

2010 Wine Grape Weed Control Trial

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Methods: Conducted in cooperation with Daryl Salm of Valley Farm Management off of Metz Road, south of Soledad. Vine row spacing was 8 feet and plant spacing was 6 feet. Plots were 24 feet long by 4 feet wide (2 feet on each side of the vine row) and consisted of 5 vines. The vineyard was at its 3rd leaf and was planted to Pinot Noir on 10114 rootstock. Soil type was Garey sandy loam. There were four replications arranged in a randomized complete block design. All materials were applied on December 17, 2009. Materials were applied to the four foot wide strip by the length of the plot the equivalent of 72 gallons of water/A using a CO₂ backpack sprayer at 30 psi using two passes of a one nozzle wand with an 8008E tip. The herbicide was incorporated by rain between December 21 and 30 which was measured by a rain gauge located on a ranch 3 miles north of the trial site (Dec. 21 – 0.15; Dec. 22 – 0.03; Dec. 28 – 0.18; and Dec. 30 – 0.01 inch). It appears that these rainfall events were sufficient to incorporate the herbicides as can be seen by the weed evaluation conducted on January 7. However, more significant rainfall events between January 17 – 23 totaled over 3.5 inches. Weed evaluations were conducted by counting all weeds in the 4-foot wide strip by the 24 foot length of the plot (96 ft²). See tables for evaluation dates.

Results: Initial weeds were emerged on the January 7 evaluation date (Table 1). Annual grass was the main weed and Goal + Prowl and both Alion treatments completely controlled all weeds. On the February 10 evaluation date many more weed species had emerged. On this evaluation date Goal Tender + Prowl, Chateau and Alion + Prowl provided complete weed control (Table 2). The chenopod population was very spotty and large numbers were found in two replicates of Matrix which gave the unusual readings seen on this and subsequent evaluation dates. The trends observed in February mostly continued in March. Chateau and both Alion treatments had complete weed control on this date (Table 3). Early season trends continued into April. Chateau and Gallery had complete weed control, but were closely followed by Alion (Table 4). The addition of Goal Tender to Prowl greatly improved weed control. By May 7, the early season winter annuals were maturing and populations of weeds began to decline to some degree. No materials provided complete weed control on this date, but both rates of Alion provided excellent control and were closely followed by Chateau, Gallery and Goal Tender + Prowl (Table 5). On June 16 numbers of weeds that had germinated in the spring had declined and new flushes of sow thistle and maretail were emerging. On this date both rates of Alion provided complete weed control (Table 6). This level of weed control was closely followed by Chateau, Gallery and Goal Tender + Prowl. Significant phytotoxicity was observed in the Alion treatments. A possible explanation for this phytotoxicity was that this vineyard had been planted with green plant which may have grown slower and delayed the maturity of the vines (that is why Alion is recommended for 3rd leaf vines). All other treatments had low levels of phytotoxicity. The summer trend observed in June continued to the August 11 evaluation date. The population of weeds was now mainly made up of newly emerged sow thistle, filaree and Russian thistle (Table 7). It has been 8 months since the herbicides were applied, and on this evaluation date, none of the materials provided complete weed control. Materials that provided the best weed control included both rates of Alion and Goal Tender + Prowl. The Alion treatments continued to have high levels of phytotoxicity.

Photos of treatments on April 9, 2010 (app 4 months after treatment)



Prowl
Roundup



Goal Tender
Prowl + RU



Gallery
Prowl + RU



Chateau
Prowl + RU



Matrix
Roundup



Pendar
Roundup



Alion
Prowl + RU



Alion
Rely



Untreated

Table 1. Weed counts (per 96 ft²) on January 7, 2010

Treatment	Material Per acre	a.i lbs/A	Annual grass	Filaree	Clover ¹	Fiddle- neck	Other	Total Weeds
Prowl H2O Roundup 4.0 LG	4.00 qt 2 qt	3.8 2.0	0.5	0.0	0.0	0.0	0.0	0.5
Goal Tender 4F Prowl H2O Roundup 4.0LG	3 pt 4.00 qt 2 qt	1.5 3.8 2.0	0.0	0.0	0.0	0.0	0.0	0.0
Gallery 75 DF Prowl H2O Roundup 4.0 LG	1.0 lb 4.00 qt 2.0 qt	0.75 3.8 2.0	0.3	0.3	0.0	0.0	0.0	0.5
Chateau 51WG Prowl H2O Roundup 4.0LG	12 oz 4.00 qt 2.0 qt	0.375 3.8 2.0	0.3	0.0	0.0	0.0	0.0	0.3
Matrix SG25 Roundup 4.0LG	4.0 oz 2.0 qt	0.063 2.0	0.3	0.0	0.0	0.5	0.0	0.8
Matrix SG25 Prowl H2O Roundup 4.0LG	4.0 oz 4.00 qt 2.0 qt	0.063 3.8 2.0	0.3	0.0	0.0	0.0	0.0	0.3
Pendar 240SC Roundup 4.0LG	4.0 fl oz 2.0 qt	0.063 2.0	2.0	0.0	0.0	0.0	0.0	2.0
Alion 200 SC Prowl H2O Roundup 4.0LG	5.0 fl oz 4.00 qt 2.0 qt	0.063 3.8 2.0	0.0	0.0	0.0	0.0	0.0	0.0
Alion 200 SC Rely 280 SC	5.0 fl oz 56 fl oz	0.063 1.02	0.0	0.0	0.0	0.0	0.0	0.0
Untreated	----	----	5.5	2.0	1.8	0.3	0.8	10.3
Pr>Treat			<0.001	0.081	0.055	0.464	0.034	<0.001
Pr>Block			0.524	0.272	0.408	0.141	0.408	0.231
LSD _{0.05}			1.3	NS	1.1	NS	0.4	2.6

1 – a mix of burr and sweet clover

Table 2. Weed counts (per 96 ft²) on February 10

Treatment	Material Per acre	a.i lbs/A	Annual grass	Filaree	Clover	Fiddle- neck	Chenopod ¹	Other	Total Weeds
Prowl H2O Roundup 4.0 LG	4.00 qt 2 qt	3.8 2.0	1.3	0.0	0.0	0.0	12.8	0.0	14.0
Goal Tender 4F Prowl H2O Roundup 4.0LG	3 pt 4.00 qt 2 qt	1.5 3.8 2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gallery 75 DF Prowl H2O Roundup 4.0 LG	1.0 lb 4.00 qt 2.0 qt	0.75 3.8 2.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
Chateau 51WG Prowl H2O Roundup 4.0LG	12 oz 4.00 qt 2.0 qt	0.375 3.8 2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Matrix SG25 Roundup 4.0LG	4.0 oz 2.0 qt	0.063 2.0	0.5	0.8	0.0	0.3	128.3	0.0	129.8
Matrix SG25 Prowl H2O Roundup 4.0LG	4.0 oz 4.00 qt 2.0 qt	0.063 3.8 2.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
Pendar 240SC Roundup 4.0LG	4.0 fl oz 2.0 qt	0.063 2.0	8.0	0.8	0.0	0.0	0.0	0.8	9.5
Alion 200 SC Prowl H2O Roundup 4.0LG	5.0 fl oz 4.00 qt 2.0 qt	0.063 3.8 2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alion 200 SC Rely 280 SC	5.0 fl oz 56 fl oz	0.063 1.02	0.0	0.0	0.0	0.0	0.3	0.0	0.3
Untreated	----	----	16.8	14.0	7.5	22.3	61.3	0.8	122.8
Pr>Treat			<0.001	<0.001	<0.001	0.009	0.052	0.244	0.007
Pr>Block			0.223	0.440	0.332	0.408	0.626	0.144	0.564
LSD _{0.05}			4.9	4.8	3.6	3.8	83.6	NS	82.6

1 – Chenopods included mostly atriplex serenana, but was mixed with lambsquarter which were difficult to distinguish as seedlings

Table 3. Weed counts (per 96 ft²) on March 10

Treatment	Material Per acre	a.i lbs/A	Annual grass	Filaree	Clover	Fiddle- neck	Chenopod	Russian thistle	Tecolote	Mustard	Other	Total Weeds
Prowl H2O Roundup 4.0 LG	4.00 qt 2 qt	3.8 2.0	2.5	0.5	0.0	0.0	3.0	15.0	0.5	0.0	0.0	21.5
Goal Tender 4F Prowl H2O Roundup 4.0 LG	3 pt 4.00 qt 2 qt	1.5 3.8 2.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.5
Gallery 75 DF Prowl H2O Roundup 4.0 LG	1.0 lb 4.00 qt 2.0 qt	0.75 3.8 2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Chateau 51WG Prowl H2O Roundup 4.0 LG	12 oz 4.00 qt 2.0 qt	0.375 3.8 2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Matrix SG25 Roundup 4.0 LG	4.0 oz 2.0 qt	0.063 2.0	2.8	3.8	0.0	4.3	134.0	0.0	3.5	0.0	2.0	150.3
Matrix SG25 Prowl H2O Roundup 4.0 LG	4.0 oz 4.00 qt 2.0 qt	0.063 3.8 2.0	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.0
Pendar 240SC Roundup 4.0 LG	4.0 fl oz 2.0 qt	0.063 2.0	13.0	2.8	0.0	1.5	19.8	0.0	1.8	0.0	0.0	38.8
Alion 200 SC Prowl H2O Roundup 4.0 LG	5.0 fl oz 4.00 qt 2.0 qt	0.063 3.8 2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alion 200 SC Rely 280 SC	5.0 fl oz 56 fl oz	0.063 1.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Untreated	----	----	17.5	12.0	10.5	22.5	4.0	0.0	1.0	0.8	2.5	70.8
Pr>Treat			<0.001	<0.001	<0.001	<0.001	0.003	0.464	0.023	0.464	0.003	<0.001
Pr>Block			0.466	0.901	0.408	0.153	0.343	0.408	0.520	0.408	0.571	0.405
LSD _{0.05}			6.7	3.1	2.1	5.4	61.8	NS	2	NS	1.4	62.6

Table 4. Weed counts (per 96 ft²) on April 9.

Treatment	Material Per acre	a.i lbs/A	Annual grass	Filaree	Clover	Fiddle- neck	Cheno- pod	Russian thistle	Tecolote	Mustard	Lambs- quarter	Knot Weed	Other	Total Weeds
Prowl H2O Roundup 4.0 LG	4.00 qt 2 qt	3.8 2.0	2.0	5.8	0.8	0.0	0.0	15.3	5.0	0.5	0.0	0.0	0.0	27.3
Goal Tender 4F Prowl H2O Roundup 4.0LG	3 pt 4.00 qt 2 qt	1.5 3.8 2.0	0.0	0.0	0.5	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	3.3
Gallery 75 DF Prowl H2O Roundup 4.0 LG	1.0 lb 4.00 qt 2.0 qt	0.75 3.8 2.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chateau 51WG Prowl H2O Roundup 4.0LG	12 oz 4.00 qt 2.0 qt	0.375 3.8 2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Matrix SG25 Roundup 4.0LG	4.0 oz 2.0 qt	0.063 2.0	4.3	9.5	2.5	7.5	94.3	1.5	2.3	2.5	94.3	22.0	7.8	150.5
Matrix SG25 Prowl H2O Roundup 4.0LG	4.0 oz 4.00 qt 2.0 qt	0.063 3.8 2.0	0.8	1.3	0.3	0.0	0.0	4.0	2.3	0.0	0.0	0.0	0.0	7.8
Pendar 240SC Roundup 4.0LG	4.0 fl oz 2.0 qt	0.063 2.0	18.3	11.5	0.0	7.3	0.0	0.0	2.0	0.0	0.0	5.3	3.5	30.0
Alion 200 SC Prowl H2O Roundup 4.0LG	5.0 fl oz 4.00 qt 2.0 qt	0.063 3.8 2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3
Alion 200 SC Rely 280 SC	5.0 fl oz 56 fl oz	0.063 1.02	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Untreated	----	----	25.3	8.8	13.5	26.8	0.0	0.0	4.3	0.8	0.0	0.5	3.0	57.8
Pr>Treat			<0.001	<0.001	<0.001	<0.001	<0.001	0.537	0.018	0.513	<0.001	0.001	<0.001	<0.001
Pr>Block			0.482	0.119	0.108	0.421	0.408	0.500	0.524	0.408	0.408	0.375	0.456	0.789
LSD _{0.05}			8.4	5.3	3.8	6.5	37.9	NS	3.1	NS	37.9	9.6	2.6	50.8

Table 5. Weed counts (per 96 ft²) on May 7.

Treatment	Material Per acre	a.i lbs/A	Annual grass	Filaree	Clover	Fiddle-neck	Cheno-pod	Russian thistle	Tecolote	Mustard	Knot weed	Other	Total Weeds
Prowl H2O Roundup 4.0 LG	4.00 qt 2 qt	3.8 2.0	2.5	5.3	3.0	0.3	0.0	10.5	3.3	2.3	0.0	4.25	31.3
Goal Tender 4F Prowl H2O Roundup 4.0LG	3 pt 4.00 qt 2 qt	1.5 3.8 2.0	0.0	0.0	1.0	0.0	0.0	0.0	1.5	0.0	0.0	1	3.5
Gallery 75 DF Prowl H2O Roundup 4.0 LG	1.0 lb 4.00 qt 2.0 qt	0.75 3.8 2.0	2.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0	3.5
Chateau 51WG Prowl H2O Roundup 4.0LG	12 oz 4.00 qt 2.0 qt	0.375 3.8 2.0	0.3	0.5	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.0
Matrix SG25 Roundup 4.0LG	4.0 oz 2.0 qt	0.063 2.0	4.0	11.3	2.0	5.8	78.8	0.0	0.0	2.8	12.3	9	125.8
Matrix SG25 Prowl H2O Roundup 4.0LG	4.0 oz 4.00 qt 2.0 qt	0.063 3.8 2.0	0.0	6.5	1.0	0.0	0.0	4.3	0.8	0.5	0.0	0.8	13.8
Pendar 240SC Roundup 4.0LG	4.0 fl oz 2.0 qt	0.063 2.0	18.3	8.3	1.5	1.5	1.3	0.0	2.0	0.0	3.5	2.8	39.0
Alion 200 SC Prowl H2O Roundup 4.0LG	5.0 fl oz 4.00 qt 2.0 qt	0.063 3.8 2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3
Alion 200 SC Rely 280 SC	5.0 fl oz 56 fl oz	0.063 1.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3
Untreated	----	----	22.3	5.0	13.5	21.8	0.8	0.0	0.0	0.3	1.0	2.5	67.0
Pr>Treat			<0.001	0.001	<0.001	<0.001	<0.001	NA	NA	0.094	0.001	<0.001	<0.001
Pr>Block			0.48	0.174	0.233	0.618	0.411	NA	NA	0.298	0.255	0.298	0.474
LSD _{0.05}			7.8	5.5	5.1	4.8	23.8	NA	NA	NS	5.2	3.3	27.4

Table 6. Weed counts (per 96 ft²) on June 16.

Treatment	Material Per acre	a.i lbs/A	Phyto	Annual grass	Filaree	Clover	Fiddle- neck	Cheno- pod	Russian thistle	Tecolote	Mustard	Knot weed	Sow Thistle	Mares- tail	other	Total
Prowl H2O Roundup 4.0 LG	4.00 qt 2 qt	3.8 2.0	0.8	0.3	1.0	1.0	0.0	0.0	2.5	3.3	0.8	0.0	0.5	2.3	0.3	12.5
Goal Tender 4F Prowl H2O Roundup 4.0LG	3 pt 4.00 qt 2 qt	1.5 3.8 2.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	1.3	0.0	0.3	0.3	0.0	0.5	3.3
Gallery 75 DF Prowl H2O Roundup 4.0 LG	1.0 lb 4.00 qt 2.0 qt	0.75 3.8 2.0	0.0	0.3	0.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	2.0
Chateau 51WG Prowl H2O Roundup 4.0LG	12 oz 4.00 qt 2.0 qt	0.375 3.8 2.0	0.3	0.0	0.8	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	3.3
Matrix SG25 Roundup 4.0LG	4.0 oz 2.0 qt	0.063 2.0	1.3	0.5	0.8	2.3	0.0	12.3	3.5	1.3	2.3	9.0	3.3	2.8	1.3	39.0
Matrix SG25 Prowl H2O Roundup 4.0LG	4.0 oz 4.00 qt 2.0 qt	0.063 3.8 2.0	0.5	0.0	2.0	1.0	0.0	0.0	2.5	1.0	0.3	0.3	0.0	0.0	0.5	7.8
Pendar 240SC Roundup 4.0LG	4.0 fl oz 2.0 qt	0.063 2.0	1.0	0.3	0.0	3.0	0.0	0.0	0.0	1.3	0.3	1.0	3.3	1.3	0.5	11.5
Alion 200 SC Prowl H2O Roundup 4.0LG	5.0 fl oz 4.00 qt 2.0 qt	0.063 3.8 2.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alion 200 SC Rely 280 SC	5.0 fl oz 56 fl oz	0.063 1.02	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Untreated	----	----	0.0	0.3	0.0	2.5	0.0	1.0	0.0	1.3	1.3	0.0	3.5	2.0	0.8	12.5
Pr>Treat			<0.001	0.747	0.564	0.4136	NA	0.384	0.181	0.04	0.121	<0.001	0.007	0.282	0.275	<0.001
Pr>Block			0.6518	0.215	0.913	0.758	NA	0.331	0.61	0.437	0.254	0.274	0.721	0.839	0.494	0.402
LSD _{0.05}			2.4	NS	NS	NS	NA	NS	NS	1.9	NS	2.1	2.4	NS	NS	11.8

