

# BY DESIGN

## Capturing the value of manure

by Erin Cortus, University of Minnesota



There are many faces to cattle farms: pasture-based and feedlots; small-scale and large;

integrated livestock and cropping systems, and livestock-only operations.

Though different, these operations have cattle and manure in common. Yet the land available to recycle the manure nutrients back into feed production varies.

Recycling manure through an integrated crop and livestock farm is not a new

practice. The manure nutrients cycled back through soils and crops support animal feed and growth, reducing reliance on additional inputs like fertilizer and purchased feed.

Putting an economic and environmental value to this recycling is garnering more discussion and inclusion in sustainability conversations. So are partnerships between livestock and crop farmers.

How can we retain the value of manure, even when moving it from one farm to another? How do we spread the wealth — pardon the pun — to create a win-win situation for both the suppliers and the consumers of the manure?

### Changing perceptions

A recent survey collected input from more than 950 people across North America, with 67% of the respondents from the Corn Belt and High Plains. More than 60% of survey participants identified as advisors who assist farmers with agronomic decisions. Crop farmers, livestock producers or combinations

thereof rounded out the rest of the participants.

The majority (70%) of survey participants indicated the statement “manure and fertilizer complement each other” reflects their management decisions or recommendations with respect to cropping programs.

Greater than 92% of survey respondents rated manure as “beneficial” for crop fertility and nutrition. There was also general agreement of the benefit of manure for physical and biological characteristics of the soil and crop yield.

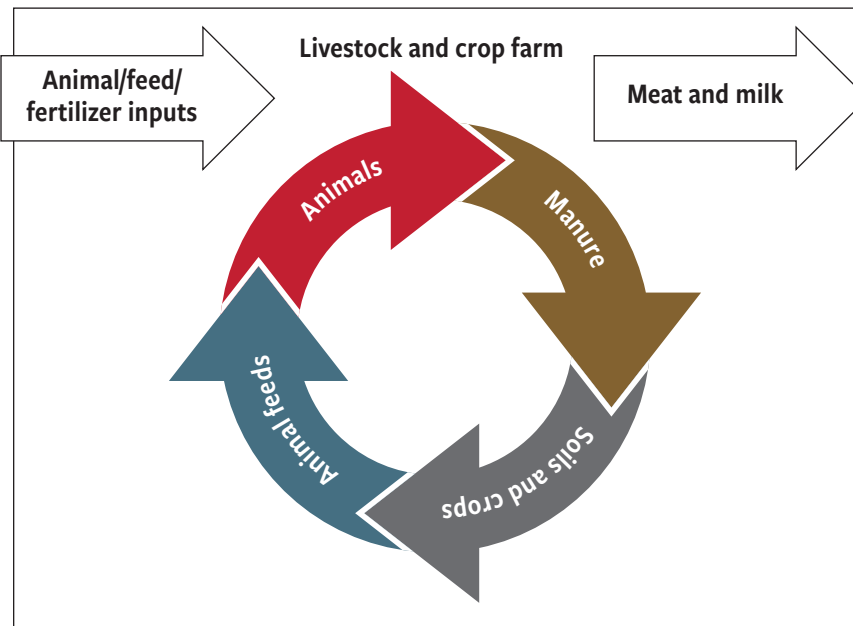
Historically, manure management was considered “waste management.” These results suggest a shift is occurring in the perception of manure’s value.

### Challenges

In order to create a win-win situation, there are economic challenges to overcome in transferring manure from a livestock to a cropping enterprise.

From a list of 35 challenges, 90% of survey respondents selected transportation and application costs as the top challenge to using

Fig. 1: Recycling of nutrients through a livestock and crop farm



manure in cropping systems. Rounding out the top-10 list (see Table 1), and selected by 46% of respondents, were the initial costs for adding manure to a cropping system, likely associated with the cost of equipment for transportation and application.

There are few one-size-fits-all solutions to these challenges. However, the challenges identify talking points to prepare for in future potential partnerships to move manure beyond the corral.

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Editor’s note: “By Design” is a regular column featuring facility and homestead design. Erin Cortus is an assistant professor and extension specialist in bioproducts and biosystems engineering at the University of Minnesota.

Table 1: Top 10 potential challenges to using manure in cropping systems, and the regularity of these challenges being identified as a frequent barrier (real or perceived) preventing manure use

	Top 10 challenges	Response count	Response %
Economic	Transportation and application costs	693	90%
Neighbor	Odors	597	78%
Logistical	Timeliness of application	555	72%
Logistical	Field conditions limiting application	508	66%
Logistical	Time/labor requirements	486	63%
Agronomic	Application equipment compaction	435	57%
Agronomic	Poor uniformity of application	391	51%
Regulatory	Regulations	381	50%
Agronomic	Weed seed from manure	366	48%
Economic	Initial costs for adding manure	355	46%

