

## WEED RESEARCH PROJECTS IN ALMOND AND GRAPES

*Ron Vargas, University of California Cooperative Extension, 328 Madera Avenue,  
Madera, CA 93637 [rnvargas@ucdavis.edu](mailto:rnvargas@ucdavis.edu)*

*Kurt Hembree, University of California Cooperative Extension, 1720 S Maple Avenue,  
Fresno, CA 93702 [klhembree@ucdavis.edu](mailto:klhembree@ucdavis.edu)*

*Tomé Martin-Duvall, University of California Cooperative Extension, 328 Madera Ave.,  
Madera, CA 93637 [tmmartinduvall@ucdavis.edu](mailto:tmmartinduvall@ucdavis.edu)*

Both winter and summer, annual and perennial weeds can be very problematic in grapes and almonds. Weeds compete for nutrients, water and sunlight. Weeds are most competitive during the first couple of years of establishment, but once established heavy densities of weeds, especially perennials, can interfere with irrigation increase damaging rodents and insects, reduce yields and quality and interfere with harvest. Although there are a number of pre and post emergence herbicides registered for use in almonds and grapes (Table 1 & 2) hairy fleabane and horseweed have become severe problems. Currently registered herbicides have effectively controlled most annuals, but have been erratic in control of hairy fleabane and horseweed. Consequently, in most situations there has been a weed shift to these two species. Studies were conducted in 2002, 2003 and 2004 to evaluate the efficacy of various pre and post emergence herbicides. All tests were conducted in a randomized complete design and were applied with CO2 backpack sprayer delivering spray volumes of 20 and 40 GPA, depending upon test.

### Almonds

Evaluations of hairy fleabane and common groundsel control in 2002, 78 days after treatment (Table 3) indicated 99 to 100 percent control with Chateau tank mix with Roundup at both the 6 and 12 oz. rate of Chateau. The Goal, Visor treatment was also exhibiting 100 percent control. Goal, by itself, and in combination with either Surflan, Shark or Rely was providing 88 to 96 percent control. At 128 DAT, 100 percent hairy fleabane control was being achieved with the 12 oz. rate of Chateau. Reduced control was exhibited by all other treatments.

Evaluations in 2003 (Table 4) indicated 96 to 100 percent control of hairy fleabane, common groundsel and barnyardgrass with both Chateau and Goal in combination with Surflan and Rely, and all rates of E9628 in combination with Roundup.

No injury from any treatment was observed on the almonds in all years tested.

### Grapes

Evaluations in 2003 (Table 5 & 6) in grapes indicated excellent control of hairy fleabane with Chateau alone or in combination with Roundup. At 140 DAT (Table 5) E9636 at 4 and 8 oz. in combination with Roundup control ranged from 89 to 95 percent. Goal, Surflan combinations were only providing 65 to 70 percent control. Chateau by itself at 12 and 24 oz. and Chateau at 12 oz. in combination with Surflan at 4 qts. was providing 100 percent control of hairy fleabane at 150 DAT (Table 6). Goal in combination with Visor or Surflan was only providing 70 percent control.

In 2004, E9638 at all rates in combination with Roundup was providing 98 to 99 percent control of hairy fleabane at 38 DAT and 90 to 96 percent control at 103 DAT. Chateau in combination with Surflan was providing 92 to 94 percent control at 38 DAT and 84 to 90 percent control at 103 DAT. Goal by itself and in combination with either Roundup or Surflan + Roundup was only providing 22 to 75 percent control at 103 DAT. Barnyardgrass control with E9638 at 2

and 4 oz. in combination with Roundup was poor, but increased to 98 percent when tank mixed with Karmex.

No injury was noted in the grapes with any herbicide treatment in all years tested.

### Conclusion

Both Chateau, a Valent herbicide, and E9636, a DuPont herbicide, provided excellent control of hairy fleabane in almonds and grapes. Once registered, these herbicides will provide growers with an effective means of controlling hairy fleabane and many other winter and summer annuals.

### Soil Applied Residual Herbicides

Table 1.

	Common Name	Grapes	Almonds
Casoron	Dichlobenil	X	
Devrinol	Napropamide	X	X
Eptam	EPTC		X
Gallery*	Isoxaben	X	X
Goal	Oxyfluorfen	X	X
Karmex, Direx,	Diuron	X	
Kerb	Pronamide	X	
Princep (others),	Simazine	X	X
Prowl*	Pendimethalin	X	X
Solicam,	Norflurazon	X	X
Surflan, Oryzalin	Oryzalin	X	X
Treflan	Trifluralin	X	X
Visor*	Thiazopyr	X	X

\* Non Bearing Only

## Foliar Applied Herbicides

Table 2

Brand Name	Common Name	Grapes	Almonds
2,4-D	2,4-D	X	X
Fusilade*	Fluazifop-p	X	X
Gramoxone	Paraquat	X	X
MSMA*	MSMA	X	
Poast	Sethoxydim	X	X
Prism*	Clethodim	X	X
Rely	Glufosinate	X	X
Reglone*	Diquat	X	X
Roundup	Glyphosate	X	X
Sempra. Sandea	Halosulfuron-methyl		X
Touchdown 5	Sulfosate	X	X

Non Bearing Only

**Almond Weed Control Study – 2002**

Ron Vargas, Brent Holtz, Tomé Martin-Duvall & Eric Hoffman  
University of California Cooperative Extension, Madera County

Table 3.

Treatment	Product/Acre	78 DAT		128 DAT
		Groundsel	Fleabane	Fleabane
1. Goal	1 gallon	91	92	77
2. Visor	1.5 pt	84	84	71
3. Goal + Visor	2 qt + 1.5 qt	100	100	89
4. Goal + Surflan + Roundup Ultra	2 qt + 1 qt + 1 pt	92	100	84
5. Shark + Goal + Agridex	0.8 oz + 2 qt + 1%	96	96	90
6. Prowl	4.8 qt	75	75	88
7. Chateau 4F + Roundup Ultra	6 oz + 1 pt	99	99	94
8. Chateau 4F + Roundup Ultra	12 oz + 1 pt	100	100	100
9. Rely + Goal + COC	1 gallon + 2 qt + 1%	88	88	83
10. Untreated Control		0	0	0

**Almond Weed Control Study – 2003**

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University of California Cooperative Extension, Madera County

Table 4.

Treatment	Product/Acre	78 DAT		128 DAT
		Fleabane	Common Groundsel	Barnyard grass
1. Chateau + Surflan + Rely	6 oz + 1 gallon + 3 qt	100	100	100
2. Chateau + Surflan + Rely	12 oz + 1 gallon + 3 qt	100	100	100
3. Goal + Surflan + Rely	2 qt + 1 gallon + 3 qt	96	99	100
4. E9636 + Roundup + Agridex	2 oz + 1 qt + 1%	99	100	100
5. E9636 + Roundup + Agridex	4 oz + 1 qt + 1 %	99	100	100
6. E9636 + Roundup + Agridex	8 oz + 1 qt + 1%	99	100	100
7. Untreated Control		0	0	0

### Grape Weed Control Study – 2003

Ron Vargas, George Leavitt, Tomé Martin-Duvall & Eric Hoffman  
University of California Cooperative Extension, Madera County

Table 5.

Treatment	Product/Acre	Fleabane	
		65 DAT	140 DAT
1. Chateau + Surflan + Rely	9 oz + 1 gallon + 3 qt	92	75
2. Chateau + Surflan + Rely	12 oz + 1 gallon + 3 qt	86	66
3. Goal + Surflan + Rely	2 qt + 1 gallon + 3 qt	86	65
4. Goal + Surflan + Roundup Ultra Max	2 qt + 1 gallon + 25.6 oz	95	70
5. Goal + Roundup Ultra Max	2 qt + 25.6 oz	92	76
6. E9636 + Roundup + Agridex	2 oz + 1 qt + 1%	94	82
7. E9636 + Roundup + Agridex	4 oz + 1 qt + 1 %	100	95
8. E9636 + Roundup + Agridex	8 oz + 1 qt + 1%	98	89
9. Untreated Control		0	0

### Grape Weed Control Study – 2003

Kurt Hembree

University of California Cooperative Extension, Fresno County

Table 6.

Treatment	Product/Acre	Hairy Fleabane Control			
		30 DAT	60 DAT	90 DAT	150 DAT
1. Chateau	3 oz	96	96	94	95
2. Chateau	6 oz	98	99	99	99
3. Chateau	12 oz	100	100	100	100
4. Chateau	24 oz	100	100	100	100
5. Goal + Visor	5 pt + 3 pt	65	50	60	70
6. Goal + Visor	5 pt + 4 pt	75	70	60	70
7. Goal + Surflan	5 pt + 8 pt	60	65	75	70
8 Chateau + Surflan	6 oz + 8 pt	97	99	98	98
9. Chateau + Surflan	12 oz + 8 pt	100	100	100	100
10. Untreated Control		0	30	30	40

### Grape Weed Control Study – 2003

Ron Vargas, George Leavitt, Tomé Martin-Duvall & Eric Hoffman  
University of California Cooperative Extension, Madera County

Table 7.

Treatment	Product/Acre	Fleabane		BYG
		38DAT	103 DAT	
1. Chateau + Surflan + Rely	9 oz + 1 gal + 3 qt	94	90	100
2. Chateau + Surflan + Rely	12 oz + 1 gal + 3 qt	92	84	100
3. Goal	2 qt	82	22	89
4. Goal + Glyphomax Plus	1 qt + 1 qt	93	75	45
5. Goal + Surflan + glyphosate + NIS	2 qt + 1 gal + 1 pt + 6.4 oz	81	50	100
6. E9636 + Roundup + Agridex	2 oz + 1 qt + 0.25%	98	96	58
7. E9636 + Roundup + Agridex	4 oz + 1 qt + 0.25%	99	90	50
8. E9636 + Roundup + Agridex	8 oz + 1 qt + 0.25%	99	96	89
9. E9636 + glyphosate + Karmex + NIS	4 oz + 1 pt + 2 lb + 6.4 oz	98	91	98
10. Untreated Control		0	0	0

\* BYG - barnyardgrass