



Replacing commercial sidedress nitrogen with liquid livestock manure on emerged corn using a drag hose system

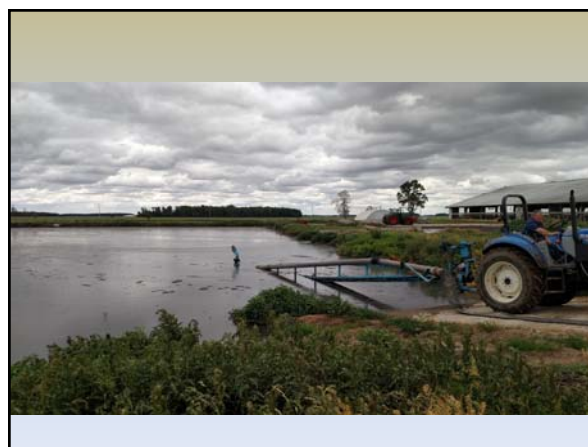


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EXTENSION 1



Manure stored in a pit. Typically 700,000 gallons per building



Field day surveys of manure application timing in western Ohio

- January - March 3%
- April – June 19%
- July – September 29%
- October – December 49%

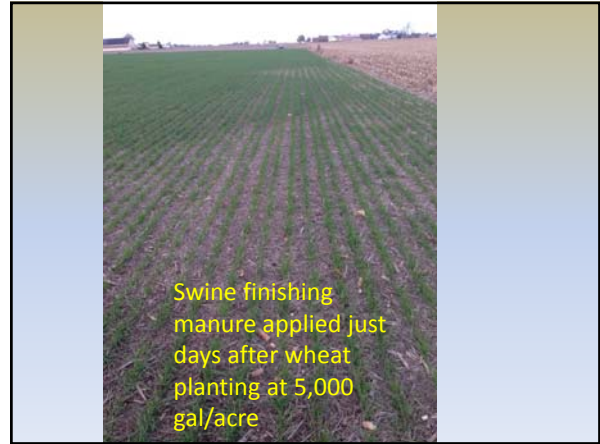
Over a billion gallons of swine manure and 2.5 billion gallons of dairy manure/wastewater annually

Manure application windows dictated by growing crops
Wheat acreage continues to decline
Fall application season starts when silage harvest begins

Manure Nutrient Analysis (lbs/1000 gallons)

Nutrient	Swine Finisher	Dairy Pond
Manure TN	43	18
Manure NH ³	37	8
Manure ON	6	10
Manure Avail N	40	12
Manure P ² O ⁵	16	15
Manure K ² O	22	31
Calcium	7.3	5.9
Magnesium	2.7	0.03
Sodium	4.4	0.01
Sulfur	3.4	0.01
Boron	0.03	0.001
Iron	0.8	0.91
Manganese	0.06	0.04
Calcium	5.5	5.9

6



2012-2016 OARDC Manure Sidedress Yields; bushels per acre						
PRE-EMERGENT TREATMENTS	2012	2013	2014	2015	2016	5-Year Average
Incorporated 28% UAN	111.5	184.6	145.1	130.8	140.9	142.6
Incorporated swine manure	128.6	191.8	146.5	161.9	162.0	158.2
Surface-applied swine manure	109.5	175.7	137.2	110.3	125.5	131.6
Incorporated dairy manure +28% UAN	132.0	185.4	166.1	146.3	163.7	158.7
Surface-applied dairy manure +28%UAN	97.0	166.0	141.9	106.4	122.1	126.7
POST-EMERGENT TREATMENTS						
Incorporated 28% UAN	116.0	181.9	140.9	140.1	145.1	144.8
Incorporated swine manure	138.4	196.7	139.9	158.5	183.7	163.4
Surface-applied swine manure	116.4	188.0	115.6	114.6	153.1	137.5
Incorporated dairy manure +28%UAN	138.8	192.0	156.9	167.5	167.7	164.6
Surface-applied dairy manure +28%UAN	101.6	181.5	125.3	111.6	156.1	135.2
Zero nitrogen check	62.6	82.0	67.0	40.2	48.7	60.1





Three years of on-farm drag hose plots (bu/acre)

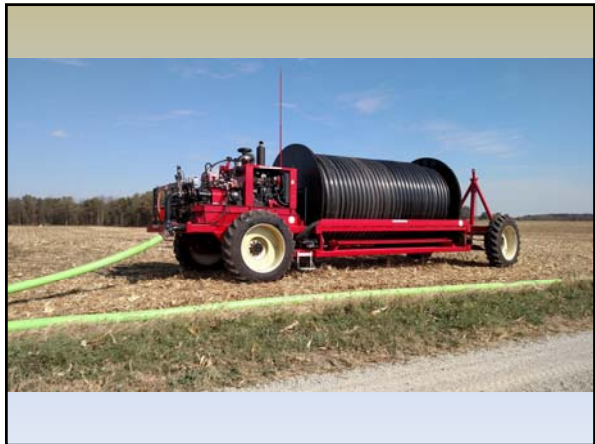
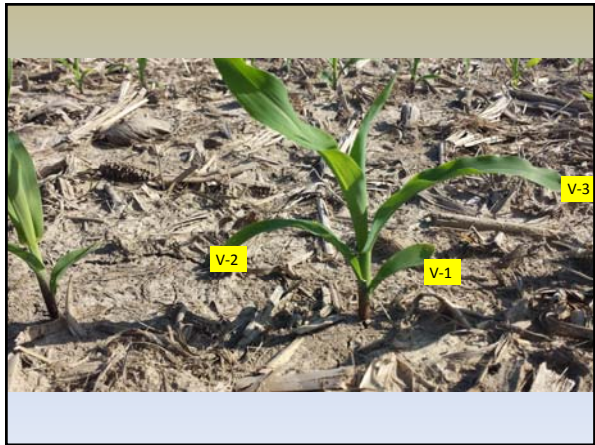
Year	Swine Manure	28%UAN
• 2016	222	216
• 2015	154	121
• 2014	204	204
3-year ave	193.3	180.3

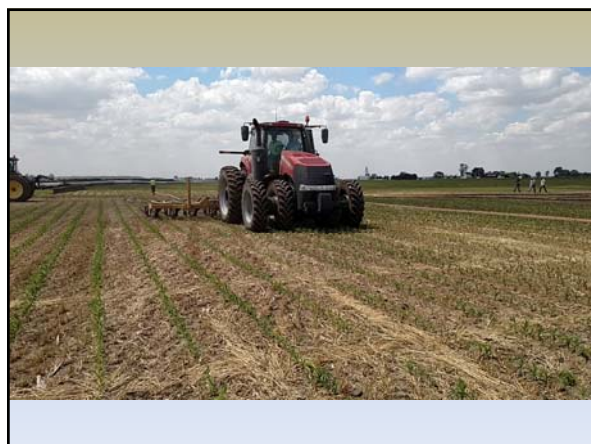
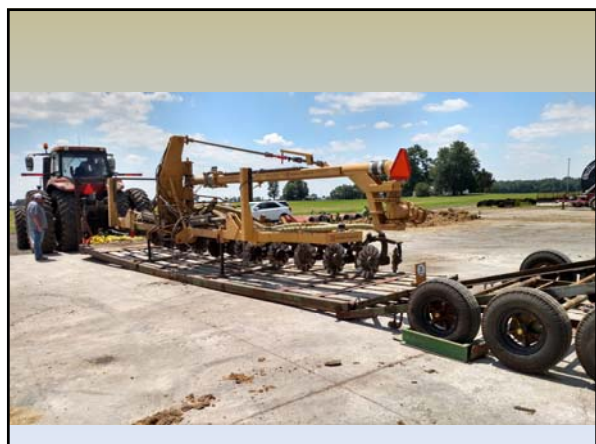
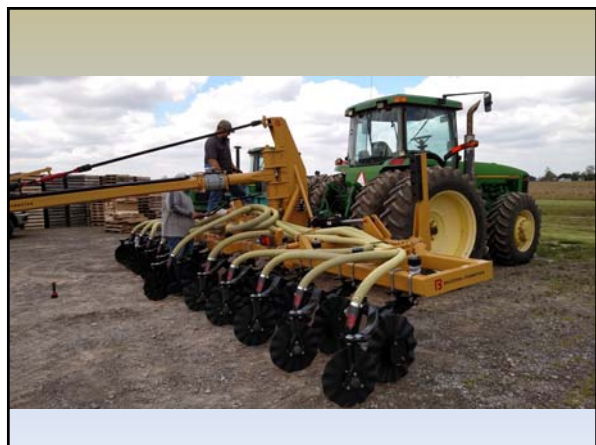
Nutrient balance of manure sidedress

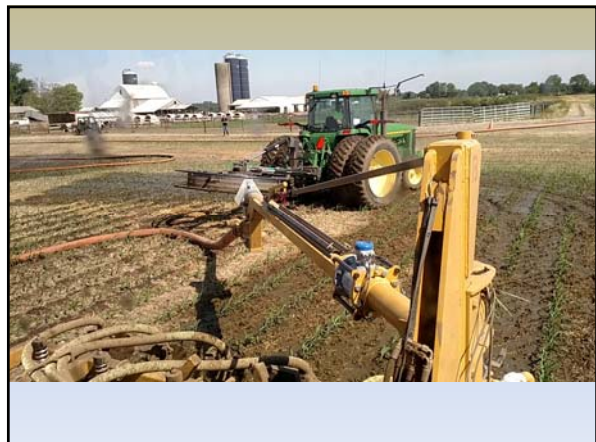
Crop		P ₂ O ₅	K ₂ O
Corn	200 bu		
(.37) (.27)		74 lbs	54 lbs
Soybeans	60 bu		
(.80) (1.4)		48 lbs	84 lbs
Removal		122 lbs	138 lbs
6,500 gal manure		117 lbs	143 lbs
Net nutrient gain		-5 lbs	+6 lbs

Almost perfect N, P & K balance for a corn-soybean rotation









Ohio State University Extension

Nutrient Stewardship YouTube site:

- <https://www.youtube.com/channel/UC7jUsQNGM8fCHjbZUdT9pKw>
- Facebook: Ohio State Extension Environmental and Manure Management
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