

**WINE
GRAPE
&
WALNUT**



**WEED CONTROL
1991
TRIAL RESULTS**

SAN JOAQUIN COUNTY

**Cooperative Extension University of California
420 South Wilson Way - Stockton - California - 95205**

1991 WINE GRAPE & WALNUT
WEED CONTROL RESEARCH PROGRESS REPORT

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and

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San Joaquin County



ACKNOWLEDGEMENTS

The wine grape and walnut weed control program in San Joaquin County is conducted with the cooperation and management assistance of the following growers: Mohr-Fry Ranches (Jerry Fry), Vineyard Properties (Frank Rodriquez), and Stanley Ranch (Terry Prichard). It is their fine cooperation that benefits all grape and walnut growers in San Joaquin County in the area of weed control. 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 and walnut 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 of herbicides 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.

· Gramoxone	paraquat	ICI Americas, Inc.
· Goal	oxyfluorfen	Rohm-Haas Co.
· Caliber 90	simazine	Ciba-Geigy Chemical Co.
· MON 13211	MON 13211	Monsanto Chemical Co.
· Roundup	glyphosate	Monsanto Chemical Co.
· Surflan	oryzalin	Dow-Elanco Chemical Co.
· Ignite	glufosinate-ammonium	American Hoechst
· Prowl	pendimethalin	American Cyanamid

1991 Grape and Walnut Weed Control Trial Results

During the 1991 season, three weed control trials in wine grapes and two weed control trials in walnuts were established and evaluated in San Joaquin County.

The first trial was a postemergence weed control trial in newly budded Zinfandel grapes at Vineyard Properties (Frank Rodriguez) near Colledgeville, California. The second trial was a pre-emergence trial at the same location.

The third trial was at Mohr-Fry Ranches (Jerry Fry) near Thornton, California, in established Sauvignon blanc grapes. A postemergence weed trial and a pre-emergence weed trial were evaluated on established Ashley english walnuts at Stanley Ranch (Terry Prichard) near Farmington, California.

All of the trials were established to evaluate the effectiveness of the candidate herbicides on annual and perennial weed species. Complete trial descriptions and weed control/crop phytotoxicity ratings for each trial follow.

A Postemergence Weed Control Trial in Recently Budded Zinfandel Grapes. Mullen, R.J., P. Verdegaal, T. Viss

A postemergence weed control trial in recently budded Zinfandel grapes was established at Vineyard Properties (Frank Rodriguez) near Colledgeville, California on January 30, 1991. All treatments were applied in 30 gallons per acre spray volume at 40 psi pressure with a handheld CO₂ backpack sprayer. The soil type at the trial site was a Landlow adobe clay and the vineyard was irrigated by winter rainfall and then sprinklers for the balance of the season. Weeds present at the date of treatment included 1 to 3- inch tall Carolina geranium, 3 to 5-inch tall annual ryegrass, cotyledon-to-second true-leaf thyme-leaf speedwell, 3 to 6-inch rosette red- and white-stem filaree, 4 to 8-inch tall wild oats, and 3 to 6-inch rosette prickly lettuce. The crop was dormant at the time of treatment and all sprays were directed at the base of the vines but over the weeds. Weed control and crop phytotoxicity ratings were made on February 21, 1991. Best overall control of all weed species present was attained by the combination treatment of the higher rate of Ignite (*glufosinate-ammonium*) and Caliber 90 (*simazine*), followed very closely by Ignite alone at the high rate, Roundup (*glyphosate*) plus Triton AG 98, and the combination of the lower rate of Ignite and Caliber 90. Gramoxone (*paraquat*) gave very good control of all species except thyme-leaf speedwell and was a little bit weak on wild oats. All treatments showed excellent crop safety.

Weed Control ^{1/}								
Chemical and Formulation	Rate Lb/Acre A.I.	Carolina Geranium	Annual Ryegrass	Thyme-Leaf Speedwell	Red & White Stem Filaree	Wild Oats	Prickly Lettuce	Crop ^{1/} Phyto
Roundup(4L) + Triton AG 98	1.00 + ½%	8.0	9.0	7.5	8.3	9.0	9.5	0.5
Gramoxone (2L)	0.75	7.8	8.8	4.8	9.0	7.3	8.5	0.5
Ignite (1L)	0.75	6.5	8.5	7.0	9.0	9.1	9.0	0.5
Ignite + Caliber 90 (90DF)	0.75 + 1.00	7.5	8.6	7.5	8.5	9.5	9.3	0.5
Ignite	1.00	8.3	8.8	7.8	8.7	9.3	9.1	0.5
Ignite + Caliber 90	1.00 + 1.00	8.7	8.3	8.5	8.5	9.0	9.5	0.5
Goal (1.6E)	1.00	4.5	5.5	6.0	7.8	4.5	9.3	0.5
Untreated Control	-----	0.0	0.0	0.0	0.0	0.0	0.0	0.5

^{1/} Average of four replications: 0 = No weed control; no crop injury
10 = Complete weed control; crop dead

A Pre-emergence Weed Control Trial in Recently Budded Zinfandel Grapes. Mullen, R.J., P. Verdegaal, T. Viss

A pre-emergence weed control trial in recently budded Zinfandel grapes was established at Vineyard Properties (Frank Rodriguez) near Colledgeville, California on January 30, 1991. All treatments were applied with a handheld CO₂ backpack sprayer in a spray volume of 30 gallons per acre at 40 psi pressure. The soil type at the trial site was a Landlow adobe clay and the vineyard was irrigated by winter rainfall and then sprinklers for the balance of the season. Weeds present at the date of treatment included 1 to 3-inch tall Carolina geranium, 3 to 6-inch rosette red and white stem filaree, 4 to 6-inch tall wild oats, cotyledon-to-second true leaf thyme-leaf speedwell, 3 to 6-inch tall fiddleneck, and 4 to 8-inch tall canary grass. Emerged weeds were treated with Roundup (*glyphosate*) at 1 Lb/Acre A.I. plus Triton AG 98 at ½% at the same time as application of the pre-emergence treatments. The crop was dormant at the time of treatment and all sprays were directed at the base of the vines. Weed control and crop phytotoxicity ratings were taken on May 8, 1991. Best overall control of all weed species present was attained by the combination treatment of MON-13211 and Caliber 90 (*simazine*), followed closely by the combination of MON-13211 and Goal (*oxyfluorfen*), and the high rate of MON-13211 alone. Other treatments were effective on a number of the weeds present but were weak on either Carolina geranium or yellow nutsedge or both. All treatments showed excellent safety to the crop.

Weed Control ^{1/}								
Chemical and Formulation	Rate Lb/Acre A.I.	Carolina Geranium	Red & White Stem Filaree	Wild Oats	Canary Grass	Thyme-Leaf Speedwell	Yellow Nutsedge	Crop ^{1/} Phyto
Prowl (3.3E)	4.0	5.5	8.0	7.5	8.5	8.0	4.0	0.5
Prowl + Goal (1.6E)	4.0 + 1.0	6.1	8.3	8.0	9.1	8.6	4.5	0.6
Prowl + Caliber 90 (90DF)	4.0 + 1.0	7.5	8.8	9.0	9.3	8.5	4.8	0.5
MON 13211 (2.0E)	0.5	7.0	6.5	8.5	9.0	7.0	5.7	0.5
MON 13211	1.0	7.8	7.8	9.0	9.5	9.0	6.8	0.8
MON 13211	2.0	9.0	8.5	9.5	9.7	9.5	7.8	0.6
MON 13211 + Goal	2.0 + 1.0	8.7	8.7	9.5	9.5	9.5	8.3	0.5
MON 13211 + Caliber 90	2.0 + 1.0	9.1	9.0	10.0	10.0	9.0	8.0	0.7
Surflan (4AS)	4.0	6.0	7.5	8.5	8.7	7.5	3.5	0.5
Surflan + Goal	4.0 + 1.0	5.7	7.5	8.5	9.0	8.5	3.7	0.5
Surflan + Caliber 90	4.0 + 1.0	7.3	8.5	9.3	9.5	8.3	4.0	0.6
Untreated Control	-----	0.0	0.0	0.0	0.0	0.0	0.0	0.4

^{1/} Average of four replications: 0 = No weed control; no crop injury
10 = Complete weedcontrol; crop dead

A Postemergence Weed Control Trial for Suppression of Yellow Nutsedge in Sauvignon Blanc Grapes. Mullen, R.J. M. Ehlhardt.

A postemergence weed control trial in established Sauvignon Blanc grapes for suppression of yellow nutsedge was treated on May 9, 1991 and again on June 8, 1991 at Mohr-Fry Ranches (Jerry Fry) near Thornton, California. All treatments were applied with a handheld CO₂ backpack sprayer in 18 gallons per acre spray volume at 25 psi pressure at the first treatment date and in 30 gallons per acre spray volume at 30 psi pressure at the second treatment date. The soil type at the trial site was a Columbia sandy loam and the vineyard was furrow-irrigated throughout the growing season. Weeds present at the initial treatment date were 3 to 8 true leaf yellow nutsedge primarily with a few scattered 3 to 5-inch tall cocklebur; the crop was at mid-canopy development/early fruit formation. Weed control and crop phytotoxicity ratings were taken on June 8, 1991 and again on July 11, 1991. All sprays had been directed to the base of the vines but over the weeds. Best suppression of yellow nutsedge occurred with two applications (one month apart) of the higher rate of Roundup (*glyphosate*) plus Surphtac, followed by two applications (one month apart) of the higher rate of Ignite (*glufosinate-ammonium*) plus Surphtac, and the single late application (June 8, 1991) of the higher rate of Ignite plus Surphtac. All treatments provided excellent crop safety.

		Weed Control ^{1/} Yellow Nutsedge		Crop ^{1/} Phytotoxicity	
Treatment	Rate Lb/Ac A.I.	6/8	7/11	6/8	7/11
Untreated Control	-----	0.0	0.0	0.6	0.5
Ignite + Surphtac	(0.75 + 1%) + (0.75 + 1%)	4.5	5.3	0.5	0.5
Ignite + Surphtac	(1.00 + 1%) + (1.00 + 1%)	5.9	7.0	0.7	0.5
Roundup + Surphtac	(0.75 + 1%) + (0.75 + 1%)	4.0	4.3	0.7	0.5
Roundup + Surphtac	(1.00 + 1%) + (1.00 + 1%)	5.5	7.3	0.7	0.6
Ignite + Surphtac	----- 1.00 + 1%		6.4		0.5
Roundup + Surphtac	----- 1.00 + 1%		5.0		0.5
Ignite	----- 1.00		5.3		0.7
Roundup + X-77	----- 1.00 + ½%		5.5		0.5

^{1/} Average of four replications: 0 = No weed control; no crop injury
10 = Complete weed control; crop dead

A Postemergence Weed Control Trial in Established Walnuts. Mullen, R.J., M. Ehlhardt, T. Viss.

A postemergence weed control trial in established "Ashley" English walnuts was treated on February 1, 1991 at Stanley Ranch (Terry Prichard) near Farmington, California. All treatments were applied with a handheld CO₂ backpack sprayer in a spray volume of 30 gallons per acre at 40 psi pressure. The soil type at the trial site was a Wyman clay and the orchard was irrigated by winter rainfall, and then by sprinklers for the remainder of the crop season. Weeds present at the time of plot treatment included seedling to 1-inch tall Italian ryegrass, 1 to 2 true-leaf roughseed buttercup, 2 to 5-inch rosette redstem filaree, 1 to 4-inch rosette shepherdspurse, and 1 to 2-inch tall wild oats. The crop was dormant. All sprays were directed to the base of the trees but over the weeds. Weed control and crop phytotoxicity ratings were taken on February 21, 1991 and again on May 8, 1991. At the early and late rating dates, best overall control of all weed control was attained by the combination treatment of the high rate of Ignite (*glufosinate-ammonium*) and Caliber 90 (*simazine*), followed very closely by Gramoxone (*paraquat*) alone, then the combination of the lower rate of Ignite and Caliber 90, and Roundup (*glyphosate*) plus Triton AG-98. All treatments were completely safe to the crop.

Weed Control ^{1/}													
Chemical and Formulation	Rate Lb/Ac A.I.	Italian Ryegrass		Roughseed Buttercup		Red Stem Filaree		Shepherd's Purse		Wild Oats		Crop ^{1/} Phyto	
		2/21	5/8	2/21	5/8	2/21	5/8	2/21	5/8	2/21	5/8	2/21	5/8
Roundup (4L) + Triton AG-98	1.00 + ½%	7.5	7.0	9.3	8.5	7.0	7.1	9.0	8.5	8.0	7.0	0.5	0.5
Gramoxone (2L)	0.75	7.5	7.0	9.0	9.0	7.8	7.5	9.5	9.1	9.3	7.8	0.5	0.5
Ignite (1L)	0.75	5.0	4.0	7.5	7.0	7.0	7.0	9.0	8.7	7.5	7.1	0.5	0.5
Ignite + Caliber 90 (90DF)	0.75 + 1.00	7.0	6.5	8.0	7.5	8.5	8.5	9.3	9.1	8.5	8.0	0.5	0.5
Ignite	1.00	6.0	5.0	7.8	7.5	8.0	7.5	9.1	9.0	7.8	7.5	0.5	0.5
Ignite + Caliber 90	1.00 + 1.00	7.5	7.3	8.8	8.5	9.0	8.5	9.1	9.5	8.5	8.5	0.5	0.5
Goal (1.6E)	1.00	6.0	6.5	8.0	9.1	9.3	9.1	9.5	9.5	7.1	7.0	0.5	0.5
Untreated Control	-----	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5

^{1/} Average of four replications: 0 = No weed control; no crop injury
10 = Complete weed control; crop dead

A Preemergence Weed Control Trial in Established Walnuts. Mullen, R.J., T. Viss.

A preemergence weed control trial in established "Ashley" English walnuts was treated on February 1, 1991 at Stanley Ranch (Terry Prichard) near Farmington, California. All treatments were applied with a handheld CO₂ backpack sprayer in a spray volume of 30 gallons per acre at 40 psi pressure. The soil type at the trial site was a Wyman clay and the orchard was irrigated by winter rainfall, and then by sprinklers for the rest of the crop season. Weeds present at the date of treatment included 2 to 3-inch rosette roughseed buttercup seedling to 1-inch tall Italian ryegrass, 1 to 2-inch tall wild oats, seedling to 2-inch tall ripgut brome, 2 to 4-inch rosette common dandelion, and some seedling chickweed. All emerged weeds were treated with Roundup (*glyphosate*) at 1 Lb/Acre A.I. plus Triton AG-98 at ½% at the same time as application of the preemergence treatments. The crop was dormant at the time of treatment and all sprays were directed to the base of the trees. Weed control and crop phytotoxicity ratings were taken on May 8, 1991. Best overall weed control of all weed species present was attained by the combination of MON 13211 plus Goal (*oxyfluorfen*), followed by the combination of MON 13211 plus Caliber 90 (*simazine*), the combination treatment of Surflan (*oryzalin*) plus Goal, the combination treatment of Surflan plus Caliber 90, and the high rate of MON 13211 alone. All treatments showed excellent safety to the crop.

Weed Control ^{1/}								
Chemical and Formulation	Rate Lb/Acre A.I.	Roughseed Buttercup	Ripgut Brome	Common Dandelion	Panicled Willow Herb	Italian Ryegrass	Wild Oats	Crop ^{1/} Phyto
Prowl (3.3E)	4.0	7.0	8.3	5.3	7.8	8.4	7.3	0.5
MON 13211 (2.0E)	0.5	7.1	7.5	6.5	7.5	9.0	8.3	0.5
MON 13211	1.0	8.6	9.0	8.0	7.8	9.3	8.8	0.5
MON 13211	2.0	9.1	9.3	8.5	8.5	9.5	9.3	0.5
MON 13211 + Goal (1.6E)	2.0 + 1.0	9.5	9.8	9.5	9.0	10.0	9.5	0.5
MON 13211 + Caliber 90 (90DF)	2.0 + 1.0	9.6	9.0	9.5	8.6	10.0	9.6	0.5
Surflan (4AS)	4.0	7.3	8.5	5.0	8.3	8.8	7.5	0.5
Surflan + Goal	4.0 + 1.0	9.1	9.5	9.3	9.1	9.6	9.0	0.5
Surflan + Caliber 90	4.0 + 1.0	9.3	9.0	8.8	9.0	9.1	9.5	0.5
Untreated Control	-----	0.0	0.0	0.0	0.0	0.0	0.0	0.5

^{1/} Average of four replications: 0 = No weed control; no crop injury
10 = Complete weed control; crop dead

This is a report of 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 residues 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. Injury may also result from excessive amounts or the wrong formulation or from 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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