

THE EFFECT OF HYDROGEN CYANAMIDE ON BUD EMERGENCE OF CABERNET SAUVIGNON

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Trials in 1985 showed no benefit in the use of hydrogen cyanamide to improve the bud break of Cabernet Sauvignon. In 1986 the trial was repeated.

METHODS

The trial was conducted in a mature Cabernet Sauvignon vineyard. The vines were trained to bilateral cordons and spurs. On February 20, the vines were pruned to 16 two bud spurs and 2 fifteen bud canes per vine. Single vine plots were used with fifteen replications of each treatment in a randomized complete block design. The treatments were:

1. Untreated
2. Sprayed with 2.5% hydrogen cyanamide (v:v) after pruning, February 20.
3. Sprayed with 2.5% hydrogen cyanamide one after pruning, February 28.

During bud break one cane and four spurs per vine were observed and the date of bud break at each node was recorded.

Flower cluster counts were made separately for clusters on cane, spur and latent shoots.

On September 22 and October 6, 100 berries were collected from each replicate. The samples were analyzed for berry weight, soluble solids,

pH and titratable acidity. The vines were harvested on October 13.

RESULTS

Bud emergence began between March 15 and 20. The percent bud break for spurs and canes is shown in Tables 2 and 3. The percent bud break for spurs was initially higher on the hydrogen cyanamide treated vines, but the final percent bud break was not different among the treatments. Bud break for canes was earlier for the hydrogen cyanamide treatments. The final bud break on canes was highest for vines treated one week after pruning. There was no significant difference between the control and vines treated the day of pruning, although the treated vines had a greater percent of buds emerged.

Vines treated with hydrogen cyanamide had a greater number of flower clusters per cane (Table 3). The control vines had a greater number of clusters on shoots from latent buds. There was no significant difference between the number of clusters on spur shoots or the total number of clusters per vine.

There was no significant difference between treatments in fruit yield per vine. The berry samples showed no difference in berry weight or °Brix for both sample dates.

On September 22, titratable acidity was lower and pH higher for vines treated with hydrogen cyanamide. On October 6, there was no difference in titratable acidity or pH between the treatments.

Table 1. Effect of hydrogen cyanamide on bud break of Cabernet Sauvignon spurs.

Treatment	% Bud Break						
	3/15	3/20	3/26	3/31	4/3	4/7	4/14
Untreated	0 a	6.6 b	44.9 b	90.3 a	93.5 a	94.3 a	96.8 a
2.5% hydrogen cyanamide at pruning, Feb. 20.	0 a	36.9 a	73.8 a	89.1 a	90.9 a	91.7 a	93.5 a
2.5% hydrogen cyanamide one week after pruning, Feb. 28.	0 a	10.7 b	59.1 ab	87.6 a	92.6 a	93.5 a	95.9 a

Table 2. Effect of hydrogen cyanamide on bud break of Cabernet Sauvignon canes.

Treatment	% Bud Break						
	3/15	3/20	3/26	3/31	4/3	4/7	4/14
Untreated	0.5 a	1.4 b	10.7 b	49.5 b	56.1 b	62.8 c	66.8 b
2.5% hydrogen cyanamide at pruning, Feb. 20	0 a	18.1 a	59.9 a	70.5 a	71.9 a	72.7 a	73.2 b
2.5% hydrogen cyanamide one week after pruning, Feb. 28	0 a	5.9 b	48.4 a	79.1 a	81.8 a	84.4 b	85.7 a

Table 3. Effect of hydrogen cyanamide on number of flower clusters.

Treatment	clusters per vine			
	canes	spurs	latent	total
Untreated	39 b	60 a	6 a	106 a
2.5% hydrogen cyanamide at pruning, Feb. 20.	48 a	63 a	2 b	113 a
2.5% hydrogen cyanamide one week after pruning, Feb. 28.	52 a	57 a	4 b	112 a

Table 4. Effect of hydrogen cyanamide on yield.

Treatment	Yield (kg/vine)
Untreated	11.2 a
2.5% hydrogen cyanamide at pruning, Feb. 20.	10.7 a
2.5% hydrogen cyanamide one week after pruning, Feb. 28.	11.1 a

Table 5. Effect of hydrogen cyanamide on fruit composition, September 22.

Treatment	Berry Weight,g	Brix	Titratable	
			Acidity	pH
Untreated	1.44 a	20.3 a	.96 a	3.28 b
2.5% hydrogen cyanamide at pruning, Feb. 20.	1.46 a	20.6 a	.91 b	3.30 ab
2.5% hydrogen cyanamide one week after pruning, Feb. 28.	1.44 a	20.5 a	.93 b	3.29 b

Table 6. Effect of hydrogen cyanamide on fruit composition, October 6.

Treatment	Berry Weight,g	Brix	Titratable	
			Acidity	pH
Untreated	1.37 a	22.3 a	.79 a	3.43 a
2.5% hydrogen cyanamide at pruning, Feb. 20.	1.39 a	22.4 a	.77 a	3.44 a
2.5% hydrogen cyanamide one week after pruning, Feb. 28.	1.36 a	22.4 a	.79 a	3.43 a