A Preemergence Weed Control Trial in Three Year Old Cabernet Sauvignon Grapes

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A preemergence weed control trial, evaluating seven herbicides and/or combination treatments, was established at Duarte Vineyards (John Duarte, Greg Berg and Dale Carlson) on January 28, 1999. The vineyard is a three-year-old Cabernet Sauvignon grape on 1103 Paulsen, spaced at 4' x 11' and quadrilateral trained.

All treatments were applied with a handheld CO_2 backpack sprayer with 8002 nozzles at 40 psi in a spray volume of 30 gal/A water. The soil type at the trial site was a Redding gravelly loam, there were four replications of each treatment and the plot design was a randomized complete block. Weeds present at the time of treatment included 4 to 6 inch tall shepherdspurse, 6 to 8 inch rosette red stem filaree, 6 to 12 inch tall Italian ryegrass, 2 to 6 inch tall common groundsel, 3 to 5 inch tall common chickweed, 3 to 4 inch tall Poa annua, some 2 to 3 inch tall pineapple weed, some 4 to 6 inch tall miner's lettuce, some 6 to 8 inch rosette crowsfoot and some 2 to 3 inch tall panicled willow herb. Roundup (glyphosate) at 1.5 lbs/A A.I. plus ¼% X-77 was added to every treatment at trial establishment to remove the emerged weeds. The trial was evaluated for weed control efficacy and crop phytotoxicity on 3/31/99 and again on 5/4/99. Best weed control of the weed species present on the rating dates occurred with the high rate of Valor (flumioxazin), the high rate of Milestone (azafenadin), the middle rate of Milestone, the combination treatment of Goal (oxyfluorfen) plus Visor (thiazopyr), the combination treatment of Goal plus Surflan (oryzalin), the low rate of Valor and the single rate of Visor. None of the treatments exhibited any evidence of crop injury, indicating good safety. The trial was harvested on October 8, 1999, and all treatments had higher yields than the untreated control, with the high rate of Valor giving a significantly better yield.

1999 GRAPE PREEMERGENCE WEED CONTROL TRIAL
DUARTE VINEYARDS NEAR LINDEN, CA

Weed Control[1]

Treatment	Rate lb/Ac A.I.	shepherds-purse 3/31	shepherds-purse 5/4	swine cress 3/31	swine cress 5/4	common chickweed 3/31	common chickweed 5/4	red stem filaree 3/31	red stem filaree 5/4	panicled willow herb 3/31	panicled willow herb 5/4	Italian ryegrass 3/31	Italian ryegrass 5/4	Poa annua 3/31	Poa annua 5/4	umbrella sedge 3/31	umbrella sedge 5/4	Crop Phyto 3/31	Crop Phyto 5/4	Yield[2] lb/Plot
Milestone (80DF)	0.50	9.4	8.5	9.0	9.8	8.5	5.8	9.8	9.3	9.8	10.0	9.0	8.5	8.1	8.8	8.0	6.0		0.6	52.1
Milestone	0.75	9.8	10.0	9.6	9.0	9.0	7.5	10.0	10.0	9.9	10.0	9.8	9.5	8.5	7.3	8.6	6.0		0.6	58.6
Milestone	1.00	10.0	10.0	10.0	10.0	9.4	7.6	10.0	10.0	10.0	10.0	10.0	9.5	9.3	9.5	8.5	7.3		0.7	58.0
Visor (2E)	1.00	9.5	8.8	9.0	9.5	9.6	8.5	9.0	8.0	9.9	7.5	9.5	9.5	8.5	8.3	7.6	4.5		0.6	60.8
Goal (2XL)	0.50	6.8	5.5	7.8	7.5	6.5	4.8	9.3	9.3	9.0	7.8	7.3	2.5	6.4	5.3	6.8	4.0		0.5	
Valor (50WP)	0.188	9.8	9.8	10.0	10.0	9.9	8.3	9.5	9.5	10.0	9.5	9.4	8.3	8.8	6.0	7.1	4.0		0.8	56.7
Valor	0.375	10.0	10.0	10.0	10.0	10.0	9.5	10.0	10.0	10.0	10.0	8.8	8.0	8.4	7.0	8.3	6.8		0.6	73.8
Gallery (75DF)	1.00	9.3	9.8	8.6	10.0	9.3	10.0	7.8	5.5	9.5	5.5	7.9	4.8	7.5	4.8	8.1	4.8		0.5	61.9
Goal + Surflan (4AS)	0.50 + 2.00	8.8	7.5	8.5	8.5	9.6	10.0	9.6	10.0	10.0	8.0	10.0	9.5	9.1	9.3	6.5	4.3		0.7	
Goal + Visor	0.50 + 1.00	9.3	9.1	9.4	10.0	9.0	8.3	9.8	9.5	9.5	8.0	9.6	9.3	9.4	9.5	8.1	4.3		0.6	57.5
Goal + Simazine (90WG)	0.50 + 1.00	8.9	7.8	8.9	9.8	9.1	7.8	9.7	9.0	10.0	10.0	8.1	6.5	9.0	8.0	7.8	5.8		0.7	
Untreated Control	---	0.0	1.3	0.0	1.5	0.0	1.0	0.0	1.5	0.0	1.5	0.0	0.5	0.0	0.5	0.0	0.5		0.7	49.2

Crop Phyto 3/31: No rating-vines just beginning to push

LSD @ 5%: 16.1
CV: 18.7%

[1] Average of four replications: Weed control 0 = no weed control; 10 = complete weed control
Crop Phyto 0 = no crop damage; 10 = crop dead

[2] Average of four replications

There were minor populations of other weed species not controlled by the treatments:

Milestone 0.50 lb/Ac = pineapple weed, prickly lettuce, plantain, pigweed, smooth cat's ear
Milestone 0.75 lb/Ac = common groundsel, clover
Milestone 2.00 lb/Ac = hyssop
Visor 1.00 lb/Ac = pineapple weed, hyssop, sow thistle, swamp smartweed
Goal 0.50 lb/Ac = pineapple weed, hyssop, pigweed, sow thistle, flaxleaf fleabane, common knotweed, swamp smartweed
Valor 0.188 lb/Ac = hyssop, sow thistle, prickly lettuce, flaxleaf fleabane, clover, pigweed
Valor 0.375 lb/Ac = clover
Gallery 1.00 lb/Ac = hyssop, common groundsel, smooth cat's ear, crowsfoot, curly dock, clover, swamp smartweed
Goal + Surflan 0.50 lb/Ac + 2.00 lb/Ac = hyssop, common groundsel, pineapple weed, flaxleaf fleabane, smooth cat's ear, swamp smartweed
Goal + Visor 0.50 lb/Ac + 1.00 lb/Ac = hyssop, common groundsel, sowthistle, flaxleaf fleabane, smooth cat's ear, swamp smartweed
Goal + Simazine 0.50 lb/Ac + 1.00 lb/Ac = hyssop, pigweed, sowthistle
Untreated Control --- = hyssop, common groundsel, flaxleaf fleabane, crowsfoot, burning nettle, swamp smartweed, sowthistle