

# Swine Nursery Manure as a Top-Dress Nitrogen Source on Wheat

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## Objective:

To compare wheat yield response to nitrogen applied at top-dress as swine nursery manure and UREA.

## Background

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Crop Year:	2008	Soil test:	pH 6.5, P 92 ppm, K 218 ppm, OM 2.89%
Cooperator:	Steve Leopold	Planting Date:	October 3, 2007
County:	Putnam	Row Width:	7.5 inch
Nearest Town:	Glandorf	Herbicides:	n/a
Drainage:	Tile-40 ft spacing	Insecticide:	n/a
Soil type:	Fulton Silty Clay Loam	Harvest Date:	July 16, 2008
Tillage:	Conversation tillage	PSNT test:	n/a
Previous Crop:	Soybeans		
Variety:	Hopewell		

## Methods

A randomized block design with two treatments and four replications was used. Manure plots were 26 feet wide and UREA plots were 40 feet wide. All plots were 1,032 feet long. Liquid swine manure from a nursery building was applied via incorporation using a 3,000 gallon tanker equipped with a modified Pecan toolbar 13 feet in width. UREA was applied using a standard fertilizer buggy.

UREA application rate was 90 pounds per acre. The liquid swine manure application rate was 5,300 gallons per acre. Manure sample results indicated 16 pounds of available nitrogen per 1,000 gallons of swine finishing manure. Swine manure treatments received 86 pounds of nitrogen, 22 lb/ac P<sub>2</sub>O<sub>5</sub> and 64 lb/ac K<sub>2</sub>O.

### Swine Nursery Manure Analysis

Nutrient	lbs per 1,000 Gallons
Nitrogen (available the 1 <sup>st</sup> year)	16.25
Phosphorus as P <sub>2</sub> O <sub>5</sub>	4.16
Potassium as K <sub>2</sub> O	12.06

Weather conditions during the time of manure application were sunny and 70 degrees. Because of the wet spring, the wheat was approximately eight inches tall (Feekes growth stage 5) at the time the treatments were applied on April 17th. Substantial amounts of wheat were flattened, especially by the manure tanker. The plot received above average rainfall for the 2008 growing season. Field conditions were firm during application.

Treatment Summary	Description
Treatment 1 (T1)	UREA 90 units per acre
Treatment 3 (T2)	5,300 gal/ac incorporated swine finishing manure

## Results and Discussion

### Yield Summary

Treatments	Yield (bu/ac)
Average of four UREA reps	82.4 a
Average of four incorporated manure reps	78.1 b
LSD (0.05)	3.23

The results of this plot indicate a significant statistical difference for yield between the treatments. Damage to the wheat during manure application with the tanker could have impacted the wheat yield. Swine manure appears to be a satisfactory source of top-dress nitrogen for wheat.

UREA cost was \$0.75 per pound. UREA replications had \$68 per acre in fertilizer expense plus the cost of application. The manure was available from the farmer's swine nursery building at no cost. Application costs for the manure would vary depending on the farm's equipment and labor costs.

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