WINE GRAPE

WEED CONTROL □ 2007 TRIAL RESULTS

SAN JOAQUIN COUNTY

Cooperative Extension University of California
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2007 WINE GRAPE

WEED CONTROL RESEARCH PROGRESS REPORT

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and

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San Joaquin County

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The wine grape weed control program in San Joaquin County was conducted with the cooperation and management assistance of: Aberle Acres (Bob Aberle & Donald Lutz) located near Woodbridge, CA, Kautz Farms (Joe Valente) located near Lodi, CA and Alex and Kevin Delu located near Lodi, CA. Appreciation and many thanks are extended to them for their assistance, interest and patience.

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Caution

This report is a summary of grape weed control studies conducted in San Joaquin County. **It should not in any way be interpreted as a recommendation of the University of California.**

Trade names of herbicides are used in this report, as well as the less familiar common names to familiarize the reader with the various products tested. No endorsement of products mentioned or criticism of similar products is intended.

The rates of herbicides in this report are always expressed as **active ingredient (a.i.) of material per treated acre.**

Trade Name	Common Name	Company
Chateau	flumioxazin	Valent
Gramoxone Max	paraquat	Syngenta
Gramoxone Inteon	paraquat	Syngenta
DPX-E9636 (Matrix)	rimsulfuron	Dupont
Goal	oxyfluorfen	Dow
Prowl H_2O	pendimethalin	BASF
Rely	glufosinate ammonium	Bayer
Roundup	glyphosate	Monsanto
Shark	carfentrazone-ethyl	FMC
V-10142	imazosulfuron	Valent

2007 Grape Weed Control Trial Results

During the 2007 season, six weed control trials were established in San Joaquin County. Three field trials were located on Kautz Farms, two on Aberle Acres and one with Alex and Kevin Delu.

All of the trials were established to evaluate the effectiveness of the candidate herbicides for controlling annual and perennial weeds in an established vineyard. Complete trial description and weed control/crop phytotoxicity ratings for each trial follow.

Trial 1 – **Postemergence Herbicide Burndown Trial in a Newly Planted Pinot Noir Vineyard.** Mick Canevari, Paul Verdegaal, Don Colbert, Randall Wittie & Scott Whiteley.

OBJECTIVE: Evaluate postemergence herbicides for controlling weeds in a newly planted vineyard.

MATERIALS & METHODS: The following herbicide treatments were applied postemergence to the berm of a newly planted vineyard located on the Kautz Farm near Armstrong road and Hiway 99 on October 20, 2006: (1) Rely 1EC 1.0 lb ai/A, (2) Rely 1EC 0.5 lb ai/A + Roundup Weathermax 5.5SL 1.0 lb ai/A, (3) Rely 1EC 0.5 lb ai/A + Goal Tender 4F 0.5 lb ai/A, (4) Rely 1EC 0.25 lb ai/A + Goal Tender 4F 0.25 lb ai/A, (5) Gramoxone Inteon 2EC 0.5 lb ai/A + Goal Tender 4F 0.5 lb ai/A, (6) Gramoxone Inteon 2EC 0.25 lb ai/A + Goal Tender 4F 0.25 lb ai/A, (7) Roundup Weathermax 5.5SL 1.0 lb ai/A + Goal Tender 4F 0.5 lb ai/A, (8) Rely 1EC 0.25 lb ai/A + Gramoxone Inteon 2EC 0.25 lb ai/A and (9) Untreated Check. No Foam A (NIS) added to all herbicide treatments at 0.25% V/V. Plots were 4 by 24 ft arranged in a randomized complete block design with three replications. Applications were made with a CO_2 backpack sprayer, 35 psi in 40.5 gpa. Growth stages prior to application were; grapes = green leaves, 10% of the canes were 12-28" in length, 80% of the canes were 22-30" in length and 10% of the canes were >30" in length. The transplant 20" tall cartons were still in place and protecting the young canes from the herbicide sprays. Whitestem Filaree (*Erodium moschatum*) = 40% 4-10" in diameter, 50% 14-20" in diameter and 10% 21-26" in diameter; Little mallow (malva) (*Malva parviflora*) = 10% 8-12" in height and 90% 15-20" in height; barnyardgrass (*Echinochloa crus-galli*) = seed set, 15-20" in height; annual bluegrass (*Poa annua*) = fully tillered, early heading, 1-2"in height and winter barley (*Hordeum vulgare*) = fully tillered, 10-14" in height.

RAINFALL DATA: Weather Station: LIVE_OAK-01.P, Lodi, CA.
PRECIPITATION AMOUNT (INCHES) *Application Date: 10/20/06, Last Rating Date: 12/04/06

DATE	INCHES	
11/01/06	0.01	
11/02/06	0.22	
11/03/06	0.17	
11/04/06	0.01	
11/08/06	0.08	
11/11/06	0.16	
11/12/06 to 12/04/06	0.55	Total Rainfall: 1.20

RESULTS & DISCUSSIONS:

Grape Injury

All herbicide treatments showed no grape injury.

Weed Control

27 Days After Treatment:

Broadleaf Weeds: The best treatment for controlling little mallow (malva) was a tank mixture of Roundup Weathermax 1.0 lb ai/A + Goal Tender 0.5 lb ai/A which gave 85% control. Both, Roundup Weathermax 1.0 lb ai/A + Goal Tender 0.5 lb ai/A and Gramoxone Inteon 0.5 lb ai/A + 0.5 lb ai/A of Goal Tender treatments gave 85% control of whitestem filaree. The next best treatments were: Rely 0.5 lb ai/A + Goal Tender = 83% and Gramoxone Inteon 0.25 lb ai/A + Goal Tender 0.25 lb ai/A = 80%.

Grassy Weeds: The most effective treatments for controlling annual bluegrass, wild barley, large crabgrass & barnyardgrass were: (1) Gramoxone Inteon 0.5 lb ai/A + Goal Tender 0.5 lb ai/A = 90-100% and (2) Roundup Weathermax 1.0 lb ai/A + Goal Tender 0.5 lb ai/A = 83-100%.

% Burndown 45 Days After Treatment: The best herbicide treatments for total weed control were: (1) Gramoxone Inteon 0.5 lb ai/A + Goal Tender 0.5 lb ai/A = 92%, (2) Roundup Weathermax 1.0 lb ai/A + Goal Tender 0.5 lb ai/A = 92%, (3) Rely 0.5 lb ai/A + Goal Tender 0.5 lb ai/A = 90% and (4) Gramoxone Inteon 0.25 lb ai/A + Goal Tender 0.25 lb ai/A = 85%.

Table - % Burndown of Weeds in a Newly Planted Vineyard

Treatment[2]	Rate lb ai/A	% Burndown of Weeds [1]		
		17 DAT	27 DAT	45 DAT
Rely	1.0	62	75	53
Rely + Roundup	0.5 + 1.0	80	82	70
Rely + Goal Tender	0.5 + 0.5	70	73	90
Rely + Goal Tender	0.25 + 0.25	50	47	47
Rely + Gramoxone	0.25 + 0.25	72	70	53
Gramoxone + GoalTender	0.25 + 0.25	81	78	85
Gramoxone + Goal Tender	0.5 + 0.5	88	90	92
Roundup + Goal Tender	1.0 + 0.5	87	92	92
Untreated Check	-	0	0	0

[1]0 = No weed control, 100 = Complete weed control

[2]No Foam A (NIS) added to all herbicide treatments at 0.25% V/V

Trial 2 – **Winter Weed Control Trial in an Established Chardonnay Vineyard. Mick Canevari, Paul Verdegaal, Don Colbert, Randall Wittie & Scott Whiteley.**

OBJECTIVE: Evaluate herbicide tank mixtures for overall weed control in an established vineyard.

MATERIALS & METHODS: The following herbicide tank mixtures were applied postemergence to the berm of a established vineyard located on the Delu farm on Devries road and Hiway 12 on January 8, 2007: (1) Gramoxone Inteon 2EC 1.0 lb ai/A + Chateau 51%WG 0.375 lb ai/A, (2) Gramoxone Inteon 2EC 1.0 lb ai/A + Chateau 51%WG 0.375 lb ai/A + Prowl H_2O 3.8CS 3.8 lb ai/A, (3) DPX-E9636 25%SG 0.0625 lb ai/A + Rely 1EC 1.0 lb ai/A, (4) DPX-E9636 25%SG 0.125 lb ai/A + Rely 1EC 1.0 lb ai/A, (5) DPX-E9636 25%SG 0.0625 lb ai/A + Roundup Weathermax 5.5SL 1.0 lb ai/A, (6) DPX-E9636 25%WG 0.0625 lb ai/A + Rely 1EC 1.0 lb ai/A, (7) DPX-E9636 25%SG 0.0625 lb ai/A + Chateau 51%WG 0.375 lb ai/A, (8) Chateau 51%WG 0.375 lb ai/A + Rely 1EC 1.0 lb ai/A, (9) Chateau 51%WG 0.375 lb ai/A + Roundup Weathermax 1.0 lb ai/A, (10) V-10142 75%WG 0.5 lb ai/A + Rely 1EC 1.0 lb ai/A, (11) V-10142 75%WG 0.75 lb ai/A + Chateau 51%WG 0.375 lb ai/A + Rely 1EC 1.0 lb ai/A, (12) Roundup Weathermax 5.5SL 1.0 lb ai/A + Goal Tender 4F 1.0 lb ai/A + Prowl H_2O 3.8CS 3.8 lb ai/A, (13) Rely 1EC 1.0 lb ai/A + Shark 2EW 0.031 lb ai/A + Prowl H_2O 3.8CS 3.8 lb ai/A, (14) Rely 1EC 1.0 lb ai/A + Goal Tender 4F 1.0 lb ai/A + Prowl H_2O 3.8CS 3.8 lb ai/A and (15) Untreated Check. No Foam A (NIS) added to all herbicide treatments at 0.25% V/V. Plots were 4.5 by 24 ft arranged in a randomized complete block design with three replications. Applications were made with a CO_2 backpack sprayer, 35 psi in 40 gpa of water. Growth stages prior to application were; grapes = dormant, shepherd's purse (*Capsella bursa-pastoris*) = 4-8 leaf, 1-2" diameter common chickweed (*Stellaria media*) = 1-3" diameter, Italian ryegrass (*Lolium multiflorum*) = 50% 1-3 tillers, 2-4" height, 50% fully tillered, 10-14" height, annual bluegrass (*Poa annua*) = 1-4 tillers, 1-2" height, prickly lettuce (*Lactuca serriola*) = 20% 2 leaf, 0.25" diameter, 80% 3-5 leaf, 1.5-2" diameter, willowweed (*Epilobium paniculatum*) = 50% cotyledon – 2 leaf, 0.25" height, 50% 3-5 leaf, 1.5-2" height, annual sowthistle (*Sonchus oleraceus*) = 80% 2-4 leaf, 0.25-1" diameter, 20% 8-12 leaf, 5-10" diameter, horseweed (*Conyza canadensis*), = **Small** 80% 2-5leaf, 0.25" diameter, **Medium** 10% 6-8 leaf, 1-2" diameter, **Large** 10% 15-16 leaf, 3-7" diameter and spotted spurge (*Chamaesyce maculata*) = preemergence.

RAINFALL DATA: Weather Station: LODI.A (CIMIS #42, Lodi, CA)
PRECIPITATION AMOUNT (INCHES) *Application Date: 1/8/07

DATE	INCHES	DATE	INCHES
1/8/07	0.04(Started 12 hrs after)	2/11	0.08
1/9	0.01	2/12	0.12
1/10	0.01	2/22	0.33
1/27	0.01	2/24	0.06
1/28	0.06	2/25	0.35
1/29	0.01	2/26	0.71
1/31	0.01	2/27	0.12
2/7	0.04	2/28	0.08
2/8	0.17	March Total	0.42
2/9	0.39	April Total	0.61
2/10	1.15	May Total	0.05

RESULTS & DISCUSSIONS:

Grape Injury

All herbicide treatments showed no grape injury.

Weed Control

Gramoxone Inteon + Chateau and Gramoxone Inteon + Chateau + Prowl H_2O gave excellent (86-100%) control of all the weed species. Gramoxone gave excellent burndown activity on the weeds including all horseweed growth stages. Chateau gave excellent soil residual activity on spotted spurge and subsequent germinating horseweed, sowthistle and prickly lettuce.

DPX-E9636 tank mixed with either Rely or Roundup Weathermax gave similar results as the above treatments except the soil residual activity on spotted spurge and sowthistle were greatly reduced. Doubling the rate of DPX-E9636 to 0.125 lb ai/A improved it's soil residual activity. Overall, both formulations of DPX-E9636 WG vs SG gave similar results. Roundup also left a few large horseweed plants.

Chateau + Rely tank mixture gave excellent burndown and soil residual activity on all weed species (87-100%).

Chateau + Roundup Weathermax gave excellent burndown activity on all weed species with only 80% control of the medium and large horseweed plants. Therefore, season long horseweed control was reduced to only 78%.

V-10142 + Rely resulted in excellent burndown of all the weed species except for Italian ryegrass 60% control and 85% on annual bluegrass. Soil residual activity was excellent except for 84% control of prickly lettuce.

V-10142 + Chateau + Rely gave excellent burndown and soil residual activity 87-100%.

DPX-E9636 + Chateau gave excellent postemergence activity on all weed species except for the medium and large horseweed plants which resulted in only 65% season long control of horseweed. Soil residual activity was excellent.

Both, Rely + Shark + Prowl H_2O and Rely + Goal + Prowl H_2O tank mixtures resulted in excellent burndown of the weeds with only 58-63% Italian ryegrass control. No soil residual control of horseweed with only fair control of prickly lettuce and spotted spurge.

Roundup Weathermax + Goal + Prowl H_2O gave excellent postemergence control of all weed species except for 78% control of willowweed and fair control of medium and large horseweed plants. No soil residual activity on horseweed with fair control of prickly lettuce, spotted spurge and sowthistle.

<u>Herbicide Performance Summary on the Weed Species Present</u>

Gramoxone Inteon: Excellent postemergence activity even on all horseweed growth stages. No soil residual.

Rely: Excellent post activity with only fair control of Italian ryegrass and 85% on annual bluegrass. Complete control on all horseweed growth stages. No soil residual.

Chateau: Some post activity with excellent soil residual. Very poor control of horseweed postemergence.

DPX-E9636: Some post activity with excellent soil residual except for sowthistle and spotted spurge. Gave 88% postemergence control of small horseweed plants with poor control of medium and large horseweed.

V-10142: Excellent soil residual.

Table 1 - % Weed Control in an Established Chardonnay Vineyard

		% - Control[1] - Days After Treatment[2]											
		Italian		Prickly				Annual		Annual		Common	Shepherd's
	Rate	Ryegrass		Lettuce		Willowweed		Sowthistle		Bluegrass		Chickweed	purse
Treatment[3]	lb ai/A	38	144	38	144	38	144	38	144	38	58	38	38
Gramoxone + Chateau	1.0 0.375	93	94	100	100	100	100	97	100	100	100	100	100
Gramoxone + Chateau + Prowl	1.0 0.375 3.8	96	99	100	100	100	98	96	97	100	100	100	100
DPX-E9636SG + Rely	0.0625 1.0	87	85	100	97	100	99	100	83	87	92	100	100
DPX-E9636SG + Rely	0.125 1.0	87	95	100	100	100	100	100	97	87	90	100	100
DPX-E9626SG + Roundup	0.0625 1.0	82	97	100	97	92	96	95	70	97	100	99	96
DPX-E9636WG + Rely	0.0625 1.0	89	96	100	93	100	100	100	70	97	98	100	100
DPX-E9636SG + Chateau	0.0625 0.375	68	96	100	100	100	100	100	100	84	93	100	88
Chateau + Rely	0.375 1.0	80	93	100	100	100	100	100	100	100	100	100	100
Chateau + Roundup	0.375 1.0	95	99	100	100	99	99	100	100	100	100	100	99
V-10142 + Rely	0.5 1.0	70	60	100	84	100	100	100	100	82	85	100	100
V-10142 + Chateau + Rely	0.5 0.375 1.0	82	87	100	100	100	100	100	100	93	93	100	100
Roundup + Goal + Prowl	1.0 1.0 3.8	89	94	100	77	85	78	100	70	100	100	100	99
Rely + Shark + Prowl	1.0 0.031 3.8	75	63	100	72	100	96	100	87	94	87	100	100
Rely + Goal + Prowl	1.0 1.0 3.8	77	58	100	79	100	93	100	97	90	93	100	100
Untreated Check	-	0	0	0	0	0	0	0	0	0	0	0	0

[1]0 = No weed control, 100 = Complete weed control

[2] Weed control ratings taken 38, 58 and 144 days after treatment

[3]No Foam A (NIS) added to all herbicide treatments at 0.25% V/V

Table 2 - % Control of Three Horseweed Growth Stages and Preemergence Control of Horseweed and Spotted Spurge in an Established Chardonnay Vineyard

		% Control[1] - Days After Treatment[2]									
		Horseweed Growth Stage						Preemergence Control			
		0.25 " Diam[3]		1-2" Diam[3]		3-7" Diam[3]		Horseweed		Spotted Spurge	
Treatment[4]	Rate lb ai/A	14	38	14	38	14	38	89	144	122	144
Gramoxone + Chateau	1.0 0.375	100	97	98	100	90	100	91	88	99	99
Gramoxone + Chateau + Prowl	1.0 0.375 3.8	97	97	95	95	90	100	85	86	93	93
DPX-E9636SG + Rely	0.0625 1.0	100	100	98	100	90	100	93	86	57	27
DPX-E9636SG + Rely	0.125 1.0	97	100	97	100	90	100	99	95	85	77
DPX-E9636SG + Roundup	0.0625 1.0	27	100	25	100	27	97	93	83	68	53
DPX-E9636WG + Rely	0.0625 1.0	100	100	100	100	92	100	98	91	37	37
DPX-E9636SG + Chateau	0.0625 0.375	58	88	37	57	23	43	65	65[5]	99	98
Chateau + Rely	0.375 1.0	100	100	100	100	90	100	92	87	100	98
Chateau + Roundup	0.375 1.0	40	100	40	80	40	80	85	78[5]	100	98
V-10142 + Rely	0.5 1.0	99	100	88	100	80	100	93	89	99	97
V-10142 + Chateau + Rely	0.5 0.375 1.0	100	100	98	100	90	100	100	99	99	99
Roundup + Goal + Prowl	1.0 1.0 3.8	27	100	25	78	28	63	17	0	84	82
Rely + Shark + Prowl	1.0 0.031 3.8	100	100	100	100	95	100	17	0	65	63
Rely + Goal + Prowl	1.0 1.0 3.8	99	100	93	100	90	100	63	40	77	73
Untreated Check	-	0	0	0	0	0	0	0	0	0	0

[1]0 = No weed control, 100 = Complete weed control
[2]Weed control ratings taken 14, 28, 89, 122 and 144 days after treatment
[3]Diam = Diameter
[4]No Foam A (NIS) added to all herbicide treatments at 0.25% V/V
[5]Poor to fair control due to poor postemergence control

Trial 3 – **Postemergence Herbicide Trial for Controlling Little Mallow (Malva/Cheeseweed) and Other Winter Weeds in a Newly Planted Pinot Grigio Vineyard – 2007.** Mick Canevari, Paul Verdegaal, Don Colbert, Randall Wittie & Scott Whiteley.

OBJECTIVE: Evaluate postemergence herbicide treatments for controlling little mallow and other winter weeds in a newly planted vineyard.

MATERIALS & METHODS: The following herbicide treatments were applied postemergence to the berm of a newly planted vineyard located on the Kautz farm on Live oak road near Lodi, CA on December 7, 2006: (1) Chateau 51%WG 0.375 lb ai/A, (2) Chateau 51%WG 0.375 lb ai/A + Rely 1EC 1.0 lb ai/A, (3) Chateau 51%WG 0.375 lb ai/A + Goal Tender 4F 1.0 lb ai/A, (4) DPX-E9636 25%SG 0.0625 lb ai/A, (5) DPX-E9636 25%SG 0.0625 lb ai/A + Rely 1EC 1.0 lb ai/A, (6) DPX-E9636 25%SG 0.0625 lb ai/A + Goal Tender 4F 1.0 lb ai/A, (7) Chateau 51%WG 0.375 lb ai/A + DPX-E9636 25%SG 0.0625 lb ai/A, (8) Chateau 51%WG 0.375 + Shark 2EW 0.031 lb ai/A, (9) Rely 1EC 1.0 lb ai/A + Shark 2EW 0.031 lb ai/A + Prowl H_2O 3.8CS 3.8 lb ai/A, (10) Goal Tender 4F 1.0 lb ai/A + Prowl H_2O 3.8CS 3.8 lb ai/A, (11) Goal Tender 4F 0.5 lb ai/A + Gramoxone Inteon 2EC 0.5 lb ai/A + Prowl H_20 3.8CS 3.8 lb ai/A and (12) Untreated Check. No Foam A (NIS) added to all herbicide treatments at 0.25% V/V. Plots were 4.5 by 24 ft arranged in a randomized complete block design with three replications. Applications were made with a CO_2 backpack sprayer, 32 psi in 33.6 gpa of water. Growth stages prior to application were; grapes = dormant, little mallow (malva/cheeseweed) (*Malva parviflora*) = 30% 1-3 leaf, 1-2" diameter, 10% 6-8 leaf, 8-12" diameter, 10% 20-30 leaf, 14-20" diameter and 50%> 60 leaf, 24-30" diameter/height, annual bluegrass (*Poa annua*) =40% 1-4 tillers, 3-5" height and 60% fully tillered, 5-8" height, whitestem filaree (*Erodium moschatum*) = 10% 4-8 leaf, 2-8" diameter and 90% 20-30 leaf, 18-28" diameter, prickly lettuce (*Lactuca serriola*) = 80% 1-4 leaf, 1-3" diameter and 20% 16-30 leaf, 15-24" diameter, common chickweed (*Stellaria media*) = 6-12" diameter and fiddleneck (*Amsinckia intermedia*) = 80% 2-8 leaf, 1-2" diameter and 20% 12-30 leaf, 6-10" diameter.

RAINFALL DATA: Weather Station: LIVE OAK_01.P (Near Lodi, CA)
PRECIPITATION AMOUNT (INCHES) *Application Date: 12/7/06

DATE	INCHES	DATE	INCHES
12/8/06	0.13	January/07 Total	0.23
12/9	0.48	Februay/07 Total	1.92
12/10	0.13	March/07 Total	0.75
12/11	0.03	April/07 Total	1.74
12/12	0.42	May/07 Total	0.06
12/15	0.12		
12/21	0.27		
12/26	0.30		
12/27	0.13		

RESULTS & DISCUSSIONS:

Grape Injury

All herbicide treatments showed no grape injury.

Weed Control

Chateau: Postemergence applications of Chateau applied alone or tank mixed with Rely, Goal, DPX-E9636 or Shark gave excellent (95-100%) control of all weed species.

DPX-E9636: Postemergence applications of DPX-E9636 applied alone or tank mixed with Rely, Goal or Chateau gave excellent (97-100%) control of all weed species.

Shark + Chateau: 95-100% control of all weeds.

Rely + Shark + Prowl: Gave 98-100% control of annual bluegrass, whitestem filaree, prickly lettuce, common chickweed and fiddleneck with 80% control of malva. Treatment left a few of the large malva plants.

Goal + Prowl: Gave excellent control (90-100%) of whitestem filaree, prickly lettuce fiddleneck and malva with 77% control of common chickweed and 57% control of annual bluegrass.

Goal + Gramoxone + Prowl: Excellent control (98-100%) control of all weed species except for 80% control of malva. Treatment did not control all of the large malva plants.

Table - % Postemergence Weed Control in a Newly Planted Pinot Grigio Vineyard

		% Control[1] – Days After Treatment[2]												
		Annual bluegrass		Whitestem filaree		Prickly lettuce		Common chickweed		fiddleneck		little mallow		
Treatment[3]	Rate lb ai/A	30	90	30	90	30	90	30	90	30	90	30	90	120
Chateau +	0.0375	86	98	83	100	87	100	99	100	100	100	93	97	95
Chateau + Rely	0.375 + 1.0	100	100	100	100	98	100	100	100	100	100	99	100	100
Chateau + Goal	0.375 + 1.0	90	100	100	100	100	100	100	100	100	100	100	100	100
DPX-E9636	0.0625	50	100	40	98	53	97	83	100	100	100	60	98	97
DPX-E9636 + Rely	0.0625 + 1.0	100	100	100	100	100	100	100	100	100	100	84	94	99
DPX-E9636 + Goal	0.0625 + 1.0	57	100	96	100	100	100	90	100	100	100	88	99	100
Chateau + DPX-E9636	0.375 + 0.625	83	100	92	100	97	100	100	100	100	100	90	100	98
Chateau + Shark	0.375 + 0.031	76	97	98	100	97	97	100	100	100	100	90	97	95
Rely + Shark + Prowl	1.0 + 0.031 + 3.8	99	99	100	100	100	100	100	100	100	98	88	87	80
Goal + Prowl	1.0 + 3.8	27	57	94	100	94	93	33	77	97	100	80	94	90
Goal + Gramoxone + Prowl	0.5 + 0.5 + 3.8	100	98	100	100	93	100	90	97	97	100	86	86	80
Untreated Ck	-	0	0	0	0	0	0	0	0	0	0	0	0	0

[1]0 = No weed control, 100 = Complete weed control

[2]Weed control ratings taken 30, 90 and 120 days after treatment

[3]No Foam A (NIS) added to all herbicide treatments at 0.25% V/V

Trial 4 – **Yellow Nutsedge and Winter Weed Control in an Established Merlot Vineyard – 2007.** Mick Canevari, Paul Verdegaal, Don Colbert, Randall Wittie & Scott Whiteley.

OBJECTIVE: Evaluate herbicide tank mixtures for controlling yellow nutsedge and winter weeds in an established merlot vineyard.

MATERIALS & METHODS: Trial was established on January 26, 2007 in a Merlot vineyard located on Aberle Acres near Woodbridge, CA. Treatments and dates of application are listed in the following table 1.

Table 1 – Treatment List & Application Dates in an Established Merlot Vineyard - 2007

Treatment[1]	Formulation	Rate lbai/A	Rate Product/A	Application Date
DPX-E9636 + Goal Tender	25% SG 4F	0.0625 1.0	4.0 oz 32.0 fl oz	1/26/07[2]
DPX-E9636 + Goal Tender	25% SG 4F	0.125 1.0	8.0 oz 32.0 fl oz	1/26/07
DPX-E9636 + Goal Tender	25% WG 4F	0.0625 1.0	4.0 oz 32.0 fl oz	1/26/07
V-10142 + Rely	75% WG 1 EC	0.5 1.0	10.7 oz 128 fl oz	1/26/07
V-10142 + Rely	75% WG 1 EC	0.75 1.0	16 oz 128 fl oz	1/26/07
V-10142 + Chateau + Rely	75% WG 51% WG 1 EC	0.5 0.375 1.0	10.7 oz 11.8 oz 128 fl oz	1/26/07
V-10142 + Chateau + Rely	75% WG 51% WG 1 EC	0.75 0.375 1.0	16 oz 11.8 oz 128 fl oz	1/26/07
Gramoxone Inteon + DPX-E9636 + Prowl H_2O DPX-E9636 + Hasten + UN32	2 EC 25% SG 3.8 CS 25% SG 100 % EC 32 % W/W	0.5 0.0625 3.8 0.0625	32.0 fl oz. 4.0 oz. 128 fl oz 4.0 oz 1.0 pt 1.0 qt	1/26/07 4/3/07[3]
Roundup Weathermax + Goal Tender + Prowl H_2O V-10142 + Hasten + UN32	5.5 SL 4 F 3.8 CS 75 % WG 100 % EC 32 % W/W	1.0 1.0 3.8 0.5	23.3 fl oz 32.0 fl oz 128.0 fl oz 10.7 oz 1.0 pt 1.0 qt	1/26/07 4/3/07[3]
Roundup Weathermax + Goal Tender + Prowl H_2O	5.5 SL 4 F 3.8 CS	1.0 1.0 3.8	23.0 fl oz 32.0 fl oz 128.0 fl oz	1/26/07
Roundup Weathermax + Goal Tender + Prowl H_2O Roundup Weathermax + Hasten + UN32	5.5 SL 4 F 3.8 CS 5.5 SL 100 % EC 32 % W/W	1.0 1.0 3.8 1.5	23.3 fl oz 32.0 fl oz 128.0 fl oz 35.0 fl oz 1.0 pt 1.0 qt	1/26/07 4/3/07[3]
Untreated Check				

[1] No Foam A (NIS) @ 0.25% V/V to all treatments except those applied on 4/3/07
[2]Application date 1/26/07 = POST to winter weeds; PRE to yellow nutsedge & large crabgrass
[3]Application date 4/3/07 = POST to yellow nutsedge and PRE to large crabgrass

Plots were 5 by 21 ft arranged in a randomized complete design with three replications. Applications were made with a CO_2 backpack sprayer, 35 psi in 36 gpa of water. Growth stages prior to **1/26/07** application were; grapes = dormant, common chickweed (*Stellaria media*) = 4-8" diameter; annual bluegrass (*Poa annua*) = 1-3 tillers, 1-3" height; desert Rockpurslane (*Calandrinia ciliata*) = 10-16 leaf, 2-3" diameter; Henbit (*Lamium amplexicaule*) = 10-16 leaf, 1-2" height; Redstem filaree (*Erodium moschatum*) = 8-16 leaf, 4-8" diameter; prickly lettuce (*Lactuca serriola*) = 4-6 leaf, 1-3" diameter; shepherd's purse (*Capsella bursa-pastoris*) = 4-8 leaf, 1-2" diameter; willowweed (*Epilobium paniculatum*) = 4-8 leaf, 0.5-1" height; annual sowthistle (*Sonchus oleraceus*) = 4 leaf, 1-2" diameter, yellow nutsedge (*Cyperus esculentus*) = preemergence and large crabgrass (*Digitaria sanguinalis*) = preemergence. Growth stages prior to **4/3/07** application date were: grapes = 2-7" shoot (majority 5" shoot): yellow nutsedge = in treatment #8, 2-3 leaf, 0.5-1" height; in treatments #9 and #11 = 3-5 leaf, 1-4.5" height. Large crabgrass = preemergence.

RAINFALL DATA: Weather Station: LODI.A (CIMIS#42, Lodi, CA)
PRECIPITATION AMOUNT (INCHES) *Application Dates: 1/26/07 & 4/3/07

1/26/07 Application		4/3/07 Application	
DATE	INCHES	DATE	INCHES
1/27/07	0.01	4/11/07	0.53
1/28	0.06	4/12	0.03
1/29	0.01	4/18	0.05
1/31	0.01	May Total	0.05
2/7	0.03		
2/8	0.17		
2/9	0.39		
2/10	1.15		
2/11	0.08		
2/12	0.12		
2/22	0.33		
2/24	0.06		
2/25	0.35		
2/26	0.71		
2/27	0.12		
2/28	0.08		
March Total	0.42		
April Total	0.61		
May Total	0.05		

RESULTS & DISCUSSIONS:

Grape Injury

All herbicide treatments showed no grape injury.

Winter Weed Control – Table 2

All herbicide treatments gave excellent (93-100%) control of the winter weeds; common chickweed, annual bluegrass, desert rockpurslane, henbit, whitestem filaree, prickly lettuce, shepherd's purse and annual sowthistle.

Table 2 – Winter Weed Control in an Established Merlot Vineyard - 2007

Treatment[2]	Rate lb ai/A	Application Date	% Control[1] – 4/19/07 CW[3]	AB	DRP	HB	WW	PL	SP	WSW	ST
DPX-E9636SG + Goal	0.0625 + 1.0	1/26/07	100	100	100	100	100	100	100	100	100
DPX-E9636 SG+ Goal	0.125 + 1.0	1/26/07	100	100	100	100	100	100	100	100	100
DPX-E9636WG+ Goal	0.0625 + 1.0	1/26/07	100	100	100	100	100	100	100	100	100
V-10142 + Rely	0.5 + 1.0	1/26/07	99	93	100	100	100	100	100	100	100
V-10142 + Rely	0.75 + 1.0	1/26/07	100	99	100	100	100	100	100	100	100
V-10142 + Chateau + Rely	0.5 + 0.375 + 1.0	1/26/07	100	100	100	100	100	100	100	100	100
V-10142 + Chateau + Rely	0.75 + 0.375 + 1.0	1/26/07	100	100	100	100	100	100	100	100	100
Gramoxone + DPX-E9636SG + Prowl DPX-E9636SG + Hasten + UN32	0.5 + 0.0625 + 3.8 0.0625 + 1.0 pt/A 1.0 qt/A	1/26/07 4/3/07[4]	100	100	100	100	100	100	99	100	100
Roundup + Goal + Prowl V-10142 + Hasten + UN32	1.0 + 1.0 + 3.8 0.5 + 1.0 pt/A 1.0 qt/A	1/26/07 4/3/07[4]	100	100	100	100	100	100	95	97	100
Roundup + Goal + Prowl	1.0 + 1.0 + 3.8	1/26/07	100	100	100	100	100	98	97	100	100
Roundup + Goal + Prowl Roundup + Hasten + UN32	1.0 + 1.0 + 3.8 1.5 + 1.0 pt/A 1.0 qt/A	1/26/07 4/3/07[4]	100	100	100	100	100	100	100	95	100
Untreated Check	-		0	0	0	0	0	0	0	0	0

[1]0 = No weed control, 100 = Complete weed control

[2]No Foam A (NIS) @ 0.25% V/V to all treatments except for those applied on 4/3/07

[3]CW=chickweed, AB=annual bluegrass, DRP=desert Rockpurslane, HB=henbit, WW= willowweed PL= prickly lettuce, SP= Shepherd's purse, WSF= whitestem filaree and ST = annual sowthistle

[4]4/3/07 applications were applied postemergence to the yellow nutsedge

Yellow nutsedge & Large crabgrass Control – Table 3

DPX-E9636: A single application applied on 1/26/07 initially gave 78-97% control of yellow nutsedge; however June ratings were showing only 37-63% control. June ratings for large crabgrass control ranged from 60-82%. A single application of DPX-E9636 applied on 1/26/07 followed by another application of DPX-E9636 on 4/3/07 gave better nutsedge control 68% VS 37% control from a single application. This split application of DPX-E9636 gave much better large crabgrass control 100% VS 60% control from the single application. Grape yields ranged from 30.3 to 33.0 lbs/vine. The untreated check yielded 25.7 lbs/vine.

V-10142: All treatments applied on 1/26/07 gave good to excellent control (82-91%) of yellow nutsedge. V-10142 applied alone gave only 53-55% control of large crabgrass. However, when V-10142 was tank mixed with Chateau crabgrass control increased to 87-92%. Grape yields ranged from 31.5 to 40.9 lbs/vine.

Roundup + Goal + Prowl applied on 1/26/07 followed by a postemergence application of V-10142 on 4/3/07 gave 67% control of yellow nutsedge with 98% crabgrass control. Grape yield; 30.6 lbs/vine.

Roundup + Goal + Prowl applied on 1/26/07: No control of yellow nutsedge with excellent (100%) crabgrass control. Grape yield; 39.7 lbs/vine.

Roundup + Goal + Prowl applied on 1/26/07 followed by a postemergence application of Roundup on 4/3/07gave 70% control of the nutsedge with excellent (100%) control of crabgrass. Grape yield; 30.1 lbs/vine.

Table 3 – Grape Yields, Yellow Nutsedge and Large Crabgrass Control in an Established Merlot Vineyard – 2007

			Rating Date - % Control[1]						
	Rate	Application	Yellow Nutsedge				Large Crabgrass		Grape Yield
Treatment[2]	lb ai/A	Date	3/22	4/19	5/31	6/20	5/31	6/20	Lb/Vine
DPX-E9636SG + Goal	0.0625 + 1.0	1/26/07	78	75	57	37	73	60	32.9
DPX-E9636 SG+ Goal	0.125 + 1.0	1/26/07	97	87	70	63	93	82	32.4
DPX-E9636WG+ Goal	0.0625 + 1.0	1/26/07	87	83	53	40	89	82	30.3
V-10142 + Rely	0.5 + 1.0	1/26/07	100	92	88	88	75	55	40.9
V-10142 + Rely	0.75 + 1.0	1/26/07	100	100	92	91	60	53	37.3
V-10142 + Chateau + Rely	0.5 + 0.375 + 1.0	1/26/07	100	98	87	82	95	87	31.5
V-10142 + Chateau + Rely	0.75 + 0.375 + 1.0	1/26/07	100	100	90	88	100	92	37.0
Gramoxone + DPX-E9636SG + Prowl DPX-E9636SG + Hasten + UN32	0.5 + 0.0625 + 3.8 0.0625 + 1.0 pt/A 1.0 qt/A	1/26/07 4/3/07[3]	90	85	77	68	100	100	33.0
Roundup + Goal + Prowl V-10142 + Hasten + UN32	1.0 + 1.0 + 3.8 0.5 + 1.0 pt/A 1.0 qt/A	1/26/07 4/3/07[3]	0	27	50	67	100	98	30.6
Roundup + Goal + Prowl	1.0 + 1.0 + 3.8	1/26/07	0	0	0	10	100	100	39.7
Roundup + Goal + Prowl Roundup + Hasten + UN32	1.0 + 1.0 + 3.8 1.5 + 1.0 pt/A 1.0 qt/A	1/26/07 4/3/07[3]	0	50	63	70	98	100	30.1
Untreated Check	-	-	0	0	0	0	0	0	25.7

[1]0 = No weed control, 100 = Complete weed control

[2]No Foam A (NIS) @ 0.25% V/V to all treatments except for those applied on 4/3/07

[3]Applications were applied postemergence to the yellow nutsedge

Trial 5 – **Evaluate DPX-E9636 and V-10142 Applications in 2006 & 2007 for Yellow Nutsedge Control in an Established Merlot Vineyard.** Mick Canevari, Paul Verdegaal, Don Colbert, Randall Wittie & Scott Whiteley.

OBJECTIVE: Evaluate multiply herbicide applications over a two year period for controlling yellow nutsedge (*Cyperus esculentus*) in grapes.

MATERIALS & METHODS: Trial was established on February 16, 2006 in a Merlot vineyard located on Aberle Acres near Woodbridge, CA. Treatments, application dates and yellow nutsedge growth stages are listed below in table 1.

Table 1 – Treatment List, Application Dates and YNS Growth Stages in an Established Merlot Vineyard

Treatment[1,2]	Formulation	Rate lb ai/A	Application Date	Yellow Nutsedge Growth Stage
1. DPX-E9636	25% WG	0.0625	2/16/06	Preemergence
DPX-E9636	25% SG	0.0625	1/26/07	Preemergence
2. DPX-E9636	25% WG	0.0625	2/16/06	Preemergence
DPX-E9636	25% WG	0.0625	4/14/06	Postemergence:10%1-2L,.5-1"ht ; 90%3-5L,3-4"ht
DPX-E9636	25% SG	0.0625	1/26/07	Preemergence
DPX-E9636	25% SG	0.0625	4/3/07	Postemergence: 2-6 L, 1-4" ht
3. DPX-E9636	25% WG	0.0625	4/14/06	Postemergence:10%1-2L,.5-1"ht; 90%3-5L, 3-4"ht
DPX-E9636	25% SG	0.125	1/26/07	Preemergence
4. DPX-E9636	25% WG	0.0625	2/16/06	Preemergence
Roundup Weathermax	5.5 SL	1.5	4/14/06	Postemergence:10%1-2L,.5-1"ht; 90%3-5L, 3-4"ht
DPX-E9636	25% SG	0.0625	1/26/07	Preemergence
Roundup Weathermax	5.5 SL	1.5	4/3/07	Postemergence: 2-6L, 1-4" ht.
5. Roundup Weathermax	5.5 SL	1.5	4/14/06	Postemergence:10%1-2L,.5-1"ht;90%3-5L, 3-4" ht
Roundup Weathermax	5.5 SL	1.5	4/3/07	Postemergence: 2-6L, 1-4" ht.
6. V-10142	75% WG	0.5	2/16/06	Preemergence
V-10142	75% WG	0.5	1/26/07	Preemergence
7. V-10142 +	75% WG	0.5	2/16/06	Preemergence
Chateau	51% WG	0.375	2/16/06	Preemergence
V-10142 +	75% WG	0.5	1/26/07	Preemergence
Chateau	51% WG	0.375	1/26/07	Preemergence
8. V-10142	75% WG	0.5	4/3/07	Postemergence: 2-6L, 1-4" ht.
9. V-10142	75% WG	0.75	4/3/07	Postemergence: 2-6L, 1-4" ht.
10. Untreated Check	-	-	-	-

[1]No Foam A (NIS) @ 0.25% V/V to all treatments except those applied on 4/3/07 in which 1 qt/A of UN32 + 1 pt/A of Hasten were added.
[2]Existing winter annual weeds were controlled with a postemergence herbicide (Goal, Rely or Gramoxone).

RAINFALL DATA: Weather Station: LODI.C (NCDC #5032, Lodi, CA)
PRECIPITATION AMOUNT (INCHES)

2/16/06 Application

Date	Inches
2/17/06	0.05
2/19	0.01
2/26	0.25
2/27	0.45
2/28	0.13
March Total	4.27
April Total	3.87
May Total	1.12

4/14/06 Application

Date	Inches
4/16/06	0.25
4/17	0.01
5/20	0.04
5/21	0.20
5/22	0.18
5/23	0.70

Weather Station: LODI.A (CIMIS #42, Lodi, CA)

1/26/07 Application	
Date	Inches
1/27/07	0.01
1/28	0.06
1/29	0.01
1/31	0.01
2/7	0.04
2/8	0.07
2/9	0.39
2/10	1.15
2/11-2/28	1.85
March Total	0.42
April Total	0.61
May Total	0.05

4/3/07 Application	
Date	Inches
4/11/07	0.53
4/12	0.03
4/18	0.05
May Total	0.05

RESULTS & DISCUSSIONS:
Grape Injury: All treatments showed no grape injury.

Yellow Nutsedge Control: Table 2

Trt #1 - DPX-E9636 0.0625 lb ai/A applied PRE on 2/16/06 an again on 1/26/07.
The final rating in 2006 gave 58% control. In 2007, initial nutsedge control was 80% with a final rating of 57%.

Trt #2 - DPX-E9636 0.0625 lb ai/A applied PRE on 2/16/06 followed by the same rate POST on 4/14/06. The same applications were applied in 2007; 1/26/07 and 4/3/07.
The final rating in 2006 gave 72% control. Initial nutsedge control in 2007 was 88% with 60% control on the final rating date 6/20/07.

Trt #3 – DPX-E9636 0.0625 lb ai/A applied POST on 4/14/06 followed by 0.125 lb ai/A applied PRE on 1/26/07.
Final rating in 2006 was 8% control. Initial nutsedge control in 2007 was 94% with only 45% on the final rating date in 2007.

Trt #4 – DPX-E9636 0.0625 lb ai/A applied PRE on 2/16/06 followed by a POST application of Roundup Weathermax 1.5 lb ai/A on 4/14/06. The same treatments were repeated in 2007; 1/26/07 and 4/3/07.
Final rating in 2006 showed 67% nutsedge control. Initial control in 2007 was excellent (90%) with only 55% nutsedge control on the final rating date on 6/20/07.

Trt #5 – Roundup Weathermax 1.5 lb ai/A POST on 4/14/16 and repeated again on 4/3/07.
No nutsedge control in 2006 with 63% control in 2007.

Trt #6 – V-10142 0.5 lb ai/A applied PRE on 2/16/06 and again on 1/26/07.
Nutsedge control in 2006 was 87% with 80% control in 2007.

Treatment #7 – V-10142 0.5 lb ai/A + Chateau 0.375 lb ai/A applied PRE on 2/16/06 and again on 1/26/07.
In 2006, nutsedge control was 80% and in 2007 it was 73% control.

Treatments #8 and #9 – V-10142 0.5 and 0.75 lb ai/A applied POST on 4/3/07.
Both rates gave poor control of yellow nutsedge.

Summary: PRE applications of DPX-E9636 gave good early season nutsedge control but late season control ratings were around 50%. POST Roundup Weathermax in 2007 gave 63% control of nutsedge. PRE applications of V-10142 gave excellent early season control with 73-80% on the later rating dates. POST applications of V10142 were ineffective in controlling nutsedge. PRE applications of V-10142 show good potential for controlling yellow nutsedge in vineyards.

Table 2 – Yellow Nutsedge Control After One and Two Years of Herbicide Applications in an Established Vineyard

Treatment[2,3]	Rate lb ai/A	Application Date	% Control[1] - 2006 4/14	5/10	6/13	7/12	% Control[1] – 2007 3/22	4/19	5/31	6/20
1. DPX-E9636 25WG	0.0625	2/16/06	67	67	72	58	80	72	53	57
DPX-E9636 25SG	0.0625	1/26/07								
2. DPX-E9636 25WG	0.0625	2/16/06	60	78	77	72	88	75	62	60
DPX-E9636 25WG	0.0625	4/14/06								
DPX-E9636 25SG	0.0625	1/26/07								
DPX-E9636 25SG	0.0625	4/3/07								
3. DPX-E9636 25WG	0.0625	4/14/06		23	15	8	94	78	62	45
DPX-E9636 25SG	0.125	1/26/07								
4. DPX-E9636 + Roundup Weathermax	0.0625 1.5	2/16/06 4/14/06	73	75	75	67	90	83	60	55
DPX-E9636 + Roundup Weathermax	0.0625 1.5	1/26/07 4/3/07								
5. Roundup Weathermax + Roundup Weathermax	1.5 1.5	4/14/06 4/3/07		17	0	0	0	53	23	63
6. V-10142	0.5	2/16/06	98	94	91	87	100	91	82	80
V-10142	0.5	1/26/07								
7. V-10142 + Chateau	0.5 0.375	2/16/06 2/16/06	100	91	88	80	100	95	88	73
V-10142 + Chateau	0.5 0.375	1/26/07 1/26/07								
8. V-10142	0.5	4/3/07					0	40	33	37
9. V-10142	0.75	4/3/07					0	40	27	33
10. Untreated Check	-	-	0	0	0	0	0	0	0	0

[1]0 = No weed control, 100 = Complete weed control

[2]No Foam A (NIS) @ 0.25% V/V to all treatments except those applied on 4/3/07 in which 1 qt/A of UN32 + 1 pt/A of Hasten were added.

[3] Existing winter annual weeds were controlled with a postemergence herbicide (Goal, Rely or Gramoxone).

Trial 6 – **DPX-E9636 Application Timing in a Newly Planted Pinot Grigio Vineyard – 2007.** Mick Canevari, Paul Verdegaal, Don Colbert, Randall Wittie & Scott Whiteley.

OBJECTIVE: Evaluate DPX-E9636 applied on various dates for weed control in a newly planted vineyard.

MATERIALS & METHODS: Trial was established on October 20, 2006 in a Pinot Grigio vineyard located on Kautz Farm on Live Oak road near Lodi, CA. Treatments, application dates and initial rainfall data are listed in table 1. Application and growth stages prior to applications are in table 2.

Table 1 - Treatment List, Application Dates & Rainfall Data in a Newly Planted Pinot Grigio Vineyard

		Rate	Application	Weed	Inches of Rainfall – Days After Treatment (DAT)				
Trt#	Treatment[1]	lb ai/A	Date	Growth Stage	0-5DAT	6-10DAT	11-15DAT	16-20DAT	20-30DAT
1	DPX-E9636 WG	0.0625	10/20/06	Pre[2]	0	0	0.4	0.08	0.6
2	DPX-E9636 WG	0.125	10/20/06	Pre[2]	0	0	0.4	0.08	0.6
3	Goal 4F + Prowl H_2O 3.8CS	1.0 + 3.8	10/20/06	Pre[2]	0	0	0.4	0.08	0.6
4	DPX-E9636 SG + Gramoxone 2EC	0.0625 + 0.5	11/22/06	Post/pre[3]	0.01	0	0	1.19	0.39
5	DPX-E9636 SG + Gramoxone 2EC	0.125 + 0.5	11/22/06	Post/pre	0.01	0	0	1.19	0.39
6	DPX-E9636 WG+ Gramoxone 2EC	0.0625 + 0.5	11/22/06	Post/pre	0.01	0	0	1.19	0.39
7	Goal 4F + Prowl H_2O CS + Gramoxone 2EC	1.0 + 3.8 + 0.5	11/22/06	Post/pre	0.01	0	0	1.19	0.39
8	DPX-E9636 SG + Gramoxone 2EC	0.0625 + 0.5	1/16/07	Post/pre	0	0	0.1	0	1.6
9	DPX-E9636 SG + Gramoxone 2EC	0.125 + 0.5	1/16/07	Post/pre	0	0	0.1	0	1.6
10	DPX-E9636 WG+ Gramoxone 2EC	0.0625 + 0.5	1/16/07	Post/pre	0	0	0.1	0	1.6
11	Goal 4F + Prowl H_2O CS + Gramoxone 2EC	1.0 + 3.8 + 0.5	1/16/07	Post/pre	0	0	0.1	0	1.6
12	DPX-E9636 SG + Gramoxone 2EC	0.0625 + 0.5	1/25/07	Post/pre	0.1	0	0.39	1.21	0.32
13	DPX-E9636 SG + Gramoxone 2EC	0.125 + 0.5	1/25/07	Post/pre	0.1	0	0.39	1.21	0.32
14	Goal 4F + Prowl H_2O CS + Gramoxone 2EC	1.0 + 3.8 + 0.5	1/25/07	Post/pre	0.1	0	0.39	1.21	0.32
15	DPX-E9636 SG + Rely	0.0625 + 1.0	1/25/07	Post/pre	0.1	0	0.39	1.21	0.32
16	DPX-E9636 SG + Rely	0.125 + 1.0	1/25/07	Post/pre	0.1	0	0.39	1.21	0.32
17	DPX-E9636 SG + Gramoxone 2EC	0.0625 + 0.5	3/12/07	Post/pre[4]	0	0.25	0.5	0	0.58
18	DPX-E9636 SG + Gramoxone 2EC	0.125 + 0.5	3/12/07	Post/pre	0	0.25	0.5	0	0.58
19	Goal 4F + Prowl H_2O CS + Gramoxone 2EC	1.0 + 3.8 + 0.5	3/12/07	Post/pre	0	0.25	0.5	0	0.528
20	Untreated Check	-	-	-	-	-	-	-	-

[1]No Foam A (NIS) @ 0.25% V/V to treatments 4-19

[2]Preemergence to all weeds; [3]POST to winter annual weeds;PRE to velvetleaf & prostrate knotweed treatments 4-16

[4]POST to winter annual weeds and prostrate knotweed, PRE to velvetleaf treatments 17-19

Table 2 – Application Data and Growth Stage Prior to Application in a Newly Planted Pinot Grigio Vineyard

	Growth Stages Prior to Application Date				
Crop/Weed	10/20/2006	11/22/2006	1/16/2007	1/25/2007	3/12/2007
Grape	15-16" shoot	20-30" shoot	Dormant	Dormant	Bud swell
Common Chickweed	Preemergence	Cotyledon to 4 leaf	2 to 5 " diameter	3 to 6" diameter	Flowering
Annual Bluegrass	Preemergence	1 to 2 leaf	3 leaf to 3 tillers	3 leaf to 3 tillers	Seed set
California Burclover	Preemergence	Cotyledon to 2 trifoliate	10 to 14 trifoliate	10 to 20 trifoliate	Flowering
Willowweed	Preemergence	Cotyledon to 4 leaf	4 to 10 leaf	6-12 leaf	Branching 4 to 9" height
Miner's lettuce	Preemergence	4 to 6 leaf	8 to 12 leaf	10 to 14 leaf	Flowering
Desert Rockpurslane	Preemergence	4 to 6 leaf	12 to 30 leaf	12 to 30 leaf	Flowering
Prickly Lettuce	Preemergence	Cotyledon to 2 leaf	4 to 6 leaf	4 to 8 leaf	10 to 16 leaf
Prostrate Knotweed	Preemergence	Preemergence	Preemergence	Preemergence	3-12" diameter
Velvetleaf	Preemergence	Preemergence	Preemergence	Preemergence	Preemergence

Plot size: 4.5 by 21 ft with three replicates arranged in a randomized complete block design.
Applications were made with a CO_2 backpack sprayer, 35 psi in 32.4 gpa of water. Weeds evaluated: common chickweed (*Stellaria media*), California Burclover (*Medicago polymorpha*), annual bluegrass (*Poa annua*), prickly lettuce (*Lactuca serriola*), panicle willowweed (*Epilobium paniculatum*), miner's lettuce (*Claytonia perfoliata*), desert Rockpurslane (*Calandrinia ciliata*), prostrate knotweed (*polygonum aviculare*) and velvetleaf (*Abutilon theophrasti*).

RAINFALL DATA: Weather Station: LIVE OAK_01.P (Near Lodi, CA)
PRECIPITATION AMOUNT (INCHES)

10/20/2006 Application

Date	Inches	Date	Inches
11/01/06	0.01	11/22/06	0.01
11/2	0.22	11/23	0.01
11/3	0.17	11/26	0.07
11/4	0.01	11/27	0.01
11/8	0.08	Dec total	2.01
11/11	0.16	Jan 07 total	0.23
11/13	0.42	Feb 07 total	1.92
11/14	0.01	Mar 07 total	0.75
11/18	0.01	Apr 07 total	1.74
11/20	0.01	May 07 total	0.06

11/22/06 Application

Date	Inches	Date	Inches
11/22/06	0.01*	12/15/06	0.12
11/23	0.01	12/21	0.27
11/26	0.07	12/26	0.30
11/27	0.01	12/27	0.13
12/08	0.13	Jan 07 total	0.23
12/9	0.48	Feb 07 total	1.92
12/10	0.13	Mar 07 total	0.75
12/11	0.03	Apr 07 total	1.74
12/12	0.42	May 07 total	0.06

* = Started raining 10 hrs after application

1/16/07 Application

Date	Inches	Date	Inches
1/28/07	0.09	2/12/07	0.07
1/29	0.01	2/13	0.01
2/7	0.03	2/22	0.32
2/8	0.14	2/28	0.01
2/9	0.22	Mar total	0.75
2/10	0.87	Apr total	1.75
2/11	0.26	May total	0.06

1/25/07 Application

Date	Inches	Date	Inches
1/28/07	0.09	2/12/07	0.07
1/29	0.01	2/13	0.01
2/7	0.03	2/22	0.32
2/8	0.14	2/28	0.01
2/9	0.22	Mar total	0.75
2/10	0.87	Apr total	1.75
2/11	0.26	May total	0.06

3/12/07 Application

Date	Inches
3/20/07	0.19
3/21	0.06
3/26	0.50
4/11	0.58
4/14	0.70
4/15	0.01
4/21	0.20
4/22	0.25
May total	0.06

Table 3 – Weed Control in Newly Planted Pinot Grigio Vineyard

				% Control [1] – Rating Date						Plant Counts/Plot		
				California Burclover		Annual Bluegrass		Panicle Willowweed		Prostrate Knotweed	Velvetleaf	
Trt#	Treatment[2]	Rate lb ai/A	Date	2/20	4/25	2/20	4/25	2/20	4/25	5/14	5/14	6/19
1	DPX-E9636 WG	0.0625	10/20/06	92	85	100	97	99	97	4.7	3.7	4.7
2	DPX-E9636 WG	0.125	10/20/06	99	97	100	98	100	100	0.3	1.3	2.7
3	Goal 4F + Prowl H_2O 3.8CS	1.0 + 3.8	10/20/06	100	99	100	100	100	100	0.0	0.0	1.0
4	DPX-E9636 SG + Gramoxone 2EC	0.0625 + 0.5	11/22/06	100	100	100	100	100	100	0.0	1.3	1.7
5	DPX-E9636 SG + Gramoxone 2EC	0.125 + 0.5	11/22/06	100	100	100	100	100	100	1.0	1.3	2.7
6	DPX-E9636 WG+ Gramoxone 2EC	0.0625 + 0.5	11/22/06	100	98	100	100	100	100	2.3	1.0	1.3
7	Goal 4F + Prowl H_2O CS + Gramoxone 2EC	1.0 + 3.8 + 0.5	11/22/06	100	97	100	100	100	100	0.0	0.0	0.3
8	DPX-E9636 SG + Gramoxone 2EC	0.0625 + 0.5	1/16/07	100	100	100	100	100	100	0.7	0.7	1.7
9	DPX-E9636 SG + Gramoxone 2EC	0.125 + 0.5	1/16/07	100	100	100	100	100	100	1.0	0.0	0.3
10	DPX-E9636 WG+ Gramoxone 2EC	0.0625 + 0.5	1/16/07	98	98	98	100	100	97	0.3	1.7	4.0
11	Goal 4F + Prowl H_2O CS + Gramoxone 2EC	1.0 + 3.8 + 0.5	1/16/07	100	98	100	100	100	100	0.3	0.3	0.7
12	DPX-E9636 SG + Gramoxone 2EC	0.0625 + 0.5	1/25/07	100	100	98	100	100	100	1.3	0.0	0.3
13	DPX-E9636 SG + Gramoxone 2EC	0.125 + 0.5	1/25/07	100	100	96	100	100	100	0.7	0.0	0.7
14	Goal 4F + Prowl H_2O CS + Gramoxone 2EC	1.0 + 3.8 + 0.5	1/25/07	100	100	100	100	100	100	0.0	0.0	0.3
15	DPX-E9636 SG + Rely	0.0625 + 1.0	1/25/07	100	100	93	100	100	100	0.0	1.3	1.3
16	DPX-E9636 SG + Rely	0.125 + 1.0	1/25/07	100	100	92	100	100	100	0.0	0.3	0.7
17	DPX-E9636 SG + Gramoxone 2EC	0.0625 + 0.5	3/12/07	-	98	-	100	100	70	1.0	0.0	0.3
18	DPX-E9636 SG + Gramoxone 2EC	0.125 + 0.5	3/12/07	-	96	-	100	100	85	1.3	0.0	0.0
19	Goal 4F + Prowl H_2O CS + Gramoxone 2EC	1.0 + 3.8 + 0.5	3/12/07	-	83	-	100	100	48	0.3	0.0	0.0
20	Untreated Check	-	-	0	0	0	0	0	0	2.0	0.7	1.0

[1]0 = No weed control, 100 = complete weed control

[2]No Foam A (NIS) @ 0.25% V/V to treatments 4-19

RESULTS & DISCUSSIONS:

Grape Injury: All treatments showed no grape injury.

Weed Control: All herbicide treatments gave excellent control 93-100% control of miner's lettuce, common chickweed, prickly lettuce and desert rockpurslane (data not shown).

Preemergence treatments #1-3 applied on 10/20/06
These treatments did not receive any rainfall for 10 days. In the 11-15 day period after application 0.4 inches of rain occurred. In addition to the weeds listed above, DPX-E9636 0.0625 lb ai/A gave excellent control of willowweed and common chickweed. Burclover control was 89% in March and fell to 85% in April. Based on plant counts between herbicide treatments (ignore check counts because of canopy affect) knotweed and velvetleaf control was poor. DPX-E9636 0.125 lb ai/A gave excellent control of all weed species. Plant counts showed good knotweed control with poor control of velvetleaf. Goal 1.0 lb ai/A + Prowl 3.8 lb ai/A gave 97-100% control of all weed species with a few velvetleaf plants present in June.

Postemergence/Preemergence treatments #4-7 applied on 11/22/06
Rainfall started 10 hours after application for a total of 0.01 inches. The next rainfall occurrence was 16-20 days after treatment for a total of 1.19 inches. DPX-E9636 0.0625 lb ai/A + Gramoxone 0.5 lb ai/A gave similar results as above with better burclover and knotweed control. DPX-E9636 0.125 lb ai/A + Gramoxone 0.5 lb ai/A gave excellent control of all weed species with a few knotweed and velvetleaf plants present. Overall, the WG formulation of DPX-E9636 gave similar results as the SG formulation. Goal 1.0 lb ai/A + Prowl 3.8 lb ai/A + Gramoxone 0.5 lb ai/A resulted in complete weed control.

Postemergence/Preemergence treatments #8-11 applied on 1/16/07
First rainfall occurred in the 11-15 day period after application for a total of 0.1 inches. A total of 1.6 inches fell in the 20-30 day period after application. DPX-E9636 0.0625 lb ai/A + Gramoxone 0.5 lb ai/A gave results similar to the 11/22/06 application. The higher rate of DPX-E9636 + Gramoxone gave similar results as above with better velvetleaf control. Again, the tank mixture of Goal 1.0 lb ai/A + Prowl 3.8 lb ai/A + Gramoxone 0.5 lb ai/A gave excellent overall weed control.

Postemergence/Preemergence treatments #12-16 applied on 1/25/07
Both DPX-E9636 rates tank mixed with Gramoxone gave similar result as the 1/16/07 applications with slightly better velvetleaf activity. DPX-E9636 treatments tank mixed with Rely gave excellent control of all weeds species except for a few velvetleaf plants. Excellent overall weed control from the Goal + Prowl + Gramoxone tank mixture.

Postemergence/Preemergence treatments #17-19 applied on 3/12/07
These treatments receive 0.25 inches of rainfall 6-10 days after application. An additional 0.5 inches occurred in the 11-15 day period after application. DPX-E9636 treatments gave excellent control of burclover, miner's lettuce common chickweed, annual bluegrass, prickly lettuce, velvetleaf and desert rockpurslane. Willow weed control was 70-85% with fair knotweed control. Goal + Prowl + Gramoxone tank mixture excellent control of all weed species except for 83% burclover control and on 48% on willowweed.

Summary

DPX-E9636: Under our fall conditions, the preemergence application only received 0.4 inches in the 11-14 day period after application. Weed control was excellent on all weeds with burclover dropping to 85% on the April 25th rating date. Knotweed and velvetleaf control was poor to fair with the higher rate slightly better. The next application date 11/22/06 received 1.19 inches in the 16-20 period after application and gave similar results as above with 100% burclover control. Overall, DPX-E9636 did not consistently give effective control of knotweed and velvetleaf.

Goal + Prowl (pre) and Goal + Prowl + Gramoxone tank mixtures (post/pre): Except on the last application date 3/12/07 these combination treatments were most effective in controlling the above weed species.

This is a work in progress only. The chemicals and uses contained in this publication are experimental data and should not be considered as recommendations for use.

Until the products and their uses given in this report appear on a registered pesticide label or other legal, supplementary direction for use, it is illegal to use the chemicals as described.

WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in their original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets and livestock.

Recommendations are based on the best information currently available, and treatments based on them should not leave exceeding the tolerance established for any particular chemical. Confine chemicals to the area being treated. **THE GROWER IS LEGALLY RESPONSIBLE** for residues on his crops as well as for problems caused by drift from his property to other properties or crops.

Consult your County Agricultural Commissioner for correct methods of disposing of leftover spray material and empty containers. Never burn pesticide containers.

PHYTOTOXICITY

Certain chemicals may cause plant injury if used at the wrong stage of plant development or when temperatures are too high or when overcast conditions occur. Injury may also result from excessive amounts or the wrong formulation or mixing incompatible materials. Inert ingredients such as wetters, spreaders, emulsifiers, diluents, and solvents, can cause plant injury. Since formulations are often changed by manufacturers, it is possible that plant injury may occur, even though no injury was noted in previous seasons.

No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.

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