

# MSU Soil Fertility Research Program

## CORN RESPONSE TO NITROGEN COMPARING ESN AND UREA, 2012

Trial ID: CMSN15-12      Location:      Trial Year:  
 Protocol ID: CMSN15-12      Investigator: Kurt Steinke  
 Project ID:      Study Director:  
                                  Sponsor Contact:

Crop Code						ZEAMX
Crop Name						Corn
Crop Variety						DKC 48-12 RIB
Description						at 15.5%
Rating Date						Oct-10-2012
Rating Type						yield
Rating Unit						bu/ac
Crop Stage Scale						
ARM Action Codes						TY1
Number of Decimals						0
Trt No.	Treatment Name	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code
						17
TABLE OF R MEANS						
Replicate 1						104
Replicate 2						119
Replicate 3						145
TABLE OF A (Application Timing) MEANS						
1 PPI						A 126 a
2 PREPLANT						A 122 a
3 SIDEDRESS						C 119 a
TABLE OF B (N Rate) MEANS						
1 75 LBS N						PPI A 119 a
2 150 LBS N						A 126 a
TABLE OF C (Blend Ratio) MEANS						
1 100:0 ESN:UREA						A 122 a
2 75:25 ESN:UREA						A 128 a
3 50:50 ESN:UREA						A 120 a
4 25:75 ESN:UREA						A 116 a
5 0:100 ESN:UREA						A 126 a
TABLE OF A (Application Timing) B (N Rate) MEANS						
1 PPI						A 124 a
1 75 LBS N						PPI A 118 a
2 PREPLANT						A 118 a
1 75 LBS N						PPI A 115 a
3 SIDEDRESS						C 115 a
1 75 LBS N						PPI A 128 a
1 PPI						A 128 a
2 150 LBS N						A 126 a
2 PREPLANT						A 126 a
2 150 LBS N						A 123 a
3 SIDEDRESS						C 123 a
2 150 LBS N						A 123 a
TABLE OF A (Application Timing) C (Blend Ratio) MEANS						
1 PPI						A 123 a
1 100:0 ESN:UREA						A 125 a
2 PREPLANT						A 125 a
1 100:0 ESN:UREA						A 118 a
3 SIDEDRESS						C 118 a
1 100:0 ESN:UREA						A 135 a
1 PPI						A 135 a
2 75:25 ESN:UREA						A 123 a
2 PREPLANT						A 123 a
2 75:25 ESN:UREA						A 125 a
3 SIDEDRESS						C 125 a
2 75:25 ESN:UREA						A 125 a
1 PPI						A 125 a
3 50:50 ESN:UREA						A 125 a

Means followed by same letter do not significantly differ (P=.05, LSD)

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ARM Action Codes							TY1
Number of Decimals							0
Trt No.	Treatment Name	Rate	Other Unit	Other Rate	Growth Stage	Appl Code	
							17
2	PREPLANT					A	126 a
3	50:50 ESN:UREA					A	
3	SIDEDRESS					C	110 a
3	50:50 ESN:UREA					A	
1	PPI					A	119 a
4	25:75 ESN:UREA					A	
2	PREPLANT					A	112 a
4	25:75 ESN:UREA					A	
3	SIDEDRESS					C	117 a
4	25:75 ESN:UREA					A	
1	PPI					A	127 a
5	0:100 ESN:UREA					A	
2	PREPLANT					A	125 a
5	0:100 ESN:UREA					A	
3	SIDEDRESS					C	125 a
5	0:100 ESN:UREA					A	
TABLE OF B (N Rate) C (Blend Ratio) MEANS							
1	75 LBS N				PPI	A	112 a
1	100:0 ESN:UREA					A	
2	150 LBS N					A	132 a
1	100:0 ESN:UREA					A	
1	75 LBS N				PPI	A	126 a
2	75:25 ESN:UREA					A	
2	150 LBS N					A	129 a
2	75:25 ESN:UREA					A	
1	75 LBS N				PPI	A	121 a
3	50:50 ESN:UREA					A	
2	150 LBS N					A	119 a
3	50:50 ESN:UREA					A	
1	75 LBS N				PPI	A	110 a
4	25:75 ESN:UREA					A	
2	150 LBS N					A	122 a
4	25:75 ESN:UREA					A	
1	75 LBS N				PPI	A	126 a
5	0:100 ESN:UREA					A	
2	150 LBS N					A	126 a
5	0:100 ESN:UREA					A	
TABLE OF A (Application Timing) B (N Rate) C (Blend Ratio) MEANS							
1	PPI					A	117 a
1	75 LBS N				PPI	A	
1	100:0 ESN:UREA					A	
2	PREPLANT					A	114 a
1	75 LBS N				PPI	A	
1	100:0 ESN:UREA					A	
3	SIDEDRESS					C	105 a
1	75 LBS N				PPI	A	
1	100:0 ESN:UREA					A	
1	PPI					A	130 a
2	150 LBS N					A	
1	100:0 ESN:UREA					A	

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Crop Code		Rate		Other	Other	Growth	Appl	
Trt	Treatment	Rate	Unit	Rate	Rate	Unit	Stage	Code
Crop Name								ZEAMX
Crop Variety								Corn
Description								DKC 48-12 RIB
Rating Date								at 15.5%
Rating Type								Oct-10-2012
Rating Unit								yield
Crop Stage Scale								bu/ac
ARM Action Codes								TY1
Number of Decimals								0
								17
2	PREPLANT							A
2	150 LBS N							A
1	100:0 ESN:UREA							A
3	SIDEDRESS							C
2	150 LBS N							A
1	100:0 ESN:UREA							A
1	PPI							A
1	75 LBS N					PPI		A
2	75:25 ESN:UREA							A
2	PREPLANT							A
1	75 LBS N					PPI		A
2	75:25 ESN:UREA							A
3	SIDEDRESS							C
1	75 LBS N					PPI		A
2	75:25 ESN:UREA							A
1	PPI							A
2	150 LBS N							A
2	75:25 ESN:UREA							A
2	PREPLANT							A
2	150 LBS N							A
2	75:25 ESN:UREA							A
3	SIDEDRESS							C
2	150 LBS N							A
2	75:25 ESN:UREA							A
1	PPI							A
1	75 LBS N					PPI		A
3	50:50 ESN:UREA							A
2	PREPLANT							A
1	75 LBS N					PPI		A
3	50:50 ESN:UREA							A
3	SIDEDRESS							C
1	75 LBS N					PPI		A
3	50:50 ESN:UREA							A
1	PPI							A
2	150 LBS N							A
3	50:50 ESN:UREA							A
2	PREPLANT							A
2	150 LBS N							A
3	50:50 ESN:UREA							A
3	SIDEDRESS							C
2	150 LBS N							A
3	50:50 ESN:UREA							A
1	PPI							A
1	75 LBS N					PPI		A
4	25:75 ESN:UREA							A
2	PREPLANT							A
1	75 LBS N					PPI		A
4	25:75 ESN:UREA							A
3	SIDEDRESS							C
1	75 LBS N					PPI		A
4	25:75 ESN:UREA							A

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Trt No.	Treatment Name	Rate	Other Rate	Other Rate	Growth Unit	Appl Code	
							17
1	PPI					A	117 a
2	150 LBS N					A	
4	25:75 ESN:UREA					A	
2	PREPLANT					A	116 a
2	150 LBS N					A	
4	25:75 ESN:UREA					A	
3	SIDEDRESS					C	132 a
2	150 LBS N					A	
4	25:75 ESN:UREA					A	
1	PPI					A	125 a
1	75 LBS N				PPI	A	
5	0:100 ESN:UREA					A	
2	PREPLANT					A	126 a
1	75 LBS N				PPI	A	
5	0:100 ESN:UREA					A	
3	SIDEDRESS					C	125 a
1	75 LBS N				PPI	A	
5	0:100 ESN:UREA					A	
1	PPI					A	130 a
2	150 LBS N					A	
5	0:100 ESN:UREA					A	
2	PREPLANT					A	124 a
2	150 LBS N					A	
5	0:100 ESN:UREA					A	
3	SIDEDRESS					C	125 a
2	150 LBS N					A	
5	0:100 ESN:UREA					A	

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COMPLETE FACTORIAL AOV For ZEAMX Corn DKC 48-12 RIB at 15.5% Oct-10-2012 yield bu/ac TY1 0 (Data Column 17)						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	89	54583.518318				
R	2	25905.715816	12952.857908	32.341	0.0001	11
A	2	772.064494	386.032247	0.962	0.4559	14
RA	4	1604.817559	401.204390	1.002	0.4354	19
B	1	1018.971334	1018.971334	1.701	0.3220	22
RB	2	1197.884922	598.942461	1.495	0.2539	15
AB	2	63.466169	31.733084	1.414	0.3433	5
RAB	4	89.789827	22.447457	0.056	0.9936	27
C	4	1520.154329	380.038582	1.093	0.4219	14
RC	8	2781.323150	347.665394	0.868	0.5617	24
AC	8	1100.876473	137.609559	0.365	0.9244	24
RAC	16	6039.396217	377.462264	0.942	0.5464	42
BC	4	1499.138123	374.784531	0.975	0.4719	21
RBC	8	3074.514567	384.314321	0.960	0.4988	35
ABC	8	1507.357897	188.419737	0.470	0.8594	35
RABC	16	6408.047441	400.502965			

### Crop Code

ZEAMX, BCOR, Zea mays, = US

### Rating Unit

bu/ac = bushels per acre

### ARM Action Codes

TY1 =  $3.889286 * [16] * (100 - [14]) / 84.5$