

# Comparison of Swine Manure and UAN as Nitrogen Sources at Side-dress for Corn Yield

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## Objective

To compare corn yield response to nitrogen applied at side-dress as incorporated swine finishing manure and incorporated UAN 28%.

## Background

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Crop Year:	2014	Soil Test:	pH 6.3
Cooperator:	John King		P 30 ppm (60 lb/ac)
County:	Fulton		K 187 ppm (374 lb/ac)
Nearest Town:	Pettisville, OH		PSNT 26 ppm Nitrate N
Drainage:	Tile-40 feet spacing		Organic Mater 2.5%
Soil Type:	Gilford-Dixboro	Planting Date:	May 6, 2014
Tillage:	Conventional	Row Width:	30 inch
Previous Crop:	Soybeans	Harvest Date:	November 7, 2014
Variety:	Rupp J03-31	Rainfall (Apr-Sept):	15.66"

## Methods

A randomized block design with two treatments and four replications was used. Plots were 12 rows (30 feet) wide and 975 feet long. Liquid swine manure from a finisher building was applied via incorporation using a 6,200 gallon Jamesway tanker equipped with a Dietrich toolbar. The Dietrich toolbar incorporated the swine manure at a depth of five inches using shanks with five inch sweeps.

The swine manure and 110 units of N in the form of 28% UAN were applied on the same day while corn was in the V3 stage. Field conditions were firm at the time of application.

The swine manure replications received 4,200 gallons per acre. Manure samples indicated 29.1 pounds of available nitrogen per 1,000 gallons. Swine manure treatments received 122 pounds of nitrogen, 75 lb/ac P<sub>2</sub>O<sub>5</sub> and 137 lb/ac K<sub>2</sub>O per acre.

**Table 1. Swine Finishing Manure Analysis**

Nutrient	lbs. per 1,000 Gallons
Nitrogen (available the 1 <sup>st</sup> year)	29.1
Phosphorus as P <sub>2</sub> O <sub>5</sub>	17.9
Potassium as K <sub>2</sub> O	32.7

Weather conditions during the time of manure application were sunny with an ambient air temperature of 75 degrees. The plot received above average rainfall for the growing season.

**Table 2. Treatment Summary**

<b>Treatment</b>	<b>Description</b>
Treatment 1 (T1)	49 gal/ac UAN 28%, 147#/ac of N
Treatment 2 (T2)	4,200 gal/ac incorporated liquid swine manure, 122#/ac of N

## Results and Discussion

**Table 3. Yield Summary**

<b>Treatments</b>	<b>Yield (bu/ac)</b>
28% UAN (T1)	226.5
Incorporated manure (T2)	223.6

LSD (0.05)

The results of this plot indicated no significant difference between the treatments (LSD (0.05) = 5.43, C.V=1.07).

The 28% UAN cost \$0.52 per pound or \$76.44 per acre plus the cost of application. Based on the OSU Extension 2014 Ohio Farm Custom Rate Survey, the cost of applying the 28%UAN was approximately \$9.50 per acre.

The manure was available from a swine finisher building at no cost. The manure application cost, using the Minnesota Manure Distribution Cost Analyzer spreadsheet was calculated at \$20 per 1,000 gallons or \$.02 per gallon. The cost of applying 4,200 gallons per acre as side-dress nitrogen was \$84 per acre.

## Acknowledgement

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