

# 2007 CMDC

## Shapiro

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## Nutrient Management for continuous corn:

### Same

Soil test  
Nutrients  
N, P, S, Zn

### Different

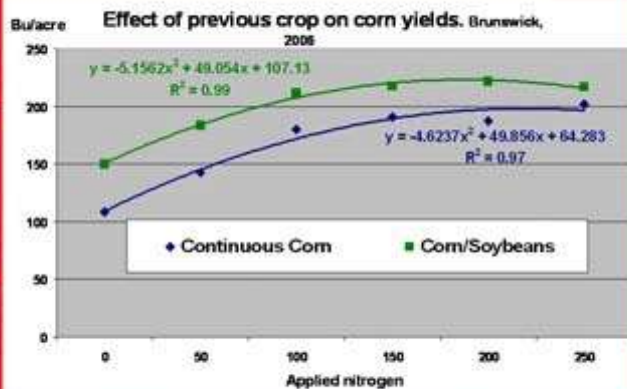
Frequency  
Rates  
Precision  
Immobilization

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## Nutrient Needs in continuous corn

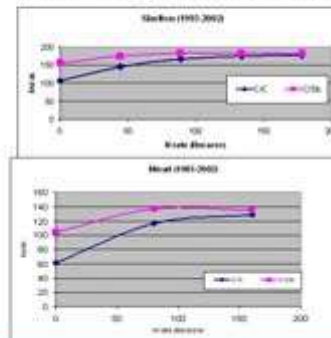
- **Soil sampling**
  - deep samples for N;
  - surface samples for P/K/S/pH
- **UNL N computer program**
- **Research results**
- **N losses**
- **Starter use**

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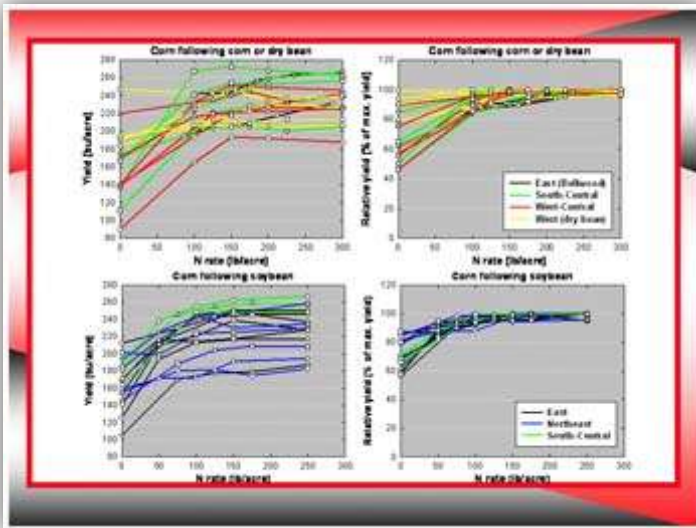
## ARS Rotation Research: Mead and Shelton (Varvel and Wilhelm, 2003)



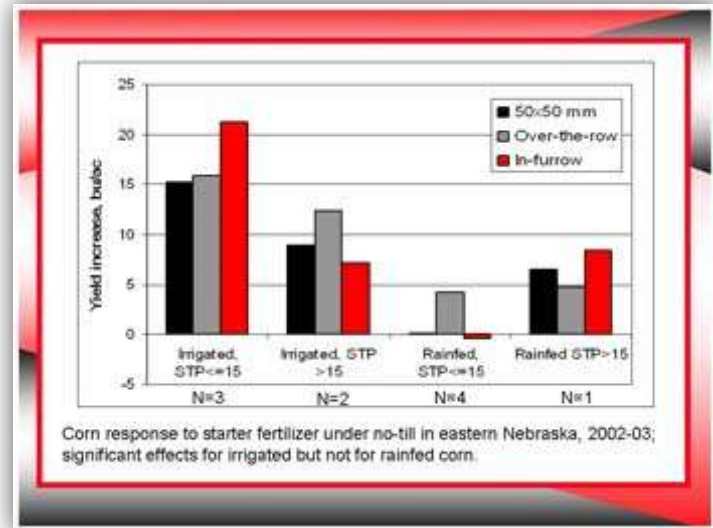
Shelton:  
Hord silt loam  
Irrigated  
Fert. Replacement Value:  
64 lbs N/acre

Mead: Sharpsburg silty clay loam  
rainfed  
Fert. Replacement Value  
58 lbs N/acre

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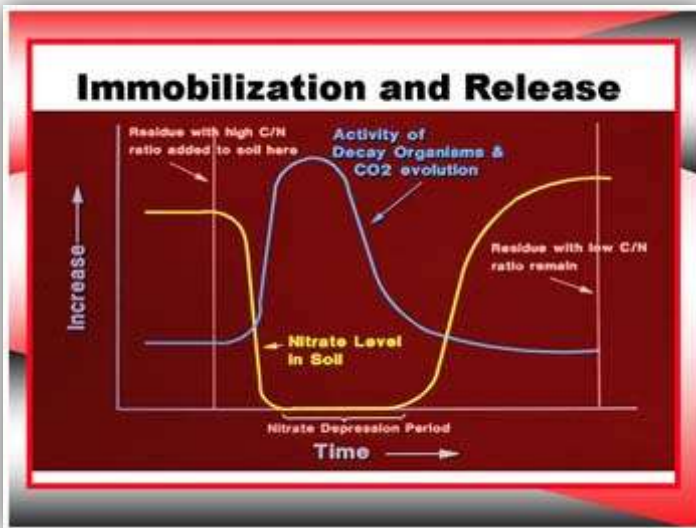


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Corn response to starter fertilizer under no-till in eastern Nebraska, 2002-03; significant effects for irrigated but not for rainfed corn.

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### UNL N Calculator 2007.xls

The UNL Corn Nitrogen Needs Calculator for Nebraska Last revision: 02/02/07

Form: ARCC  
 Agronomist: <http://unl.edu>  
 Date: Jun-07

Enter N management program by calendar	Time of application	Proportion % of total N	N source	N content %	Price \$/ton	Appl. cost \$/acre
Winter 2006	Pre-plant & starter	50	S-UAN 32	82	\$300	\$4.00
	Side-dress	50	1AA	82	\$485	\$10.00
	Participation			0		
Winter 2007	Pre-plant & starter	50	S-UAN 32	82	\$210	\$4.00
	Side-dress	50	1AA	82	\$350	\$10.00
	Participation			0		
Fall	Pre-plant & starter	100	1AA	82	\$350	\$4.00
	Side-dress			0		
	Participation			0		

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Enter field-specific information in columns E to H			Winter 2007
1	Yield goal	5-yr avg. yield + 5-10%	bu/acre 220
2	Soil texture		Med./Fine
3	Soil organic matter (OM)	in 0-8" depth	% 2.5
4	Soil test nitrate-N	Effective rooting depth	inches 36
		Soil layers sampled	no. 1 Layer
		Layer 1 bottom	inches 24
		Layer 2 bottom	inches
		Layer 3 bottom	inches
		Layer 1 nitrate	ppm 4.0
	Layer 2 nitrate	ppm	
	Layer 3 nitrate	ppm	
5	Previous crop		01 Corn
6	Irrigation	Water amount	inches 10
		Water nitrate-N	ppm 0
7	Manure	Type	
		Terms (unit for application)	
		Amount (tons or 1000 gal/acre)	
		Ammonium N	lb/Acre
		Organic N	lb/Acre
		Year applied	
	Application method		
8	Nitrogen management program		2 Winter 2007
9	Expected corn value	\$/bu	\$4.00
10	N applied since harvest	lb/acre	0

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### Available at: [soilfertility.unl.edu](http://soilfertility.unl.edu)

UNL N recommendation		Unit	Winter 2007	Winter 2007	
A	N algorithm components	Crop N requirement	lb/acre	299	299
		SOM credit	lb/acre	77	77
		Soil nitrate-N credit	lb/acre	22	22
		Legume N credit	lb/acre	0	45
		Irrigation N credit	lb/acre	0	0
		Manure N credit	lb/acre	Manure?	Manure?
<b>B</b>	<b>Recom. N amount (unadjusted)</b>	<b>lb/acre</b>	<b>200</b>	<b>155</b>	
C	Average nitrogen price	\$/lb N	\$0.42	\$0.42	
D	Corn price : N price ratio		9.6	9.6	
<b>E</b>	<b>Recom. N amount (adjusted for time and prices)</b>	<b>lb/acre</b>	<b>205</b>	<b>159</b>	
F	Total N application cost	\$/acre	\$16.0	\$16.0	
G	Total cost of N fertilizer + N application	\$/acre	\$101.8	\$82.5	

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