

Chart 1. Selectivity of Annual Broadleaf Weeds to Herbicides Registered in Grapes in California

	Preemergent Herbicides													Postemergent Herbicides									
	diuron (Karmex® [®] , Direx®)	flumioxazin (Chateau®)	isoxaben (Gallery T&V®) - NB	napropamide (Devrinol®)	norflurazon (Solicam®)	oryzalin (Surflan®, etc.)	oxyfluorfen (Goal®, etc.)	pendimethalin (Prowl H ₂ O®)	rimsulfuron (Matrix FNV®)	simazine (Princep®)	thiazopyr (Visor®) - NB	trifluralin (Treflan 4E®, etc.)	carfentrazone (Shark®)	clethodim (Select Max®) - NB	fluaizifop (Fusilade DX®) - NB	glufosinate (Rely 200®)	glyphosate (Roundup®, Glyphomax®, etc.)	paraquat (Gramoxone®, etc.)	pyraflufen (Venue®)	sehtoxydim (Poast®)	2,4-D amine (Dri-Clean®, etc.)		
Annual Broadleaves																							
Cheeseweed	P	C	C	P	P	P	C	P	C	P	P	N	C	N	N	C	P	P	P	N	P		
Chickweed	P	C	C	C	P	C	P	C	C	C	P	C	C	N	N	C	C	C	C	N	N		
Clovers	P	-	P	P	N	N	P	N	-	C	-	N	P	N	N	P	P	P	P	N	N		
Cocklebur	C	-	-	P	C	N	P	N	P	C	N	N	C	N	N	P	C	C	C	N	C		
Cudweed	C	-	C	C	C	N	N	N	-	C	C	N	P	N	N	P	C	N	C	N	P		
Fiddleneck	C	-	C	C	P	C	C	C	C	C	C	C	C	N	N	P	C	P	P	N	P		
Filaree	C	C	C	C	P	P	C	N	C	C	C	P	C	N	N	C	P	P	P	N	C		
Goosefoot	C	C	C	C	P	C	C	C	P	C	C	C	C	N	N	P	C	C	C	N	C		
Groundcherry	C	C	C	N	C	N	C	N	C	C	P	P	C	N	N	C	C	C	C	N	C		
Groundsel, common	N	C	C	P	P	P	C	N	C	P	C	N	C	N	N	P	C	C	C	N	P		
Hairy fleabane	P	C	C	N	P	N	P	N	C	P	P	N	P	N	N	C	P	P	P	N	C		
Henbit	C	C	C	P	P	C	C	C	C	C	P	P	C	N	N	C	C	C	C	N	P		
Horseweed	P	C	C	N	P	N	P	N	C	P	P	N	P	N	N	C	P	P	P	N	C		
Knotweed, common	C	-	C	C	P	C	P	C	C	C	C	C	P	N	N	P	P	P	C	N	P		
Lambsquarters	C	C	C	C	P	C	C	C	C	C	C	P	C	N	N	P	C	C	C	N	C		
London rocket	C	C	C	C	P	P	C	P	C	C	C	P	N	C	N	N	C	C	C	N	C		
Morningglory	C	C	C	P	C	P	C	N	N	C	-	C	C	N	N	C	C	P	C	N	P		
Mullein, turkey	N	-	C	P	P	N	P	N	-	N	C	P	P	N	N	C	P	P	P	N	P		
Mustard	C	C	C	P	P	N	C	P	C	C	P	N	C	N	N	C	C	C	C	N	P		
Nettle	C	C	C	P	C	P	C	N	C	C	C	N	C	N	N	C	N	P	C	N	P		
Nightshade	C	C	C	N	C	N	C	N	P	C	P	N	C	N	N	C	C	C	C	N	C		
Pigweed	C	C	C	C	P	C	C	C	C	C	P	C	C	N	N	C	C	C	C	N	P		
Prickly lettuce	C	P	C	C	P	N	C	N	P	C	C	N	C	N	N	C	C	P	C	N	C		
Primrose, evening	P	-	C	P	N	P	P	P	-	C	C	P	P	N	N	C	C	C	C	N	-		
Puncturevine	P	C	C	P	C	C	P	P	C	P	P	P	P	N	N	P	C	C	P	N	P		
Purslane	C	C	C	C	C	C	C	C	C	C	C	C	N	N	N	C	C	C	C	N	P		
Russian thistle	P	C	C	P	C	P	P	P	P	C	P	P	P	N	N	C	C	C	C	N	P		
Shepherd's-purse	C	C	C	P	P	N	C	P	C	C	C	N	P	N	N	C	C	P	C	N	C		
Sowthistle	C	P	C	C	P	P	C	N	P	C	C	N	N	N	N	C	C	P	C	N	P		
Spotted spurge	N	C	C	C	C	P	P	P	C	P	P	P	P	N	N	C	C	C	C	N	P		
Wild radish	C	C	C	P	P	P	C	N	C	C	C	N	P	N	N	C	C	C	C	N	C		
Willowherb	N	C	P	N	P	P	C	-	-	N	-	-	P	N	N	C	P	N	P	N	P		

NB = non-bearing only

This is not an endorsement for of any trade names listed, nor does the omission of specific trade names reflect the view of the author. Please refer to your local dealer or chemical representative for specific herbicide products available but not listed. Always read and follow the label directions carefully before using any pesticide. Ratings reflect appropriate timing and dose according to label recommendations. Kurt Hembree, UCCE, Fresno County. December 2009.

Chart 2. Selectivity of Annual Grass and Perennial Weeds to Herbicides Registered in Grapes in California

	Preemergent Herbicides												Postemergent Herbicides								
	diuron (Karmex®, Direx®)	flumioxazin (Chateau®)	isoxaben (Gallery T&V®) - NB	napropamide (Devrinol®)	norflurazon (Solicam®)	oryzalin (Surflan®, etc.)	oxyfluorfen (Goal®, etc.)	pendimethalin (Prowl H ₂ O®)	rimsulfuron (Matrix FNV®)	simazine (Princep®)	thiazopyr (Visor®) - NB	trifluralin (Treflan 4E®, etc.)	carfentrazone (Shark®)	clethodim (Select Max®) - NB	fluaizop (Fusilade DX®) - NB	glufosinate (Rely 200®)	glyphosate (Roundup®, Glyphomax®, etc.)	paraquat (Gramoxone®, etc.)	pyraflufen (Venue®)	sehtoxydim (Poast®)	2,4-D amine (Dri-Clean®, etc.)
<div style="display: flex; flex-direction: column; gap: 5px;"> <div>C = Control</div> <div>P = Partial control</div> <div>N = No control</div> <div>-- = No information</div> </div>																					
Annual Grasses																					
Annual bluegrass	C	C	N	C	C	C	P	C	C	C	C	C	N	C	N	C	C	P	N	N	N
Barnyardgrass	C	C	N	C	P	C	P	C	C	P	C	C	N	C	C	C	C	P	N	C	N
Bromegrasses	C	P	N	C	C	C	N	C	C	--	C	C	N	P	P	C	C	P	N	P	N
Canarygrass	C	P	N	C	C	C	P	C	--	P	C	C	N	C	C	C	C	P	N	C	N
Crabgrass, large	C	C	N	C	P	C	N	C	C	N	C	C	N	C	C	C	C	C	N	C	N
Fescues	C	P	N	C	C	C	N	C	C	P	P	C	N	P	P	P	C	P	N	P	N
Foxtails	C	C	N	C	P	C	N	C	C	C	C	C	N	C	C	P	C	C	N	C	N
Junglerice	C	C	N	C	P	C	P	C	C	P	C	C	N	C	C	P	C	P	N	C	N
Lovegrass	C	C	N	C	P	C	P	C	P	P	P	C	N	C	C	C	C	P	N	C	N
Ryegrass, Italian	C	P	N	C	C	C	N	C	C	P	C	C	N	C	C	C	C	P	N	C	N
Sandbur	C	C	N	C	C	P	N	C	--	C	C	C	N	C	C	C	C	P	N	C	N
Sprangletop	P	P	N	C	P	C	N	C	--	N	C	C	N	C	C	P	C	N	N	C	N
Wild barley	C	P	N	C	C	C	P	C	P	P	C	C	N	C	C	C	C	P	N	C	N
Wild oat	P	C	N	C	C	C	P	P	P	C	--	P	N	C	C	C	C	P	N	C	N
Witchgrass	C	P	N	C	P	C	P	C	--	P	--	C	N	C	C	P	C	P	N	C	N
Perennials (seedling)																					
Bermudagrass	C	N	N	C	C	C	N	C	N	P	C	C	N	C	C	C	C	P	N	C	N
Dallisgrass	C	--	N	C	C	C	N	C	N	C	C	C	N	C	C	C	C	N	N	C	N
Johnsongrass	C	C	N	C	C	C	N	C	P	C	C	C	N	C	C	C	C	C	N	C	N
Field bindweed	P	--	C	N	P	P	N	P	P	P	C	P	C	N	N	C	C	P	P	N	P
Perennials (established)																					
Bermudagrass	N	N	N	N	P	N	N	N	N	N	N	N	N	P	P	P	P	N	N	P	N
Dallisgrass	N	N	N	N	P	N	N	N	N	N	N	N	N	P	P	P	P	N	N	P	N
Johnsongrass	N	N	N	N	C	N	N	N	N	N	N	P	N	P	P	P	P	N	N	P	N
Field bindweed	N	N	P	N	N	N	N	N	P	N	P	P	P	N	N	P	P	N	N	N	N
Nutsedge, purple	N	N	N	N	P	N	N	N	P	N	P	N	N	N	N	P	P	P	N	N	N
Nutsedge, yellow	N	N	N	N	P	N	N	N	P	N	C	N	N	N	N	P	P	P	N	N	N
NB = non-bearing only																					
<p><i>This is not an endorsement for of any trade names listed, nor does the omission of specific trade names reflect the view of the author. Please refer to your local dealer or chemical representative for specific herbicide products available but not listed. Always read and follow the label directions carefully before using any pesticide. Ratings reflect appropriate timing and dose according to label recommendations. Kurt Hembree, UCCE, Fresno County. December 2009.</i></p>																					

Chart 3. Preemergent Herbicide Use Rates, Timings, and Other Label Recommendations

Preemergent Herbicide	Rate/Ac/Application	Rate/Ac/Season	PHI	Application Information
diuron (Karmex [®] , Direx [®])	2-3.75 lb	5 lb	0 days	Bearing/non-bearing >3 year old; adjust rate to soil texture; ¼” rain within 21 days; volume 20-40 gpa; can tank-mix; permit needed in a groundwater zone.
flumioxazin (Chateau SW [®])	6 - 12 oz	24 oz	60 days	Bearing/non-bearing; ¼-½” rain within 28 days; spray volume 20-40 gpa; can tank-mix; don’t disturb treatment.
isoxaben (Gallery T&V [®])	0.66 - 1.33 lb	4 lb	365 days	Non-bearing only; ½” rain in 21 days; spray volume 20-40 gpa; can tank-mix.
napropamide (Devrinol 50-DF [®])	8 lb	8 lb	35 days	Bearing/non-bearing; activate within 2-7 days; spray volume 20-40 gpa; can tank-mix.
norflurazon (Solicam [®])	1.25-5 lbs	5 lb	60 days	Bearing/non-bearing at >2 years old; adjust rate to soil texture; ½” rain within 28 days; spray volume 20-40 gpa; can tank-mix; permit needed in a groundwater zone.
oryzalin (Surflan A.S. [®] , Oryzalin [®] , etc.)	2 - 6 qt (liquid) 2.4 - 7.1 lb (dry)	12 qt (liquid) 14 lb (dry)	0 days	Bearing/non-bearing; ½-1” rain within 21 days; spray volume 20-40 gpa; chemigation ok; can tank-mix.
oxyfluorfen (Goal [®] , Galigan [®] , etc.)	5 - 6 pt (2 lb ai/gal) 2.5 - 3 pt (4 lb ai/gal)	6 pt (2 lb ai/gal) 3 pt (4 lb ai/gal)	7 days	Bearing/non-bearing; ¼” rain within 28 days; spray volume 20-40 gpa; chemigation ok; can tank-mix; don’t disturb after treatment.
pendimethalin (Prowl H ₂ O [®])	2-6.3 qt (H ₂ O) 2.4-4.8 qt (3.3EC)	6.3 qt (H ₂ O) 4.8 qt (3.3EC)	60 days 365 days	(H ₂ O) - Bearing/non-bearing; ½” rain within 21 days; spray volume 20-40 gpa; chemigation ok; can tank-mix; (3.3EC) – Non-bearing only; preplant/postplant.
rimsulfuron (Matrix FNV [®])	2-4 oz	4 oz	14 days	Bearing/non-bearing >1 year old; ½” rain within 21 days; spray volume 20-40 gpa; spray pH >5; chemigation ok; can tank-mix.
simazine (Princep [®] , etc.)	2-4.8 qt (liquid) 2.2-5.3 lb (dry)	4.8 qt (liquid) 5.3 lb (dry)	0 days	Bearing/non-bearing >3 years old; adjust rate to soil texture; before nuts are on the ground; ½” rain within 28 days; spray volume 20-40 gpa; can tank-mix; permit needed in a groundwater zone.
thiazopyr (Visor 2E [®])	2-4 pt	4 pt	365 days	Non-bearing only; ½” rain in 28 days; spray volume 20-40 gpa; two sequential applications of 2 pt/A for nutsedge control; can tank-mix; permit needed if used in a GWPA.
trifluralin (Treflan 4E [®])	1-2 pt (preplant) 2-4 pt (postplant)	6 pt	60 days	Preplant or established planting; adjust rate to soil texture; incorporate mechanically immediately; spray volume 20-40 gpa.
<p><i>This is not an endorsement for any of the trade names listed, nor does the omission of specific trade names reflect the view of the author. Refer to your local chemical dealer or manufacturer for specific herbicide products available. Numerous factors influence the performance of herbicides, so consult charts 1 and 2 along with the manufacturer’s labels for specific treatment recommendations. Kurt Hembree, UCCE, Fresno County. December 2009.</i></p>				

Chart 4. Postemergent Herbicide Use Rates, Timings, and Other Label Recommendations

Postemergent Herbicide	Rate/Ac/Application	Rate/Ac/Season	PHI	Application Information
carfentrazone (Shark EW [®])	2 fl oz	7.9 fl oz	3 days	Bearing/non-bearing; weeds <4" tall; COC, NIS, or MSO adjuvant is used; spray volume at least 30 gpa; can tank-mix; spray pH at 5-8.
clethodim (Select Max [®])	9-16 fl oz	64 fl oz	365 days	Non-bearing only; grasses before tillering; repeat treatment on perennial grasses; NIS adjuvant is used; spray volume at least 30 gpa.
flumioxazin (Chateau SW [®])	4 to 6 oz	24 oz	60 days	Bearing/non-bearing; weeds <4" tall; COC, NIS, or MSO adjuvant is used; spray volume at least 30 gpa; can tank-mix.
fluaazifop (Fusilade DX [®])	16-24 fl oz	72 fl oz	365 days	Non-bearing only; grasses before tillering; repeat treatment on perennial grasses; COC or NIS adjuvant used; spray volume at least 30 gpa.
glufosinate (Rely 200 [®])	3.6-6 pt	21.5 pt	14 days	Bearing/non-bearing; weeds <6" tall; bright, humid, warm conditions; spray volume at least 30 gpa; no adjuvant needed; can tank-mix.
glyphosate (Roundup [®] , Glyphomax [®] , etc.)	0.5-1.5 lb ai	10.5 lb ai	3 days	Bearing/non-bearing; weeds <6" tall; AMS and/or buffering agents to bring pH to 5-6; spray volume 5-40 gpa; can tank-mix.
oxyfluorfen (Goal [®] , Galigan [®] , etc.)	1 - 6 pt (2 lb ai/gal) 0.5 - 3 pt (4 lb ai/gal)	6 pt (2 lb ai/gal) 3 pt (4 lb ai/gal)	7 days	Bearing/non-bearing; broadleaf weeds <4" tall; NIS adjuvant is used; at least 30 gpa; can tank-mix.
paraquat (Gramoxone Inteon [®] , etc.)	2.5-4 pt	20 pt	7 days	Bearing/non-bearing; weeds <6" tall; Restricted Use Permit required; NIS or COC adjuvant is used; spray volume at least 30 gpa; can tank-mix.
pyraflufen (Venue [®])	0.7-4 fl oz	6.8 fl oz	Pre-bloom	Bearing/non-bearing; broadleaf weeds <4" tall; COC or NIS adjuvant is used; spray volume at least 30 gpa; can tank-mix; spray pH 5-7.5.
sethoxydim (Poast [®])	2.5 pt	10 pt	15 days	Bearing/non-bearing; grass weeds before tillering; repeat treatment on perennial grasses; Dash, MSO, or COC adjuvant used; spray volume at least 30 gpa.
2,4-D amine (Dri-Clean [®] , etc.)	1-1.5 lb ai	1.5 lb ai	60 days	Bearing/non-bearing >3 years old; broadleaf weeds <6" tall; Restricted Use Permit required; spray volume at least 20 gpa; shielded spray; can tank-mix.

This is not an endorsement for any of the trade names listed, nor does the omission of specific trade names reflect the view of the author. Refer to your local chemical dealer or manufacturer for specific herbicide products available. Numerous factors influence the performance of herbicides, so consult charts 1 and 2 along with the manufacturer's labels for specific treatment recommendations. Kurt Hembree, UCCE, Fresno County. December 2009.