

Oregon Wine Advisory Board Research Progress Report

1992 - 1993

Minimal Pruning

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INTRODUCTION AND OBJECTIVES

Traditional vineyard practices in Oregon are labor intensive and require large pools of available labor for pruning, shoot positioning, and harvest. A mechanized system of grape growing has been developed in Australia to eliminate almost all of the handwork involved with grape production. The cornerstone of this system is minimal pruning. In this system the severe hand pruning normally done during the dormant period is eliminated and replaced with a light summer pruning. This results in a very different vine structure that has the potential to greatly change yield components and the cluster environment. In many instances minimal pruning has resulted in improvements in wine quality. Trials were initiated in Oregon to test the potential of minimal pruning in Oregon and to evaluate possible wine quality responses.

RESULTS AND DISCUSSION

A trial was established in 1990 in Cabernet Sauvignon at Woodhall. A single row was converted from upright vertical training to minimal pruning. Cabernet is a vigorous variety and this section of the vineyard had been a problem area. To convert the upright system to minimal pruning, the upper wires were removed and the canes were cut back to about 15 nodes each. The following summer the vines were summer pruned, or skirted, below the main canopy. In 1991 the vines were not pruned at all during the dormant season, but were skirted twice, once at shatter and once at veraison to reduce the crop load. In 1992 the vines were only skirted once at shatter. An adjacent row of standard upright trained vines was managed as usual with don-nant pruning and summer hedging.

Minimal pruned vines had a typical growth response for vines with very large node numbers. Shoots were much shorter than usual and had smaller, lighter green leaves. Cluster and berry size were much smaller as well. In 1991, with skirting to remove extra crop, the crop loads of the two systems were similar. In 1992, without a second skirting, the crop load on the minimally pruned vines was much higher than the control (control - 2.22 tons/acre, minimally pruned - 6.23 tons/acre). Cluster weights on the control were 50 percent larger than the minimally pruned treatment, but cluster numbers on the control were only one-fourth of the minimally pruned vines.

In both 1991 and 1992, the minimally pruned vines had much higher cluster exposure levels than the control. In 1991 the control vines were excessively vigorous. This was much less of a problem in 1992. Wines made from the two treatments in 1991 were surprisingly different. The minimally pruned wines were less herbaceous and had a much better phenolic structure than the control vines. Anthocyanins were similar between the two treatments. Wines were also made from the trial in 1992. It will be

interesting to see if the minimally pruned treatments make better wine in a year when they cropped at much higher levels.

A new replicated trial was established at Woodhall last winter in a block of Chardonnay. Vines often over crop and have poor wine quality the first year after the conversion. The Chardonnay vines were no exception cropping at about twice the level of the control vines. Cluster exposure was not improved in the minimal treatment this year.

Minimal pruning has the potential of greatly reducing vineyard production costs. In Australia it forms the base of a completely mechanized vineyard production system. In Oregon it could be used to reduce labor demands and production costs. It has the potential to improve wine quality in some cases, but more research is needed before minimal pruning is considered for large scale commercial trial.