

Livestock

It pays to know the value of animal manure

By JERRY MAY



INCREASING commercial fertilizer prices have generated an interest in manure as an alternative source of crop nutrients. Cash crop farmers are recognizing manure's value and are utilizing manure as a means to address rising costs of crop production. But the manure market is immature, and we still have to ask several questions: How is manure valued? How does the transaction take place, and what are each party's risks that should be addressed?

Naturally, manure's value depends on current commercial fertilizer prices and nutrient content. But manure's net value is also affected by the conservation practices used during application, the crop to be grown, expected yield, the nutrient level of the field and application costs.

In the fall, 5,600 gallons of swine finishing manure had a calculated value of \$278 per acre (assuming all nutrients are fully utilized). The manure nutrient content had been analyzed at 33 pounds of

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first-year-available nitrogen, 17 pounds of P_2O_5 (for phosphorus) and 24 pounds of K_2O (for potassium) per 1,000 gallons. Commercial fertilizer prices were 53 cents per pound for N, 96 cents per pound for P_2O_5 and 66 cents per pound for K_2O .

Apply phosphorus where needed

Most crops in fields testing high in P (more than 50 ppm) have no additional yield response to additional P applications. In this case, the P portion of the manure contributed \$91 to the gross value of the applied manure but may have no impact on yields if spread on fields that test high in P. Manure's value is enhanced by applying it to fields testing low to medium for P (less than 30 ppm) or by applying to meet the P removal of the harvested crop on fields high in P.

In our example, the N contributes \$98 per acre to the value of the manure. Had the manure been surface-applied without

incorporation, a large percentage of the ammonium portion would have volatilized, greatly reducing the value.

Likewise, if manure is applied in late summer without a cover crop to absorb nutrients, a large portion of the N may be lost before the next year's corn crop is even planted. Finally, if manure is applied to fields that will be planted to legumes, such as soybeans, the additional N will have little impact on yield and add almost no value. To maximize its value, apply manure to meet the N needs of the crop using conservation practices that retain N.

Application costs vary less than a penny per gallon to almost 2 cents per gallon. Much of this variation in cost is the result of transportation costs associated with moving manure to fields far away. But high transportation cost may actually increase the net value of manure. If a field five miles from the farmstead will utilize all the nutrients from the manure application, but the field closest to the production site will not, transporting it to the field with the higher application cost will increase the net value.

The monetary value of manure is not the only consideration.

Large livestock farms operating under a National Pollutant Discharge Elimination System permit are required to record and document manure transfers to other farms. Medium and small livestock farms that sell or give away manure to their cash-cropping neighbors should follow the same practice. An earlier *Michigan Farmer* article (October 2008) written by Bob Battel provides good information on documenting these farmer-to-farmer manure exchanges.

Cash crop farmers applying manure on their own fields are responsible for all environmental risks associated with manure application. The livestock farm should provide a copy of the current Generally Accepted Agricultural Management Practices for Manure Application and Utilization to ensure that the party taking manure has access to the associated responsibilities. The manure GAAMPs are available at www.michigan.gov/mda.

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9 MSU animal research projects share funds

NINE Michigan State University animal agriculture research and Extension projects will share \$350,000 in funding awarded by the Animal Agriculture Initiative Coalition for 2009-10.

Michigan agriculture is faced with numerous challenges — and opportunities. From maximizing environmental health and sustainability to harnessing energy from plants to measuring and monitoring consumer attitudes and perceptions to minimizing the risk of spreading animal disease, there is no shortage of industry research and outreach priorities in agriculture, according to Mike Orth, chairman of the AAI Coalition and associate chairman of the MSU Department of Animal Science.

The nine projects were selected from 20 proposals submitted to the AAI Coalition, requesting a total of more than \$787,000 in funding.

Key Points

- The MSU Animal Agriculture Initiative Coalition awards \$350,000 in funds.
- AAI-funded research adds \$11.5 million annually to the state's economy.
- Four industry-specific publications also receive funding.

Proposals were ranked on the basis of how well they addressed the issues identified as high priority by industry groups, MSU Extension expertise teams and the AAI. The projects funded for 2009-2010 are:

- Bark Filter Mound Treatment Technology to Treat Milking Facility Wastewater (Steven Safferman, MSU Department of Biosystems and Agricultural Engineering)
- Biosecurity Stop Sign Campaign: Stopping Disease at the Farm Gate (Ted Ferris, MSU Department of Animal

Science)

- Constructed Treatment Wetlands for Water Reclamation and Green Manure Production (Dawn Reinhold, MSU Department of Biosystems and Agricultural Engineering)

- Investigation of DDGS Feeding Effects on Sulfur Emissions from Swine Manure (Wendy Powers, MSU departments of Animal Science and Biosystems and Agricultural Engineering)

- Motivation, Barriers and Incentives for the Participation of Livestock Operations in MAEAP (Steven Miller, MSU Department of Agricultural, Food and Resource Economics)

- Spatially Varied Impacts of Ethanol on Feed Prices, Levels and Livestock Production (Glynn Tonsor, MSU Department of Agricultural, Food and Resource Economics)

- State of the State Survey: Weighing Michigan Public Opinion About

Agriculture and Animal Welfare Issues (Janice Swanson, MSU Department of Animal Science and College of Veterinary Medicine)

- Udder Defense in Periparturient Dairy Cows: Do Neutrophil Extracellular Traps Play a Central Role? (Patty Weber, MSU Department of Animal Science)

- Wirelessly Monitored Behavior and Activity as Indicators of Well-being in Non-Caged Laying Hens (Janice Siegford, MSU Department of Animal Science)

In addition to funding these projects, AAI invests a portion of the award monies in a communications and marketing program and four quarterly newsletters: *Cattle Call*, *the Michigan Dairy Review*, *the Michigan Pork Quarterly* and *the MSU Equine Program Newsletter*.

To learn more about the AAI, visit www.animalag.msu.edu.

Source: MSU College of Agriculture and Natural Resources

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