

Alternate-year Pruning Recommended for Cranberry

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In a study examining the short-term effects of pruning severity on cranberries, Strik and Poole (1991) reported that unpruned and lightly pruned vines had higher total plant fresh weight, more berries, higher berry yield, longer and more fruiting uprights (U_F), and fewer nonfruiting uprights (U_N) than moderately or heavily pruned vines. Anthocyanin content of berries, a major factor in quality, was unaffected by pruning severity the first year, but unpruned vines produced berries with less color the second year. This study examines the longer-term effect of the earlier study.

The experiment was conducted on a 30-year-old 'McFarlin' cranberry bed. Details of the experiments were as reported by Strik and Poole (1991). Pruning severity (heavy, moderate, light, or no pruning) treatments were repeated on each plot in 1989 and 1990. Plots were 1.8 × 6 m. The cranberry bed was not pruned in 1991; thus, control plots were not pruned for 3 years. In Sept. 1991, yield component data were collected. Samples from two 3-dm² areas were collected and pooled from each plot. Data were extrapolated to represent an equivalent area to facilitate comparison with Strik and Poole (1991). Data were analyzed as a randomized complete block design with six replicates.

There was no difference among treatments

in total plant fresh weight (56 to 60 g·dm⁻²), unlike in our earlier study. We do not know the reason for this difference. A similar total number of uprights (U_T) and U_N and U_F length (data not shown) in this study and in Strik and Poole (1991) may indicate that there is an upper limit of canopy density in 'McFarlin' cranberry.

In our previous research, we showed a trend for percent fruiting uprights ($U_F/U_T \times 100$) to decrease with consecutive years of pruning. However, when these same plots were not pruned for 1 year, the percent U_F increased 44%, 48%, and 59% for light, medium, and heavy pruned plots, respectively, compared with the 1990 data (Table 1). The percent U_F in these plots was similar to that of the first year of the study. Although the unpruned plots also had an increase in percent U_F in this study (22% compared with 1990), percent U_F was less than that of 1989 (Table 1).

There were no differences among treatments in percent fruit set (43% to 53%), percent nonmarketable fruit weight (1% to 10%), or number of marketable berries (155 to 158 per 930 cm²). The heavily pruned vines produced berries with significantly more antho-

cyanin content than the unpruned or lightly pruned vines (Table 1), presumably because of more light exposure. Total anthocyanin content was less than that found by Strik and Poole (1991) because data were not collected as near to the actual commercial harvest date in this study. Although there was no significant difference in yield in 1991, lightly pruned vines tended to have higher yield than the rest (Table 1). These data, along with our previous study (1991), indicate that pruning lightly in alternate years leads to higher long-term yields. In 1990, after two consecutive years of light pruning, yield decreased 26% (Table 1). After not pruning for 1 year, these same lightly pruned plots had an 89% increase in yield compared with 1990 (Table 1). The unpruned plots, however, had only a 14% increase in yield compared with 1990 (Table 1). Chambers (1918) also found a 10% reduction in yield the year after pruning but a 45% increase in yield the 2nd year after pruning. Cumulative yield over 3 years (1989-91) was highest for the lightly pruned and lowest for the heavily pruned plots (50 and 33 t·ha⁻¹, respectively). Overpruning, therefore, reduces long-term yield. Alternate-year, light pruning is recommended to maintain high yield and good fruit color in cranberry in the Pacific Northwest.

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Table 1. Effect of pruning severity in 1990 on yield components of 'McFarlin' cranberry in 1991.

Pruning treatment ^b	Upright no. ^a			$(U_F/U_T) \times 100$ (%)			Est. yield (t·ha ⁻¹)			Anthocyanin (mg/100 g)
	U_T	U_N	U_F	1989 ^c	1990 ^c	1991	1989 ^c	1990 ^c	1991	
Unpruned	681	512	170 ab ^w	35 a	23 a	28	17.5 a	11.8 a	13.4	26 ab
Light	702	513	189 a	27 ab	15 b	27	16.0 ab	11.8 a	22.3	23 b
Moderate	665	524	141 b	19 bc	11 c	21	10.4 bc	9.4 ab	17.5	27 ac
Heavy	668	515	153 ab	18 c	9 c	22	9.7 c	6.5 b	16.9	31 c
Significance	NS	NS	*	**	**	NS	*	**	NS	***

^aSample area of 930 cm²; U_T = total number of uprights; U_N = nonfruiting uprights; U_F = fruiting uprights.

^bPlots pruned in Winter 1989-90; unpruned had not been pruned for 3 years. Light, moderate, and severe pruning as described by Strik and Poole (1991).

^c1989 and 1990 data from Strik and Poole (1991).

^wMean separation by the Waller test, $P = 0.05$.

NS,*,***Nonsignificant or significant at $P = 0.05, 0.01, 0.001$, respectively.

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