

Oregon Wine Advisory Board Research Progress Report

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1985 Frost Report

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This year's late spring frost prompted a number of growers to call OSU with questions about the fruitfulness of secondary buds and about management alternatives for frost damaged vines. In response to this concern three experiments were established in Willamette Valley vineyards. At Chateau Benoit Vineyard ten vines of MollerThurgau and ten vines of Riesling were selected in an area of the vineyard where approximately 50% of the primary shoots showed some damage. Two nodes with damaged primary shoots and two undamaged nodes were marked on each vine. On Riesling, two additional damaged nodes were marked and the damaged primary shoots removed. Muller-Thurgau was harvested on September 27 and Riesling on October 16.

The yield of secondary shoots from frost damaged nodes was disappointing, lower than much of the literature on frost damage had reported (Tables 1 & 2). The two causes of this low yield were, 1) secondary buds didn't break, and 2) the ones that did break were unfruitful. Removing damaged primary shoots on Riesling did not significantly increase the number of fruitful shoots (Table 2). The primary crop was considerably riper than the secondary crop but the secondary crop was ripe enough to pick with the main crop, at least in small quantities.

Table 1. Yield and maturity of frost damaged Müller-Thurgau shoots.

	% fruitful nodes	clusters /node	yield /node (g)	°Brix	TA	pH
Nodes with damaged primary shoots	35%	0.90	32	18.1	.91	3.11
Nodes with no damage	100%	3.05	537	20.5	.72	3.21

Table 2. Yield of frost damaged White Riesling shoots.

	% fruitful nodes	clusters /node	yield /node(g)
Nodes with damaged primary shoots	5%	0.05	0.3
Nodes with damaged shoots removed	10%	0.25	7.0
Nodes with no damage	85%	2.85	138.5

The third experiment was at Flynn Vineyards on Pinot noir vines. The development of the crop on frost damaged nodes was monitored throughout the season. The final maturity data is presented in Table 3. Bloom and veraison of the secondary crop was at least three weeks behind the main crop. By harvest, on September 27, the crop on frost damaged nodes was still at least two weeks away from harvest.

Table 3. Maturity of clusters from frost damaged Pinot noir vines.

	°Brix	TA	pH
Primary shoots	22.3	0.97	2.99
Secondary & tertiary shoots	17.0	1.65	2.94

The apparent low bud break and bud fertility observed in this trial combined with our late harvest dates make the possibility of a commercial harvest from severely frost damaged plants unlikely. In this situation growers should look to next year's crop and manage their vines accordingly.