

Purdue Weed Science

Nufarm Fall Herbicides for Winter Annual Weed Control

Trial ID: 20F-MGS-FALLOW-01	Location: MEIGS Trial Year: 2020
Protocol ID: 20F-MGS-FALLOW-01	Investigator (Creator): Dr. Bill Johnson
Project ID:	Study Director: Brent Mansfield
	Sponsor Contact:

General Trial Information

Study Director: Brent Mansfield **Title:** Research Associate
Investigator: Dr. Bill Johnson **Title:** Professor

Discipline: H herbicide
Trial Status: E established **Trial Reliability:** 1 usable data
Initiation Date: 11/29/2020
Completion Date: 5/6/2021

Trial Location

City: Lafayette **Country:** USA United States
State/Prov.: Indiana
Postal Code: 47907

Conducted Under GLP: No

Conducted Under GEP: No

Contacts

Role: STYDIR study director
Study Director: Brent Mansfield **Title:** Research Associate
Organization: Purdue University
Address 1: 915 W. State Street
Country: USA United States **E-mail:** brentmansfield@purdue.edu
City: West Lafayette **State/Prov:** IN **Postal Code:** 47907
Role: INVEST investigator
Investigator: Dr. Bill Johnson **Title:** Professor
Organization: Purdue University
Address 1: 915 W. State Street
Country: USA United States **E-mail:** wgj@purdue.edu
City: West Lafayette, IN **Postal Code:** 47907

Pest Description

Pest 1 Type: W	Code: AMBTR Ambrosia trifida	Entry Date: 9/17/2021
	Common Name: Giant ragweed	Stage Scale: BBCH
Pest 2 Type: W	Code: ERICA Erigeron canadensis	Entry Date: 9/17/2021
	Common Name: mare's-tail	Stage Scale: BBCH
Pest 3 Type: W	Code: TAROF Taraxacum officinale	Entry Date: 9/17/2021
	Common Name: dandelion	Stage Scale: BBCH
Pest 4 Type: W	Code: DRBSS Draba sp.	Entry Date: 9/17/2021
	Common Name: Whitlow-grass	Stage Scale: BBCH
Pest 5 Type: W	Code: LAMAM Lamium amplexicaule	Entry Date: 9/17/2021
	Common Name: Henbit deadnettle	Stage Scale: BBCH
Pest 6 Type: W	Code: LAMPU Lamium purpureum	Entry Date: 9/17/2021
	Common Name: purple deadnettle	Stage Scale: BBCH

Site and Design

Treated Plot Width: 6.67 FT **Site Type:** FIELD field
Treated Plot Length: 30 FT **Experimental Unit:** 1 PLOT plot
Treated Plot Area: 200.1 FT² **Treatments:** 7 **Tillage Type:** NOTILL no-till
Replications: 4 **Study Design:** RACOB L Randomized Complete Block (RCB)

Soil Description

Description Name: MEIGS-S3
% Sand: 21 **% OM:** 2.2 **Texture:** SIL silt loam
% Silt: 54 **pH:** 6.8 **Soil Name:** Starks-Fincastle complex
% Clay: 25 **CEC:** 8.3

Application Description	
	A
Application Date	11/29/2020
Appl. Start Time	2:15 PM
Appl. Stop Time	2:30 PM
Application Method	SPRAY
Application Timing	After Oct 15
Application Placement	BROFOL
Applied By	B. Mansfield
Appl. Entry Date	9/17/2021
Air Temperature Start, Stop	50, 50 F
% Relative Humidity Start, Stop	52, 52
Wind Velocity+Dir. Start	1.2 MPH, SW
Wind Velocity+Dir. Max	5 MPH, SW
Wet Leaves (Y/N)	N, no
Soil Temperature	55 F
Soil Moisture	NORMAL
% Cloud Cover	100

Pest Stage At Each Application	
	A
Pest 1 Code, Type, Scale	AMBTR, W, BBCH
Stage Majority, Percent	00, -
Stage Minimum, Percent	00, -
Stage Maximum, Percent	00, -
Height Average	0 IN
Height Minimum, Maximum	0, 0
Pest 2 Code, Type, Scale	ERICA, W, BBCH
Stage Majority, Percent	11, -
Stage Minimum, Percent	09, -
Stage Maximum, Percent	12, -
Height Average	0.5 IN
Height Minimum, Maximum	0.125, 1
Pest 3 Code, Type, Scale	TAROF, W, BBCH
Stage Majority, Percent	00, -
Stage Minimum, Percent	00, -
Stage Maximum, Percent	00, -
Height Average	0 IN
Height Minimum, Maximum	0, 0
Pest 4 Code, Type, Scale	DRBSS, W, BBCH
Stage Majority, Percent	11, -
Stage Minimum, Percent	09, -
Stage Maximum, Percent	11, -
Height Average	1 IN
Height Minimum, Maximum	0.5, 1.5
Pest 5 Code, Type, Scale	LAMAM, W, BBCH
Stage Majority, Percent	00, -
Stage Minimum, Percent	00, -
Stage Maximum, Percent	00, -
Height Average	0 IN
Height Minimum, Maximum	0, 0
Pest 6 Code, Type, Scale	LAMPU, W, BBCH
Stage Majority, Percent	00, -
Stage Minimum, Percent	00, -
Stage Maximum, Percent	00, -
Height Average	0 IN
Height Minimum, Maximum	0, 0

Application Equipment	
	A
Appl. Equipment	CO2 BACKPACK
Equipment Type	BACSPR
Operation Pressure	24 PSI
Nozzle Model	XR
Nozzle Type	FLAFXR
Nozzle TradeName	TEEJET
Nozzle Tip Size, Color	11002, YELLOW
Nozzle Spacing	20 IN
Nozzles/Row	4
Boom Length	6.67 FT
Boom Height	17 IN
Ground Speed	3 MPH
Carrier	WATER
Application Amount	15 GAL/AC
Mix Size	1119 mL
Propellant	COMCO2

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Pest Type Pest Code Pest Name	W, Weed DRBSS Whitlow-grass	W, Weed AMBTR Giant ragweed	W, Weed TAROF dandelion	W, Weed LAMAM Henbit deadnett>	W, Weed LAMP purple deadnett>	W, Weed DRBSS Whitlow-grass				
Rating Date	4/5/2021	4/5/2021	4/5/2021	4/5/2021	4/5/2021	4/20/2021				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100				
Number of Subsamples	1	1	1	1	1	1				
Data Entry Date	9/17/2021	9/22/2021	9/17/2021	9/17/2021	9/17/2021	9/17/2021				
Rating Timing	Spr. Greenup	Spr. Greenup	Spr. Greenup	Spr. Greenup	Spr. Greenup	15 DAT				
Days After First/Last Applic.	127, 127	127, 127	127, 127	127, 127	127, 127	142, 142				
Trt-Eval Interval	127 DA-A	127 DA-A	127 DA-A	127 DA-A	127 DA-A	142 DA-A				
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	1	2	3	4	5	6
1	NONTREATED	0.0			0.0	0.0	0.0	0.0	0.0	0.0
2	PANTHER SC	2 FL OZ/A	A		100.0 -	48.0 -	100.0 -	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A							
	WEEDONE LV4	24 FL OZ/A	A							
	ACTIVATOR 90	0.25 % V/V	A							
	AMSOL	8.5 LB AI/100 GAL	A							
3	PANTHER MTZ	12 FL OZ/A	A		100.0 -	46.8 -	100.0 -	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A							
	WEEDONE LV4	24 FL OZ/A	A							
	ACTIVATOR 90	0.25 % V/V	A							
	AMSOL	8.5 LB AI/100 GAL	A							
4	BOBCAT	1.5 OZ/A	A		100.0 -	59.3 -	100.0 -	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A							
	WEEDONE LV4	24 FL OZ/A	A							
	ACTIVATOR 90	0.25 % V/V	A							
	AMSOL	8.5 LB AI/100 GAL	A							
5	BOBCAT	2.0 OZ/A	A		100.0 -	60.5 -	100.0 -	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A							
	WEEDONE LV4	24 FL OZ/A	A							
	ACTIVATOR 90	0.25 % V/V	A							
	AMSOL	8.5 LB AI/100 GAL	A							
6	SPLITFIRE	24 FL OZ/A	A		100.0 -	41.8 -	100.0 -	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A							
	ACTIVATOR 90	0.25 % V/V	A							
	AMSOL	8.5 LB AI/100 GAL	A							
7	WEEDMASTER	32 FL OZ/A	A		100.0 -	42.5 -	100.0 -	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A							
	ACTIVATOR 90	0.25 % V/V	A							
	AMSOL	8.5 LB AI/100 GAL	A							
LSD P=.05						29.39				
Standard Deviation	0.00				0.00	19.50	0.00	0.00	0.00	0.00
CV	0.0				0.0	39.16	0.0	0.0	0.0	0.0
Grand Mean	100.00				100.00	49.79	100.00	100.00	100.00	100.00
Levene's F^						0.67				
Levene's Prob(F)						0.651				
Rank X2										
P(Rank X2)										
Skewness^						0.8424				
Kurtosis^						0.7849				
Replicate F	0.000				0.000	15.740	0.000	0.000	0.000	0.000
Replicate Prob(F)	1.0000				1.0000	0.0001	1.0000	1.0000	1.0000	1.0000
Treatment F	0.000				0.000	0.704	0.000	0.000	0.000	0.000
Treatment Prob(F)	1.0000				1.0000	0.6294	1.0000	1.0000	1.0000	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 Untreated treatment(s) 1 excluded from analysis.
 Could not calculate LSD (% mean diff) for columns 1,3,4,5,6,9,10,11,12,16,17 because error mean square = 0.
 ^Calculated from residual.

Pest Type	W, Weed	W, Weed	W, Weed	W, Weed	W, Weed	W, Weed			
Pest Code	AMBTR	ERICA	TAROF	LAMAM	LAMPU	DRBSS			
Pest Name	Giant ragweed	mare's-tail	dandelion	Henbit deadnett>	purple deadnett>	Whitlow-grass			
Rating Date	4/20/2021	4/20/2021	4/20/2021	4/20/2021	4/20/2021	5/6/2021			
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100			
Number of Subsamples	1	1	1	1	1	1			
Data Entry Date	9/17/2021	9/17/2021	9/17/2021	9/17/2021	9/17/2021	9/17/2021			
Rating Timing	15 DAT	15 DAT	15 DAT	15 DAT	15 DAT	31 DAT			
Days After First/Last Applic.	142, 142	142, 142	142, 142	142, 142	142, 142	158, 158			
Trt-Eval Interval	142 DA-A	142 DA-A	142 DA-A	142 DA-A	142 DA-A	158 DA-A			
Trt No.	Treatment Name	Rate	Appl Code	7	8	9	10	11	12
1	NONTREATED			0.0	0.0	0.0	0.0	0.0	0.0
2	PANTHER SC	2 FL OZ/A	A	43.8 -	100.0 a	100.0 -	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A						
	WEEDONE LV4	24 FL OZ/A	A						
	ACTIVATOR 90	0.25 % V/V	A						
	AMSOL	8.5 LB AI/100 GAL	A						
3	PANTHER MTZ	12 FL OZ/A	A	43.8 -	100.0 a	100.0 -	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A						
	WEEDONE LV4	24 FL OZ/A	A						
	ACTIVATOR 90	0.25 % V/V	A						
	AMSOL	8.5 LB AI/100 GAL	A						
4	BOBCAT	1.5 OZ/A	A	57.5 -	96.3 b	100.0 -	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A						
	WEEDONE LV4	24 FL OZ/A	A						
	ACTIVATOR 90	0.25 % V/V	A						
	AMSOL	8.5 LB AI/100 GAL	A						
5	BOBCAT	2.0 OZ/A	A	53.8 -	96.8 b	100.0 -	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A						
	WEEDONE LV4	24 FL OZ/A	A						
	ACTIVATOR 90	0.25 % V/V	A						
	AMSOL	8.5 LB AI/100 GAL	A						
6	SPLITFIRE	24 FL OZ/A	A	38.8 -	96.3 b	100.0 -	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A						
	ACTIVATOR 90	0.25 % V/V	A						
	AMSOL	8.5 LB AI/100 GAL	A						
7	WEEDMASTER	32 FL OZ/A	A	35.0 -	96.0 b	100.0 -	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A						
	ACTIVATOR 90	0.25 % V/V	A						
	AMSOL	8.5 LB AI/100 GAL	A						
LSD P=.05		29.80	2.39	.	.	.	.	.	.
Standard Deviation		19.77	1.59	0.00	0.00	0.00	0.00	0.00	0.00
CV		43.53	1.63	0.0	0.0	0.0	0.0	0.0	0.0
Grand Mean		45.42	97.54	100.00	100.00	100.00	100.00	100.00	100.00
Levene's F^		0.845	0.13	.	.	.	.	.	.
Levene's Prob(F)		0.536	0.983	.	.	.	.	.	.
Rank X2		.	.	.	.	.	.	.	.
P(Rank X2)		.	.	.	.	.	.	.	.
Skewness^		0.7659	0.7657	.	.	.	.	.	.
Kurtosis^		0.6179	0.4113	.	.	.	.	.	.
Replicate F		15.512	3.765	0.000	0.000	0.000	0.000	0.000	0.000
Replicate Prob(F)		0.0001	0.0339	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Treatment F		0.765	5.851	0.000	0.000	0.000	0.000	0.000	0.000
Treatment Prob(F)		0.5887	0.0034	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

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^Calculated from residual.

Pest Type	W, Weed	W, Weed	W, Weed	W, Weed	W, Weed			
Pest Code	AMBTR	ERICA	TAROF	LAMAM	LAMPU			
Pest Name	Giant ragweed	mare's-tail	dandelion	Henbit deadnett>	purple deadnett>			
Rating Date	5/6/2021	5/6/2021	5/6/2021	5/6/2021	5/6/2021			
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100			
Number of Subsamples	1	1	1	1	1			
Data Entry Date	9/17/2021	9/17/2021	9/17/2021	9/17/2021	9/17/2021			
Rating Timing	31 DAT	31 DAT	31 DAT	31 DAT	31 DAT			
Days After First/Last Applic.	158, 158	158, 158	158, 158	158, 158	158, 158			
Trt-Eval Interval	158 DA-A	158 DA-A	158 DA-A	158 DA-A	158 DA-A			
Trt No.	Treatment Name	Rate	Appl Code	13	14	15	16	17
1	NONTREATED			0.0	0.0	0.0	0.0	0.0
2	PANTHER SC	2 FL OZ/A	A	36.3 -	97.8 ab	99.8 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A					
	WEEDONE LV4	24 FL OZ/A	A					
	ACTIVATOR 90	0.25 % V/V	A					
	AMSOL	8.5 LB AI/100 GAL	A					
3	PANTHER MTZ	12 FL OZ/A	A	40.0 -	99.5 a	99.8 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A					
	WEEDONE LV4	24 FL OZ/A	A					
	ACTIVATOR 90	0.25 % V/V	A					
	AMSOL	8.5 LB AI/100 GAL	A					
4	BOBCAT	1.5 OZ/A	A	48.8 -	88.8 c	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A					
	WEEDONE LV4	24 FL OZ/A	A					
	ACTIVATOR 90	0.25 % V/V	A					
	AMSOL	8.5 LB AI/100 GAL	A					
5	BOBCAT	2.0 OZ/A	A	38.8 -	92.5 bc	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A					
	WEEDONE LV4	24 FL OZ/A	A					
	ACTIVATOR 90	0.25 % V/V	A					
	AMSOL	8.5 LB AI/100 GAL	A					
6	SPLITFIRE	24 FL OZ/A	A	34.8 -	89.5 c	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A					
	ACTIVATOR 90	0.25 % V/V	A					
	AMSOL	8.5 LB AI/100 GAL	A					
7	WEEDMASTER	32 FL OZ/A	A	32.5 -	88.8 c	100.0 -	100.0 -	100.0 -
	CREDIT XTREME	22 FL OZ/A	A					
	ACTIVATOR 90	0.25 % V/V	A					
	AMSOL	8.5 LB AI/100 GAL	A					
LSD P=.05				18.35	6.62	0.39	.	.
Standard Deviation				12.17	4.39	0.26	0.00	0.00
CV				31.62	4.73	0.26	0.0	0.0
Grand Mean				38.50	92.79	99.92	100.00	100.00
Levene's F^				0.479	0.975	0.133	.	.
Levene's Prob(F)				0.787	0.459	0.983	.	.
Rank X2				.	.	.	.	.
P(Rank X2)				.	.	.	.	.
Skewness^				1.4053*	-0.4568	-0.872	.	.
Kurtosis^				2.0622*	1.7101	0.921	.	.
Replicate F				68.430	2.967	2.500	0.000	0.000
Replicate Prob(F)				0.0001	0.0656	0.0991	1.0000	1.0000
Treatment F				0.877	4.692	1.000	0.000	0.000
Treatment Prob(F)				0.5196	0.0089	0.4509	1.0000	1.0000

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^Calculated from residual.

Purdue Weed Science

Nufarm Fall Herbicides for Winter Annual Weed Control

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Protocol ID: 20F-MGS-FALLOW-01
Project ID:

Location: MEIGS Trial Year: 2020
Investigator (Creator): Dr. Bill Johnson
Study Director: Brent Mansfield
Sponsor Contact:

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

DRBSS, Draba sp., Whitlow-grass = US

AMBTR, Ambrosia trifida, Giant ragweed = US

TAROF, Taraxacum officinale, dandelion = US

LAMAM, Lamium amplexicaule, Henbit deadnettle = US

LAMPU, Lamium purpureum, purple deadnettle = US

ERICA, Erigeron canadensis, mare's-tail = US

Rating Type

CONTRO = control / burndown or knockdown

Rating Unit/Min/Max

%, 0, 100 = percent