
THE PRACTICE OF FALL APPLIED NITROGEN: FARMER REACTIONS WITH FALL NITROGEN RESTRICTIONS

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INTRODUCTION

The 2011 survey of Illinois farmers concerning farmer reactions to restrictions on fall application of nitrogen was conducted in the summer of 2011. The survey was mailed to 1,162 farm operators in Dekalb, LaSalle and McLean counties. These were farm operators with more than 100 acres who were listed as Federal farm program participants. The farm operator address database was based on 2009 information and was provided to the project by 1st Farm Credit Services who acquired it from Farm Market iD, a Telematch, Inc. company. Ryan Voorhees, Crop Insurance Specialist for 1st Farm Credit Services – Morton, worked with the author on this project and has been primarily responsible for the conduct of the survey and the building of the database of responses. He is a graduate student in the Agribusiness program at Illinois State University and his assistance was invaluable.

RESULTS

The survey was designed to require as little of the respondents time as possible while still getting accurate responses to the two primary questions. The two questions were as follows:

1. Please enter the **pounds of nitrogen per acre and number of acres** receiving the listed nitrogen fertilizer and application methods for your 2011 corn acreage. The chart is broken down by nitrogen fertilizer form and application method on the left and application dates above.
2. **“WHAT IF” you were not allowed to use Fall nitrogen.** Please enter the **pounds of nitrogen per acre and number of acres** receiving the listed nitrogen fertilizer and application methods for your 2011 corn acreage.

There were 448 surveys returned for a 38.6% response rate. That was a very good response rate for a mailed business oriented survey. The survey form is attached here as Appendix A.

This report describes the data from the 213 respondents who reported any fall application of nitrogen and also responded to the second question concerning application of nitrogen with restriction of fall application. That group of respondents represents those farm operations that would have to move nitrogen application from fall to spring if restrictions had been in place in

the 2010-11 crop year. In total, those respondents reported farming 240,041 acres of corn and soybean.

See Table 1 for the summary of the fall application of nitrogen fertilizers by the respondents. Nitrogen was reported applied to 137,904 acres in the fall of 2010 at an average rate of 128 pounds of nitrogen per acre. The majority of the applied nitrogen, 89.6%, came from anhydrous ammonia.

Table 1. Data on nitrogen fertilizer applications in the fall of 2010 from the 213 respondents from McLean, Dekalb, and LaSalle counties who reported any fall application of nitrogen and also responded to the question concerning application of nitrogen with restriction of fall application for fall 2010 and spring 2011.

2010 Fall Applications			
Product	Acres	Lbs. N	Tons Product
NH3	102,449	15,823,917	9,649
UAN	8,121	353,620	589
Urea	2,061	90,998	99
Starter	560	16,800	47
Manure	2,515	397,530	
DAP	11,628	483,086	1,342
Amm Sul D	8,056	295,207	703
Amm Sul L	2,514	205,200	
Total	137,904	17,666,358	

See Table 2 for the summary of (1) actual 2011 spring application of nitrogen fertilizers when fall 2010 application were allowed – the four columns on the left, (2) estimated spring applications of nitrogen fertilizer if fall 2010 applications had not been allowed – the four columns in the center, and (3) the differences – the three columns on the right. The respondents had reported applying 9,649 tons of anhydrous ammonia in the fall of 2010, see Table 1. In their responses summarized in Table 2 they indicate that 2011 anhydrous ammonia applications would increase by 5,932 tons under fall restrictions. Most of the remainder of nitrogen applications moved to 2011 would have been accomplished with applications at planting and side dressing of UAN.

There are relatively significant impacts on the fertilizer supply chain if the data provided by the respondents to this survey is an accurate reflection of what their actions would be. Further analysis of the data provided by the respondents will be presented and discussed at the FREC & CCA Session of the IFCA Convention on January 17, 2012.

Also, further analysis this year in the fertilizer supply chain will provide even better indications of potential changes under alternative policies regarding timing of nitrogen application.

Table 2. **Data on nitrogen fertilizer applications in the spring of 2011** from the 213 respondents from McLean, Dekalb, and LaSalle counties who reported any fall application of nitrogen and also responded to the question concerning application of nitrogen with restriction of fall application for fall 2010 and spring 2011.

2011 Spring Applications				Spring Applications with Fall Restriction				Differences			
Product	Acres	Lbs. N	Tons Product	Product	Acres	Lbs. N	Tons Product	Diff Acres	Diff Lbs.	Diff Tons	
NH3				NH3							
Pre	10,625	1,649,255	1,006	Pre	70,223	10,768,442	6,566	59,599	9,119,187	5,560	
Plant	135	17,900	11	Plant	3,561	436,875	266	3,426	418,975	255	
Post	13,551	1,203,190	734	Post	12,260	1,394,199	850	(1,291)	191,009	116	
Total	24,311	2,870,345	1,750	Total	86,044	12,599,516	7,683	61,734	9,729,171	5,932	
UAN				UAN							
Pre	48,525	3,865,280	6,442	Pre	46,639	5,517,030	9,195	(1,886)	1,651,750	2,753	
Plant	30,382	2,661,275	4,435	Plant	45,488	4,719,270	7,865	15,106	2,057,995	3,430	
Post	26,554	1,863,994	3,107	Post	48,692	4,425,900	7,377	22,138	2,561,906	4,270	
Total	105,461	8,390,549	13,984	Total	140,819	14,662,200	24,437	35,358	6,271,651	10,453	
Urea				Urea							
Pre	1,725	173,670	189	Pre	7,011	514,150	559	5,286	340,480	370	
Plant	1,100	83,000	90	Plant	2,170	281,000	305	1,070	198,000	215	
Post	620	13,300	14	Post	3,563	191,140	208	2,943	177,840	193	
Total	3,445	269,970	293	Total	12,744	986,290	1,072	9,299	716,320	779	
Starter				Starter							
Pre	983	12,081	34	Pre	2,103	93,150	259	1,120	81,069	225	
Plant	10,445	200,642	557	Plant	7,962	164,680	457	(2,483)	(35,962)	(100)	
Total	11,428	212,723	591	Total	10,065	257,830	716	(1,363)	45,107	125	

Table 2 (continued). **Data on nitrogen fertilizer applications in the spring of 2011** from the 213 respondents from McLean, Dekalb, and LaSalle counties who reported any fall application of nitrogen and also responded to the question concerning application of nitrogen with restriction of fall application for fall 2010 and spring 2011.

2011 Spring Applications			Spring Applications with Fall Restriction				Differences			
Product	Acres	Lbs. N	Tons Product	Product	Acres	Lbs. N	Tons Product	Diff Acres	Diff Lbs.	Diff Tons
Manure				Manure						
Pre	1,018	173,420		Pre	1,533	251,620		515	78,200	
Post	500	15,000		Post	1,156	15,000		656	-	
Total	1,518	188,420		Total	2,689	266,620		1,171	78,200	
DAP				DAP						
Pre	853	36,200	101	Pre	6,024	222,428	618	5,171	186,228	517
Post	284	8,520	24	Post			-	(284)	(8,520)	(24)
Total	1,137	44,720	124	Total	6,024	222,428	618	4,887	177,708	494
Amm Sul D				Amm Sul D						
Pre	185	3,145	7	Pre	3,494	157,386	375	3,309	154,241	367
Plant			-	Plant	850	18,350	44	850	18,350	44
Post	1,590	66,780	159	Post	1,600	64,000	152	10	(2,780)	(7)
Total	1,775	69,925	166	Total	5,944	239,736	571	4,169	169,811	404
Amm Sul L				Amm Sul L						
Pre	1,020	61,300	146	Pre	920	92,000	219	(100)	30,700	73
Total	1,020	61,300	146	Total	920	92,000	219	(100)	30,700	73
Foliar N				Foliar N						
Post	316	6,620		Post	1,156	17,720		840	11,100	
Total	316	6,620		Total	1,156	17,720		840	11,100	
ESN				ESN						
Pre	20	600		Pre				(20)	(600)	
Post				Post	1,503	67,635		1,503	67,635	
Total	20	600		Total	1,503	67,635		1,483	67,035	
	Acres	Lbs. N	Tons Product		Acres	Lbs. N	Tons Product	Diff Acres	Diff Lbs.	Diff Tons
SPRING	150,431	12,115,172	17,055		267,908	29,411,975	35,316	117,478	17,296,803	18,260
FALL	137,904	17,666,358	12,428				-	(137,904)	(17,666,358)	(12,428)
TOTALS	288,334	29,781,530	29,484		267,908	29,411,975	35,316	(20,426)	(369,555)	5,832

APPENDIX A

Number:

CONFIDENTIAL SURVEY

CONFIDENTIAL SURVEY

Phase 1 – 2011 FARM OPERATOR SURVEY

I. Current operation

a. In 2011 how many acres of the following crops did you produce?

Crop	Acres in 2011	Lbs. Nitrogen Applied per Acre
Corn after Soybeans		
Corn after Corn		
Soybeans		
Wheat		
Other: _____		
Other: _____		

The number in the box above is used to take your name off the re-mailing list and it keeps your responses confidential. You may tear off the numbered box if you wish.

b. What percent of the acres you farm are drained by subsurface tile? _____ Percent

c. Please enter the **pounds of nitrogen per acre** and **number of acres** receiving the listed nitrogen fertilizer and application methods for your 2011 corn acreage. The chart is broken down by nitrogen fertilizer form and application method on the left and application dates above.

Nitrogen Form and Application Method	Prior to Nov. 1, 2010		Nov. 1 to Feb. 28, 2011		March 1 to Planting 2011		During planting 2011		Post-Emerge 2011	
	Lbs./Ac	Acres	Lbs./Ac	Acres	Lbs./Ac	Acres	Lbs./Ac	Acres	Lbs./Ac	Acres
Anhydrous Ammonia										
UAN Injection										
UAN Incorporated										
UAN Surface-applied										
Urea Incorporated										
Urea Surface-applied										
ESN (Controlled Release Urea)										
Am. Sulfate (dry)										
Am. Sulfate (liquid)										
Starter with planter										
Manure-injection										
Foliar N										
Other (please state)										

d. If you used any of the following nitrogen enhancements for the 2011 corn crop please indicate **how many acres**.

Enhancement	Acres	Enhancement	Acres
N-Serve		Nutrisphere	
Instinct		Guardian	
Agrotain		Other (Please state: _____)	
Agrotain Plus			

CONFIDENTIAL SURVEY

CONFIDENTIAL SURVEY

II. Nitrogen form and application methods if “Fall” nitrogen application is restricted.

a. **“WHAT IF” you were not allowed to use Fall nitrogen.** Please enter the **pounds of nitrogen per acre and number of acres** receiving the listed nitrogen fertilizer and application methods for your 2011 corn acreage.

Nitrogen Form and Application Method	March 1 to Planting 2011		During planting 2011		Post-Emerge 2011	
	Lbs./Ac	Acres	Lbs./Ac	Acres	Lbs./Ac	Acres
Anhydrous Ammonia						
UAN Injection						
UAN Incorporated						
UAN Surface-applied						
Urea Incorporated						
Urea Surface-applied						
ESN (Controlled Release Urea)						
Am. Sulfate (dry)						
Am. Sulfate (liquid)						
Starter with planter						
Manure-injection						
Foliar N						
Other (please state)						

b. **In this situation** you would expect to use the following nitrogen enhancements for the 2011 corn crop on **how many estimated acres**.

Enhancement	Acres	Enhancement	Acres
N-Serve		Nutrisphere	
Instinct		Guardian	
Agrotain		Other (Please state: _____)	
Agrotain Plus			

c. Which counties do you farm in? _____

III. OPTIONAL: Demographics

1. What is the highest level of education you completed (check one):

___ elementary school; ___ high school; ___ associates degree; ___ bachelor’s degree; ___ master's degree
 ___ Other (Please specify _____)

2. How many years have you been farming? _____

3. If you approve we would like to put you on our permission list to call you to discuss the subject of this survey. Please give us your name and best phone number to call if you approve:

Name: _____ Phone Number: _____ Email: _____

Please fill out and return this survey in the attached business reply envelop **OR** to this address Dr. Patrick D. O’Rourke, Campus Box 5020, Illinois State University, Normal, IL 61790-5020.