

Oregon Wine Advisory Board Research Progress Report

1993 - 1994

Minimal Pruning - Chardonnay and Cabernet Sauvignon Viticultural Field Trials

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Minimal pruning continues to look like a production system worthy of consideration in small scale commercial trials. In 1993, in a trial on Chardonnay at Woodhall vineyard, minimal pruning was compared to standard cane pruned vines on a vertical trellis. This was the second year of the trial.

The minimal pruning treatment was not pruned during the dormant season in 1993, but was "skirted" during the growing season with a sickle bar type hedger, once at bloom and once at veraison. Skirting consists of hedging below the canopy, the angle of the hedger on the second skirting was raised to cut part of the canopy sides as well.

Both treatments had more than normal amounts of foliage in 1993 and, unlike 1992, the minimally pruned vines did not appear to have better cluster exposure than the standard vertically trained vines. Minimally pruned vines had many more buds and shoots than the controls and this was reflected in an increase in the number of clusters (99 cl/vine compared to 30 for the control). The cluster weight was reduced with minimal pruning (min. = 57 g, control = 144 g). An analysis of cluster weight distribution showed that 60% of the clusters on the control weighed more than 100 g/cluster compared to less than 12% on the minimally pruned vines. Yields were significantly higher with minimal pruning, however, due to the greater cluster number (min. = 5.0 tons/acre, control = 3.1 tons/acre).

There were no significant differences in *Brix, titratable acidity, or pH of the must, although the minimally pruned vines had slightly lower sugar and higher acidity. Wine titratable acidity was not affected by treatment but pH was slightly higher in wines from minimally pruned vines. Despite the heavy mildew pressure in 1993, neither treatment had any powdery mildew. Possibly as a result of smaller clusters, the minimally pruned treatment had less incidence and less severity of botrytis than the control (minimally pruned vines had 27% of the clusters with at least one infected berry vs. 44% for the control).

The trial on Cabernet Sauvignon, now in its fifth year, had similar cluster weight results with the minimally pruned vines having smaller clusters, but the increase in cluster number due to minimal pruning was greater in Cabernet (45 clusters/vine on the control compared to 256 clusters/vine on the minimally pruned vines). This difference resulted in a larger yield difference as well (control = 2.45 tons/acre vs min. = 6.5 tons/acre). The large yield on the minimally pruned vines appeared to have had effects on grape and wine composition. There appeared to be a delay in maturity in the minimally pruned vines, with the minimally pruned treatments having lower Brix, higher titratable acidity, and lower pH. Wine anthocyanin content was reduced 30% in the minimally pruned treatments as well. Wines from the minimally pruned vines in previous years seemed to be less herbaceous than the

controls, but that difference was not as noticeable this year.

We have several questions about the best way to manage minimally pruned vines. The higher yields with minimal pruning seen in Cabernet Sauvignon in 1993, would have to be controlled if this system is put to commercial use in Oregon. More aggressive summer hedging or possibly mechanical pruning in winter could reduce the bud load and bring yields down to more appropriate levels; we will be experimenting with both techniques this coming season. Hand harvesting all those small clusters is difficult, and may be a deterrent for growers wishing to try this system on a large scale. Minimal pruning systems were designed for mechanical harvest, but mechanical harvesting has not been used in Oregon and concerns about the quality of mechanically harvested fruit would have to be addressed before the system could be used on a large commercial scale. Despite these difficulties, it would appear that minimally pruned vines can produce acceptable crops under Oregon growing conditions. The technology has the potential of greatly reducing production costs and, in some instances, might even improve quality.