Nebraska On-Farm Research Network

Years:	2013
Title:	Corn Nitrogen Rates
Crop:	Corn
County:	Dodge
Study ID:	018177201301
Objective:	Determine the most profitable nitrogen rate in the production of dryland corn
Treatments:	UNL Recommendation UNL +40 lbs

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The UNL Corn Nitrogen Calculator for Nebraska

Revision Date: 04/01/08

Farm:
Agronomist:
Date:

Enter N management programs to consider	Time of application	Proportion % of total N	N source for each	N content %	Price $/ton	Appl. cost $/acre
Split	Fall		1 AA	82		
change names in boxes	Pre-plant & starter		1 AA	82		
	Sidedress		5 UAN 32	32		
Error: sum not 100%	Fertigation		4 UAN 28	28		
Pre-plant	Fall		1 AA	82		
	Pre-plant & starter	100	4 UAN 28	28	$399	$0.00
	Sidedress		5 UAN 32	32		
	Fertigation		4 UAN 28	28		
Fall	Fall		1 AA	82		
	Pre-plant & starter		1 AA	82		
	Sidedress		4 UAN 28	28		
Error: sum not 100%	Fertigation		4 UAN 28	28		

Enter short names in the column headers below (#1 to #4)

Enter field-specific information in columns E to H			1 Example	#2	#3	#4
Yield goal	5-yr avg. yield + 5-10%	bu/acre	160			
Soil texture			Med./Fine			
Soil organic matter (OM)	in 0-8" depth	%	2.5			
Soil test nitrate-N	Effective rooting depth	inches	48			
	Soil layers sampled	no.	0 None			
	Layer 1 bottom	inches				
	Layer 2 bottom	inches				
select nitrate unit in box	Layer 3 bottom	inches				
ppm	Layer 1 nitrate	ppm				
	Layer 2 nitrate	ppm				
	Layer 3 nitrate	ppm				
Previous crop			02 Soybean			
Irrigation	Water amount	inches				
	Water nitrate-N	ppm				
Manure	Type					
	Terms (unit for application)					
	Amount (tons or 1000 gal/acre)					
	Ammonium N	lb/unit				
	Organic N	lb/unit				
	Year applied					
	Application method					
Nitrogen management program			2 Pre-plant			
Expected corn value		$/bu	$6.50	$5.00	$5.00	$5.00
N applied since harvest		lb/acre	0			

do not enter anything below

UNL N recommendation		Unit	1 Example	#2	#3	#4
N algorithm components	Crop N requirement	lb/acre	227	Yield goal?	Yield goal?	Yield goal?
	SOM credit	lb/acre	56	OM?	OM?	OM?
	Soil nitrate-N credit	lb/acre	30	Depth?	Depth?	Depth?
	Legume N credit	lb/acre	45	Prev. crop?	Prev. crop?	Prev. crop?
	Irrigation N credit	lb/acre	Water?	Water?	Water?	Water?
	Manure N credit	lb/acre	Manure?	Manure?	Manure?	Manure?
Recom. N amount (unadjusted)		**lb/acre**	**96**	**#VALUE!**	**#VALUE!**	**#VALUE!**
Average nitrogen price		$/lb N	$0.71	N progr.?	N progr.?	N progr.?
Corn price : N price ratio			9.1	#VALUE!	#VALUE!	#VALUE!
Recom. N amount (adjusted for time and prices)		**lb/acre**	**102**	**#VALUE!**	**#VALUE!**	**#VALUE!**
Total N application cost		$/acre	$0.0	#N/A	#N/A	#N/A
Total cost of N fertilizer + N application		$/acre	$72.8	#VALUE!	#VALUE!	#VALUE!

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Information: 2013 Corn Nitrogen Rates

Planted DKC 63-87 @ 26.5k 5/13/13
Harvest - 11/11/13

Sprayed May 17, 2013 - 100 # - 32%, + sulfur, 2-4D, atrazine and Corvus (pre-emerge). 1" rainfall shortly after application.

Sidedress -June 21st, 40 lbs. of N (28%) at V5 - V6 stage. Field received 0.75" precip soon after application.

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Results: 2013 Corn Nitrogen Rates

	Yield	Cost/A
UNL Rate	206.1 B	71.25
UNL + 40lbs	212.2 A	99.75
Prob>/T/	0.0316 **	

Summary: Corn Nitrogen Rates

(2013) Summary - The 40# of sidedressed nitrogen cost an additional $28.50 and resulted in a significant yield increase of 6 bushel per acre. At $5.00 per bushel corn the net profit is minimal. Six dollar per bushel corn results in a net gain of $7.50/ac. Clearly the cost of nitrogen and price of corn needs to be factored into the nitrogen rate decision making process.

Also, this study does not answer the question "what if the UNL rate (100#) would have been applied at sidedress"?

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