Evaluation of Various Winter Rye Cultivars for Weed Control in No-Till Zucchini.

02-HRC-nt-Squash

OBJECTIVE: Evaluate crop response and weed control with herbicides and three winter rye varieties as cover crops in no-till zucchini.

SUMMARY: In the no-tillage treatments, unacceptable injury and stunting of zucchini was observed from Sandea and Strategy plus Sandea regardless of the presence of a winter ryegrass cover crop. Strategy alone caused zucchini injury in the tilled system when a ryegrass cover crop was used. All other treatments resulted in no significant zucchini injury or stunting.

Redroot pigweed and common waterhemp control at 28 and 56 days after planting (DAP) was greater in those treatments having a winter ryegrass cover crop compared to the no-cover crop production system. 'Wheeler' winter ryegrass produced less biomass than 'Elbon' or 'Maton' which resulted in less weed control throughout the herbicide treatments. The no-tillage, winter ryegrass production system adequately controlled weeds in most instances and there was no difference in weed control between herbicide treatments. Strategy resulted in less weed control compared to any herbicide treatment in the no-tillage, winter ryegrass production system.

Zucchini yield was reduced in plots treated with Sandea alone or tank mixed with Strategy due to the excessive crop injury observed from Sandea.
The no-cover crop, non-treated treatment yielded less than the same treatment utilizing winter ryegrass due to the weed control provided by winter ryegrass. In the no-tillage system, a ryegrass cover crop enhanced yields. However, the no cover crop treatment produced similar yields to the winter ryegrass treatments when tillage was used.

HERBICIDES	WEEDS	CROP
SANDEA 75 WG	crabgrass, large	squash,zucchini
STRATEGY 2.1 EC	pigweed, redroot	
ELBON WINTER RYE CC		
MATON WINTER RYE CC		
NO-TILL		
TILLAGE PRIOR TO SPRAY		
NO COVER CROP		
WHEELER WINTER RYE COVER CROP		

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PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Evaluation of Various WInter Rye Cultivars for Weed Control in No-Till Squash.

Project Code: 02-HRC-nt-Squash Location: Carbondale, IL

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Carbondale IL 62901 USA
Trial Status: Final **Updated:** 11-6-02

Objective:
Evaluate crop response and weed control with herbicides with three winter rye varieties as covercrops in no-till squash.

Weed Code	Common Name	Scientific Name
1.	AMARE pigweed, redroot	Amaranthus retroflexus L.
2.	DIGSA crabgrass, large	Digitaria sanguinalis (L.) Scop.

Crop 1: CUUPG squash,zucchini **Variety:** Independence II
Planting Method: Transplant **Planting Date:** 5-17-02
Rate: 0.5 P/ROW-FT
Row Spacing: 36 IN

Plot Width, Unit: 4 FT **Plot Length, Unit:** 6 FT **Reps:** 4
Tillage Type: See note **Study Design:** Split-plot

Field Prep./Maintenance: N 80 LB/A, P2O5 40 LB/A, K2O 40 LB/A

APPLICATION DESCRIPTION

	A
Application Date:	5-15-02
Time of Day:	16:30
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	BROSOI
Air Temp., Unit:	72 F
% Relative Humidity:	39
Wind Velocity, Unit:	5-8 MPH
Dew Presence (Y/N):	N
Soil Temp., Unit:	67 F
Soil Moisture:	NORMAL
% Cloud Cover:	15

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code, Stage:	CUUPG NA
Height, Unit:	NA NA

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	NA

APPLICATION EQUIPMENT

	A
Appl. Equipment:	CO2 sprayer
Operating Pressure:	40 PSI
Nozzle Type:	Flat fan
Nozzle Size:	8003
Boom Length, Unit:	5 FT
Spray Volume, Unit:	20 GPA

NOTES:
Target PRE application for May 6, transplant May 7.
Tillages are no-till and roto-tilled, see treatment list.
Harvested Jun-19-02 to Jul-9-02.

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Project Code: 02-HRC-nt-Squash Location: Carbondale, IL

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	CUUPG Fruit No./A	CUUPG Fruit Lb/A	CUUPG Stunt Percent 5-31-02 14 DAP	CUUPG Stunt Percent 6-14-02 28 DAP	CUUPG Stunt Percent 7-12-02 56 DAP	CUUPG Injury Percent 5-31-02 14 DAP	CUUPG Injury Percent 6-14-02 28 DAP	CUUPG Injury Percent 7-12-02 56 DAP	AMARE Control Percent 6-14-02 28 DAP	AMARE Control Percent 7-12-02 56 DAP	DIGSA Control Percent 6-14-02 28 DAP	DIGSA Control Percent 7-12-02 56 DAP
1	WHEELER WINTER RYE CC									40838	15579	0	40	0	0	40	0	79	70	88	58
1	TILLAGE PRIOR TO SPRAY																				
1	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A												
2	WHEELER WINTER RYE CC									39628	18271	0	9	0	0	9	0	90	84	93	92
2	NO-TILL																				
2	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A												
3	WHEELER WINTER RYE CC									35090	14762	0	33	0	0	33	0	94	91	90	75
3	NO-TILL																				
3	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A												
4	WHEELER WINTER RYE CC									32065	14218	0	19	0	0	20	0	94	90	91	78
4	NO-TILL																				
4	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A												
4	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A												
5	WHEELER WINTER RYE CC									30855	12403	0	0	0	0	0	0	80	75	61	56
5	NO-TILL																				
5	NONTREATED																				
6	WHEELER WINTER RYE CC									55055	24684	0	0	0	0	0	0	99	99	99	99
6	NO-TILL																				
6	HANDWEED																				
7	ELBON WINTER RYE CC									30553	11132	0	54	0	0	54	0	82	71	91	70
7	TILLAGE PRIOR TO SPRAY																				
7	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A												
8	ELBON WINTER RYE CC									52030	24624	0	0	0	0	0	0	99	95	99	95
8	NO-TILL																				
8	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A												
9	ELBON WINTER RYE CC									32368	13461	0	35	0	0	38	0	97	95	97	93
9	NO-TILL																				
9	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A												
10	ELBON WINTER RYE CC									33880	15730	0	46	0	0	46	0	95	89	95	88
10	NO-TILL																				
10	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A												
10	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A												

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	CUUPG Fruit No./A	CUUPG Fruit Lb/A	CUUPG Stunt Percent 5-31-02 14 DAP	CUUPG Stunt Percent 6-14-02 28 DAP	CUUPG Stunt Percent 7-12-02 56 DAP	CUUPG Injury Percent 5-31-02 14 DAP	CUUPG Injury Percent 6-14-02 28 DAP	CUUPG Injury Percent 7-12-02 56 DAP	AMARE Control Percent 6-14-02 28 DAP	AMARE Control Percent 7-12-02 56 DAP	DIGSA Control Percent 6-14-02 28 DAP	DIGSA Control Percent 7-12-02 56 DAP
11	ELBON WINTER RYE CC									43560	20510	0	0	0	0	0	0	94	89	83	78
11	NO-TILL																				
11	NONTREATED																				
12	ELBON WINTER RYE CC									50518	25350	0	0	0	0	0	0	99	99	99	99
12	NO-TILL																				
12	HANDWEED																				
13	MATON WINTER RYE CC									27225	12040	0	45	0	0	45	0	83	66	86	61
13	TILLAGE PRIOR TO SPRAY																				
13	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A												
14	MATON WINTER RYE CC									49610	21689	0	0	0	0	0	0	99	88	99	88
14	NO-TILL																				
14	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A												
15	MATON WINTER RYE CC									38115	17394	0	26	0	0	26	0	97	93	96	89
15	NO-TILL																				
15	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A												
16	MATON WINTER RYE CC									32670	15246	0	24	0	0	24	0	99	91	95	90
16	NO-TILL																				
16	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A												
16	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A												
17	MATON WINTER RYE CC									45375	19874	0	0	0	0	0	0	95	90	90	85
17	NO-TILL																				
17	NONTREATED																				
18	MATON WINTER RYE CC									40535	18090	0	0	0	0	0	0	99	99	99	99
18	NO-TILL																				
18	HANDWEED																				
19	NO COVER CROP									31460	14460	0	5	0	0	5	0	86	73	95	84
19	TILLAGE PRIOR TO SPRAY																				
19	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A												
20	NO COVER CROP									41140	17424	0	5	0	0	5	0	90	85	91	74
20	NO-TILL																				
20	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A												
21	NO COVER CROP									19965	8228	0	14	0	0	11	0	88	88	68	30
21	NO-TILL																				
21	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A												
22	NO COVER CROP									26015	11828	0	23	0	0	23	0	81	75	68	30
22	NO-TILL																				
22	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A												
22	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A												

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23	NO COVER CROP									17545	7502	0	0	0	0	0	0	0	0	0	0
23	NO-TILL																				
23	NONTREATED																				
24	NO COVER CROP									52635	24987	0	0	0	0	0	0	99	99	99	99
24	NO-TILL																				
24	HANDWEED																				
LSD (P=.05)										15326.5	6868.6	0.0	17.6	0.0	0.0	17.4	0.0	7.0	8.5	9.9	12.6
Replicate F										4.552	7.758	0.000	2.724	0.000	0.000	2.624	0.000	2.634	5.371	1.701	2.191
Replicate Prob(F)										0.0057	0.0002	1.0000	0.0508	1.0000	1.0000	0.0574	1.0000	0.0567	0.0022	0.1749	0.0969
Treatment F										3.512	4.467	0.000	8.394	0.000	0.000	8.757	0.000	64.512	45.369	36.569	32.598
Treatment Prob(F)										0.0001	0.0001	1.0000	0.0001	1.0000	1.0000	0.0001	1.0000	0.0001	0.0001	0.0001	0.0001

Evaluation of Various WInter Rye Cultivars for Weed Control in No-Till Squash.

Project Code: 02-HRC-nt-Squash Location: Carbondale, IL

Trial Comments

1. Protocol: SIU (SAW).
2. All plots sprayed (glyphosate 2.0 %) on April 15.
3. Fruit = marketable harvested squash. DAP = days after planting; 14, 28, and 56 DAP was also 16, 30, and 58 days after PRE application, respectively.