Figure 4).

![Figure 4](image)

Figure 4. Bunch length of clusters from Acadian treated and control vines was measured each year. Lowercase letters indicate significant differences between treatments (p≤0.1).

Although not significantly different, treated vines in year two, but not year one, had more primary clusters per vine, as compared to the control (Figure 5).

![Figure 5](image)

Figure 5. The number of primary bunches per vine was counted at harvest in 2006 and 2007.

More uniformity in ripening was also exhibited with seaweed treatment. There were no significant differences in pH, brix, or titratable acidity detected between treatments. Although not significant, brix was slightly lower in the treated fruit, possibly due to increased fruit load or a slight delay in maturity. No differences in berry size distribution were detected.

These results indicate that Acadian LSC is a viable option to help reduce shatter, increase rachis stretch, and overall yield, in Pinot noir wine grapes, while still producing quality juice.