

Swine Manure as a Nitrogen Source at Side-dress for Grain Corn

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Objectives:

- To compare corn yield response to nitrogen applied at side-dress as swine manure and UAN 28%.
- To compare yield response from soil compacted with loaded manure tanker with traditional UAN 28% system.

Background

Crop Year:	2008	Soil test:	pH 6.4, P 48 ppm, K 163 ppm, OM 2.35%
Cooperator:	Dennis Niese	Planting Date:	April 23, 2008
County:	Putnam	Row Width:	30 inch
Nearest Town:	Leipsic	Herbicides:	Cinch
Drainage:	Tile-40 ft spacing	Insecticide:	n/a
Soil type:	Lucas silty clay loam	Harvest Date:	October 17, 2008
Tillage:	Conversation tillage	PSNT test:	14 ppm
Previous Crop:	Soybeans		
Variety:	Pioneer 32T85		

Methods

A randomized block design with three treatments and five replications was used. Plots were six rows (15 feet) wide and 620 feet long. Liquid swine manure from a finishing building was applied via incorporation using a 2400 gallon Husky tanker equipped with an AerWay toolbar.

The swine manure and 28% UAN were applied on the same day while the corn was in the two leaf stage. The fully loaded manure tanker was used for the soil compaction treatments. Field conditions were dry at the time of application.

The 28% UAN application rate was 180 units of Nitrogen per acre or 60 gal/ac. The target swine manure application rate was 180 units of nitrogen per acre or 5,000 gallons per acre. The swine manure test results were higher in nitrogen than expected. Manure samples indicated 41 pounds of available nitrogen per 1,000 gallons. Swine manure treatments received 201 pounds of nitrogen, 112 lb/ac P₂O₅ and 157 lb/ac K₂O.

Swine Finishing Manure Analysis

Nutrient	lbs. per 1,000 Gallons
Nitrogen (available the 1 st year)	40.31
Phosphorus as P ₂ O ₅	22.15
Potassium as K ₂ O	31.37

Weather conditions during the time of manure application were sunny and 80 degrees. The plot received above average rainfall for the first half of the growing season and very little rainfall during the second half of the growing season.

Treatment Summary	Description
Treatment 1 (T1)	60 gal/ac UAN 28%
Treatment 2 (T2)	60 gal/ac UAN 28% + compaction
Treatment 3 (T3)	5,000 gal/ac swine manure

Results and Discussion

Yield Summary

Treatment	Yield (bu/ac)
Average of five 28% UAN reps (T1)	168.5 a
Average of five 28% UAN + compaction reps (T2)	169.7 a
Average of five manure reps (T3)	169.8 a
LSD (0.05)	NS

The results of this plot indicate no statistical difference for yield between any of the treatments. Firm field soil conditions during application may have mitigated soil compaction. Swine manure appears to be a satisfactory source of side-dress nitrogen for corn.

In 2008, 28% UAN cost \$0.80 per pound or \$144.00 per acre (\$0.80 x 180 units) plus the cost of application. The manure was available from the farmer's swine finisher building at no cost. Application costs for the manure would vary depending on the farm's equipment and labor costs.

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