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Prefix or Boundry + Sharpen Burndown for Marestail

Trial ID: 12S-SEP-NTS-18 Protocol ID: 12S-SEP-NTS-18
 Location: SEPAC Study Director: Paul Marquardt
 Project ID: ZSPM001A Investigator: Dr. Bill Johnson
 Sponsor Contact: Steve Mroczkiewicz

General Trial Information

Study Director: Paul Marquardt **Title:** Research Associate
Investigator: Bill Johnson **Title:** Professor

Discipline: H herbicide
Trial Status: E established
Initiation Date: 3-30-2012

Trial Location

City: Butleville
State/Prov.: Indiana
Postal Code: 47223
Country: USA

Personnel

Study Director: Paul Marquardt **Title:** Research Associate
Affiliation: Purdue University
Address: 915 W. State Street, Lilly Hall
Location: West Lafayette, IN
Postal Code: 47907 **E-mail:** pmarquar@purdue.edu
Phone No.: 765-494-0891 **Mobile No.:** 765-409-6369

Investigator: Bill Johnson **Title:** Professor
Affiliation: Purdue University
Address: 915 W. State Street, Lilly Hall
Location: West Lafayette, IN
Postal Code: 47907 **E-mail:** wgj@purdue.edu
Phone No.: 765-494-4656 **Mobile No.:** 765-404-9801

Cooperator/Landowner

Cooperator: Don Biehle **Role:** Superintendent
Organization: Southeast-Purdue Agricultural Center
Address 1: 4425 E CR 350 N
Phone No.: 812-458-6977
City: Butleville **Fax No.:** 812-458-6979
State/Prov: IN **Mobile No.:** 812-592-8426
Postal Code: 47223 **E-mail:** biehled@purdue.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: AG2931 **Description:** Roundup Ready
BBCH Scale: BSOY **Planting Date:** 5-3-2012
Planting Method: DIRDRI direct drilled **Rate, Unit:** 140000 S/A
Depth, Unit: 1 IN
Row Spacing, Unit: 30 IN **Spacing Within Row, Unit:** 2 IN
Seed Bed: MEDIUM medium **Soil Temperature, Unit:** 69 F
Soil Moisture: DRY dry **Emergence Date:** 5-8-2012
Harvest Date: 11-1-2012 **Harvest Equipment:** Gleaner F3
Harvested Width, Unit: 10 FT **Harvested Length, Unit:** 25 FT
% Standard Moisture: 13.0 **Moisture Meter:** Carter 3" Blade
Weighing Equipment: HM400 Double Bucket

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Pest Description

Pest 1 Type: W **Code:** TAROF *Taraxacum officinale*
Common Name: Common dandelion

Pest 2 Type: W **Code:** AMBEL *Ambrosia artemisiifolia*
Common Name: Common ragweed

Pest 3 Type: W **Code:** SETFA *Setaria faberi*
Common Name: Giant foxtail

Pest 4 Type: W **Code:** XANST *Xanthium strumarium*
Common Name: Heart-leaf cocklebur

Pest 5 Type: W **Code:** AMBTR *Ambrosia trifida*
Common Name: Giant ragweed

Pest 6 Type: W **Code:** ERICA *Conyza canadensis*
Common Name: Canada horseweed

Site and Design

Plot Width, Unit: 10 FT	Site Type: FIELD field	
Plot Length, Unit: 30 FT	Experimental Unit: 1 PLOT plot	
Plot Area, Unit: 300 FT ²	Tillage Type: NOTILL no-till	
Replications: 4	Study Design: RACOB1 Randomized Complete Block (RCB)	
	Untreated Arrangement: INCLUDED	single control randomized in each block

Soil Description

Description Name: SEPAC- U41
% Sand: 20 **% OM:** 1.3 **Texture:** SIL silt loam
% Silt: 65 **pH:** 6.5 **Soil Name:** Avonburg
% Clay: 15 **CEC:** 5.7
Soil Drainage: P poor

Application Description

	A
Application Date:	4-26-2012
Time of Day:	9:45 AM
Application Method:	SPRAY
Application Timing:	PREPOS
Application Placement:	FOLIAR
Applied By:	JR
Air Temperature, Unit:	70 F
% Relative Humidity:	68
Wind Velocity, Unit:	2.3 MPH
Wind Direction:	NW
Dew Presence (Y/N):	Y yes
Soil Temperature, Unit:	68 F
Soil Moisture:	DRY
% Cloud Cover:	80

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	GLXMA BSOY

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Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	TAROF W
Stage Majority, Percent:	40 100
Height, Unit:	6 IN
Height Minimum, Maximum:	2 10
Density, Unit:	8.5 M2
Pest 2 Code, Type, Scale:	AMBEL W
Stage Majority, Percent:	12 100
Height, Unit:	1 IN
Height Minimum, Maximum:	1 1
Density, Unit:	11 M2
Pest 3 Code, Type, Scale:	SETFA W
Stage Majority, Percent:	30 100
Height, Unit:	1 IN
Height Minimum, Maximum:	1 1
Density, Unit:	10 M2
Pest 4 Code, Type, Scale:	XANST W
Stage Majority, Percent:	11 100
Height, Unit:	1 IN
Height Minimum, Maximum:	1 1
Density, Unit:	1 M2
Pest 5 Code, Type, Scale:	AMBTR W
Stage Majority, Percent:	31 100
Height, Unit:	1.5 IN
Height Minimum, Maximum:	1 2
Density, Unit:	2.5 M2
Pest 6 Code, Type, Scale:	ERICA W
Stage Majority, Percent:	32 100
Height, Unit:	1.5 IN
Height Minimum, Maximum:	1 2
Density, Unit:	1.5 M2

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Application Equipment

	A
Appl. Equipment:	CO2 Backpack
Equipment Type:	SPRBAC
Operation Pressure, Unit:	17 PSI
Nozzle Type:	Flat Fan
Nozzle Size:	XR11002
Nozzle Spacing, Unit:	15 IN
Boom Length, Unit:	10 FT
Boom Height, Unit:	18 IN
Ground Speed, Unit:	3 MPH
Carrier:	H2O
Water Hardness (ppm CaCO3):	150
Spray Volume, Unit:	15 gal/ac
Mix Size, Unit:	1.8 liters
Propellant:	CO2
Tank Mix (Y/N):	N no

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 Location: SEPAC Study Director: Paul Marquardt
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Pest Type	W Weed ERICA	W Weed TAROF	W Weed ERICA	W Weed TAROF	W Weed AMBEL	W Weed ERICA		
Pest Scientific Name	Conyza canadensis>	Taraxacum officinale>	Conyza canadensis>	Taraxacum officinale>	Ambrosia artemisiifolia>	Conyza canadensis>		
Pest Name	Canada horseweed>	Common dandelion>	Canada horseweed>	Common dandelion>	Common ragweed	Canada horseweed>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P		
Rating Date	5-3-2012	5-3-2012	5-10-2012	5-10-2012	5-10-2012	5-17-2012		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
Crop Stage Majority	00	00	09	09	09	09		
Pest Stage Majority	1-3 IN	1-6 IN	1-3 IN	1-6 IN	1-2 IN	1-3 IN		
Pest Density, Unit	2 M2	5 M2	2 M2	5 M2	2.5 M2	2 M2		
Assessed By	PM/JR	PM/JR	PM	PM	PM	PM		
Days After First/Last Applic.	7 7	7 7	14 14	14 14	14 14	21 21		
Trt-Eval Interval	7 DA-A	7 DA-A	7 DA-A	7 DA-A	7 DA-A	14 DA-A		
Plant-Eval Interval	0 DP-1	0 DP-1	7 DP-1	7 DP-1	7 DP-1	14 DP-1		
Days After Emergence	-5 DE-1	-5 DE-1	2 DE-1	2 DE-1	2 DE-1	9 DE-1		
ARM Action Codes								
Number of Decimals								
Trt Treatment No. Name	Rate	Appl Code	1	2	3	4	5	6
1 UNTREATED			0.0 c	0.0 b	0.0 b	0.0 b	0.0 b	0.0 b
2 Touchdown Total	880 g ae/ha A		99.3 a	93.1 a	98.9 a	97.3 a	100.0 a	98.9 a
Prefix	1490 g ai/ha A							
2,4-D LV4	560 g ai/ha A							
MSO	1 % v/v A							
N-Pak AMS	2.5 % v/v A							
3 Touchdown Total	880 g ae/ha A		100.0 a	97.8 a	100.0 a	100.0 a	100.0 a	100.0 a
Prefix	1490 g ai/ha A							
Sharpen	25 g ai/ha A							
MSO	1 % v/v A							
N-Pak AMS	2.5 % v/v A							
4 Touchdown Total	880 g ae/ha A		66.3 b	79.0 a	88.8 a	94.5 a	100.0 a	88.8 a
Boundary	1600 g ai/ha A							
2,4-D LV4	560 g ai/ha A							
MSO	1 % v/v A							
N-Pak AMS	2.5 % v/v A							
5 Touchdown Total	880 g ae/ha A		100.0 a	98.8 a	100.0 a	99.0 a	100.0 a	100.0 a
Boundary	1600 g ai/ha A							
Sharpen	50 g ai/ha A							
MSO	1 % v/v A							
N-Pak AMS	2.5 % v/v A							
6 Gramoxone SL	840 g ai/ha A		99.0 a	96.3 a	99.5 a	95.8 a	100.0 a	99.5 a
Prefix	1490 g ai/ha A							
MSO	1 % v/v A							
7 Gramoxone SL	840 g ai/ha A		100.0 a	92.5 a	100.0 a	66.3 a	100.0 a	100.0 a
Prefix	1490 g ai/ha A							
Sharpen	25 g ai/ha A							
MSO	1 % v/v A							

Means followed by same letter do not significantly differ (P= .05, Student-Newman-Keuls)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	ERICA	TAROF	ERICA	TAROF	AMBEL	ERICA		
Pest Scientific Name	Conyza canadensis	Taraxacum officinale	Conyza canadensis	Taraxacum officinale	Ambrosia artemisiifolia	Conyza canadensis		
Pest Name	Canada horseweed	Common dandelion	Canada horseweed	Common dandelion	Common ragweed	Canada horseweed		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P		
Rating Date	5-3-2012	5-3-2012	5-10-2012	5-10-2012	5-10-2012	5-17-2012		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
Crop Stage Majority	00	00	09	09	09	09		
Pest Stage Majority	1-3 IN	1-6 IN	1-3 IN	1-6 IN	1-2 IN	1-3 IN		
Pest Density, Unit	2 M2	5 M2	2 M2	5 M2	2.5 M2	2 M2		
Assessed By	PM/JR	PM/JR	PM	PM	PM	PM		
Days After First/Last Applic.	7 7	7 7	14 14	14 14	14 14	21 21		
Trt-Eval Interval	7 DA-A	7 DA-A	7 DA-A	7 DA-A	7 DA-A	14 DA-A		
Plant-Eval Interval	0 DP-1	0 DP-1	7 DP-1	7 DP-1	7 DP-1	14 DP-1		
Days After Emergence	-5 DE-1	-5 DE-1	2 DE-1	2 DE-1	2 DE-1	9 DE-1		
ARM Action Codes								
Number of Decimals								
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	1	2	3	4	5	6
8 Gramoxone SL	840 g ai/ha	A	99.5 a	93.3 a	100.0 a	71.5 a	100.0 a	100.0 a
Prefix	1490 g ai/ha	A						
2,4-D LV4	560 g ai/ha	A						
MSO	1 % v/v	A						
9 UNTREATED			0.0 c	0.0 b	0.0 b	0.0 b	0.0 b	0.0 b
LSD (P=.05)	15.98		15.11	8.12	31.76	0.00	8.12	
Standard Deviation	10.93		10.33	5.55	21.71	0.00	5.55	
CV	14.81		14.28	7.27	31.3	0.0	7.27	
Bartlett's X2	29.869		28.778	12.46	37.717	0.0	12.46	
P(Bartlett's X2)	0.001*		0.001*	0.001*	0.001*	.	0.001*	
Replicate F	0.939		1.136	1.374	0.444	0.000	1.374	
Replicate Prob(F)	0.4379		0.3554	0.2756	0.7236	1.0000	0.2756	
Treatment F	62.645		64.242	245.175	14.383	0.000	245.175	
Treatment Prob(F)	0.0001		0.0001	0.0001	0.0001	1.0000	0.0001	

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	TAROF	AMBEL	ERICA	TAROF	XANST	AMBEL	
Pest Scientific Name	Taraxacum offi>	Ambrosia artem>	Conyza canaden>	Taraxacum offi>	Xanthium strum>	Ambrosia artem>	
Pest Name	Common dandel>	Common ragweed	Canada horsewe>	Common dandel>	Heart-leaf coc>	Common ragweed	
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P
Rating Date	5-17-2012	5-17-2012	5-24-2012	5-24-2012	5-24-2012	5-24-2012	11-1-2012
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	YIELD
Rating Unit	%	%	%	%	%	%	LB
Number of Subsamples	1	1	1	1	1	1	1
Crop Stage Majority	09	09	12	12	12	12	
Pest Stage Majority	1-6 IN	1-2 IN	1-4 IN	<1-6 IN	1-3 IN	1-5 IN	
Pest Density, Unit	5 M2	2.5 M2	1 M2	1.5 M2	5 M2	5 M2	
Assessed By	PM	PM	PM/JR	PM/JR	PM/JR	PM/JR	PM
Days After First/Last Applic.	21 21	21 21	28 28	28 28	28 28	28 28	189 189
Trt-Eval Interval	14 DA-A	14 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A
Plant-Eval Interval	14 DP-1	14 DP-1	21 DP-1	21 DP-1	21 DP-1	21 DP-1	182 DP-1
Days After Emergence	9 DE-1	9 DE-1	16 DE-1	16 DE-1	16 DE-1	16 DE-1	177 DE-1
ARM Action Codes							
Number of Decimals							
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	7	8	9	10	11
8 Gramoxone SL	840 g ai/ha A		71.5 a	100.0 a	100.0 a	33.8 bc	85.0 ab
Prefix	1490 g ai/ha A						
2,4-D LV4	560 g ai/ha A						
MSO	1 % v/v A						
9 UNTREATED			0.0 b	0.0 b	0.0 b	0.0 c	0.0 c
LSD (P=.05)	31.76	0.00	3.71	31.91	27.99	15.35	4.10982268
Standard Deviation	21.71	0.00	2.53	21.81	19.13	10.49	2.81597261
CV	31.3	0.0	3.28	44.79	34.5	14.96	68.55
Bartlett's X2	37.717	0.0	0.0	16.768	19.025	22.176	8.72
P(Bartlett's X2)	0.001*	.	.	0.01*	0.004*	0.001*	0.366
Replicate F	0.444	0.000	1.232	2.635	1.343	1.190	0.745
Replicate Prob(F)	0.7236	1.0000	0.3208	0.0740	0.2850	0.3355	0.5357
Treatment F	14.383	0.000	1197.878	11.620	14.417	61.797	0.861
Treatment Prob(F)	0.0001	1.0000	0.0001	0.0001	0.0001	0.0001	0.5614

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Pest Type			
Pest Code			
Pest Scientific Name			
Pest Name			
Crop Code	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean
Part Rated	PLOT P	PLOT P	PLOT P
Rating Date	11-1-2012	11-1-2012	11-1-2012
Rating Type	MOISTURE	YIELD	YIELD
Rating Unit	%	BU	KG
Number of Subsamples	1	1	1
Crop Stage Majority			
Pest Stage Majority			
Pest Density, Unit			
Assessed By	PM	PM	PM
Days After First/Last Applic.	189 189	189 189	189 189
Trt-Eval Interval	189 DA-A	28 DA-A	28 DA-A
Plant-Eval Interval	182 DP-1	182 DP-1	182 DP-1
Days After Emergence	177 DE-1	177 DE-1	177 DE-1
ARM Action Codes		TY2	TY3
Number of Decimals		1	1
Trt No.	Treatment	Rate	Appl
	Name	Rate Unit	Code
1	UNTREATED		
		13.2199005 a	10.9 a 734.3 a
2	Touchdown Total	880 g ae/ha A	
	Prefix	1490 g ai/ha A	
	2,4-D LV4	560 g ai/ha A	
	MSO	1 % v/v A	
	N-Pak AMS	2.5 % v/v A	
		19.1340160 a	17.8 a 1199.3 a
3	Touchdown Total	880 g ae/ha A	
	Prefix	1490 g ai/ha A	
	Sharpen	25 g ai/ha A	
	MSO	1 % v/v A	
	N-Pak AMS	2.5 % v/v A	
		18.3629894 a	14.8 a 996.3 a
4	Touchdown Total	880 g ae/ha A	
	Boundary	1600 g ai/ha A	
	2,4-D LV4	560 g ai/ha A	
	MSO	1 % v/v A	
	N-Pak AMS	2.5 % v/v A	
		14.6867938 a	9.3 a 627.1 a
5	Touchdown Total	880 g ae/ha A	
	Boundary	1600 g ai/ha A	
	Sharpen	50 g ai/ha A	
	MSO	1 % v/v A	
	N-Pak AMS	2.5 % v/v A	
		16.9931219 a	8.2 a 554.2 a
6	Gramoxone SL	840 g ai/ha A	
	Prefix	1490 g ai/ha A	
	MSO	1 % v/v A	
		14.6973873 a	7.5 a 505.1 a
7	Gramoxone SL	840 g ai/ha A	
	Prefix	1490 g ai/ha A	
	Sharpen	25 g ai/ha A	
	MSO	1 % v/v A	
		14.2560430 a	10.1 a 678.3 a

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Pest Type			
Pest Code			
Pest Scientific Name			
Pest Name			
Crop Code	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean
Part Rated	PLOT P	PLOT P	PLOT P
Rating Date	11-1-2012	11-1-2012	11-1-2012
Rating Type	MOISTURE	YIELD	YIELD
Rating Unit	%	BU	KG
Number of Subsamples	1	1	1
Crop Stage Majority			
Pest Stage Majority			
Pest Density, Unit			
Assessed By	PM	PM	PM
Days After First/Last Applic.	189 189	189 189	189 189
Trt-Eval Interval	189 DA-A	28 DA-A	28 DA-A
Plant-Eval Interval	182 DP-1	182 DP-1	182 DP-1
Days After Emergence	177 DE-1	177 DE-1	177 DE-1
ARM Action Codes		TY2	TY3
Number of Decimals		1	1
Trt Treatment	Rate	Appl	
No. Name	Rate Unit	Code	
			14
			15
			16
8 Gramoxone SL	840 g ai/ha A		16.4456918 a
Prefix	1490 g ai/ha A		
2,4-D LV4	560 g ai/ha A		
MSO	1 % v/v A		
9 UNTREATED			14.7546697 a
LSD (P=.05)			4.60362385
Standard Deviation			3.15431579
CV			19.91
Bartlett's X2			12.4
P(Bartlett's X2)			0.134
Replicate F			1.043
Replicate Prob(F)			0.3913
Treatment F			1.613
Treatment Prob(F)			0.1734
			11.06
			7.57
			66.63
			66.63
			9.442
			9.442
			0.306
			0.306
			0.836
			0.836
			0.4872
			0.4872
			0.813
			0.813
			0.5985
			0.5985

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 Location: SEPAC Study Director: Paul Marquardt
 Project ID: ZSPM001A Investigator: Dr. Bill Johnson
 Sponsor Contact: Steve Mroczkiewicz

Pest Type

W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop

Pest Code

ERICA, Conyza canadensis, = US
 TAROF, Taraxacum officinale, = US
 AMBEL, Ambrosia artemisiifolia, = US
 XANST, Xanthium strumarium, = US

Crop Code

GLXMA, BSOY, Glycine max, = US

Part Rated

PLOT = plot
 P = Pest is Part Rated

Rating Type

CONTRO = control / burndown or knockdown
 YIELD = yield

Rating Unit

% = percent
 LB = pound
 BU = bushel
 KG = kilogram

Crop Stage Majority

00 = Dry seed
 09 = Emergence: hypocotyl and cotyledons emerge above soil surface ("cracking stage")
 12 = Trifoliolate leaf on the 2nd node unfolded

M2 = per square meter

Plant-Eval Interval

0 DP-1 = 1 GLXMA 5-3-2012
 7 DP-1 = 1 GLXMA 5-3-2012
 14 DP-1 = 1 GLXMA 5-3-2012
 21 DP-1 = 1 GLXMA 5-3-2012
 182 DP-1 = 1 GLXMA 5-3-2012

ARM Action Codes

TY2 = $2.904 * [13] * (100 - [14]) / 87$
 TY3 = $195.2984 * [13] * (100 - [14]) / 87$