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Evaluate Pre-plant Burndown with Anthem

Trial ID: 12S-SEP-NTC-13 Protocol ID: 12S-SEP-NTC-13
 Location: SEPAC Study Director: Paul Marquardt
 Project ID: PYRX.COR.12.JPR.02 Investigator: Dr. Bill Johnson
 Sponsor Contact: Joe Reed

General Trial Information

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

Discipline: H herbicide
Trial Status: E established
Initiation Date: 3-12-2012

Trial Location

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

Personnel

Study Director: Paul Marquardt **Title:** Research Associate

Affiliation: Purdue University
Address: 915 W. State Street
Location: West Lafayette, IN
Postal Code: 47907 **E-mail:** pmarquar@purdue.edu
Phone No.: 765-494-0891 **Mobile No.:** 765-409-6369

Investigator: Dr. Bill Johnson **Title:** Professor

Affiliation: Purdue University
Address: 915 W. State Street
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:** Director
Organization: Southeast Purdue Agricultural Center **Org. Type:** University
Address 1: 4425 E. CR 350 N

City: Butleville **Phone No.:** 812-458-6977
State/Prov.: IN **Fax No.:** 812-458-6979
Postal Code: 47223 **Mobile No.:** 812-592-8426
Country: USA United States **E-mail:** biehled@purdue.edu

Crop Description

Crop 1: ZEAMX Zea mays Corn

Description: Roundup Ready/Liberty Link
Planting Date: 5-3-2012
Rate, Unit: 140000 S/A
BBCH Scale: BCOR
Planting Method: DIRDRI direct drilled
Depth, Unit: 1 IN
Row Spacing, Unit: 30 IN **Spacing Within Row, Unit:** 2 INNN
Seed Bed: MEDIUM medium **Soil Temperature, Unit:** 70 F
Soil Moisture: MOIST **Emergence Date:** 5-8-2012
Harvest Date: 10-1-2012 **Harvest Equipment:** John Deere 3300
Harvested Width, Unit: 5 FT **Harvested Length, Unit:** 25 FT
% Standard Moisture: 15.5
Weighing Equipment: HarvestMaster

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Pest Description

- Pest 1 Type:** W **Code:** ALLVI *Allium vineale*
Common Name: Wild garlic
- Pest 2 Type:** W **Code:** RANAB *Ranunculus abortivus*
Common Name: Smallflower buttercup
- Pest 3 Type:** W **Code:** BROTE *Bromus tectorum*
Common Name: Downy brome
- Pest 4 Type:** W **Code:** TAROF *Taraxacum officinale*
Common Name: Common dandelion
- Pest 5 Type:** W **Code:** ERIPH *Erigeron philadelphicus*
Common Name: Daisy fleabane
- Pest 6 Type:** W **Code:** GERCA *Geranium carolinianum*
Common Name: Carolina geranium
- Pest 7 Type:** W **Code:** ERICA *Conyza canadensis*
Common Name: Canada horseweed
- Pest 8 Type:** W **Code:** PLARU *Plantago rugelii*
Common Name: Blackseed plantain

Site and Design

Plot Width, Unit: 10 FT
Plot Length, Unit: 30 FT
Plot Area, Unit: 300 FT²
Replications: 4

Site Type: FIELD field
Experimental Unit: 1 PLOT plot
Tillage Type: NOTILL no-till
Study Design: RACOB� Randomized Complete Block (RCB)
Untreated Arrangement: INCLUDED single control randomized in each block

Soil Description

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

Application Description

	A
Application Date:	4-19-2012
Time of Day:	9:30 AM
Application Method:	SPRAY
Application Timing:	14 DPP
Application Placement:	FOLIAR
Applied By:	JR
Air Temperature, Unit:	64 F
% Relative Humidity:	38
Wind Velocity, Unit:	1.5 MPH
Wind Direction:	SW
Dew Presence (Y/N):	Y yes
Soil Temperature, Unit:	58 F
Soil Moisture:	MOIST
% Cloud Cover:	15

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	ZEAMX BCOR

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Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	ALLVI W
Stage Majority, Percent:	40 100
Height, Unit:	8 IN
Height Minimum, Maximum:	6 12
Density, Unit:	10 YD2
Pest 2 Code, Type, Scale:	RANAB W
Stage Majority, Percent:	89 100
Height, Unit:	13 IN
Height Minimum, Maximum:	8 18
Density, Unit:	12.5 YD2
Pest 3 Code, Type, Scale:	BROTE W
Stage Majority, Percent:	23 100
Height, Unit:	5 IN
Height Minimum, Maximum:	4 6
Density, Unit:	78.5 YD2
Pest 4 Code, Type, Scale:	TAROF W
Stage Majority, Percent:	40 100
Height, Unit:	3 IN
Height Minimum, Maximum:	2 4
Density, Unit:	1.5 YD2
Pest 5 Code, Type, Scale:	ERIPH W
Stage Majority, Percent:	61 100
Height, Unit:	6 IN
Height Minimum, Maximum:	2 10
Density, Unit:	1.5 YD2
Pest 6 Code, Type, Scale:	GERCA W
Stage Majority, Percent:	12 100
Height, Unit:	6 IN
Height Minimum, Maximum:	4 8
Density, Unit:	5 YD2
Pest 7 Code, Type, Scale:	ERICA W
Stage Majority, Percent:	30 100
Height, Unit:	2 IN
Height Minimum, Maximum:	1 3
Density, Unit:	1.5 YD2
Pest 8 Code, Type, Scale:	PLARU W
Stage Majority, Percent:	69 100
Height, Unit:	3.5 IN
Height Minimum, Maximum:	1 6
Density, Unit:	1.5 YD2

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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
Nozzles/Row:	8
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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Evaluate Pre-plant Burndown with Anthem

Trial ID: 12S-SEP-NTC-13 Protocol ID: 12S-SEP-NTC-13
 Location: SEPAC Study Director: Paul Marquardt
 Project ID: PYRX.COR.12.JPR.02 Investigator: Dr. Bill Johnson
 Sponsor Contact: Joe Reed

Pest Type	W Weed ERICA	W Weed GERCA	W Weed ERICA	W Weed GERCA	W Weed XANST				
Pest Code	Conyza canadens>	Geranium carol>	Conyza canadens>	Geranium carol>	Xanthium strum>				
Pest Scientific Name	Canada horsewe>	Carolina geran>	Canada horsewe>	Carolina geran>	Heart-leaf coc>				
Pest Name									
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR		
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays		
Crop Name	Corn	Corn	Corn	Corn	Corn	Corn	Corn		
Crop Variety	P33W84	P33W84	P33W84	P33W84	P33W84	P33W84	P33W84		
Part Rated	PLOT P	PLOT P	PLOT C	PLOT P	PLOT P	PLOT P	PLOT C		
Rating Date	5-3-2012	5-3-2012	5-17-2012	5-17-2012	5-17-2012	5-17-2012	5-31-2012		
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	PHYGEN		
Rating Unit	%	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1	1		
Crop Stage Majority	00	00	11	11	11	11	14		
Pest Stage Majority	1-4 IN	3-8 IN		1-6 IN	3-10 IN	1-2 IN			
Pest Density, Unit	2.5 M2	- M2		2.5 M2	2 M2	5 M2			
Assessed By	PM/JR	PM/JR	PM	PM	PM	PM	PM/JS		
Days After First/Last Applic.	14 14	14 14	28 28	28 28	28 28	28 28	42 42		
Trt-Eval Interval	14 DA-A	14 DA-A	28 DA-A	14 DA-A	14 DA-A	28 DA-A	28 DA-A		
Plant-Eval Interval	0 DP-1	0 DP-1	14 DP-1	14 DP-1	14 DP-1	14 DP-1	28 DP-1		
Days After Emergence	-5 DE-1	-5 DE-1	9 DE-1	9 DE-1	9 DE-1	9 DE-1	23 DE-1		
ARM Action Codes									
Number of Decimals									
Trt Treatment	Rate	Appl							
No. Name	Rate Unit	Code	1	2	3	4	5	6	7
1 UNTREATED			0.0 b	0.0 b	0.0 a	0.0 b	0.0 b	0.0 b	0.0 a
2 Roundup PowerMAX	1260 g ae/ha A		100.0 a	100.0 a	0.0 a	100.0 a	100.0 a	82.6 a	0.0 a
2,4-D LV Ester	560 g ai/ha A								
N-Pak AMS	2.5 % v/v A								
3 Anthem	151 g ai/ha A		100.0 a	98.8 a	0.0 a	100.0 a	100.0 a	79.5 a	0.0 a
Roundup PowerMAX	1260 g ae/ha A								
2,4-D LV Ester	560 g ai/ha A								
N-Pak AMS	2.5 % v/v A								
4 Anthem ATZ	1260 g ai/ha A		97.5 a	100.0 a	0.0 a	100.0 a	100.0 a	93.8 a	0.0 a
2,4-D LV Ester	560 g ai/ha A								
N-Pak AMS	2.5 % v/v A								
5 Anthem ATZ	1260 g ai/ha A		93.8 a	100.0 a	0.0 a	100.0 a	100.0 a	83.8 a	0.0 a
Roundup PowerMAX	1260 g ae/ha A								
2,4-D LV Ester	560 g ai/ha A								
N-Pak AMS	2.5 % v/v A								
6 Anthem	151 g ai/ha A		100.0 a	100.0 a	0.0 a	100.0 a	100.0 a	100.0 a	0.0 a
Sharpen	50 g ai/ha A								
Roundup PowerMAX	1260 g ae/ha A								
2,4-D LV Ester	560 g ai/ha A								
MSO	585 g ai/ha A								
N-Pak AMS	2.5 % v/v A								
7 Anthem ATZ	1260 g ai/ha A		100.0 a	100.0 a	0.0 a	100.0 a	100.0 a	98.3 a	0.0 a
Sharpen	50 g ai/ha A								
Roundup PowerMAX	1260 g ae/ha A								
2,4-D LV Ester	560 g ai/ha A								
MSO	585 g ai/ha A								
N-Pak AMS	2.5 % 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			
Pest Code	ERICA	GERCA		ERICA	GERCA	XANST			
Pest Scientific Name	Conyza canadens>	Geranium carol>		Conyza canadens>	Geranium carol>	Xanthium strum>			
Pest Name	Canada horsewe>	Carolina geran>		Canada horsewe>	Carolina geran>	Heart-leaf coc>			
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR		
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays		
Crop Name	Corn	Corn	Corn	Corn	Corn	Corn	Corn		
Crop Variety	P33W84	P33W84	P33W84	P33W84	P33W84	P33W84	P33W84		
Part Rated	PLOT P	PLOT P	PLOT C	PLOT P	PLOT P	PLOT P	PLOT C		
Rating Date	5-3-2012	5-3-2012	5-17-2012	5-17-2012	5-17-2012	5-17-2012	5-31-2012		
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	PHYGEN		
Rating Unit	%	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1	1		
Crop Stage Majority	00	00	11	11	11	11	14		
Pest Stage Majority	1-4 IN	3-8 IN		1-6 IN	3-10 IN	1-2 IN			
Pest Density, Unit	2.5 M2	- M2		2.5 M2	2 M2	5 M2			
Assessed By	PM/JR	PM/JR	PM	PM	PM	PM	PM/JS		
Days After First/Last Applic.	14 14	14 14	28 28	28 28	28 28	28 28	42 42		
Trt-Eval Interval	14 DA-A	14 DA-A	28 DA-A	14 DA-A	14 DA-A	28 DA-A	28 DA-A		
Plant-Eval Interval	0 DP-1	0 DP-1	14 DP-1	14 DP-1	14 DP-1	14 DP-1	28 DP-1		
Days After Emergence	-5 DE-1	-5 DE-1	9 DE-1	9 DE-1	9 DE-1	9 DE-1	23 DE-1		
ARM Action Codes									
Number of Decimals									
Trt Treatment	Rate	Appl							
No. Name	Rate Unit	Code	1	2	3	4	5	6	7
8 Verdict	684 g ai/ha	A	100.0 a	100.0 a	0.0 a	100.0 a	100.0 a	99.5 a	0.0 a
Roundup PowerMAX	1260 g ae/ha	A							
MSO	585 g ai/ha	A							
N-Pak AMS	2.5 % v/v	A							
9 Anthem	151 g ai/ha	A	88.8 a	100.0 a	0.0 a	87.5 a	100.0 a	75.8 a	0.0 a
Gramoxone Inteon	800 g ai/ha	A							
COC	1 % v/v	A							
N-Pak AMS	2.5 % v/v	A							
10 Anthem ATZ	1260 g ai/ha	A	95.0 a	100.0 a	0.0 a	97.5 a	100.0 a	63.8 a	0.0 a
Gramoxone Inteon	800 g ai/ha	A							
COC	1 % v/v	A							
N-Pak AMS	2.5 % v/v	A							
11 Gramoxone Inteon	800 g ai/ha	A	90.0 a	100.0 a	0.0 a	90.0 a	100.0 a	52.5 a	0.0 a
AAtrex	1010 g ai/ha	A							
12 UNTREATED			0.0 b	0.0 b	0.0 a	0.0 b	0.0 b	0.0 b	0.0 a
LSD (P=.05)			12.31	1.04	0.00	10.79	0.00	34.09	0.00
Standard Deviation			8.53	0.72	0.00	7.47	0.00	23.61	0.00
CV			10.6	0.87	0.0	9.19	0.0	34.16	0.0
Bartlett's X2			4.88	0.0	0.0	4.417	0.0	36.525	0.0
P(Bartlett's X2)			0.30	.	.	0.11	.	0.001*	.
Replicate F			1.203	1.000	0.000	0.647	0.000	0.699	0.000
Replicate Prob(F)			0.3239	0.4051	1.0000	0.5904	1.0000	0.5595	1.0000
Treatment F			78.474	11608.274	0.000	104.538	0.000	8.965	0.000
Treatment Prob(F)			0.0001	0.0001	1.0000	0.0001	1.0000	0.0001	1.0000

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Trt No.	Treatment Name	Rate	Unit	Appl Code	8	9	10	11	12	13
1	UNTREATED				0.0 b	0.0 b	0.008 b	2.728 a	20.1 a	1260.8 a
2	Roundup PowerMAX 2,4-D LV Ester N-Pak AMS	1260 g ae/ha 560 g ai/ha 2.5 % v/v	A A A		98.7 a	70.7 a	9.403 ab	6.248 a	40.3 a	2527.6 a
3	Anthem Roundup PowerMAX 2,4-D LV Ester N-Pak AMS	151 g ai/ha 1260 g ae/ha 560 g ai/ha 2.5 % v/v	A A A A		100.0 a	72.5 a	13.438 ab	10.290 a	64.0 a	4015.2 a
4	Anthem ATZ 2,4-D LV Ester N-Pak AMS	1260 g ai/ha 560 g ai/ha 2.5 % v/v	A A A		87.5 a	78.8 a	20.013 a	12.610 a	73.9 a	4641.7 a
5	Anthem ATZ Roundup PowerMAX 2,4-D LV Ester N-Pak AMS	1260 g ai/ha 1260 g ae/ha 560 g ai/ha 2.5 % v/v	A A A A		98.8 a	91.3 a	18.298 ab	12.685 a	76.5 a	4799.6 a
6	Anthem Sharpen Roundup PowerMAX 2,4-D LV Ester MSO N-Pak AMS	151 g ai/ha 50 g ai/ha 1260 g ae/ha 560 g ai/ha 585 g ai/ha 2.5 % v/v	A A A A A A		99.5 a	99.0 a	14.265 ab	12.303 a	75.3 a	4727.1 a
7	Anthem ATZ Sharpen Roundup PowerMAX 2,4-D LV Ester MSO N-Pak AMS	1260 g ai/ha 50 g ai/ha 1260 g ae/ha 560 g ai/ha 585 g ai/ha 2.5 % v/v	A A A A A A		100.0 a	95.3 a	17.305 ab	18.813 a	114.6 a	7196.3 a

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Pest Type	W Weed	W Weed						
Pest Code	ERICA	XANST						
Pest Scientific Name	Conyza canadensis	Xanthium strumarium						
Pest Name	Canada horseweed	Heart-leaf cock						
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR		
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays		
Crop Name	Corn	Corn	Corn	Corn	Corn	Corn		
Crop Variety	P33W84	P33W84	P33W84	P33W84	P33W84	P33W84		
Part Rated	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P		
Rating Date	5-31-2012	5-31-2012	10-1-2012	10-1-2012	10-1-2012	10-1-2012		
Rating Type	CONTRO	CONTRO	MOISTURE	YIELD	YIELD	YIELD		
Rating Unit	%	%	%	LB	BU	KG		
Number of Subsamples	1	1	1	1	1	1		
Crop Stage Majority	14	14						
Pest Stage Majority	1-10 IN	1-6 IN						
Pest Density, Unit	12.5M2	5 M2						
Assessed By	PM/JS	PM/JS	PM	PM	PM	PM		
Days After First/Last Applic.	42 42	42 42	165 165	165 165	165 165	165 165		
Trt-Eval Interval	42 DA-A	42 DA-A	42 DA-A	165 DA-A	165 DA-A	165 DA-A		
Plant-Eval Interval	28 DP-1	28 DP-1	151 DP-1	151 DP-1	151 DP-1	151 DP-1		
Days After Emergence	23 DE-1	23 DE-1	146 DE-1	146 DE-1	146 DE-1	146 DE-1		
ARM Action Codes				TY3	TY3	TY4		
Number of Decimals				1	1	1		
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	8	9	10	11	12	13
8 Verdict	684 g ai/ha	A	100.0 a	98.3 a	9.220 ab	6.150 a	38.1 a	2388.5 a
Roundup PowerMAX	1260 g ae/ha	A						
MSO	585 g ai/ha	A						
N-Pak AMS	2.5 % v/v	A						
9 Anthem	151 g ai/ha	A	67.5 a	75.0 a	5.148 ab	4.878 a	31.1 a	1950.1 a
Gramoxone Inteon	800 g ai/ha	A						
COC	1 % v/v	A						
N-Pak AMS	2.5 % v/v	A						
10 Anthem ATZ	1260 g ai/ha	A	93.8 a	63.8 a	9.610 ab	5.625 a	34.2 a	2149.6 a
Gramoxone Inteon	800 g ai/ha	A						
COC	1 % v/v	A						
N-Pak AMS	2.5 % v/v	A						
11 Gramoxone Inteon	800 g ai/ha	A	90.0 a	58.8 a	9.425 ab	7.433 a	45.3 a	2840.9 a
AAtrex	1010 g ai/ha	A						
12 UNTREATED			0.0 b	0.0 b	0.008 b	7.053 a	51.9 a	3259.7 a
LSD (P=.05)			21.86	25.75	11.0004	9.2068	55.74	3498.60
Standard Deviation			15.14	17.84	7.6185	6.3763	38.60	2423.00
CV			19.42	26.65	72.48	71.64	69.63	69.63
Bartlett's X2			28.73	32.081	91.986	5.706	4.149	4.149
P(Bartlett's X2)			0.001*	0.001*	0.001*	0.892	0.965	0.965
Replicate F			1.343	0.850	1.412	1.085	0.884	0.884
Replicate Prob(F)			0.2777	0.4767	0.2568	0.3691	0.4596	0.4596
Treatment F			24.632	14.505	2.970	2.013	1.879	1.879
Treatment Prob(F)			0.0001	0.0001	0.0076	0.0596	0.0796	0.0796

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Evaluate Pre-plant Burndown with Anthem

Trial ID: 12S-SEP-NTC-13 Protocol ID: 12S-SEP-NTC-13
 Location: SEPAC Study Director: Paul Marquardt
 Project ID: PYRX.COR.12.JPR.02 Investigator: Dr. Bill Johnson
 Sponsor Contact: Joe Reed

Pest Type

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

Pest Code

ERICA, Conyza canadensis, = US
 GERCA, Geranium carolinianum, = US
 XANST, Xanthium strumarium, = US

Crop Code

ZEAMX, BCOR, Zea mays, = US

Part Rated

PLOT = plot
 P = Pest is Part Rated
 C = Crop is Part Rated

Rating Type

CONTRO = control / burndown or knockdown
 PHYGEN = phytotoxicity - general / injury
 YIELD = yield

Rating Unit

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

Crop Stage Majority

00 = Dry seed (caryopsis)
 11 = First leaf unfolded
 14 = 4 leaves unfolded

M2 = per square meter

Plant-Eval Interval

0 DP-1 = 1 ZEAMX 5-3-2012
 14 DP-1 = 1 ZEAMX 5-3-2012
 28 DP-1 = 1 ZEAMX 5-3-2012
 151 DP-1 = 1 ZEAMX 5-3-2012

ARM Action Codes

TY3 = $6.222857 \cdot [11] \cdot (100 - [10]) / 84.5$
 TY4 = $390.5967 \cdot [11] \cdot (100 - [10]) / 84.5$