

UW – Madison Weed Science Renz Lab

2016 Corn+Alfalfa Interseeding Herbicide and Soil Fertility Studies

Investigator: Mark Renz

Location: Arlington Agricultural Research Station, Arlington, WI

Plot Information:

Field: 371

Corn: 35k seeds/A; 30" spacing

Plot Dimensions: 10 x 25 ft

Variety: HiDF-3105RA

Design: RCB, 4 blocks

Alfalfa: 16lbs PLS/A

Variety: 55H94

Soil Type: PnB (Plano silt loam, till substratum, 2 to 6 percent slopes)

Planted: 5/3/16

Field History:

Previous Crop & Tillage: Soybean no till

Fertilizer:

Spring

Fertilizer	LBS per Acre	Total LBS
DAP	261	1480
Potash	574	3280
AMS	83	480
Boron	2	11
Total	920	5251

Herbicide Treatments:

Trt No.	Type	Treatment Name	Form Conc	Form Type	Rate	Timing	Mix Size	Crops	Plots
1	HERB	WARRANT	3 LB/GAL	CS	3 pt/a	PRE	2 liters	CORN+ALF	102, 209, 307, 403
2	HERB	DUAL MAGNUM	7.62 LB/GAL	EC	1 pt/a	PRE	2 liters	CORN+ALF	105, 207, 304, 402
3	HERB	WARRANT	3 LB/GAL	CS	3 pt/a	PRE	2 liters	CORN+ALF	106, 202, 308, 409
	HERB	DUAL MAGNUM	7.62 LB/GAL	EC	1 pt/a	PRE			
4	HERB	WARRANT	3 LB/GAL	CS	3 pt/a	PRE	2 liters	CORN+ALF	101, 203, 305, 408
	HERB	BUCTRIL	4 LB/GAL	EC	1 pt/a	POST			
5	HERB	DUAL MAGNUM	7.62 LB/GAL	EC	1 pt/a	PRE	2 liters	CORN+ALF	107, 201, 303, 406
	HERB	BUCTRIL	4 LB/GAL	EC	1 pt/a	POST			
6	HERB	WARRANT	3 LB/GAL	CS	3 pt/a	PRE	2 liters	CORN+ALF	108, 210, 301, 404
	HERB	DUAL MAGNUM	7.62 LB/GAL	EC	1 pt/a	PRE			
	HERB	BUCTRIL	4 LB/GAL	EC	1 pt/a	POST			
7	HERB	BUCTRIL	4 LB/GAL	EC	1 pt/a	POST	2 liters	CORN+ALF	103, 204, 306, 410
8	HERB	WARRANT	3 LB/GAL	CS	3 pt/a	PRE	2 liters	CORN	104, 208, 310, 407
	HERB	BUCTRIL	4 LB/GAL	EC	1 pt/a	POST			
9	CHK	CONTROL						CORN+ALF	109, 206, 302, 405
10	CHK	CONTROL						CORN	110, 205, 309, 401

Herbicide Applications:

Equipment: Backpack sprayer (15 GPA, 18 psi)

Nozzles: Six (6) Flat Tip XR TeeJet 11002 VS, Spacing = 20 in (10 ft boom)

Application Dates & weather data:

Treatment (Timing)	App A; Pre's w/ Glyphosate burn down (32 oz/a) 5/6/16	App B; Treat 7 6/8/16	App C; Posts 6/13/16	App D; Apogee 6/12/16
Temp (°C)	23.1	22.2	26.1	16.7
Wind (KPH & Dir.)	9.65 W	8.37 W	1.61 S	-
Relative Humidity	-	44.3%	76.4%	59.76%
Sky	Sunny/Clear	97% Clear	60% Clear	-
Soil Temp @ 2" (°C)	13.9	27.2	26.1	22.58

Other Pesticides: None

Notes:

6/2/16 Corn V2

Alfalfa 3rd TL (3")

Weeds*: C. Lambsquarters, Speedwell, Dandelion, Common Ragweed, Horseweed (2-5")

6/13/16 Weeds*: C. Lambsquarters, C. Ragweed, Horseweed, Speedwell, Shepards Purse, Dandelion (3-16")

6/20/16 Corn V6

Alfalfa (8-14")

Weeds*: C. Lambsquarters, C. Ragweed, Horseweed, Velvetleaf, R. Pigweed (6-24")

6/27/16 Corn V6

Alfalfa (15", <5% flowering)

Weeds*: C. Lambsquarters, C. Ragweed, Horseweed, R. Pigweed, Velvetleaf, Dandelion (12-30")

7/11/16 Weeds*: C. Lambsquarters, C. Ragweed, R. Pigweed, Horseweed (48-84")

*Weeds recorded in non-treated control plots



Rating Type		Alfalfa Cover (%)	Corn Cover (%)	Weed Cover (%)	Broadleaf Cover (%)	Grass Cover (%)	Ground Cover (%)
Trt	Treatment						
1	WARRANT	36.8 a	10.8 -	1 c	1 c	0 -	52 cd
2	DUAL MAGNUM	32.5 a	10 -	0 c	0 c	0 -	57.5 c
3	WARRANT DUAL MAGNUM	33.8 a	10 -	1 c	1 c	0 -	55.3 cd
4	WARRANT BUCTRIL	38.8 a	10 -	1 c	1 c	0 -	50.3 de
5	DUAL MAGNUM BUCTRIL	32.5 a	10 -	1 c	1 c	0 -	56.8 cd
6	WARRANT DUAL MAGNUM BUCTRIL	33.8 a	10 -	0 c	0 c	0 -	56 cd
7	BUCTRIL	37.5 a	10 -	8 b	8 b	0 -	44.8 e
8	WARRANT BUCTRIL (CORN ONLY)	0 b	10 -	2 c	2 c	0 -	88.5 a
9	CONTROL	37.5 a	10 -	6 b	6 b	0 -	46.3 e
10	CONTROL (CORN ONLY)	0 b	10 -	10.3 a	# a	0 -	79.8 b
LSD P=.05		3.94	0.69	2.04	2.04	.	4.68
Standard Deviation		2.72	0.47	1.4	1.4	0	3.23
CV		9.6	4.71	48.02	48.02	0	5.5
Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)							



Post-emergence Treatments 14 DAT (6/27/16)

Rating Type Rating Unit		Alfalfa Cover (%)	Corn Cover (%)	Weed Cover (%)	Broadleaf Cover (%)	Grass Cover (%)	Ground Cover (%)
Trt	Treatment						
1	WARRANT	61.3 bc	32.5 b	5.8 c	5.8 c	0 -	0.5 b
2	DUAL MAGNUM	64 abc	31.3 b	4.5 c	4.5 c	0 -	0.3 b
3	WARRANT DUAL MAGNUM	60.5 c	27.3 b	3.3 c	3.3 c	0 -	9 b
4	WARRANT BUCTRIL	67.8 a	31.3 b	1 c	1 c	0 -	0 b
5	DUAL MAGNUM BUCTRIL	66.5 abc	32.5 b	1 c	1 c	0 -	0 b
6	WARRANT DUAL MAGNUM BUCTRIL	67 ab	32.5 b	0 c	0 c	0 -	0.5 b
7	BUCTRIL	63.8 abc	31.3 b	4.8 c	4.8 c	0 -	0.3 b
8	WARRANT BUCTRIL (CORN ONLY)	0 e	50 a	3.8 c	3.8 c	0 -	46.3 a
9	CONTROL	45 d	30 b	25 b	25 b	0 -	0 b
10	CONTROL (CORN ONLY)	0 e	47.5 a	45 a	45 a	0 -	7.5 b
LSD P=.05		4.23	8.25	5.78	5.78	.	9.6
Standard Deviation		2.72	2.91	5.69	3.98	3.98	0
CV		5.87	16.43	42.39	42.39	0	102.97
Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)							



Post-emergence Treatments 28 DAT (7/11/16)

Rating Type Rating Unit		Alfalfa Cover (%)	Weed Cover (%)	Broadleaf Cover (%)	Grass Cover (%)	Ground Cover (%)
Trt	Treatment					
1	WARRANT	85.3 a	10.5 b	10.5 b	0 -	4.3 b
2	DUAL MAGNUM	86.3 a	9.3 b	9.3 b	0 -	4.5 b
3	WARRANT DUAL MAGNUM	90.3 a	6 b	6 b	0 -	3.8 b
4	WARRANT BUCTRIL	93.3 a	1.8 b	1.8 b	0 -	5 b
5	DUAL MAGNUM BUCTRIL	91 a	1.8 b	1.8 b	0 -	7.3 b
6	WARRANT DUAL MAGNUM BUCTRIL	93.3 a	2 b	2 b	0 -	4.8 b
7	BUCTRIL	84.5 a	8.8 b	8.8 b	0 -	6.8 b
8	WARRANT BUCTRIL (CORN ONLY)	1 c	26 b	25.8 b	0.3 -	73 a
9	CONTROL	69.8 b	27.5 b	27.5 b	0 -	2.8 b
10	CONTROL (CORN ONLY)	0 c	75 a	75 a	0 -	25 b
LSD P=.05		6.37	23.36	23.14	0.23	23.44
Standard Deviation		2.72	4.39	16.1	15.95	0.16
CV		6.32	95.56	94.81	632.46	117.94
Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)						



Fall Cover Rating (10/24/16) and Silage Corn Yield (9/15/16)

Rating Type Rating Unit		Alfalfa Cover (%)	Weed Cover (%)	Broadleaf Cover (%)	Grass Cover (%)	Ground Cover (%)	Corn Yield (Tons/A)
Trt	Treatment						
1	WARRANT	40 abc	3 -	2.5 -	0 -	57.5 cde	9.985 -
2	DUAL MAGNUM	19.5 cd	2 -	2 -	0 -	78.5 bc	10.48 -
3	WARRANT DUAL MAGNUM	20 cd	2 -	2.3 -	0 -	77.8 bc	10.318 -
4	WARRANT BUCTRIL	58.8 a	2 -	1.8 -	0 -	39.5 e	9.343 -
5	DUAL MAGNUM BUCTRIL	40 abc	2 -	1.8 -	0 -	58.3 cde	10.298 -
6	WARRANT DUAL MAGNUM BUCTRIL	38.8 abc	2 -	1.5 -	0 -	59.8 cde	10.203 -
7	BUCTRIL	45 ab	4 -	3.5 -	0 -	51.5 de	10.93 -
8	WARRANT BUCTRIL (CORN ONLY)	0 d	2 -	2.3 -	0 -	97.8 a	10.603 -
9	CONTROL	33.3 bc	5 -	5 -	0 -	61.8 cd	9.835 -
10	CONTROL (CORN ONLY)	0 d	5 -	4.8 -	0 -	95.3 ab	10.94 -
LSD P=.05		15.26	3.05	3.05	.	14.77	1.0447
Standard Deviation		2.72	10.52	2.1	2.1	0	10.18
CV		35.63	77.07	77.07	0	15.03	7.17
Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)							