

## Influence of Pigweed Management on Pumpkin Farm-Gate Revenues.

Project Code: 04-HRC-pumpkins-II Location: Carbondale, IL  
Investigator: Bryan Young

Investigator: Bryan Young, Associate Professor, Southern Illinois University

City State Zip Country: Carbondale IL 62901 USA  
Trial Status: Final Updated: 11-24-04

## Objective:

Evaluate crop response and weed control with herbicides with and without tillage and with and without either a 'Maton' winter rye or 'Golden Eagle' winter wheat cover crop in pumpkin.

Weed Code	Common Name	Scientific Name
1.	DIGSA crabgrass, large	Digitaria sanguinalis (L.) Scop.
2.	AMARE pigweed, redroot	Amaranthus retroflexus L.
3.	ERACN stinkgrass	Eragrostis cilianensis (all.) e.mosher
4.	GGGAN grasses, annual	
5.	ANNBR broadleaf, annual	

Crop 1: CUUPE pumpkin Variety: Aspen - semi-bush type  
Planting Method: Seeded  
Rate: 0.25 S/ROW-FT Depth: 2.0 IN  
Row Spacing: 40 IN

Plot Width, Unit: 3.3 FT Plot Length, Unit: 8 FT Reps: 3  
Tillage Type: See treatment list Study Design: Split-plot  
Previous Crop, Year: \_\_\_\_\_, 2003

## APPLICATION DESCRIPTION

	A	B
Application Date:	6-19-04	7-14-04
Time of Day:	8:00	16:00
Application Method:	Spray	Spray
Application Timing:	PRE	POST
Applic. Placement:	BROFOL	BROFOL
Air Temp., Unit:	80 F	86 F
% Relative Humidity:	40	50
Wind Velocity, Unit:	1-3 MPH	3-5 MPH
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	85 F	87 F
Soil Moisture:	BELNOR	BELNOR
% Cloud Cover:	15	0

## CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code, Stage:	CUUPE NA	CUUPE 3-5 LV
Height, Unit:	NA NA	5-12 IN

## WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:		DIGIS
Stage(leaves):		6-15
Height(inches):		3-10
Density:		Medium
Weed 2 Code:		AMARE
Stage(leaves):		3-25
Height(inches):		2-26
Density:		High

## APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan
Nozzle Size:	8002	8002
Boom Length, Unit:	3.3 FT	3.3 FT
Spray Volume, Unit:	20 GPA	20 GPA

NOTES:

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Weed Code													AMARE	AMARE	AMARE	DIGSA	DIGSA	DIGSA
Crop Code													Control	Control	Control	Control	Control	Control
Rating Data Type													Percent	Percent	Percent	Percent	Percent	Percent
Rating Unit													7-3-04	7-17-04	8-14-04	7-3-04	7-17-04	8-14-04
Rating Date													14 DA-A	28 DA-A	56 DA-A	14 DA-A	28 DA-A	56 DA-A
Trt-Eval Interval																		

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	CUUPE Fruit lb/fruit	CUUPE Fruit No./A	CUUPE Injury Percent 7-3-04	CUUPE Injury Percent 7-17-04	CUUPE Injury Percent 8-14-04	CUUPE Stunt Percent 7-3-04	CUUPE Stunt Percent 7-17-04	CUUPE Stunt Percent 8-14-04	AMARE Control Percent 7-3-04	AMARE Control Percent 7-17-04	AMARE Control Percent 8-14-04	DIGSA Control Percent 7-3-04	DIGSA Control Percent 7-17-04	DIGSA Control Percent 8-14-04
1	NO COVER CROP									8.6	3300	0	0	0	0	17	17	99	88	88	99	96	96
1	TILLAGE AT PLANTING																						
1	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A														
2	NO COVER CROP									0.0	0	0	0	0	0	33	33	99	99	99	98	73	73
2	TILLAGE AT PLANTING																						
2	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A														
3	NO COVER CROP									4.1	550	0	3	3	0	17	17	0	55	55	0	7	7
3	TILLAGE AT PLANTING																						
3	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B														
4	NO COVER CROP									6.7	1100	0	0	0	0	0	0	72	20	20	99	73	73
4	NO-TILL																						
4	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A														
5	NO COVER CROP									1.1	550	0	0	0	0	0	0	99	99	99	0	10	10
5	NO-TILL																						
5	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A														
6	NO COVER CROP									0.0	0	0	0	0	0	18	18	0	63	63	0	0	0
6	NO-TILL																						
6	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B														
7	NO COVER CROP									4.0	1650	0	0	0	0	7	7	99	97	97	99	95	95
7	NO-TILL																						
7	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A														
7	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A														
8	NO COVER CROP									1.1	550	0	0	0	0	5	5	99	95	95	99	88	88
8	NO-TILL																						
8	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A														
8	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B														
9	NO COVER CROP									4.8	1650	0	0	0	0	17	17	0	0	0	0	0	0
9	NO-TILL																						
9	NONTREATED																						
10	NO COVER CROP									2.4	550	0	0	0	0	23	23	99	98	98	99	99	99
10	NO-TILL																						
10	HANDWEEDED																						
11	MATON WINTER RYE CC									5.0	550	0	0	0	0	0	0	97	62	62	99	85	85
11	TILLAGE AT PLANTING																						
11	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A														
12	MATON WINTER RYE CC									5.9	1650	0	0	0	0	10	10	99	99	99	99	99	99
12	TILLAGE AT PLANTING																						
12	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A														

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Weed Code											AMARE	AMARE	AMARE	DIGSA	DIGSA	DIGSA
Crop Code																
Rating Data Type											Control	Control	Control	Control	Control	Control
Rating Unit											Percent	Percent	Percent	Percent	Percent	Percent
Rating Date											7-3-04	7-17-04	8-14-04	7-3-04	7-17-04	8-14-04
Trt-Eval Interval											14 DA-A	28 DA-A	56 DA-A	14 DA-A	28 DA-A	56 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	CUUPE Fruit lb/fruit	CUUPE Fruit No./A	CUUPE Injury Percent 7-3-04	CUUPE Injury Percent 7-17-04	CUUPE Injury Percent 8-14-04	CUUPE Stunt Percent 7-3-04	CUUPE Stunt Percent 7-17-04	CUUPE Stunt Percent 8-14-04	AMARE Control Percent 7-3-04	AMARE Control Percent 7-17-04	AMARE Control Percent 8-14-04	DIGSA Control Percent 7-3-04	DIGSA Control Percent 7-17-04	DIGSA Control Percent 8-14-04
13	MATON WINTER RYE CC 13 TILLAGE AT PLANTING 13 SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B	1.1	550	0	0	0	0	43	43	63	66	66	63	60	60
14	MATON WINTER RYE CC 14 NO-TILL 14 STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A	0.0	0	0	0	0	7	7	57	40	40	99	91	91	
15	MATON WINTER RYE CC 15 NO-TILL 15 SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A	3.2	550	0	0	0	0	48	48	99	82	82	99	80	80
16	MATON WINTER RYE CC 16 NO-TILL 16 SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B	4.7	1100	0	0	0	0	40	40	23	50	50	23	57	57
17	MATON WINTER RYE CC 17 NO-TILL 17 STRATEGY 17 SANDEA	2.1 75	EC WG	1.313 0.031	LB A/A LB A/A	2.5 0.66	QT/A OZ/A	PRE PRE	A A	5.3	1100	0	0	0	0	3	3	99	99	99	99	99	99
18	MATON WINTER RYE CC 18 NO-TILL 18 STRATEGY 18 SANDEA	2.1 75	EC WG	1.313 0.031	LB A/A LB A/A	2.5 0.66	QT/A OZ/A	PRE POST	A B	6.0	1100	0	0	0	0	10	10	98	66	66	96	77	77
19	MATON WINTER RYE CC 19 NO-TILL 19 NONTREATED									6.5	2200	0	0	0	0	0	0	0	0	0	0	0	0
20	MATON WINTER RYE CC 20 NO-TILL 20 HANDWEEDED									8.9	2750	0	0	0	0	0	0	99	99	99	99	99	99
21	GOLDEN EAGLE WHEAT CC 21 TILLAGE AT PLANTING 21 STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A	3.4	1100	0	0	0	0	13	13	99	78	78	99	93	93
22	GOLDEN EAGLE WHEAT CC 22 TILLAGE AT PLANTING 22 SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A	2.5	1100	0	0	0	0	33	33	99	99	99	99	73	73
23	GOLDEN EAGLE WHEAT CC 23 TILLAGE AT PLANTING 23 SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B	2.5	2200	0	0	0	0	20	20	53	65	65	53	50	50
24	GOLDEN EAGLE WHEAT CC 24 NO-TILL 24 STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A	0.0	0	0	0	0	20	20	90	63	63	94	70	70	

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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	CUUPE Fruit lb/fruit	CUUPE Fruit No./A	CUUPE Injury Percent 7-3-04 14 DA-A	CUUPE Injury Percent 7-17-04 28 DA-A	CUUPE Injury Percent 8-14-04 56 DA-A	CUUPE Stunt Percent 7-3-04 14 DA-A	CUUPE Stunt Percent 7-17-04 28 DA-A	CUUPE Stunt Percent 8-14-04 56 DA-A	AMARE	AMARE	AMARE	DIGSA	DIGSA	DIGSA					
														Control Percent 7-3-04 14 DA-A	Control Percent 7-17-04 28 DA-A	Control Percent 8-14-04 56 DA-A	Control Percent 7-3-04 14 DA-A	Control Percent 7-17-04 28 DA-A	Control Percent 8-14-04 56 DA-A					
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code															
25	GOLDEN EAGLE WHEAT CC 25 NO-TILL 25 SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A					3	3	99	96	96	99	89	89			
26	GOLDEN EAGLE WHEAT CC 26 NO-TILL 26 SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B					22	22	0	40	40	0	7	7			
27	GOLDEN EAGLE WHEAT CC 27 NO-TILL 27 STRATEGY 27 SANDEA	2.1 75	EC WG	1.313 0.031	LB A/A LB A/A	2.5 0.66	QT/A OZ/A	PRE PRE	A A					27	27	95	84	84	97	90	90			
28	GOLDEN EAGLE WHEAT CC 28 NO-TILL 28 STRATEGY 28 SANDEA	2.1 75	EC WG	1.313 0.031	LB A/A LB A/A	2.5 0.66	QT/A OZ/A	PRE POST	A B					37	37	87	65	65	99	83	83			
29	GOLDEN EAGLE WHEAT CC 29 NO-TILL 29 NONTREATED													13	13	0	0	0	0	0	0			
30	GOLDEN EAGLE WHEAT CC 30 NO-TILL 30 HANDWEEDED													0	0	99	99	99	99	99	99			
LSD (P=.05)						7.40	2207.6	0.0	1.7	1.7	0.0	37.6	37.6	28.7	22.3	22.3	24.4	21.1	21.1					
Replicate F						0.433	0.795	0.000	1.000	1.000	0.000	5.190	5.190	0.973	10.610	10.610	3.040	9.374	9.374					
Replicate Prob(F)						0.6508	0.4567	1.0000	0.3741	0.3741	1.0000	0.0084	0.0084	0.3841	0.0001	0.0001	0.0555	0.0003	0.0003					
Treatment F						0.939	1.336	0.000	1.000	1.000	0.000	1.147	1.147	15.597	16.226	16.226	24.560	24.237	24.237					
Treatment Prob(F)						0.5629	0.1728	1.0000	0.4857	0.4857	1.0000	0.3213	0.3213	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001					

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Weed Code	ERACN	ERACN	GGGAN	GGGAN	ANNBR	ANNBR
Crop Code						
Rating Data Type	Control	Control	Plants	Biomass	Plants	Biomass
Rating Unit	Percent	Percent	0.5 m2	lb/0.5m2	0.5 m2	lb/0.5m2
Rating Date	7-17-04	8-14-04				
Trt-Eval Interval	28 DA-A	56 DA-A				

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	ERACN	ERACN	GGGAN	GGGAN	ANNBR	ANNBR
1	NO COVER CROP									98	98	1.3	0.07	1.3	0.17
1	TILLAGE AT PLANTING														
1	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A						
2	NO COVER CROP									70	70	4.0	0.30	0.0	0.00
2	TILLAGE AT PLANTING														
2	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A						
3	NO COVER CROP									15	15	3.0	0.17	2.3	0.13
3	TILLAGE AT PLANTING														
3	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B						
4	NO COVER CROP									85	85	1.7	0.08	2.0	0.18
4	NO-TILL														
4	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A						
5	NO COVER CROP									17	17	4.0	0.30	0.0	0.00
5	NO-TILL														
5	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A						
6	NO COVER CROP									12	12	6.3	0.30	0.0	0.00
6	NO-TILL														
6	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B						
7	NO COVER CROP									94	94	2.3	0.13	0.7	0.02
7	NO-TILL														
7	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A						
7	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A						
8	NO COVER CROP									84	84	5.3	0.17	0.0	0.00
8	NO-TILL														
8	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A						
8	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B						
9	NO COVER CROP									0	0	4.0	0.17	1.7	0.13
9	NO-TILL														
9	NONTREATED														
10	NO COVER CROP									99	99	1.0	0.10	0.0	0.00
10	NO-TILL														
10	HANDWEEDED														
11	MATON WINTER RYE CC									93	93	2.0	0.10	1.7	0.20
11	TILLAGE AT PLANTING														
11	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A						
12	MATON WINTER RYE CC									99	99	3.3	0.15	0.3	0.02
12	TILLAGE AT PLANTING														
12	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A						

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Weed Code	ERACN	ERACN	GGGAN	GGGAN	ANNBR	ANNBR
Crop Code						
Rating Data Type	Control	Control	Plants	Biomass	Plants	Biomass
Rating Unit	Percent	Percent	0.5 m2	lb/0.5m2	0.5 m2	lb/0.5m2
Rating Date	7-17-04	8-14-04				
Trt-Eval Interval	28 DA-A	56 DA-A				

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	ERACN	ERACN	GGGAN	GGGAN	ANNBR	ANNBR
13	MATON WINTER RYE CC									63	63	5.0	0.23	0.0	0.00
13	TILLAGE AT PLANTING														
13	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B						
14	MATON WINTER RYE CC									98	98	1.0	0.07	2.7	0.37
14	NO-TILL														
14	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A						
15	MATON WINTER RYE CC									93	93	2.7	0.23	0.3	0.10
15	NO-TILL														
15	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A						
16	MATON WINTER RYE CC									70	70	3.7	0.13	1.3	0.23
16	NO-TILL														
16	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B						
17	MATON WINTER RYE CC									99	99	3.3	0.17	0.0	0.00
17	NO-TILL														
17	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A						
17	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A						
18	MATON WINTER RYE CC									85	85	2.0	0.12	1.0	0.12
18	NO-TILL														
18	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A						
18	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B						
19	MATON WINTER RYE CC									0	0	2.7	0.05	2.3	0.20
19	NO-TILL														
19	NONTREATED														
20	MATON WINTER RYE CC									99	99	1.0	0.08	0.3	0.02
20	NO-TILL														
20	HANDWEEDED														
21	GOLDEN EAGLE WHEAT CC									95	95	2.0	0.08	2.0	0.15
21	TILLAGE AT PLANTING														
21	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A						
22	GOLDEN EAGLE WHEAT CC									82	82	2.7	0.08	2.0	0.12
22	TILLAGE AT PLANTING														
22	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A						
23	GOLDEN EAGLE WHEAT CC									62	62	2.7	0.07	1.7	0.13
23	TILLAGE AT PLANTING														
23	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B						
24	GOLDEN EAGLE WHEAT CC									80	80	2.0	0.10	3.0	0.30
24	NO-TILL														
24	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A						

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Weed Code	ERACN	ERACN	GGGAN	GGGAN	ANNBR	ANNBR
Crop Code						
Rating Data Type	Control	Control	Plants	Biomass	Plants	Biomass
Rating Unit	Percent	Percent	0.5 m2	lb/0.5m2	0.5 m2	lb/0.5m2
Rating Date	7-17-04	8-14-04				
Trt-Eval Interval	28 DA-A	56 DA-A				

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	ERACN	ERACN	GGGAN	GGGAN	ANNBR	ANNBR
25	GOLDEN EAGLE WHEAT CC									58	58	4.3	0.27	0.3	0.03
25	NO-TILL														
25	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A						
26	GOLDEN EAGLE WHEAT CC									13	13	2.3	0.15	2.0	0.18
26	NO-TILL														
26	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B						
27	GOLDEN EAGLE WHEAT CC									87	87	3.3	0.17	1.7	0.13
27	NO-TILL														
27	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A						
27	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	PRE	A						
28	GOLDEN EAGLE WHEAT CC									88	88	3.7	0.18	1.0	0.08
28	NO-TILL														
28	STRATEGY	2.1	EC	1.313	LB A/A	2.5	QT/A	PRE	A						
28	SANDEA	75	WG	0.031	LB A/A	0.66	OZ/A	POST	B						
29	GOLDEN EAGLE WHEAT CC									0	0	2.0	0.12	4.7	0.38
29	NO-TILL														
29	NONTREATED														
30	GOLDEN EAGLE WHEAT CC									99	99	1.0	0.10	0.0	0.00
30	NO-TILL														
30	HANDWEEDED														
LSD (P=.05)										19.3	19.3	1.84	0.123	1.63	0.174
Replicate F										6.281	6.281	1.217	0.235	0.145	2.728
Replicate Prob(F)										0.0034	0.0034	0.3034	0.7915	0.8652	0.0737
Treatment F										27.369	27.369	4.307	2.908	3.985	3.228
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0003	0.0001	0.0001

Trial Comments

1. Protocol: SIU - SAW.
2. Burndown rye and wheat with 2% glyphosate solution (June 8), roll rye and wheat (June 15), plant pumpkin seed (June 18), and spray PRE herbicides (June 20). Asana and Bravo as needed.
3. Ratings: CI, growth reduction and WC at 14, 28 and 56 DAT and at first harvest.
4. Yield, 2 harvests.
5. DA-A = days after PRE application. 28 and 56 DA-A were also 3 and 31 days after POST application, respectively.
6. Fruit = Marketable harvested pumpkins. Biomass = oven dry weight of weeds. 0.5m2 = 0.5 square meter.