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Weed management systems in seeded onion.

Trial ID: Onion3-03 Study Dir.:
Location: VORF Investigator: Stanley Culpepper

GENERAL TRIAL INFORMATION

Study Director: Stanley Culpepper **Title:** Ext. Weed Science
Affiliation: University of Georgia
Postal Code: 31794
Investigator: Stanley Culpepper **Title:** Ext. Weed Science
Affiliation: University of Georgia
Postal Code: 31794

TRIAL LOCATION

City: TyTy **Trial Status:** completed
State/Prov.: GA **Trial Reliability:** good
Initiation Date: Oct-21-02
Country: UGA

Conducted Under GLP (Y/N): N **Conducted Under GEP (Y/N):** N

CROP AND WEED DESCRIPTION

Weed	Code	Common Name	Scientific Name
1.	OEOLA	cutleaf eveningprimrose	
2.	LAMAM	henbit	
3.	STEME	chickweed	

Crop 1: ALLCE ONION **Variety:** Grannex33PRR/Shamrock6372
Planting Date: Oct-21-02 **Planting Method:** conventional
Rate: 1 per 3" **Depth:** 0.25 in
Row Spacing: 15 inch **Seed Bed:** flat
Soil Temperature: 79 F **Soil Moisture:** moist **Emergence Date:** Oct-31-02

SITE AND DESIGN

Plot Width, Unit: 12 FT **Plot Length, Unit:** 25 FT **Reps:** 4
Site Type: research station
Tillage Type: CONVENTIONAL-TILL **Study Design:** RANDOMIZED COMPLETE BLOCK

SOIL DESCRIPTION

% Sand: 86 **% OM:** 0.47 **Texture:** loamy sand
% Silt: 10 **pH:** 5.8
% Clay: 4

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	Oct-21-02	Oct-31-02	Nov-13-02	Jan-08-03
Time of Day:	2 PM	11 am	2 pm	11 am
Application Method:	broadcast	broadcast	broadcast	broadcast
Application Timing:	PRE	spike	V1-V2	V5/transp
Applic. Placement:	surface	overtop	overtop	overtop
Air Temp., Unit:	80 F	64 F	64 F	53 F
% Relative Humidity:	47	47	47	33
Wind Velocity, Unit:	1 mph	3 mph	2 mph	5 mph
Dew Presence (Y/N):	n	n	n	n
Soil Temp., Unit:	79 F	69 F	70 F	45 F
Soil Moisture:	irrigated	moist	wet	moist
% Cloud Cover:	90	20	25	0

CROP STAGE AT EACH APPLICATION

	A	B	C	D
Crop 1 Code, Stage:	ALLCE PRE	ALLCE spike	ALLCE 2-leaf	ALLCE 5-leaf
Stage Scale:	.	VO	V1-V2	V5
Height, Unit:	0. .	0.25 inch	2 inch	5 inch

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WEED STAGE AT EACH APPLICATION

	A	B	C	D
Weed 1 Code, Stage:	OEOLA PRE	OEOLA PRE	OEOLA .	OEOLA .
Stage Scale:	.	.	0.5 inch	2" inseed
Density, Unit:	. .	. .	25 ydsq	. .
Weed 2 Code, Stage:	LAMAM PRE	LAMAM <.25 inch	LAMAM .	LAMAM
Stage Scale:	.	.	0.75 inch	3"in seed
Density, Unit:	. .	. .	4 ydsq	. .
Weed 3 Code, Stage:	STEME PRE	STEME PRE	STEME .	STEME .
Stage Scale:	.	.	0.25 inch	2.5 inch
Density, Unit:	. .	. .	2 ydsq	. .

APPLICATION EQUIPMENT

	A	B	C	D
Appl. Equipment:	backpack	backpack	backpack	backpack
Operating Pressure:	22	22	22	22
Nozzle Type:	flat fan	flat fan	flat fan	flat fan
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	18 inch	18 inch	18 inch	18 inch
Nozzles/Row:	4	4	4	4
Boom Length, Unit:	4.5 feet	4.5 feet	4.5 feet	4.5 feet
Boom Height, Unit:	15 inch	15 inch	15 inch	15 inch
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water
Spray Volume, Unit:	14.8 GPA	14.8 GPA	14.8 GPA	14.8 GPA
Propellant:	CO2	CO2	CO2	CO2
Tank Mix (Y/N):	y	y	y	y

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Trt No.	Treatment Name	Rate	Rate Unit	1	2	3	4	5	6	7	8
Weed Code				ALLCE	ALLCE	ALLCE	ALLCE	ALLCE	OEOLA	OEOLA	OEOLA
Crop Code											
Rating Data Type				injury	injury	injury	injury	injury	control	control	control
Rating Unit				percent	percent	percent	percent	percent	percent	percent	percent
Rating Date				Nov-13-02	Dec-13-02	Jan-14-03	Feb-15-03	Mar-27-03	Jan-14-03	Feb-15-03	Mar-27-03
Trt-Eval Interval								157 DA-A	157 DA-A	157 DA-A	157 DA-A
ARM Action Codes											
1	Transplant Onions					0.0	0.0	0.0	99.0	98.0	96.3
	Goal	1	qt/a								
	Prowl	1	qt/a								
2	Seeded Onion			0.0	0.0	10.5	0.0	5.0	70.0	72.0	68.0
	Dacthal	4	lb/a								
	Prowl	2	pt/a								
	Goal	1.3	oz/a								
	Goal	8	oz/a								
3	Seeded Onion			0.0	0.0	13.0	0.0	2.5	77.3	68.5	78.5
	Dacthal	4	lb/a								
	Dacthal	2	lb/a								
	Prowl	2	pt/a								
	Goal	1.3	oz/a								
	Goal	8	oz/a								
4	Seeded Onion			0.0	0.0	12.3	1.3	3.8	81.3	80.3	88.8
	Dacthal	4	lb/a								
	Dacthal	4	lb/a								
	Prowl	2	pt/a								
	Goal	1.3	oz/a								
	Goal	8	oz/a								
5	Prowl	2	pt/a	0.0	0.0	11.8	0.0	7.5	53.8	50.5	65.0
	Goal	1.3	oz/a								
	Goal	8	oz/a								
6	non herbicide			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LSD (P=.05)				0.00	0.00	3.81	1.54	6.54	12.80	12.46	8.38
Standard Deviation				0.00	0.00	2.53	1.02	4.34	8.50	8.27	5.56
CV				0.0	0.0	31.9	489.9	138.82	13.37	13.43	8.41
Bartlett's X2				0.0	0.0	1.272	0.0	1.396	4.506	14.191	2.529
P(Bartlett's X2)				.	.	0.736	.	0.706	0.212	0.007*	0.64

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

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Trt No.	Treatment Name	Rate	Rate Unit	9	10	11	12	13	14	15	16
Weed Code				STEME	STEME	LAMAM	LAMAM	LAMAM	ALLCE	ALLCE	ALLCE
Crop Code											
Rating Data Type				control	control	control	control	control	yield	yield	yield
Rating Unit				percent	percent	percent	percent	percent	#/12'row	lb/12'ro	#/acre
Rating Date				Feb-15-03	Mar-27-03	Jan-14-03	Feb-15-03	Mar-27-03	Apr-29-03	Apr-29-03	Apr-29-03
Trt-Eval Interval				157 DA-A	157 DA-A						
ARM Action Codes											T1
1	Transplant Onions			96.0	96.8	99.0	99.0	99.0	24.3	8.7	58685.0
	Goal	1	qt/a								
	Prowl	1	qt/a								
2	Seeded Onion			99.0	98.8	99.0	99.0	99.0	18.3	2.1	44165.0
	Dacthal	4	lb/a								
	Prowl	2	pt/a								
	Goal	1.3	oz/a								
	Goal	8	oz/a								
3	Seeded Onion			99.0	98.0	99.0	99.0	99.0	16.5	2.3	39930.0
	Dacthal	4	lb/a								
	Dacthal	2	lb/a								
	Prowl	2	pt/a								
	Goal	1.3	oz/a								
	Goal	8	oz/a								
4	Seeded Onion			99.0	98.0	99.0	99.0	99.0	21.0	2.2	50820.0
	Dacthal	4	lb/a								
	Dacthal	4	lb/a								
	Prowl	2	pt/a								
	Goal	1.3	oz/a								
	Goal	8	oz/a								
5	Prowl	2	pt/a	57.3	63.3	98.0	99.0	99.0	14.5	0.8	35090.0
	Goal	1.3	oz/a								
	Goal	8	oz/a								
6	non herbicide			0.0	0.0	0.0	0.0	0.0	6.0	0.4	14520.0
LSD (P=.05)				7.58	8.14	1.23	0.00	0.00	9.43	0.79	22831.10
Standard Deviation				5.03	5.40	0.82	0.00	0.00	6.26	0.52	15151.60
CV				6.71	7.13	0.99	0.0	0.0	37.38	19.06	37.38
Bartlett's X2				3.298	22.456	0.0	0.0	0.0	24.834	7.615	24.834
P(Bartlett's X2)				0.069	0.001*	.	.	.	0.001*	0.179	0.001*

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Column 16: T1 = [14]*2420

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Trt No.	Treatment Name	Rate	Rate Unit	17
	Weed Code			
	Crop Code			ALLCE
	Rating Data Type			yield
	Rating Unit			lb/acre
	Rating Date			Apr-29-03
	Trt-Eval Interval			
	ARM Action Codes			T2
1	Transplant Onions			20981.4
	Goal	1	qt/a	
	Prowl	1	qt/a	
2	Seeded Onion			4997.3
	Dacthal	4	lb/a	
	Prowl	2	pt/a	
	Goal	1.3	oz/a	
	Goal	8	oz/a	
3	Seeded Onion			5674.9
	Dacthal	4	lb/a	
	Dacthal	2	lb/a	
	Prowl	2	pt/a	
	Goal	1.3	oz/a	
	Goal	8	oz/a	
4	Seeded Onion			5336.1
	Dacthal	4	lb/a	
	Dacthal	4	lb/a	
	Prowl	2	pt/a	
	Goal	1.3	oz/a	
	Goal	8	oz/a	
5	Prowl	2	pt/a	1839.2
	Goal	1.3	oz/a	
	Goal	8	oz/a	
6	non herbicide			1004.3
	LSD (P=.05)			1906.69
	Standard Deviation			1265.35
	CV			19.06
	Bartlett's X2			7.615
	P(Bartlett's X2)			0.179

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)
Column 17: T2 = [15]*2420

Trial Comments

GENERAL COMMENTS:

Onion injury:
1) Dacthal applied PRE or PRE fb spike did not injure onion.
2) Goal and Prowl applied overtop of transplant onions did not cause injury.
3) Goal at 8 oz/A applied to 5 leaf seeded onion caused 10 to 13% injury at 7 DAT.

Primrose control:
1) Control in transplant onions was nearly complete throughout the season.
2) The total POST Goal system provided poor control
3) Dacthal applied in the seeded system increased control compared to Goal alone. The more Dacthal in the system the tendency for better control.
4) Better control of primrose with PRE treatments is necessary to reduce the need for high rates of Goal POST for seeded onions to be adopted.

Chickweed control:
1) Excellent control in transplant onions and seeded onions that contained Dacthal PRE.
2) Goal POST systems provided poor control.

Henbit control:
1) Henbit control was excellent in all systems.

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Onion Yields (Harvested the Grannex 33 PRR):
1) Seeded onion stands were variable and less than transplants. Proper seeding rates and methods for seeding are still being researched in GA.
2) Herbicide systems did not really impact plants harvested per given area.
3) Far greater yields were noted with transplants as seeded onions did not size properly. Thus, comparing yields from various weed infestation levels was not feasible.
4) Yields from systems including Dacthal were greater than the total POST system in seeded onion.
5) An economic analysis did not appear relevant as the transplant onions whipped the seeded onions.