

FMC Wheat Trial
 Trial ID: 19WHEAT1 Location: Western Branch G-8 Trial Year: 2019
 Protocol ID: Investigator: Dr. Mark M. Loux
 Project ID: Study Director: Anthony Dobbels
 Sponsor Contact: Drak Copeland, FMC

General Trial Information

Study Director: Anthony Dobbels
Investigator: Dr. Mark M. Loux

Trial Status: E established
ARM Trial Created On: Feb-28-2019
Initiation Date: Oct-10-2018

Trial Location

City: South Charleston **Country:** USA United States
State/Prov.: Ohio
Postal Code: 45368 **Climate Zone:** USWARM US Warm Continental

Conducted Under GLP: No
Conducted Under GEP: No

Contacts

Study Director: Anthony Dobbels

Investigator: Dr. Mark M. Loux

Crop Description

Crop 1: C TRZAW Triticum aestivum Winter wheat **BBCH Scale:** BCER
Entry Date: Feb-28-2019 **Stage Scale:** FEEKES
Variety: 25R40
Attributes: Pioneer
Seed Shape: MEDIUM **Seed Size:** 13500 S/LB
Planting Date: Oct-10-2018 **Planting Rate:** 93 LB/A
Depth: 1 IN **Planting Density:** 1255500 S/A
Planting Method: DRILLE drilled
Planting Equipment: DD disc drill
Seed Bed: MEDTRA medium/trashy
Soil Moisture: MOIST
Row Spacing: 7.4 IN
Soil Temperature: 69 F
Emergence Date: Oct-24-2018
Harvest Date: Jul-8-2019 **Harvest Equipment:** Massey 8 XP
Moisture Meter: Mirrus by Harvest Master **Harvested Width:** 6.25 FT
% Standard Moisture: 13 **Harvested Length:** 30 FT
Weighing Equipment: Mirrus by Harvest Master

Pest Description

Pest 1 Type: W **Code:** LAMPU Lamium purpureum
Common Name: Purple deadnettle **Entry Date:** Apr-10-2019
Pest 2 Type: W **Code:** SENGL Packera glabella
Common Name: Cressleaf groundsel **Entry Date:** Apr-10-2019
Pest 3 Type: W **Code:** RANAB Ranunculus abortivus
Common Name: Smallflower buttercup **Entry Date:** Apr-10-2019
Pest 4 Type: W **Code:** VERPG Veronica peregrina
Common Name: Purslane speedwell **Entry Date:** Apr-10-2019
Pest 5 Type: W **Code:** CAPBP Capsella bursa-pastoris
Common Name: Shepherd's purse **Entry Date:** Apr-10-2019

Site and Design

Treated Plot Width: 10 FT **Site Type:** FIELD field
Treated Plot Length: 30 FT **Experimental Unit:** 1 PLOT plot
Treated Plot Area: 300 FT2 **Treatments:** 10 **Tillage Type:** NOTILL no-till
Replications: 4 **Study Design:** RACOBL Randomized Complete Block (RCB)

Previous

No. Crop Year
 1. SOYBEAN 2018

Maintenance

No.	Date	Type	Product Name	Conc	Unit	Type	Description	Rate	Unit
1.	Apr-10-2019	FERT	Urea	46	% N	SG	46-0-0	100	LB/A

Comment: 15 Gallons of 28% N with application and 100 lbs/acre dry Urea = 91 total lbs nitrogen

Soil Description

Description Name: G-8
% Sand: 36 **% OM:** 2.4 **Texture:** L loam
% Silt: 47 **pH:** 6.2 **Soil Name:** Crosby
% Clay: 17 **CEC:** 13.4 **Fert. Level:** G good
Soil Drainage: F fair

Application Description

Application Date Apr-10-2019
Appl. Start Time 8:40 AM
Appl. Stop Time 8:58 AM
Application Method SPRAY
Application Timing FEEKES 5
Application Placement BROFOL
Applied By Dobbels
Appl. Entry Date Apr-10-2019
Air Temperature Start, Stop 45 45 F
% Relative Humidity Start, Stop 71 71
Wind Velocity+Dir. Start 5 MPH N
Wind Velocity+Dir. Stop 5 MPH N
Wind Velocity+Dir. Max 7 MPH N
Wet Leaves (Y/N) N no
Soil Temperature 45 F
Soil Moisture DRY
Soil Surface Condition MEDIUM
% Cloud Cover 35
Next Moisture Occurred On Apr-12-2019
Time to Next Moisture 2 DAY
Moisture 6 Hours after Appl. 0 IN
Moisture 1 Week after Appl. 0.63 IN

Crop Stage At Each Application

Crop 1 Code, BBCH Scale TRZAW BCER
Days after Emergence 168
Stage Majority, Percent 5.0 100
Height Average 5 IN
Height Minimum, Maximum 4 5

Pest Stage At Each Application

Pest 1 Code, Type, Scale LAMPU W
Stage Majority, Percent 55 100
Diameter 3 IN
Height Average 2 IN
Height Minimum, Maximum 2 3
Density Average 12 PLA/m2
Density Min, Max 0 12
Pest 2 Code, Type, Scale SENGL W
Stage Majority, Percent 30 100
Diameter 4 IN
Height Average 3 IN
Height Minimum, Maximum 3 4
Density Average 4 PLA/m2
Density Min, Max 0 4
Pest 3 Code, Type, Scale RANAB W
Stage Majority, Percent 13 100
Diameter 3 IN
Height Average 2 IN
Height Minimum, Maximum 2 3
Density Average 5 PLA/m2
Density Min, Max 0 5
Pest 4 Code, Type, Scale VERPG W
Stage Majority, Percent 19 100
Diameter 4 IN
Height Average 1 IN
Height Minimum, Maximum 1 1.25
Density Average 3 PLA/m2
Density Min, Max 0 12
Pest 5 Code, Type, Scale CAPBP W
Stage Majority, Percent 19 100
Diameter 3 IN
Height Average 1 IN
Height Minimum, Maximum 1 2
Density Average 3 PLA/m2
Density Min, Max 0 3

Application Equipment

A
Appl. Equipment 10 Foot Boom
Equipment Type SPRBAC
Operation Pressure 48 PSI
Nozzle Type XR
Nozzle Size 8002
Nozzle Spacing 18 IN
Boom Length 10 FT
Boom Height 20 IN
Ground Speed 3 MPH
Carrier FERLIQ
Application Amount 20 GPA
Mix Size 2 Liters
Propellant COMCO2

Date **By** **Context** **Notes**
 Feb-28-2019 Dr. Mark M. Loux STATUS Automatically added by ARM: Trial Status updated to 'S' during trial creation.
 Feb-28-2019 Dr. Mark M. Loux STATUS Automatically added by ARM: Trial Status updated to 'E' when Initiation Date entered.

SE Definitions

1.
Crop Type, Code C

Pest Type		W Weed	W Weed	W Weed
Pest Code		LAMPU	RANAB	SENGL
Pest Name		Purple deadnet>	Smallflower	Cressleaf grou>
Crop Type, Code	C TRZAW C TRZAW	C -	C -	C -
Crop Name	Winter wheat Winter wheat			
Rating Date	Apr-17-2019 Apr-24-2019	Apr-24-2019	Apr-24-2019	Apr-24-2019
Part Rated	CANOPY C CANOPY C			
Rating Type	PHYNEC PHYNEC	CONTRO	CONTRO	CONTRO
Rating Unit	% %	%	%	%
Number of Subsamples	1 1	1	1	1
Data Entry Date	Apr-17-2019 Apr-25-2019	Apr-25-2019	Apr-25-2019	Apr-25-2019
Days After First/Last Applic.	7 7 14 14	14 14	14 14	14 14
Trt-Eval Interval	7 DA-A 14 DA-A	14 DA-A	14 DA-A	14 DA-A
Days After Emergence	175 DE-1 182 DE-1	182 DE-1	182 DE-1	182 DE-1
ARM Action Codes	AS AA			
Number of Decimals	0 0	0	0	0

Trt No.	Treatment Name	Rate	Unit	Other Rate	Other Unit	Appl Code	1*	2*	3*	4*	5*
1	UTC						0 c	0 b	0 b	0 d	0 b
2	28% UAN	15 gal/a		15 gal/a		A	0 c	0 b	0 b	0 d	0 b
3	28% UAN	15 gal/a		15 gal/a		A	0 c	0 b	84 a	68 bc	100 a
3	Harmony SG	0.019 lb ai/a		0.6 oz/a		A					
3	Express SG	0.0094 lb ai/a		0.3 oz/a		A					
4	28% UAN	15 gal/a		15 gal/a		A	5 b	0 b	78 a	65 c	100 a
4	Harmony SG	0.019 lb ai/a		0.6 oz/a		A					
4	Express SG	0.0094 lb ai/a		0.3 oz/a		A					
4	Topguard	0.081 lb ai/a		10 oz/a		A					
5	28% UAN	15 gal/a		15 gal/a		A	4 b	0 b	77 a	67 bc	100 a
5	Harmony SG	0.019 lb ai/a		0.6 oz/a		A					
5	Express SG	0.0094 lb ai/a		0.3 oz/a		A					
5	Topguard	0.081 lb ai/a		10 oz/a		A					
5	Mustang Max	0.025 lb ai/a		4 oz/a		A					
6	28% UAN	15 gal/a		15 gal/a		A	11 a	2 a	84 a	77 ab	100 a
6	ATS	3 gal/a		3 gal/a		A					
6	Harmony SG	0.019 lb ai/a		0.6 oz/a		A					
6	Express SG	0.0094 lb ai/a		0.3 oz/a		A					
6	Topguard	0.081 lb ai/a		10 oz/a		A					
7	28% UAN	15 gal/a		15 gal/a		A	14 a	4 a	78 a	82 a	100 a
7	ATS	3 gal/a		3 gal/a		A					
7	Harmony SG	0.019 lb ai/a		0.6 oz/a		A					
7	Express SG	0.0094 lb ai/a		0.3 oz/a		A					
7	Topguard	0.081 lb ai/a		10 oz/a		A					
7	Mustang Max	0.025 lb ai/a		4 oz/a		A					

Pest Type			W Weed	W Weed	W Weed
Pest Code			LAMPU	RANAB	SENGL
Pest Name			Purple deadnet>	Smallflower	Cressleaf grou>
Crop Type, Code	C TRZAW	C TRZAW	C -	bu> C -	C -
Crop Name	Winter wheat	Winter wheat			
Rating Date	Apr-17-2019	Apr-24-2019	Apr-24-2019	Apr-24-2019	Apr-24-2019
Part Rated	CANOPY C	CANOPY C			
Rating Type	PHYNEC	PHYNEC	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Data Entry Date	Apr-17-2019	Apr-25-2019	Apr-25-2019	Apr-25-2019	Apr-25-2019
Days After First/Last Applic.	7 7	14 14	14 14	14 14	14 14
Trt-Eval Interval	7 DA-A	14 DA-A	14 DA-A	14 DA-A	14 DA-A
Days After Emergence	175 DE-1	182 DE-1	182 DE-1	182 DE-1	182 DE-1
ARM Action Codes	AS	AA			
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Rate	Unit	Other Rate	Other Unit	Appl Code	1*	2*	3*	4*	5*
8	28% UAN	15 gal/a		15 gal/a		A	0 c	0 b	86 a	75 abc	100 a
8	Anthem Flex	0.094 lb ai/a		3 oz/a		A					
8	Harmony SG	0.019 lb ai/a		0.6 oz/a		A					
8	Express SG	0.0094 lb ai/a		0.3 oz/a		A					
9	28% UAN	15 gal/a		15 gal/a		A	1 c	0 b	83 a	75 abc	100 a
9	Harmony SG	0.019 lb ai/a		0.6 oz/a		A					
9	Express SG	0.0094 lb ai/a		0.3 oz/a		A					
9	Metribuzin	0.14 lb ai/a		3 oz/a		A					
10	28% UAN	15 gal/a		15 gal/a		A	6 b	2 a	79 a	68 bc	100 a
10	Harmony SG	0.019 lb ai/a		0.6 oz/a		A					
10	Express SG	0.0094 lb ai/a		0.3 oz/a		A					
10	Topguard	0.081 lb ai/a		10 oz/a		A					
10	NIS	0.06 % v/v		1.54 oz/a		A					

LSD P=.05	1.3 - 3.7	0.9 - 2.2	9.0	6.9	0.3
Standard Deviation	0.4t	2.6t	6.1	4.7	0.2
CV	19.66t	80.28t	9.79	8.42	0.24
Levene's F	0.729	1.359	1.067	1.087	0.749
Levene's Prob(F)	0.679	0.25	0.419	0.405	0.662
Skewness	0.4297	0.9413*	-1.2375*	-1.2379*	-1.26*
Kurtosis	-1.1599	-0.9103	-0.3274	-0.2346	-0.4429
Replicate F	0.957	1.057	2.741	1.428	1.184
Replicate Prob(F)	0.4271	0.3834	0.0676	0.2601	0.3411
Treatment F	38.170	11.682	120.865	165.267	211288.669
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0001

The Ohio State University

Pest Type	W Weed	W Weed	W Weed		
Pest Code	LAMPU	RANAB	SENGL		
Pest Name	Purple deadnet>	Smallflower	Cressleaf grou>	Weight	Moisture
Crop Type, Code	C -	bu>	C - C TRZAW	C TRZAW	C TRZAW
Crop Name		C -	Winter wheat	Winter wheat	Winter wheat
Rating Date	May-8-2019	May-8-2019	May-8-2019	May-24-2019	Jul-8-2019
Part Rated					
Rating Type	CONTRO	CONTRO	CONTRO	Disease	WEIGHT
Rating Unit	%	%	%	%	LBS
Number of Subsamples	1	1	1	1	1
Data Entry Date	May-9-2019	May-9-2019	May-9-2019	May-28-2019	Jul-11-2019
Days After First/Last Applic.	28 28	28 28	28 28	44 44	89 89
Trt-Eval Interval	28 DA-A	28 DA-A	28 DA-A	44 DA-A	89 DA-A
Days After Emergence	196 DE-1	196 DE-1	196 DE-1	212 DE-1	257 DE-1
ARM Action Codes			ET3		
Number of Decimals	0	0	0	0	

Trt No.	Treatment Name	Rate	Unit	Other Rate	Other Unit	Appl Code	6*	7*	8*	9*	10*	11*
8	28% UAN	15 gal/a		15 gal/a		A	100 a	100 -	100 a	0 -	16.25 ab	12.43 -
8	Anthem Flex	0.094 lb ai/a		3 oz/a		A						
8	Harmony SG	0.019 lb ai/a		0.6 oz/a		A						
8	Express SG	0.0094 lb ai/a		0.3 oz/a		A						
9	28% UAN	15 gal/a		15 gal/a		A	100 a	100 -	100 a	0 -	17.50 ab	12.43 -
9	Harmony SG	0.019 lb ai/a		0.6 oz/a		A						
9	Express SG	0.0094 lb ai/a		0.3 oz/a		A						
9	Metribuzin	0.14 lb ai/a		3 oz/a		A						
10	28% UAN	15 gal/a		15 gal/a		A	100 a	100 -	98 a	0 -	16.18 ab	12.53 -
10	Harmony SG	0.019 lb ai/a		0.6 oz/a		A						
10	Express SG	0.0094 lb ai/a		0.3 oz/a		A						
10	Topguard	0.081 lb ai/a		10 oz/a		A						
10	NIS	0.06 % v/v		1.54 oz/a		A						

LSD P=.05	5.7	.	2.8	.	1.941	0.346
Standard Deviation	4.0	0.0	1.9	0.0	1.338	0.238
CV	4.98	0.0	2.45	0.0	8.45	1.9
Levene's F	1.00	0.00	0.90	0.00	0.071	0.474
Levene's Prob(F)	0.461	.	0.53	.	1.00	0.88
Skewness	-1.5279*	-1.5591*	-1.3884*	.	-0.629	-0.4186
Kurtosis	0.388	0.4507	-0.0694	.	0.0469	-0.5498
Replicate F	1.000	0.000	0.710	0.000	3.183	0.345
Replicate Prob(F)	0.4079	1.0000	0.5557	1.0000	0.0398	0.7932
Treatment F	449.000	0.000	2145.387	0.000	6.536	1.735
Treatment Prob(F)	0.0001	1.0000	0.0001	1.0000	0.0001	0.1291

Pest Type		
Pest Code		
Pest Name		
Crop Type, Code	Weight	
Crop Name	C TRZAW C TRZAW	
Rating Date	Jul-8-2019 Jul-8-2019	
Part Rated		
Rating Type	YIELD WEITES	
Rating Unit	BU BU	
Number of Subsamples	1 1	
Data Entry Date	Jul-11-2019 Jul-11-2019	
Days After First/Last Applic.	89 89 89 89	
Trt-Eval Interval	89 DA-A 89 DA-A	
Days After Emergence	257 DE-1 257 DE-1	
ARM Action Codes	TY1	
Number of Decimals	1	

Trt No.	Treatment Name	Rate	Unit	Other Rate	Other Unit	Appl Code	12*	13*
8	28% UAN	15 gal/a		15 gal/a		A	63.3 ab	55.98 c
8	Anthem Flex	0.094 lb ai/a		3 oz/a		A		
8	Harmony SG	0.019 lb ai/a		0.6 oz/a		A		
8	Express SG	0.0094 lb ai/a		0.3 oz/a		A		
9	28% UAN	15 gal/a		15 gal/a		A	68.2 ab	56.18 bc
9	Harmony SG	0.019 lb ai/a		0.6 oz/a		A		
9	Express SG	0.0094 lb ai/a		0.3 oz/a		A		
9	Metribuzin	0.14 lb ai/a		3 oz/a		A		
10	28% UAN	15 gal/a		15 gal/a		A	63.0 ab	56.68 ab
10	Harmony SG	0.019 lb ai/a		0.6 oz/a		A		
10	Express SG	0.0094 lb ai/a		0.3 oz/a		A		
10	Topguard	0.081 lb ai/a		10 oz/a		A		
10	NIS	0.06 % v/v		1.54 oz/a		A		
LSD P=.05							7.66	0.412
Standard Deviation							5.28	0.284
CV							8.56	0.5
Levene's F							0.068	0.535
Levene's Prob(F)							1.00	0.838
Skewness							-0.6085	-0.0544
Kurtosis							0.0213	-0.5962
Replicate F							3.033	1.101
Replicate Prob(F)							0.0464	0.3659
Treatment F							6.546	6.441
Treatment Prob(F)							0.0001	0.0001

FMC Wheat Trial

Trial ID: 19WHEAT1 Location: Western Branch G-8 Trial Year: 2019
Protocol ID: Investigator: Dr. Mark M. Loux
Project ID: Study Director: Anthony Dobbels
Sponsor Contact: Drak Copeland, FMC

Pest Type

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

Pest Code

LAMPU, Lamium purpureum, Purple deadnettle = US
RANAB, Ranunculus abortivus, Smallflower buttercup = US
SENGL, Packera glabella, Cressleaf groundsel = US

Crop Type, Code

C, G-ByrC7 = EPPO species (Bayer) codes
TRZAW, BCER, Triticum aestivum, Winter wheat = US

Part Rated

CANOPY = canopy
C = Crop is Part Rated

Rating Type

PHYNEC = phytotoxicity - necrosis /burn
CONTRO = control / burndown or knockdown
WEIGHT = weight
MOICON = moisture content
YIELD = yield
WEITES = weight - test

Rating Unit

% = percent
BU = bushel

ARM Action Codes

AS = Automatic square root transformation of X+0.5
AA = Automatic arcsine square root % transformation
ET3 = Excluded treatment 3
TY1 = $3.872 \cdot [10] \cdot (100 - [11]) / 87$