# Factors Affecting Manure Transfers in the Midwest

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One proposed solution to excess nutrients on some livestock farms is movement to other farms with nutrient deficits (Ribaudo, et al.). Our study examined the feasibility of this solution.

## Objectives

- Identify the factors that most heavily influence which farmers sell or give their excess manure to other farmers.

- Estimate typical hauling distances for manure from different livestock types.
- Examine the prices that farmers are being paid for different types of livestock manure.

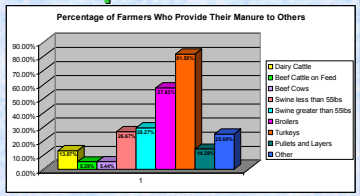
## Methods

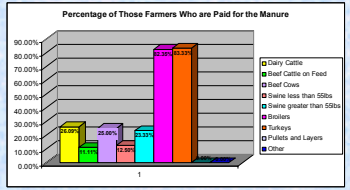
- A survey was sent out to over 3,000 randomly selected livestock farmers in Missouri and Iowa in March and April of 2006.

- Methodology for the survey process followed Dillman's model (Dillman). We initially sent out the survey to a test group of 100 farmers. We then sent out the first wave of the final survey with a cover letter, a postage paid return envelope, and a form to fill out to enter into a drawing to win a $200 gift certificate. A reminder postcard was sent, followed two weeks later by a second wave of the complete package, again asking them to participate.
- The effective response rate was 37.18 percent.
- Probit regression analysis was used to identify factors affecting whether manure was provided to others.

## Results and Implications

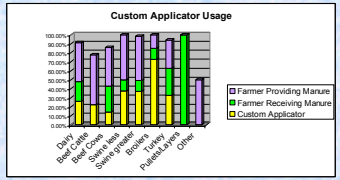
- Turkey farmers were most likely to provide manure.




- Over 80 percent of broiler and turkey farmers that provided manure were paid for it.

- Broiler farmers were the most likely to hire a custom applicator.



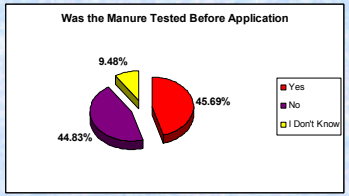

- Average hauling distance, as well as the range, are shown for each livestock type.
  - Dairy Cattle: 2.35 miles (0.5 - 10)
  - Beef Cattle on feed: 2.05 miles (0.5 - 3)
  - Beef Cows: 2.78 miles (0.25 - 5)
  - Swine <55lbs: 2.95 miles (0.1 - 12)
  - Swine >55lbs: 2.65 miles (0.1 - 12)
  - Broilers: 14.78 miles (0.125 - 80)
  - Turkeys: 13.66 miles (0.0 - 80)

With all other variables in the regression held constant, farmers were significantly more likely to provide manure if:

- ►they were younger
- ►the farm was an AFO or CAFO
- ►they had more animal units or fewer farmed acres
- ►they didn't apply fertilizer to their manured fields
- ►they had broilers or turkeys rather than swine
- ►they say the smell of manure bothers them and
- ►they agree that properly managing manure improves water quality.

**However, cropping system or concern for water quality had no effect.**

- 45.69 percent of farmers providing manure to others said that manure was tested before it was applied.




- Research needs to find economically feasible ways for farmers to transport their excess manure off of their farm, especially for less dry types of manure, such as that from dairy cattle or swine.

Dillman, D. A. Mail and Internet Surveys: The Tailored Design Method. 2nd ed. New York: John Wiley & Sons, Inc, 2000.

Ribaudo, Marc, et al. "Manure Management for Water Quality: Costs to Animal Feeding Operations of Applying Manure Nutrients to Lands." <http://www.ers.usda.gov/publications /aer824/aer824a.pdf>

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