

## Cover Crops for Weed Management in Grapes.

Project Code: 05-grapecover Location: Horticulture Research Center  
Investigator: Bryan Young

Investigator: Bryan Young, Associate Professor, Southern Illinois University

City State Zip Country: Carbondale IL 62901 USA  
Trial Status: Final Updated: 12-06-05

**Objective:**

Determine the utility of cover crops for weed management in grapes.

Weed Code	Common Name	Scientific Name
1.	LAMAM henbit	Lamium amplexicaule L.
2.	STEME chickweed, common	Stellaria media (L.) Vill.
3.	CERVU chickweed, mouseear	Cerastium vulgatum L.
4.	LAMPU deadnettle, purple	Lamium purpureum L.
5.	ERICA horseweed	Conyza canadensis (L.) Crong.
6.	TRFRE clover, white	Trifolium repens L.
7.	CAPBP shepherdspurse	Capsella bursa-pastoris (L.) Medicus
8.	PHTAM pokeweed, common	Phytolacca americana L.
9.	GERCA geranium, Carolina	Geranium carolinianum L.
10.	VICVI vetch, hairy	Vicia villosa roth ssp.villosa
11.	SETFA foxtail, giant	Setaria faberi Herrm.
12.	DIGSA crabgrass, large	Digitaria sanguinalis (L.) Scop.
13.	ECHCG barnyardgrass	Echinochloa crus-galli (L.) Beauv.

Crop 1: VITVI grape  
Planting Method: Established

Plot Width, Unit: 3 FT Plot Length, Unit: 24 FT Reps: 3  
Tillage Type: No-Till Study Design: Randomized complete block

**APPLICATION DESCRIPTION**

	A	B	C	D	E	F
Application Date:	03-31-05	04-27-05	05-31-05	07-07-05	10-05-05	09-06-05
Time of Day:	8:30		16:00	10:30		
Application Method:	Spray	Plant	Spray	Spray	Plant	Spray
Application Timing:	PREBUD	1WA-A	6"COVER	6"WEEDS	AUGUST	AUG-IN
Applic. Placement:	BROFOL		BROFOL	BROFOL		See comment
Air Temp., Unit:	60 F		81 F	87 F		
% Relative Humidity:	38		38	51		
Wind Velocity, Unit:	4-5 MPH		2-3 MPH	2-3 MPH		
Dew Presence (Y/N):	N		N	N		
Soil Temp., Unit:	54 F		88 F	82 F		
Soil Moisture:	NORMAL		BELNOR	NORMAL		
% Cloud Cover:	0		5	0		

**CROP STAGE AT EACH APPLICATION**

	A	B	C	D	E	F
Crop 1 Code, Stage:	VITVI NA	VITVI NA	VITVI NA	VITVI NA	VITVI NA	VITVI NA
Height, Unit:	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA

**WEED STAGE AT EACH APPLICATION**

	A	B	C	D	E	F
Weed 1 Code:	LAMAM					
Stage (leaves):	8-10					
Height (inches):	2-3					
Density:	Low					
Weed 2 Code:	STEME					
Stage (leaves):	10+					
Height (inches):	1-2					
Density:	High					
Weed 3 Code:	CERVU					
Stage (leaves):	10+					
Height (inches):	0-1					
Density:	Medium					
Weed 4 Code:	LAMPU					
Stage (leaves):	10+					
Height (inches):	2-3					
Density:	Medium					

**APPLICATION EQUIPMENT**

	A	B	C	D	E	F
Appl. Equipment:	CO2 sprayer	Power-rake	CO2 sprayer	CO2 sprayer	Tiller+Rake	CO2 sprayer
Operating Pressure:	40 PSI		40 PSI	40 PSI		40 PSI
Nozzle Type:	Flat fan		Flat fan	Flat fan		Flat fan
Nozzle Size:	8002E		8002E	8002E		8002E
Boom Length, Unit:	3 FT		3 FT	3 FT		3 FT
Spray Volume, Unit:	20 GPA		20 GPA	20 GPA		20 GPA

**NOTES:**

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Weed Code	LAMAM	LAMAM	STEME	STEME	CERVU	CERVU	LAMPU	LAMPU
Crop Code	Control	Control	Control	Control	Control	Control	Control	Control
Rating Data Type	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Unit	04-14-05	05-31-05	04-14-05	05-31-05	04-14-05	05-31-05	04-14-05	05-31-05
Rating Date	14 DA-A	0 DA-C	14 DA-A	0 DA-C	14 DA-A	0 DA-C	14 DA-A	0 DA-C
Trt-Eval Interval								

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	LAMAM 04-14-05	LAMAM 05-31-05	STEME 04-14-05	STEME 05-31-05	CERVU 04-14-05	CERVU 05-31-05	LAMPU 04-14-05	LAMPU 05-31-05
1	NONTREATED									0	0	0	0	0	0	0	0
2	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	PREBUD	A	99	98	99	99	99	99	99	99
2	CHATEAU	51	WG	0.191	lb ai/a	6.0	oz/a	PREBUD	A								
2	GRAMOXONE MAX	3	SL	0.75	lb ai/a	2.0	pt/a	6"WEEDS	D								
2	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	6"WEEDS	D								
3	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	PREBUD	A	99	78	99	99	99	99	99	99
3	PLANT OATS							1WA-A	B								
3	GRAMOXONE MAX	3	SL	0.094	lb ai/a	4.0	fl oz/a	6"COVER	C								
3	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	6"COVER	C								
4	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	PREBUD	A	99	99	99	99	99	99	99	99
4	PLANT MUSTARD							1WA-A	B								
4	GRAMOXONE MAX	3	SL	0.094	lb ai/a	4.0	fl oz/a	6"COVER	C								
4	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	6"COVER	C								
5	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	PREBUD	A	99	94	99	99	99	99	99	98
5	CHATEAU	51	WG	0.191	lb ai/a	6.0	oz/a	PREBUD	A								
5	GRAMOXONE MAX	3	SL	0.75	lb ai/a	2.0	pt/a	6"WEEDS	D								
5	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	6"WEEDS	D								
5	PLANT LITTLE BARLEY							AUGUST	E								
5	GRAMOXONE MAX	3	SL	0.75	lb ai/a	2.0	pt/a	AUG-IN	F								
5	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	AUG-IN	F								
LSD (P=.05)										0.0	16.0	0.0	0.0	0.0	0.0	0.0	1.9
Replicate F										0.000	1.626	0.000	0.000	0.000	0.000	0.000	1.000
Replicate Prob(F)										1.0000	0.2556	1.0000	1.0000	1.0000	1.0000	1.0000	0.4096
Treatment F										0.000	73.382	0.000	0.000	0.000	0.000	0.000	5476.938
Treatment Prob(F)										1.0000	0.0001	1.0000	1.0000	1.0000	1.0000	1.0000	0.0001

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Weed Code	ERICA	ERICA	ERICA	TRFRE	TRFRE	CAPBP	PHTAM	PHTAM
Crop Code	Control	Control	Control	Control	Control	Control	Control	Control
Rating Data Type	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Unit	05-31-05	05-31-05	07-07-05	05-31-05	07-07-05	05-31-05	05-31-05	05-31-05
Rating Date	0 DA-C	0 DA-C	0 DA-D	0 DA-C	0 DA-D	0 DA-C	0 DA-C	0 DA-C
Trt-Eval Interval								

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	ERICA 05-31-05	ERICA 05-31-05	ERICA 07-07-05	TRFRE 05-31-05	TRFRE 07-07-05	CAPBP 05-31-05	PHTAM 05-31-05	PHTAM 05-31-05
1	NONTREATED									0	0	0	0	0	0	0	0
2	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	PREBUD	A	91	69	69	93	98	99	61	60
2	CHATEAU	51	WG	0.191	lb ai/a	6.0	oz/a	PREBUD	A								
2	GRAMOXONE MAX	3	SL	0.75	lb ai/a	2.0	pt/a	6"WEEDS	D								
2	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	6"WEEDS	D								
3	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	PREBUD	A	99	99	99	52	97	99	0	33
3	PLANT OATS							1WA-A	B								
3	GRAMOXONE MAX	3	SL	0.094	lb ai/a	4.0	fl oz/a	6"COVER	C								
3	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	6"COVER	C								
4	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	PREBUD	A	99	99	99	80	98	99	99	99
4	PLANT MUSTARD							1WA-A	B								
4	GRAMOXONE MAX	3	SL	0.094	lb ai/a	4.0	fl oz/a	6"COVER	C								
4	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	6"COVER	C								
5	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	PREBUD	A	99	99	99	92	98	99	66	99
5	CHATEAU	51	WG	0.191	lb ai/a	6.0	oz/a	PREBUD	A								
5	GRAMOXONE MAX	3	SL	0.75	lb ai/a	2.0	pt/a	6"WEEDS	D								
5	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	6"WEEDS	D								
5	PLANT LITTLE BARLEY							AUGUST	E								
5	GRAMOXONE MAX	3	SL	0.75	lb ai/a	2.0	pt/a	AUG-IN	F								
5	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	AUG-IN	F								
LSD (P=.05)										6.0	43.3	43.3	26.4	1.5	0.0	70.8	59.9
Replicate F										1.000	1.000	1.000	2.289	1.000	0.000	0.341	1.963
Replicate Prob(F)										0.4096	0.4096	0.4096	0.1636	0.4096	1.0000	0.7211	0.2025
Treatment F										565.050	10.468	10.468	23.196	9556.001	0.000	4.070	5.457
Treatment Prob(F)										0.0001	0.0029	0.0029	0.0002	0.0001	1.0000	0.0434	0.0203

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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	GERCA	VICVI	SETFA	DIGSA	DIGSA	ECHCG	VITVI	VITVI				
						Control	Control	Control	Control	Control	Control	Injury	Injury				
						Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent				
						05-31-05	05-31-05	05-31-05	05-31-05	07-07-05	07-07-05	05-31-05	07-07-05				
						0 DA-C	0 DA-C	0 DA-C	0 DA-C	0 DA-D	0 DA-D	0 DA-C	0 DA-D				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code								
1	NONTREATED									0	0	0	0				
2	ROUNDUP W-MAX	4.5 SL		0.77 lb ae/a		22 fl oz/a		PREBUD A		99	99	78	57				
	2 CHATEAU	51 WG		0.191 lb ai/a		6.0 oz/a		PREBUD A									
	2 GRAMOXONE MAX	3 SL		0.75 lb ai/a		2.0 pt/a		6"WEEDS D									
	2 ACTIVATOR 90	100 LIQ		0.25 % v/v		0.25 % v/v		6"WEEDS D									
3	ROUNDUP W-MAX	4.5 SL		0.77 lb ae/a		22 fl oz/a		PREBUD A		76	99	75	60				
	3 PLANT OATS							1WA-A B									
	3 GRAMOXONE MAX	3 SL		0.094 lb ai/a		4.0 fl oz/a		6"COVER C									
	3 ACTIVATOR 90	100 LIQ		0.25 % v/v		0.25 % v/v		6"COVER C									
4	ROUNDUP W-MAX	4.5 SL		0.77 lb ae/a		22 fl oz/a		PREBUD A		69	99	62	63				
	4 PLANT MUSTARD							1WA-A B									
	4 GRAMOXONE MAX	3 SL		0.094 lb ai/a		4.0 fl oz/a		6"COVER C									
	4 ACTIVATOR 90	100 LIQ		0.25 % v/v		0.25 % v/v		6"COVER C									
5	ROUNDUP W-MAX	4.5 SL		0.77 lb ae/a		22 fl oz/a		PREBUD A		99	73	96	60				
	5 CHATEAU	51 WG		0.191 lb ai/a		6.0 oz/a		PREBUD A									
	5 GRAMOXONE MAX	3 SL		0.75 lb ai/a		2.0 pt/a		6"WEEDS D									
	5 ACTIVATOR 90	100 LIQ		0.25 % v/v		0.25 % v/v		6"WEEDS D									
	5 PLANT LITTLE BARLEY							AUGUST E									
	5 GRAMOXONE MAX	3 SL		0.75 lb ai/a		2.0 pt/a		AUG-IN F									
	5 ACTIVATOR 90	100 LIQ		0.25 % v/v		0.25 % v/v		AUG-IN F									
LSD (P=.05)										47.7	38.4	31.3	26.7	17.0	0.0	0.0	0.0
Replicate F										2.597	1.000	5.020	8.107	4.061	0.000	0.000	0.000
Replicate Prob(F)										0.1351	0.4096	0.0387	0.0119	0.0606	1.0000	1.0000	1.0000
Treatment F										7.736	13.254	14.696	10.793	12.786	0.000	0.000	0.000
Treatment Prob(F)										0.0074	0.0013	0.0009	0.0026	0.0015	1.0000	1.0000	1.0000

Trial Comments

1. Protocol: SIU-BGY.
2. Ratings: CI/WC 2 weeks after application A and prior to applications C, D and F.
3. Blanket application of Gramoxone Max at 2.0 pt/A applied to all plots on 9-6-05.
4. DA-A, DA-C, and DA-D are days after applications A, C, and D, respectively.  
0 days after application is prior to application.
5. Study to continue in 2006.