

# North Carolina State University

## Effects of Temperature on Nonselective Herbicide Efficacy

Trial ID: 01-D22  
Location: NC DOT

Study Dir.: Travis Gannon and Jason Hinton  
Investigator: Fred Yelverton

### GENERAL TRIAL INFORMATION

<b>Study Director:</b> Travis Gannon and Jason Hinton	<b>Title:</b> Research Technician
<b>Affiliation:</b> North Carolina State University	
<b>Postal Code:</b> 27695	
<b>Investigator:</b> Fred Yelverton	<b>Title:</b> Professor
<b>Affiliation:</b> North Carolina State University	
<b>Postal Code:</b> 27695	

### TRIAL LOCATION

<b>City:</b> Raleigh	<b>Trial Status:</b>	Completed
<b>State/Prov.:</b> NC		
<b>Postal Code:</b> 27695	<b>Initiation Date:</b>	04-04-01
<b>Country:</b> USA		

Conducted Under GLP (Y/N): N

Conducted Under GEP (Y/N): N

### CROP AND WEED DESCRIPTION

Weed	Code	Common Name	Scientific Name
1.	LAMAM	henbit	Lamium amplexicaule

### SITE AND DESIGN

Plot Width, Unit: 5 FT      Plot Length, Unit: 10 FT      Reps: 4  
Study Design: SPLIT-PLOT

### APPLICATION DESCRIPTION

	A	B
<b>Application Date:</b>	04-04-01	04-05-01
<b>Time of Day:</b>	3:30-4PM	3-3:30PM
<b>Application Method:</b>	SPRAY	SPRAY
<b>Application Timing:</b>	POST/50F	POST/70F
<b>Applic. Placement:</b>	FOLIAR	FOLIAR
<b>Air Temp., Unit:</b>	55.2 F	68.3 F
<b>% Relative Humidity:</b>	65	35
<b>Wind Velocity, Unit:</b>	1.6 MPH	1.6 MPH
<b>Dew Presence (Y/N):</b>	N	N
<b>Water Hardness:</b>	N/A	N/A
<b>Soil Temp., Unit:</b>	52 F	64 F
<b>Soil Moisture:</b>	GOOD	GOOD
<b>% Cloud Cover:</b>	90	10

### CROP STAGE AT EACH APPLICATION

A	B
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### WEED STAGE AT EACH APPLICATION

	A	B
<b>Weed 1 Code, Stage:</b>	LAMAM	LAMAM
<b>Stage Scale:</b>	E FLOWER	E FLOWER
<b>Density, Unit:</b>	0-8 FT <sup>2</sup>	0-8 FT <sup>2</sup>

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### APPLICATION EQUIPMENT

	A	B
<b>Appl. Equipment:</b>	CO2 SPRAY	CO2 SPRAY
<b>Operating Pressure:</b>	49 PSI	49 PSI
<b>Nozzle Type:</b>	FLAT FAN	FLAT FAN
<b>Nozzle Size:</b>	8001XR	8001XR
<b>Nozzle Spacing, Unit:</b>	10 INCH	10 INCH
<b>Nozzles/Row:</b>	4	4
<b>Boom Length, Unit:</b>	40 INCH	40 INCH
<b>Boom Height, Unit:</b>	10 INCH	10 INCH
<b>Ground Speed, Unit:</b>	3 MPH	3 MPH
<b>Carrier:</b>	WATER	WATER
<b>Spray Volume, Unit:</b>	10 GPA	10 GPA
<b>Propellant:</b>	COMP. CO2	COMP. CO2

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					LAMAM	LAMAM	LAMAM	LAMAM
					CONTROL	CONTROL	CONTROL	CONTROL
					%	%	%	%
					04-09-01	04-12-01	04-20-01	04-24-01
					5 DAT	1 WAT	2 WAT	3 WAT
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code	
1	Touchdown Pro Air temperature of 50 F	L		1 QT/A	POST	A		2.5 a    21.3 a    42.5 c    82.5 ab
2	Touchdown Pro Air temperature of 70 F	L		1 QT/A	POST	B		2.5 a    20.0 a    70.0 a    88.8 a
3	Touchdown Pro Air temperature of 50 F	L		2 QT/A	POST	A		2.5 a    18.8 a    56.3 b    76.3 ab
4	Touchdown Pro Air temperature of 70 F	L		2 QT/A	POST	B		5.0 a    21.3 a    73.8 a    90.0 a
5	Roundup Pro Air temperature of 50 F	L		1 QT/A	POST	A		0.0 a    17.5 a    41.3 c    52.5 c
6	Roundup Pro Air temperature of 70 F	L		1 QT/A	POST	B		8.8 a    20.0 a    70.0 a    90.0 a
7	Roundup Pro Air temperature of 50 F	L		2 QT/A	POST	A		2.5 a    18.8 a    53.8 bc    70.0 b
8	Roundup Pro Air temperature of 70 F	L		2 QT/A	POST	B		3.8 a    20.0 a    78.8 a    92.5 a
9	Nontreated Air temperature of 50 F							0.0 a    0.0 b    0.0 d    0.0 d
10	Nontreated Air temperature of 70 F							0.0 a    0.0 b    0.0 d    0.0 d
LSD (P=.05)					8.31	6.07	12.96	15.41
Standard Deviation					5.52	4.03	8.60	10.23
CV					200.55	25.59	17.69	15.92
Bartlett's X2					2.839	5.396	9.912	24.282
P(Bartlett's X2)					0.829	0.612	0.194	0.001*
Replicate F					0.247	5.077	0.887	0.900
Replicate Prob(F)					0.8625	0.0127	0.4701	0.4640
Treatment F					0.950	17.282	44.215	49.418
Treatment Prob(F)					0.5136	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)  
Mean separations are based on the complete error term.

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						LAMAM	LAMAM
						CONTROL	CONTROL
						%	%
						05-04-01	05-10-01
						4 WAT	5 WAT
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code	
1	Touchdown Pro Air temperature of 50 F	L		1 QT/A	POST A	A	91.3 ab 96.8 ab
2	Touchdown Pro Air temperature of 70 F	L		1 QT/A	POST B	B	91.3 ab 99.0 a
3	Touchdown Pro Air temperature of 50 F	L		2 QT/A	POST A	A	82.5 bc 98.0 a
4	Touchdown Pro Air temperature of 70 F	L		2 QT/A	POST B	B	91.3 ab 99.0 a
5	Roundup Pro Air temperature of 50 F	L		1 QT/A	POST A	A	77.5 c 92.3 b
6	Roundup Pro Air temperature of 70 F	L		1 QT/A	POST B	B	95.0 a 99.0 a
7	Roundup Pro Air temperature of 50 F	L		2 QT/A	POST A	A	88.8 abc 95.5 ab
8	Roundup Pro Air temperature of 70 F	L		2 QT/A	POST B	B	95.0 a 99.0 a
9	Nontreated Air temperature of 50 F						0.0 d 0.0 c
10	Nontreated Air temperature of 70 F						0.0 d 0.0 c
LSD (P=.05)						10.87	5.00
Standard Deviation						7.22	3.32
CV						10.13	4.26
Bartlett's X2						7.738	3.939
P(Bartlett's X2)						0.171	0.268
Replicate F						1.744	1.104
Replicate Prob(F)						0.2010	0.3781
Treatment F						110.533	612.916
Treatment Prob(F)						0.0001	0.0001

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### Trial Comments

4-4-01 - plots 109, 110, 202, 309, 403 had minimal populations