

MSU Soil Fertility Research Program
EFFECT OF NITROGEN EFFICIENCY ENHANCER S
 Trial ID: CEL04-17 Location: Campus Trial Year: 2017
 Investigator: Kurt Steinke
 Project ID: ANDERCORN

Crop Code Crop Name Crop Variety Description						ZEAMX Corn PO 157 AMX V5	ZEAMX Corn PO 157 AMX plants/200sqft	ZEAMX Corn PO 157 AMX V5	ZEAMX Corn PO157AMX V5	
Rating Date Rating Type Rating Unit Crop Stage Scale ARM Action Codes Number of Decimals						Jun-12-2017 Avg hgt/5pl T1 0	Jun-12-2017 COUNT NUMBER V 5 ET6 T2 0	Jun-12-2017 N percent	Jun-12-2017 S percent	
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage	6	9	10	11
1	Urea 46-0-0	GR	175 lb ai/a	380 lb/a		PRE	10 a	149 a	3.70	0.18
2	Urea +NSN NSN 1/2G/T	GR	175 lb ai/a	380 lb/a		PRE	9 a	146 a	3.08	0.26
3	UreaAgroUltra Ultra 3qt/ton	GR	175 lb ai/a	380 lb/a		PRE	10 a	150 a	3.98	0.19
4	Urea 46-0-0 28% Nitrogen	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	11 a	150 a	4.22	0.20
5	Urea 46-0-0 28%NUltraMate L 1 gal/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	10 a	149 a	4.00	0.20
6	Urea 46-0-0 28%N, NSN HV 18 floz/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	11 a	143	3.79	0.21
7	Urea 46-0-0 28%NAgroUltra 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	11 a	148 a	3.94	0.18
8	HCU Humic	GR	175 lb ai/a	398 lb/a		PRE	10 a	147 a	3.73	0.22
9	HCU Humic 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	159 lb/a 35 gal/a		PRE SURV3	11 a	150 a	3.91	0.19
10	Urea NeoSurface	GR	175 lb ai/a	380 lb/a		PRE	10 a	146 a	3.74	0.21
11	Urea 46-0-0 28%NeonSurf 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	11 a	147 a	4.05	0.19
12	30-0-0 MU 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	233 lb/a 35 gal/a		PRE SURV3	11 a	146 a	4.04	0.21
13	Urea+ Limus limus 2-3qt/T	GR	175 lb ai/a	380 lb/a		PRE	11 a	149 a	3.96	0.22

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Crop Code	ZEAMX					ZEAMX	ZEAMX	ZEAMX	ZEAMX
Crop Name	Corn					Corn	Corn	Corn	Corn
Crop Variety	PO 157 AMX					PO 157 AMX	PO 157 AMX	PO 157 AMX	PO157AMX
Description	V5					plants/200sqft	V5	V5	V5
Rating Date	Jun-12-2017					Jun-12-2017	Jun-12-2017	Jun-12-2017	Jun-12-2017
Rating Type	Avg hgt/5pl					COUNT	N	S	S
Rating Unit						NUMBER	percent	percent	percent
Crop Stage Scale						V 5			
ARM Action Codes	T1					ET6 T2			
Number of Decimals	0					0			
Trt Treatment	Form	Rate	Other	Other	Growth				
No. Name	Type	Rate Unit	Rate	Rate Unit	Stage	6	9	10	11
14 Urea 46-0-0	GR	70 lb ai/a	152 lb/a	PRE		11 a	148 a	4.17	0.19
28%N Limus	AL	105 lb ai/a	35 gal/a	SURV3					
1.5qt/ton									
LSD P=.05						1.5	4.0	.	.
Standard Deviation						1.1	2.8	.	.
CV						10.04	1.89	.	.
Replicate F						3.031	1.253		
Replicate Prob(F)						0.0407	0.3050		
Treatment F						1.722	1.275		
Treatment Prob(F)						0.0947	0.2746		

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Crop Name						Corn	Corn	Corn	Corn	
Crop Variety						PO157AMX	PO157AMX	PO157AMX	PO157AMX	
Description						V5	V5	V5	V5	
Rating Date						Jun-12-2017	Jun-12-2017	Jun-12-2017	Jun-12-2017	
Rating Type						P	K	Mg	Ca	
Rating Unit						percent	percent	percent	percent	
Crop Stage Scale										
ARM Action Codes										
Number of Decimals										
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage	12	13	14	15
1	Urea 46-0-0	GR	175 lb ai/a	380 lb/a		PRE	0.43	4.24	0.17	0.36
2	Urea +NSN NSN 1/2G/T	GR	175 lb ai/a	380 lb/a		PRE	0.45	4.79	0.18	0.39
3	UreaAgroUltra Ultra 3qt/ton	GR	175 lb ai/a	380 lb/a		PRE	0.51	4.60	0.21	0.41
4	Urea 46-0-0 28% Nitrogen	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.44	4.34	0.22	0.44
5	Urea 46-0-0 28%NUltraMate L 1 gal/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.40	4.34	0.23	0.45
6	Urea 46-0-0 28%N, NSN HV 18 floz/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.46	3.87	0.21	0.41
7	Urea 46-0-0 28%NAgroUltra 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.41	4.17	0.28	0.46
8	HCU Humic	GR	175 lb ai/a	398 lb/a		PRE	0.45	3.65	0.30	0.50
9	HCU Humic 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	159 lb/a 35 gal/a		PRE SURV3	0.48	3.43	0.36	0.39
10	Urea NeoSurface	GR	175 lb ai/a	380 lb/a		PRE	0.45	2.95	0.39	0.45
11	Urea 46-0-0 28%NeonSurf 1.5q/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.44	3.35	0.38	0.43
12	30-0-0 MU 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	233 lb/a 35 gal/a		PRE SURV3	0.47	3.27	0.38	0.43
13	Urea+ Limus limus 2-3qt/T	GR	175 lb ai/a	380 lb/a		PRE	0.43	3.35	0.36	0.45

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Crop Name	Corn					Corn	Corn	Corn	Corn	
Crop Variety	PO157AMX					PO157AMX	PO157AMX	PO157AMX	PO157AMX	
Description	V5					V5	V5	V5	V5	
Rating Date	Jun-12-2017					Jun-12-2017	Jun-12-2017	Jun-12-2017	Jun-12-2017	
Rating Type	P					K	Mg	Ca		
Rating Unit	percent					percent	percent	percent	percent	
Crop Stage Scale										
ARM Action Codes										
Number of Decimals										
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate	Growth Unit Stage	12	13	14	15
14	Urea 46-0-0 28%N Limus 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.41	3.58	0.33	0.41
LSD P=.05						
Standard Deviation						
CV						
Replicate F										
Replicate Prob(F)										
Treatment F										
Treatment Prob(F)										

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Crop Name						Corn	Corn	Corn	Corn	
Crop Variety						PO157AMX	PO 157 AMX	PO 157 AMX	PO 157 AMX	
Description						V5	V5	V5	V5	
Rating Date						Jun-12-2017	Jun-12-2017	Jun-12-2017	Jun-12-2017	
Rating Type						Na	B	Zn	Mn	
Rating Unit						percent	ppm	ppm	ppm	
Crop Stage Scale										
ARM Action Codes										
Number of Decimals										
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage	16	17	18	19
1	Urea 46-0-0	GR	175 lb ai/a	380 lb/a		PRE	0.01	3.00	37.00	39.00
2	Urea +NSN NSN 1/2G/T	GR	175 lb ai/a	380 lb/a		PRE	0.01	3.00	42.00	33.00
3	UreaAgroUltra Ultra 3qt/ton	GR	175 lb ai/a	380 lb/a		PRE	0.01	7.00	47.00	37.00
4	Urea 46-0-0 28% Nitrogen	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.01	4.00	43.00	30.00
5	Urea 46-0-0 28%NUltraMate L 1 gal/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.01	6.00	44.00	28.00
6	Urea 46-0-0 28%N, NSN HV 18 floz/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.01	6.00	42.00	29.00
7	Urea 46-0-0 28%NAgroUltra 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.01	6.00	52.00	26.00
8	HCU Humic	GR	175 lb ai/a	398 lb/a		PRE	0.01	6.00	38.00	33.00
9	HCU Humic 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	159 lb/a 35 gal/a		PRE SURV3	0.01	6.00	37.00	25.00
10	Urea NeoSurface	GR	175 lb ai/a	380 lb/a		PRE	0.01	6.00	31.00	30.00
11	Urea 46-0-0 28%NeonSurf 1.5q/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.01	6.00	29.00	31.00
12	30-0-0 MU 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	233 lb/a 35 gal/a		PRE SURV3	0.01	5.00	31.00	38.00
13	Urea+ Limus limus 2-3qt/T	GR	175 lb ai/a	380 lb/a		PRE	0.01	8.00	27.00	32.00

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Crop Name	Corn									
Crop Variety	PO157AMX									
Description	V5									
Rating Date	Jun-12-2017									
Rating Type	Na									
Rating Unit	percent									
Crop Stage Scale	B									
ARM Action Codes	ppm									
Number of Decimals	Zn									
	Mn									
	ppm									
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate	Growth Unit Stage	16	17	18	19
14	Urea 46-0-0 28%N Limus 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.01	7.00	29.00	33.00
LSD P=.05					
Standard Deviation					
CV					
Replicate F					
Replicate Prob(F)					
Treatment F					
Treatment Prob(F)					

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Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	
Crop Name						Corn	Corn	Corn	Corn	
Crop Variety						PO 157 AMX	PO 157 AMX	PO157AMX	PO 157 AMX	
Description						V5	V5	V5	R1	
Rating Date						Jun-12-2017	Jun-12-2017	Jun-12-2017	Jul-24-2017	
Rating Type						Fe	Cu	Al	N	
Rating Unit						ppm	ppm	ppm	percent	
Crop Stage Scale										
ARM Action Codes										
Number of Decimals										
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage	20	21	22	23
1	Urea 46-0-0	GR	175 lb ai/a	380 lb/a		PRE	116.00	7.00	1.00	3.62
2	Urea +NSN NSN 1/2G/T	GR	175 lb ai/a	380 lb/a		PRE	120.00	10.00	1.00	3.39
3	UreaAgroUltra Ultra 3qt/ton	GR	175 lb ai/a	380 lb/a		PRE	134.00	10.00	23.00	2.84
4	Urea 46-0-0 28% Nitrogen	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	125.00	9.00	22.00	2.54
5	Urea 46-0-0 28%NUltraMate L 1 gal/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	116.00	8.00	3.00	2.55
6	Urea 46-0-0 28%N, NSN HV 18 floz/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	140.00	11.00	12.00	2.95
7	Urea 46-0-0 28%NAgroUltra 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	196.00	9.00	59.00	3.66
8	HCU Humic	GR	175 lb ai/a	398 lb/a		PRE	166.00	10.00	49.00	3.27
9	HCU Humic 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	159 lb/a 35 gal/a		PRE SURV3	122.00	11.00	16.00	2.82
10	Urea NeoSurface	GR	175 lb ai/a	380 lb/a		PRE	139.00	11.00	1.00	3.66
11	Urea 46-0-0 28%NeonSurf 1.5q/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	123.00	10.00	4.00	3.64
12	30-0-0 MU 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	233 lb/a 35 gal/a		PRE SURV3	147.00	11.00	28.00	3.17
13	Urea+ Limus limus 2-3qt/T	GR	175 lb ai/a	380 lb/a		PRE	151.00	10.00	32.00	3.03

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Crop Name	Corn									
Crop Variety	PO 157 AMX									
Description	V5									
Rating Date	Jun-12-2017									
Rating Type	Fe									
Rating Unit	ppm									
Crop Stage Scale										
ARM Action Codes										
Number of Decimals										
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage	20	21	22	23
14	Urea 46-0-0 28%N Limus 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	131.00	9.00	40.00	3.33
LSD P=.05										
Standard Deviation										
CV										
Replicate F										
Replicate Prob(F)										
Treatment F										
Treatment Prob(F)										

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Crop Name						Corn	Corn	Corn	Corn	
Crop Variety						PO157AMX	PO157AMX	PO157AMX	PO157AMX	
Description						R1	R1	R1	R1	
Rating Date						Jul-24-2017	Jul-24-2017	Jul-24-2017	Jul-24-2017	
Rating Type						S	P	K	Mg	
Rating Unit						percent	percent	percent	percent	
Crop Stage Scale										
ARM Action Codes										
Number of Decimals										
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage	24	25	26	27
1	Urea 46-0-0	GR	175 lb ai/a	380 lb/a		PRE	0.27	0.45	2.24	0.27
2	Urea +NSN NSN 1/2G/T	GR	175 lb ai/a	380 lb/a		PRE	0.21	0.42	2.36	0.23
3	UreaAgroUltra Ultra 3qt/ton	GR	175 lb ai/a	380 lb/a		PRE	0.17	0.37	2.42	0.26
4	Urea 46-0-0 28% Nitrogen	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.17	0.40	2.46	0.25
5	Urea 46-0-0 28%NUltraMate L 1 gal/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.16	0.35	2.30	0.21
6	Urea 46-0-0 28%N, NSN HV 18 floz/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.19	0.37	2.06	0.29
7	Urea 46-0-0 28%NAgroUltra 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.26	0.44	2.37	0.23
8	HCU Humic	GR	175 lb ai/a	398 lb/a		PRE	0.22	0.43	2.19	0.25
9	HCU Humic 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	159 lb/a 35 gal/a		PRE SURV3	0.20	0.38	2.19	0.25
10	Urea NeoSurface	GR	175 lb ai/a	380 lb/a		PRE	0.25	0.43	2.13	0.27
11	Urea 46-0-0 28%NeonSurf 1.5q/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.25	0.41	1.96	0.33
12	30-0-0 MU 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	233 lb/a 35 gal/a		PRE SURV3	0.21	0.40	2.29	0.22
13	Urea+ Limus limus 2-3qt/T	GR	175 lb ai/a	380 lb/a		PRE	0.17	0.38	2.05	0.30

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Crop Name	Corn					Corn	Corn	Corn	Corn	
Crop Variety	PO157AMX					PO157AMX	PO157AMX	PO157AMX	PO157AMX	
Description	R1					R1	R1	R1	R1	
Rating Date	Jul-24-2017					Jul-24-2017	Jul-24-2017	Jul-24-2017	Jul-24-2017	
Rating Type	S					P	K	Mg		
Rating Unit	percent					percent	percent	percent	percent	
Crop Stage Scale										
ARM Action Codes										
Number of Decimals										
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate	Growth Unit Stage	24	25	26	27
14	Urea 46-0-0 28%N Limus 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.22	0.40	2.13	0.30
LSD P=.05					
Standard Deviation					
CV					
Replicate F										
Replicate Prob(F)										
Treatment F										
Treatment Prob(F)										

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Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	
Crop Name						Corn	Corn	Corn	Corn	
Crop Variety						PO157AMX	PO157AMX	PO 157 AMX	PO 157 AMX	
Description						R1	R1	R1	R1	
Rating Date						Jul-24-2017	Jul-24-2017	Jul-24-2017	Jul-24-2017	
Rating Type						Ca	Na	B	Zn	
Rating Unit						percent	percent	ppm	ppm	
Crop Stage Scale										
ARM Action Codes										
Number of Decimals										
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage	28	29	30	31
1	Urea 46-0-0	GR	175 lb ai/a	380 lb/a		PRE	0.47	0.01	11.00	38.00
2	Urea +NSN NSN 1/2G/T	GR	175 lb ai/a	380 lb/a		PRE	0.49	0.01	12.00	35.00
3	UreaAgroUltra Ultra 3qt/ton	GR	175 lb ai/a	380 lb/a		PRE	0.36	0.01	7.00	22.00
4	Urea 46-0-0 28% Nitrogen	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.37	0.01	12.00	22.00
5	Urea 46-0-0 28%NUltraMate L 1 gal/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.32	0.01	6.00	20.00
6	Urea 46-0-0 28%N, NSN HV 18 floz/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.59	0.01	8.00	25.00
7	Urea 46-0-0 28%NAgroUltra 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.57	0.01	15.00	37.00
8	HCU Humic	GR	175 lb ai/a	398 lb/a		PRE	0.58	0.01	12.00	31.00
9	HCU Humic 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	159 lb/a 35 gal/a		PRE SURV3	0.47	0.01	13.00	29.00
10	Urea NeoSurface	GR	175 lb ai/a	380 lb/a		PRE	0.48	0.01	10.00	36.00
11	Urea 46-0-0 28%NeonSurf 1.5q/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.72	0.01	14.00	32.00
12	30-0-0 MU 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	233 lb/a 35 gal/a		PRE SURV3	0.37	0.01	12.00	28.00
13	Urea+ Limus limus 2-3qt/T	GR	175 lb ai/a	380 lb/a		PRE	0.48	0.01	9.00	21.00

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 Could not calculate LSD (% mean diff) for columns
 10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37 because error mean square = 0.

MSU Soil Fertility Research Program
 EFFECT OF NITROGEN EFFICIENCY ENHANCER S
 Trial ID: CEL04-17 Location: Campus Trial Year: 2017
 Investigator: Kurt Steinke
 Project ID: ANDERCORN

Crop Code	ZEAMX					ZEAMX	ZEAMX	ZEAMX	ZEAMX	
Crop Name	Corn					Corn	Corn	Corn	Corn	
Crop Variety	PO157AMX					PO157AMX	PO 157 AMX	PO 157 AMX	PO 157 AMX	
Description	R1					R1	R1	R1	R1	
Rating Date	Jul-24-2017					Jul-24-2017	Jul-24-2017	Jul-24-2017	Jul-24-2017	
Rating Type	Ca					Na	B	Zn		
Rating Unit	percent					percent	ppm	ppm	ppm	
Crop Stage Scale										
ARM Action Codes										
Number of Decimals										
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate	Growth Unit Stage	28	29	30	31
14	Urea 46-0-0 28%N Limus 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	0.69	0.01	16.00	30.00
LSD P=.05						
Standard Deviation						
CV						
Replicate F										
Replicate Prob(F)										
Treatment F										
Treatment Prob(F)										

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MSU Soil Fertility Research Program
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 Trial ID: CEL04-17 Location: Campus Trial Year: 2017
 Investigator: Kurt Steinke
 Project ID: ANDERCORN

Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	
Crop Name						Corn	Corn	Corn	Corn	
Crop Variety						PO 157 AMX	PO 157 AMX	PO 157 AMX	PO157AMX	
Description						R1	R1	R1	R1	
Rating Date						Jul-24-2017	Jul-24-2017	Jul-24-2017	Jul-24-2017	
Rating Type						Mn	Fe	Cu	Al	
Rating Unit						ppm	ppm	ppm	ppm	
Crop Stage Scale										
ARM Action Codes										
Number of Decimals										
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage	32	33	34	35
1	Urea 46-0-0	GR	175 lb ai/a	380 lb/a		PRE	48.00	152.00	16.00	9.00
2	Urea +NSN NSN 1/2G/T	GR	175 lb ai/a	380 lb/a		PRE	41.00	124.00	13.00	4.00
3	UreaAgroUltra Ultra 3qt/ton	GR	175 lb ai/a	380 lb/a		PRE	37.00	108.00	9.00	1.00
4	Urea 46-0-0 28% Nitrogen	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	29.00	103.00	9.00	1.00
5	Urea 46-0-0 28%NUltraMate L 1 gal/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	34.00	102.00	8.00	1.00
6	Urea 46-0-0 28%N, NSN HV 18 floz/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	48.00	117.00	11.00	1.00
7	Urea 46-0-0 28%NAgroUltra 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	43.00	159.00	16.00	1.00
8	HCU Humic	GR	175 lb ai/a	398 lb/a		PRE	46.00	126.00	13.00	3.00
9	HCU Humic 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	159 lb/a 35 gal/a		PRE SURV3	43.00	122.00	10.00	1.00
10	Urea NeoSurface	GR	175 lb ai/a	380 lb/a		PRE	37.00	133.00	15.00	4.00
11	Urea 46-0-0 28%NeonSurf 1.5q/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	52.00	155.00	16.00	1.00
12	30-0-0 MU 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	233 lb/a 35 gal/a		PRE SURV3	32.00	121.00	10.00	21.00
13	Urea+ Limus limus 2-3qt/T	GR	175 lb ai/a	380 lb/a		PRE	38.00	103.00	10.00	1.00

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MSU Soil Fertility Research Program
 EFFECT OF NITROGEN EFFICIENCY ENHANCER S
 Trial ID: CEL04-17 Location: Campus Trial Year: 2017
 Investigator: Kurt Steinke
 Project ID: ANDERCORN

Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	
Crop Name						Corn	Corn	Corn	Corn	
Crop Variety						PO 157 AMX	PO 157 AMX	PO 157 AMX	PO157AMX	
Description						R1	R1	R1	R1	
Rating Date						Jul-24-2017	Jul-24-2017	Jul-24-2017	Jul-24-2017	
Rating Type						Mn	Fe	Cu	Al	
Rating Unit						ppm	ppm	ppm	ppm	
Crop Stage Scale										
ARM Action Codes										
Number of Decimals										
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate	Growth Unit Stage				
14	Urea 46-0-0 28%N Limus 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	32 42.00	33 127.00	34 13.00	35 1.00
LSD P=.05										
Standard Deviation						
CV						
Replicate F										
Replicate Prob(F)										
Treatment F										
Treatment Prob(F)										

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MSU Soil Fertility Research Program
EFFECT OF NITROGEN EFFICIENCY ENHANCER S
 Trial ID: CEL04-17 Location: Campus Trial Year: 2017
 Investigator: Kurt Steinke
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Crop Code						ZEAMX	ZEAMX	ZEAMX	
Crop Name						Corn	Corn	Corn	
Crop Variety						PO 157 AMX	PO 157 AMX	PO157AMX	
Description						R1		bu/ac	
Rating Date						Jul-24-2017	Oct-5-2017	Oct-9-2017	
Rating Type						DRY WEIGHT	LODGIN	YIELD	
Rating Unit						g	% Failed	BU	
Crop Stage Scale								Hvst	
ARM Action Codes								TY3	
Number of Decimals						1	0	0	
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage			
							36	37	41
1	Urea 46-0-0	GR	175 lb ai/a	380 lb/a		PRE	119.8	0 a	184 a
2	Urea +NSN NSN 1/2G/T	GR	175 lb ai/a	380 lb/a		PRE	113.5	0 a	174 a
3	UreaAgroUltra Ultra 3qt/ton	GR	175 lb ai/a	380 lb/a		PRE	110.3	0 a	181 a
4	Urea 46-0-0 28% Nitrogen	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	108.0	0 a	173 a
5	Urea 46-0-0 28%NUltraMate L 1 gal/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	111.0	0 a	165 a
6	Urea 46-0-0 28%N, NSN HV 18 floz/a	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	115.0	0 a	165 a
7	Urea 46-0-0 28%NAgroUltra 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	113.7	0 a	174 a
8	HCU Humic	GR	175 lb ai/a	398 lb/a		PRE	113.3	0 a	169 a
9	HCU Humic 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	159 lb/a 35 gal/a		PRE SURV3	111.9	0 a	166 a
10	Urea NeoSurface	GR	175 lb ai/a	380 lb/a		PRE	114.7	0 a	163 a
11	Urea 46-0-0 28%NeonSurf 1.5q/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	114.5	0 a	177 a
12	30-0-0 MU 28%NUltraMateL 1g/a	GR AL	70 lb ai/a 105 lb ai/a	233 lb/a 35 gal/a		PRE SURV3	110.3	0 a	155 a
13	Urea+ Limus limus 2-3qt/T	GR	175 lb ai/a	380 lb/a		PRE	110.8	0 a	165 a

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MSU Soil Fertility Research Program
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 Trial ID: CEL04-17 Location: Campus Trial Year: 2017
 Investigator: Kurt Steinke
 Project ID: ANDERCORN

Crop Code						ZEAMX	ZEAMX	ZEAMX	
Crop Name						Corn	Corn	Corn	
Crop Variety						PO 157 AMX	PO 157 AMX	PO157AMX	
Description						R1		bu/ac	
Rating Date						Jul-24-2017	Oct-5-2017	Oct-9-2017	
Rating Type						DRY WEIGHT	LODGIN	YIELD	
Rating Unit						g	% Failed	BU	
Crop Stage Scale								Hvst	
ARM Action Codes								TY3	
Number of Decimals						1	0	0	
Trt No.	Treatment Name	Form Type	Rate Rate Unit	Other Rate	Other Rate	Growth Unit Stage			
14	Urea 46-0-0 28%N Limus 1.5qt/ton	GR AL	70 lb ai/a 105 lb ai/a	152 lb/a 35 gal/a		PRE SURV3	36 116.1	37 0 a	41 166 a
LSD P=.05								26.9	
Standard Deviation							0.0	18.8	
CV							0.0	11.08	
Replicate F							0.000	12.002	
Replicate Prob(F)							1.0000	0.0001	
Treatment F							0.000	0.697	
Treatment Prob(F)							1.0000	0.7539	

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Crop Code

ZEAMX, BCOR, Zea mays, Corn = US

Rating Type

COUNT = count

LODGIN = lodging

YIELD = yield

Rating Unit

NUMBER = number

ppm = parts per million

g = gram

BU = bushel

ARM Action Codes

ET6 = Excluded treatment 6

T1 = @AVG([C1],[C5])

T2 = ([C7]+[C8])

TY3 = $3.889286 * [C38] * (100 - [C39]) / 84.5$