

# Manure steps into limelight

By CHRISTY HEMKEN

**A**S commercial fertilizers become more costly, livestock manure becomes more attractive to crop farmers as a less expensive fertilizer alternative.

In the mid-1990s, many farmers were getting manure for free from livestock producers who wanted to get rid of it. Within the past few years, it has become a valuable commodity, with some farmers today willing to pay \$40 per acre for manure and application.

"Corn growers are eager to use manure now and that wasn't the case 10 years ago," observes Kelvin Leibold, an Iowa State University Extension farm-management field specialist.

Though its popularity has risen, manure has no fixed value. Price is determined by what the market can bear. The biggest driver is demand.

The price of manure depends mainly on the price of other fertilizer products. Demand for hog manure is rising, so the value is rising. Also, the cost of commercial fertilizer is up, tied to energy costs.

## Key Points

- Livestock manure is more valuable to crop farmers due to rising fertilizer cost.
- One reason more hog buildings are being built is the fertility value of manure.
- Saving money using manure instead of buying fertilizer is an attractive option.

It's good news for livestock producers.

Florida phosphorous mines, a worldwide source of the mineral, will be played out within 25 years. "This shortage will continue to raise fertilizer prices, including manure," says Leibold. "Higher energy prices will also continue to drive up the price of manure."

One of the most important keys in managing and marketing livestock nutrients is being able to hold down the cost of application while understanding the product's value.

Though livestock manure has advantages, challenges also exist. "Some limitations in marketing manure are lack of uniformity, both within the pit and during application. There's also



**A GOOD DEAL:** Farmers can often save money by applying manure with their own equipment instead of hiring it done because more good used equipment is now available, says ISU's Kelvin Leibold.

timeliness, field compaction and the correct ratio of ingredients within the manure," says Leibold. To help limit these drawbacks, he recommends thorough pit agitation and use of soil and manure tests.

## Control application cost

Manure application costs are largely driven by custom applicators, although the fertilizer is becoming easier for farmers to haul. "Manure tanks will continue to become cheaper, making it possible for farmers to own applicators themselves," says Leibold. "A lot of haulers are in and out of business, making used tanks easier to find. And new technology leaves more used equipment to buy less expensively."

Some producers are able to keep application costs down by purchasing a pre-owned tank and using their own tractor and labor. "If farmers can use their own labor and machinery in manure application, it's always a

good deal for them," says Leibold. "Commercial rates are going up."

Location is key when searching for cropland to apply manure. In most cases, distribution of manure is easier from small livestock production sites because there's more land over which to apply less manure. Larger sites with eight or more buildings are more landlocked, and manure must be hauled a greater distance before pits are empty.

Another trend is that hog buildings are benefiting landowners because manure's value saves money for crop farmers. Crop farmers often use this money they have saved to bid land rents higher in the neighborhood.

Currently, there's a manure shortage in north-central Iowa. "We have no instances of oversupply yet," says Leibold. "One of the reasons we're seeing people building more hog houses is to get more manure. We're going to see a lot more livestock in north-central Iowa."

*Hemken is an ISU journalism student.*

## A look toward the future of fertilizer

■ Hog barns are going to be increasing as partnerships between parties, believes Kelvin Leibold, ISU farm-management specialist. "There will be an investor group, a labor group and a manure group all coming together on building sites," he says. "Someone will own the building, a contracting company will manage the labor and manure, and a crop producer will get the manure."

■ Though variable-rate application technology is an option, Leibold says uniform application needs to be attained before worrying about application using GPS technology. He says variable-rate application increases the number of acres needed for application, which increases the total cost of application. "If manure gets valuable enough, we may see an interest among farmers in using GPS technology for variable-rate application, but I don't think we're there yet," he says.

## Inoculants might benefit your soybeans

**S**OYBEAN plants have the ability to manufacture their own nitrogen from the atmosphere. This is possible because of the symbiotic relationship between a bacteria in the soil and nodules on the plant's roots. In Iowa, the usual bacteria is *Bradyrhizobium japonicum*, also used in commercial inoculants.

"N fixation is very important for producing a higher-yielding soybean crop," says Palle Pedersen, soybean Extension agronomist at Iowa State University. "In general, 50% to 75% of the N requirement for a soybean plant can be obtained from N fixation, provided the correct strain of *B. japonicum* is available in the soil or is supplied as an inoculant at planting."

If soils do not already contain a high population of *B. japonicum*, the bacteria can be added either as a liquid or a peat-based powder. The different forms of inoculant can be applied on seed before you plant or applied in-furrow as you plant. Information on forms and methods can be obtained from companies that sell inoculants.

Most recommendations in the Midwest have traditionally been to inoculate seed if nodulated soybean plants haven't been grown in the field

in the past three to five years, and if soil pH has not been maintained above the 6.0 mark.

Fields that have never been planted to soybeans, fields that frequently get flooded and fields with sandy soils (low organic matter) need to be inoculated every year.

## Products combine strains

The newest products use a formulation of more than one strain of *B. japonicum* to try to optimize N fixation for more vigorous plant growth and higher soybean yield.

Iowa State University began an inoculant evaluation trial in 2004 where new inoculant products are tested in fields in the traditional corn-soybean rotation. The reason behind this study is that some of these new inoculants may be able to supplement the natural populations of bacterial inoculum in soil.

"We have been testing more than 30 products over the last two years at two locations," says Pedersen, "but none of the products have given us a consistent yield increase."

When evaluating the success of using an inoculant, you must consider many factors, says Pedersen, including rainfall, temperature, soil pH, salt content,

soil physical factors, as well as type of legume and difference in types of *B. rhizobium* species.

## Count nodules carefully

"We will continue to evaluate these products in the future," says Pedersen. "A lot of inconsistency exists so we need to continue the trials."

"For the majority of Iowa, we have extremely good soils and no inoculant is needed. However, there may be a few incidences where that is not the case. That is where we are looking at the potential usefulness of these inoculant products."

When you dig soybean plants, look for active nodules on the roots. You can do that as early as the V1 to V2 stage of soybean plant growth. Active nodules have an internal pink color.

New nodules are formed during much of the life of a soybean plant. When the plant reaches pod-filling stage, it quits forming new nodules. "Be careful when you check roots for nodules," says Pedersen.

"Digging soybean plants at the end of the growing season to look at how many nodules are on the roots may be misleading since plants quit forming nodules when they reach pod-fill."

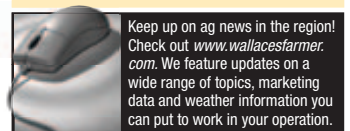
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