

MSU Soil Fertility Research Program
CORN TIME, SOURCE AND RATE INTERACTIONS
 Trial ID: CEL02-17 Location: Campus Trial Year: 2017
 Investigator: Kurt Steinke
 Project ID: MOINTRXNZM

Crop Code	ZEAMX	ZEAMX	ZEAMX
Crop Name	Corn	Corn	Corn
Crop Variety	PO157AMX	PO157AMX	PO157AMX
Description		plants/200sqft	
Rating Date	Oct-5-2017	Oct-9-2017	Oct-9-2017
Rating Type	LODGIN	Stand Count	YIELD
Rating Unit	% Failed	NUMBER	BU
Crop Stage Scale		T2	Hvst
ARM Action Codes			TY1
Number of Decimals			0
Trt Treatment No. Name	Form Type	Rate Unit	Other Rate
			Other Rate
			Growth Unit Stage
TABLE OF R MEANS			
Replicate 1	0.00	143.63	192
Replicate 2	0.00	146.50	168
Replicate 3	0.00	147.13	211
Replicate 4	0.00	150.38	220
TABLE OF A (Cultural) MEANS			
1 PREPLANT	0.00 a	147.50 a	208 a
2 SideDV2-V4	0.00 a	146.31 a	188 b
LSD P=.05	.	2.375	18.2
Standard Deviation	0.000	3.230	24.7
CV	0.000	2.199	12.5
TABLE OF B (Fertilizer) MEANS			
1 MOP 0-0-62 GR	0.00 a	146.44 a	206 a
2 Aspire GR	0.00 a	147.38 a	190 a
LSD P=.05	.	2.375	18.2
Standard Deviation	0.000	3.230	24.7
CV	0.000	2.199	12.5
TABLE OF C (RATE) MEANS			
1 RATE 30	0.00 a	147.19 a	204 a
1			
1			
2			
2	0.00 a	146.63 a	192 a
LSD P=.05	.	2.375	18.2
Standard Deviation	0.000	3.230	24.7
CV	0.000	2.199	12.5
TABLE OF A (Cultural) B (Fertilizer) MEANS			
1 PREPLANT	0.00 a	147.38 a	215 a
1 MOP 0-0-62 GR			
2 SideDV2-V4	0.00 a	145.50 a	198 a
1 MOP 0-0-62 GR			
1 PREPLANT	0.00 a	147.63 a	201 a
2 Aspire GR			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
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Rating Unit	% Failed	NUMBER	BU
Crop Stage Scale		T2	Hvst
ARM Action Codes			TY1
Number of Decimals			0
Trt No.	Treatment Name	Form Type	Rate Other Rate Other Rate Growth Unit Stage
	1		4
	2 SideDV2-V4		8
	2 Aspire	GR	
LSD P=.05			
Standard Deviation	0.000	3.359	25.7
CV	0.000	3.230	24.7
		2.199	12.5
TABLE OF A (Cultural) C (RATE) MEANS			
	0.00 a	148.13 a	211 a
1 PREPLANT			
1 RATE 30			
1			
1			
2 SideDV2-V4			
1 RATE 30	0.00 a	146.25 a	196 a
1			
1			
1 PREPLANT			
2	0.00 a	146.88 a	205 a
2			
2 SideDV2-V4			
2	0.00 a	146.38 a	180 a
2			
LSD P=.05			
Standard Deviation	0.000	3.359	25.7
CV	0.000	3.230	24.7
		2.199	12.5
TABLE OF B (Fertilizer) C (RATE) MEANS			
	0.00 a	147.00 a	211 a
1 MOP 0-0-62 GR			
1 RATE 30			
1			
1			
2 Aspire			
1 RATE 30	0.00 a	147.38 a	197 a
1			
1			
1 MOP 0-0-62 GR			
2	0.00 a	145.88 a	202 a
2			
2			

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Description		plants/200sqft					
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Rating Type	LODGIN	Stand Count	YIELD				
Rating Unit	% Failed	NUMBER	BU				
Crop Stage Scale		T2	Hvst				
ARM Action Codes			TY1				
Number of Decimals			0				
Trt No.	Treatment Name	Form Type	Rate Unit	Other Rate	Other Rate	Growth Unit	Stage
1			1				
2	Aspire	GR	0.00 a				
2				147.38 a			
2							182 a
LSD P=.05							
Standard Deviation							
CV							
				3.359			25.7
			0.000	3.230			24.7
			0.000	2.199			12.5
TABLE OF A (Cultural) B (Fertilizer) C (RATE) MEANS							
1	PREPLANT		0.00 a				
1	MOP 0-0-62 GR			148.00 a			214 a
1	RATE 30						
1							
1							
2	SideDV2-V4		0.00 a				
1	MOP 0-0-62 GR			146.00 a			208 a
1	RATE 30						
1							
1							
1	PREPLANT		0.00 a				
2	Aspire GR			148.25 a			209 a
1	RATE 30						
1							
1							
2	SideDV2-V4		0.00 a				
2	Aspire GR			146.50 a			184 a
1	RATE 30						
1							
1							
1	PREPLANT		0.00 a				
1	MOP 0-0-62 GR			146.75 a			216 a
2							
2							
2	SideDV2-V4		0.00 a				
1	MOP 0-0-62 GR			145.00 a			189 a
2							
2							

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Crop Name	Corn		
Crop Variety	PO157AMX	PO157AMX	PO157AMX
Description		plants/200sqft	
Rating Date	Oct-5-2017	Oct-9-2017	Oct-9-2017
Rating Type	LODGIN	Stand Count	YIELD
Rating Unit	% Failed	NUMBER	BU
Crop Stage Scale		T2	Hvst
ARM Action Codes			TY1
Number of Decimals			0
Trt No.	Treatment Name	Form Type	Rate Other Rate Other Rate Growth Unit Stage
1	PREPLANT		1
2	Aspire	GR	4
2			8
2			
2	SideDV2-V4		0.00 a
2	Aspire	GR	147.00 a
2			147.75 a
2			172 a
LSD P=.05			.
Standard Deviation			4.750
CV			36.3
			0.000
			3.230
			0.000
			2.199
			12.5

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COMPLETE FACTORIAL AOV For ZEAMX Corn PO157AMX Oct-5-2017 LODGIN % Failed (Data Column 1)						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	31	0.000000				
R	3	0.000000	0.000000	0.000	1.0000	
A	1	0.000000	0.000000	0.000	1.0000	.
RA	3	0.000000	0.000000			
B	1	0.000000	0.000000	0.000	1.0000	.
RB	3	0.000000	0.000000			
AB	1	0.000000	0.000000	0.000	1.0000	.
RAB	3	0.000000	0.000000			
C	1	0.000000	0.000000	0.000	1.0000	.
RC	3	0.000000	0.000000			
AC	1	0.000000	0.000000	0.000	1.0000	.
RAC	3	0.000000	0.000000			
BC	1	0.000000	0.000000	0.000	1.0000	.
RBC	3	0.000000	0.000000			
ABC	1	0.000000	0.000000	0.000	1.0000	.
RABC	3	0.000000	0.000000			
FACTORIAL/POOLED ERROR AOV For ZEAMX Corn PO157AMX Oct-5-2017 LODGIN % Failed (Data Column 1)						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	31	0.000000				
R	3	0.000000	0.000000	0.000	1.0000	
A	1	0.000000	0.000000	0.000	1.0000	.
B	1	0.000000	0.000000	0.000	1.0000	.
AB	1	0.000000	0.000000	0.000	1.0000	.
C	1	0.000000	0.000000	0.000	1.0000	.
AC	1	0.000000	0.000000	0.000	1.0000	.
BC	1	0.000000	0.000000	0.000	1.0000	.
ABC	1	0.000000	0.000000	0.000	1.0000	.
ERROR	21	0.000000	0.000000			

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COMPLETE FACTORIAL AOV For ZEAMX Corn PO157AMX plants/200sqft Oct-9-2017 Stand Count NUMBER T2 (Data Column 4)						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	31	436.718750				
R	3	184.093750	61.364583	5.781	0.0918	
A	1	11.281250	11.281250	2.040	0.2486	2.65
RA	3	16.593750	5.531250			
B	1	7.031250	7.031250	0.904	0.4119	3.14
RB	3	23.343750	7.781250			
AB	1	3.781250	3.781250	0.333	0.6045	5.36
RAB	3	34.093750	11.364583			
C	1	2.531250	2.531250	0.414	0.5658	2.78
RC	3	18.343750	6.114583			
AC	1	3.781250	3.781250	0.200	0.6847	6.91
RAC	3	56.593750	18.864583			
BC	1	2.531250	2.531250	0.198	0.6865	5.69
RBC	3	38.343750	12.781250			
ABC	1	2.531250	2.531250	0.238	0.6588	7.33
RABC	3	31.843750	10.614583			
FACTORIAL/POOLED ERROR AOV For ZEAMX Corn PO157AMX plants/200sqft Oct-9-2017 Stand Count NUMBER T2 (Data Column 4)						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	31	436.718750				
R	3	184.093750	61.364583	5.880	0.0044	
A	1	11.281250	11.281250	1.081	0.3103	2.38
B	1	7.031250	7.031250	0.674	0.4210	2.38
AB	1	3.781250	3.781250	0.362	0.5537	3.36
C	1	2.531250	2.531250	0.243	0.6275	2.38
AC	1	3.781250	3.781250	0.362	0.5537	3.36
BC	1	2.531250	2.531250	0.243	0.6275	3.36
ABC	1	2.531250	2.531250	0.243	0.6275	4.75
ERROR	21	219.156250	10.436012			

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COMPLETE FACTORIAL AOV For ZEAMX Corn PO157AMX Oct-9-2017 YIELD BU Hvst TY1 0 (Data Column 8)						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	31	32381.786126				
R	3	12508.735576	4169.578525	6.464	0.0798	
A	1	3152.009456	3152.009456	2.197	0.2349	43
RA	3	4304.531697	1434.843899			
B	1	2258.267477	2258.267477	18.715	0.0228	12
RB	3	361.999273	120.666424			
AB	1	92.193123	92.193123	0.100	0.7721	48
RAB	3	2753.185011	917.728337			
C	1	1027.415247	1027.415247	1.747	0.2780	27
RC	3	1764.241946	588.080649			
AC	1	164.914267	164.914267	1.504	0.3075	17
RAC	3	328.935867	109.645289			
BC	1	69.829142	69.829142	0.153	0.7221	34
RBC	3	1371.775450	457.258483			
ABC	1	288.487667	288.487667	0.447	0.5515	57
RABC	3	1935.264926	645.088309			
FACTORIAL/POOLED ERROR AOV For ZEAMX Corn PO157AMX Oct-9-2017 YIELD BU Hvst TY1 0 (Data Column 8)						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	31	32381.786126				
R	3	12508.735576	4169.578525	6.830	0.0022	
A	1	3152.009456	3152.009456	5.163	0.0337	18
B	1	2258.267477	2258.267477	3.699	0.0681	18
AB	1	92.193123	92.193123	0.151	0.7015	26
C	1	1027.415247	1027.415247	1.683	0.2086	18
AC	1	164.914267	164.914267	0.270	0.6087	26
BC	1	69.829142	69.829142	0.114	0.7386	26
ABC	1	288.487667	288.487667	0.473	0.4993	36
ERROR	21	12819.934170	610.473056			

Crop Code
 ZEAMX, BCOR, Zea mays, Corn = US
Rating Type
 LODGIN = lodging
 YIELD = yield
Rating Unit
 NUMBER = number
 BU = bushel
ARM Action Codes
 $T2 = [C2] + [C3]$
 $TY1 = 3.889286 * [C5] * (100 - [C6]) / 84.5$

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