

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

Crop Year:	2008	Soil test:	pH 6.5, P 74 ppm, K 202 ppm, OM 3.13%
Cooperator:	Jim Leopold	Planting Date:	September 28, 2007
County:	Putnam	Row Width:	7.5 in.
Nearest Town:	Glandorf	Herbicides:	n/a
Drainage:	Tile-40 ft spacing	Insecticide:	n/a
Soil type:	Fulton silty clay loam	Harvest Date:	July 15, 2008
Tillage:	Conservation tillage	PSNT test:	n/a
Previous Crop:	Soybeans		
Variety:	Freedom		

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 575 feet long. The center 15 feet of each replication was harvested. 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.

The UREA nitrogen application rate was 90 pounds of nitrogen per acre. The liquid swine manure application rate was 4,500 gallons per acre. Manure sample results indicated 22 pounds of available nitrogen per 1,000 gallons of swine finishing manure. Swine manure treatments received 99 pounds of nitrogen, 23 lb/ac P_2O_5 and 47 lb/ac K_2O .

Swine Nursery Manure Analysis

Nutrient	lbs. per 1,000 Gallons
Nitrogen (available the 1 st year)	22.05
Phosphorus as P_2O_5	5.19
Potassium as K_2O	10.34

Weather conditions during the time of manure application were sunny and 72 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 of nitrogen per acre
Treatment 3 (T2)	4,200 gal/ac incorporated swine finishing manure

Results and Discussion

Yield Summary

Treatments	Yield (bu/ac)
Average of four UREA reps (T1)	86.8 a
Average of four incorporated manure reps (T2)	89.6 a
	LSD (0.05) NS

The results of this plot indicate no statistical difference for yield between the UREA treatments and the incorporated manure treatments. Swine nursery manure appears to be a satisfactory source of top-dress nitrogen for wheat.

UREA cost was \$0.75 per pound so the UREA treatments had \$75.00 dollars per acre of purchased fertilizer 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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