Oregon Wine Advisory Board
Research Progress Report

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Minimal Pruning Oregon Chardonnay

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Minimal pruning is a vine management system developed in Australia and now widely used for wine grape production around the world. Porter Lombard started a minimal pruning trial in Cabernet Sauvignon following his visit to Australia in 1988. A replicated trial in Chardonnay was established at Woodhall vineyard in the winter of 1991-92. The minimally pruned vines in the Woodhall trial had been originally trained to an upright vertical training system with cane pruning. For conversion to a minimally pruned system, the foliage wires were removed, leaving a single wire at about 40 inches; the vines were not pruned that dormant season. Vines were skirted twice each season, once after bloom and once around veraison. Skirting consists of mechanically hedging shoots hanging down below the fruiting wire, either horizontally or, if needed, at an angle to remove a greater proportion of the canopy. The control vines were left on an upright vertical trellis and pruned to 24 nodes per vine. Vine spacing for both systems was 9 by 6 feet.

In previous seasons, the minimally pruned treatment had considerably more clusters per vine, smaller clusters, and greater yield than the control. Grape and wine composition did not appear to be greatly affected by minimally pruning. In 1993, incidence and severity of botrytis was reduced on minimally pruned vines, largely the result of smaller clusters.

Results for the 1994 season were similar in many ways to previous season's results (Table 1). The minimally pruned treatment had more than twice as many clusters as the control, clusters were about half the size of the control, and yield per vine was 37% greater than the control. Brix and titratable acidity were not significantly different, but pH was significantly higher on the minimally pruned treatment. There was no disease incidence in either treatment this year.

Table 1. Yield components and fruit composition from a minimal pruning trial, Woodhall Vineyard, Alpine, Oregon, 1994.

	Clusters per Vine	Cluster Weight (g)	Yield (kg/vine)	Brix	Titratable Acidity	pH
Control	28.7	84.3	2.42	23.2	7.87	3.17
Minimal	75.1	44.3	3.33	22.7	7.83	3.24

We have had some difficulty controlling the yields on the minimally pruned treatments in past seasons. We adopted a more severe summer pruning treatment in 1994 to attempt to keep the yields on the minimally pruned treatments closer to the control values. We were partly successful. In 1993, yields on the minimally pruned treatments were 61% higher than the control while this season they were only 37% higher. Summer skirting and green berry removal with mechanical harvesters have both been used to control crop load in minimally pruned canopies; in the absence of mechanical harvesters, skirting remains our only option in Oregon.

The primary benefit of mechanical pruning methods are reduced costs. The system tested in this trial required only a single wire trellis, no hand pruning, and no shoot positioning. The required skirting is done at a time when a conventionally trained vines would be summer pruned. The only added expense of using this system is the higher hand harvest costs. The big canopy and small clusters would probably raise harvest cost per ton at least 50%. If the system was machine harvested, (it is designed for that purpose) harvest costs would be less as well. Minimal pruning appears to be an acceptable method of growing grapes in Oregon. The vines produce fruit of acceptable quality in Chardonnay and at reduced costs. The smaller cluster size, particularly in 108 Chardonnay, may have quality advantages. The major limitations are the added expense of hand harvest and the uncertain market for machine harvested fruit. As the Oregon industry get larger, machine harvest may become more common, as it already is in Washington, and minimal pruning may become a viable commercial alternative.