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Survey shows manure sampling yields positive results

by Tracy S. Petersen, freelance associate

Livestock producers in Sioux County do a better job of managing manure as a nutrient than their counterparts statewide, according to an Iowa State University Extension survey. Sioux County is Iowa's largest livestock-producing county.

Joel DeJong, extension field crops specialist in northwestern Iowa, pointed to economics as the reason for the county's positive survey results. "Those who take credit for their manure have a smaller cash outlay for commercial fertilizer," DeJong said. "Plus, the farmers recognize the risks and social concerns about managing manure improperly."

DeJong and Kris Kohl, extension agricultural engineer in northwestern Iowa, received funding from ISU's Leopold Center for Sustainable Agriculture to conduct the survey early last year. They did so after learning that an Iowa Farm and Rural Life poll indicated only 47 percent of Iowa farmers were taking credit for their manure applications. The survey conducted by DeJong and Kohl indicated that 95 percent of Sioux County livestock producers reduced their use of



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commercial fertilizer. "Those who have a laboratory to analyze their manure take more credit for its fertilizer value, because they know what they're applying," DeJong said. "So now we're emphasizing sampling."

To inform livestock producers of the benefits of sampling, extension specialists in the area use newsletters, speak at manure applicator certification meetings, and work one-on-one with producers. The response has been positive. "People are unsure about the management of manure, so they're looking for information," DeJong said.

Once they better understand how to predict the nutrient value of manure, producers' biggest investments are in testing, time, and management. "Most have the equipment, but need to spend some time and energy calibrating it," DeJong said. "A lot of older equipment can do a decent job." DeJong added, "We need to evaluate the equipment and manure as a nutrient form, so we manage it as a nutrient and not a waste. That means paying attention to all the details. We should be weighing the tanks to be sure we're getting the gallons applied per acre that we plan for. And we need to know, not guess, the nutrient value of the manure applied. For example, we've seen nitrogen levels in swine finishing units ranging from 35 pounds

per thousand gallons to 85 pounds per thousand gallons."

Most producers who actively manage their manure find the effort is worthwhile. Of the 51 percent of the survey respondents who do test their manure, 36 percent said they apply no additional nitrogen to their fields. Sixty-eight percent apply no additional phosphate, 69 percent apply no additional potash, and 51 percent apply no additional commercial micronutrients. In comparison, of those who do not test their manure, only 15 percent said they apply no additional nitrogen, 38 percent apply no additional phosphate, 37 percent apply no additional potash, and 30 percent apply no additional commercial micronutrients. Furthermore, most producers who have their manure analyzed feel their crops yield somewhat better. DeJong said that's not always the case, although studies do indicate that manure applications do sometimes improve yields.

For more information about manure management or a list of laboratories that conduct manure analysis, contact your local county extension office or visit the Iowa Manure Management Action Group Web site at <http://extension.agron.iastate.edu/immag/>



Manure Applicator Certification Training 2001

by Angela Rieck-Hinz, Department of Agronomy

By the time most of you receive this newsletter the 2001 Manure Applicator Certification Training workshops will be in full swing. In addition to changes mentioned in the article "Changes in manure applicator certification program" on page 4, there are additional program issues you need to be aware of regarding the certification program.

Confinement site manure applicators. If you are a confinement site manure applicator and you received your initial certification by attending a 2-hour training session, your certification is valid for 3 years. To maintain that certification, you must attend 2 hours of training each year of that 3-year certification

period. You must receive that 2 hours of training by the calendar month listed on your certification card. If you miss 1 year of training, you will be required to take and pass an exam at the end of the 3-year period to renew your certification.

For example, if you attended a workshop for your initial certification in 1999 your certification card may say valid through October 1, 2002. You must have attended 2 hours of training in 2000 by October and you must attend training by October 2001 for your certification to remain valid. If you miss 1 year of training to renew your certification you will have to take an exam in 2002 or prior to manure application.

If you were initially certified by taking an exam your certification is still valid for 3 years, but you are not required to attend 2 hours of annual training. For a list of training workshops please contact your local county extension office or see the Web page at

<http://extension.agron.iastate.edu/immag/certification/confdates.html>

Commercial manure applicators. Initial certification and recertification for commercial manure applicators will be held in most county extension offices on Tuesday, February 20, 2001. The workshop will start with registration at 8:30 a.m. and certification training will be from 9:00 a.m.

to 12:30 p.m. Commercial manure applicators must receive 3 hours of annual training or take an exam every year to maintain their certification. Contact your local county extension office to determine which counties are hosting the satellite downlink for the 2001 training workshop.

If you are either a commercial manure applicator or a confinement site manure applicator and you are not able to attend one of the training workshops, you may schedule an appointment with your county extension office to view the appropriate training videotape. You must still view the videotape prior to the month listed on your certification card.



Take credit for manure application to offset fertilizer costs

by Karen Grimes and Julie Tack, Department of Natural Resources information specialists

As fertilizer prices soar, now is the time to use the nitrogen that is being generated in the hog barn, according to Wayne Gieselman, coordinator of the Department of Natural Resources' (DNR) animal feeding operation program. "Take credit for available nitrogen, test your manure, and land apply following a manure management plan," said Gieselman. "You'll save money and help the environment."

High natural gas prices are translating into increased fertilizer costs, according to DNR energy analysts and agricultural experts. Prices are predicted to stay high for several months, which means elevated fertilizer prices will not go away soon. Ammonia fertilizers have doubled in cost in a year when natural gas prices have risen 400 percent. According to Chris Murray, vice president of the Agribusiness Association of Iowa, the average retail price of ammonia fertilizer is now \$370 per ton, or 22.6 cents per pound. In fall 1999, it was \$190 per ton, or 11.6 cents per pound. Rising natural gas costs mean fertilizer suppliers have to raise prices, and perhaps curtail production, according to the U.S. Fertilizer Institute, which could affect fertilizer management by Iowa farmers.

Gieselman encourages producers to take a serious look at their manure management plans. Producers who are not required to

have a plan may want to develop one. Forms and instructions can be found on the DNR Web site under animal feeding operations. The Web site is located at <http://www.state.ia.us/government/dnr/organiza/epd/index.htm>

Lyle Asell, interim director of the DNR, said farmers can look more seriously at nitrogen management practices when prices are a factor. "Farmers can take credit for nitrogen from other sources," said Asell. "Livestock manure applications, planting of nitrogen-rich crops such as soybean, and more serious soil testing practices can help alleviate reliance on commercial fertilizers."

These management practices can address other issues, including water quality and regulatory concerns. According to Asell, new water quality initiative programs by the DNR and the Department of Agriculture and Land Stewardship are designed to educate farmers about effective resource management in crop production. ISU Extension, in coordination with Iowa State University, the DNR, and other partners, provides Web sites for information on nutrient management. Go to <http://extension.agron.iastate.edu/immag/> for more information on manure management and to <http://extension.agron.iastate.edu/npknowledge/> for more information on specific nutrients.



Correction to feedlot article in winter issue

by Jeff Lorimor, Department of Agricultural and Biosystems Engineering

The following information in the Winter 2000 article of *Odor and Nutrient Management* newsletter on “Controlling open feedlot runoff” was incorrectly stated. The article said, “Agricultural operations are not eligible for NPDES permits, which means they must capture runoff and pump it back onto agricultural land so it doesn’t run off.”

The statement should have read “Agricultural operations must capture runoff and land apply according to land application rules in Iowa, which include meeting separation distances and not causing groundwater or surface water pollution.”

Open feedlots with more than 1,000 animal units and operations with more than 300 animal units that discharge directly into a water of the state are required to apply to Iowa Department of Natural Resources (DNR) for an operation permit. In Iowa

operation permits are the same as national pollutant discharge elimination system (NPDES) permits. The permits, however, only allow discharge in the event of very large storms. The purpose of the operation permit is to spell out how the runoff control system must be operated, and what monitoring and reporting are required to show that the facility is operated in accordance with state and federal regulations.

There are other NPDES permits that the DNR issues, including the “storm water” permit that is required for any producer, contractor, or other person whose construction activities will disturb 5 acres or more of land.

Open feedlot operations can contact DNR to determine whether they need an operation permit or they can find more information at <http://www.state.ia.us/government/dnr/organiza/edp/wastewtr/feedlot/feelt.htm>



Changes in manure applicator certification program

by Karen Grimes, Department of Natural Resources

A universal expiration date, fee exemptions for family members, and adding fees for late and duplicate certificates are among the Department of Natural Resources’ (DNR) proposals that will change the manure applicator certification program.

“We’re proposing a universal expiration date for manure applicator certificates to make life easier for everyone,” said Wayne Gieselman, coordinator of the DNR animal feeding operation program. “Commercial and confinement site manure applicators will find it easier to remember expiration and training dates, and our staff maintains it will be more efficient to process the applications.”

December 31 is proposed as the universal expiration date, but producers will have a 60-day grace period so that they can complete their training and send in their application by March 1. Producers and commercial applicators should be thinking about this now, so that they can complete their training before March 1 next year.

During the transition year, the DNR will charge a \$25 dollar fee for applicators whose licenses expire between January 1 and June 30 and no additional fee for those applicators whose licenses expire between July 1 and December 31. The change will make the program work more like the pesticide applicator program, a program that farmers are very familiar with, Gieselman said.

Another proposed change will incorporate a new law that allows a fee exemption for family members who are certified under another family members' confinement site certification. The fee exemption will be available for a person who is farming the same family farm operation and is a spouse, parent, grandparent, child, grandchild, or sibling of the certified confinement site applicator.

To qualify, the applicant must complete the required 2 hours of education each of the 3 years covered by the certificate or pass an examination. He or she also must apply for the certificate within

1 year of when the family member became certified or renewed the certificate. The proposal would also set a late fee of \$12.50 for renewal applications received or postmarked after March 1. Applicants who ask the DNR to provide a duplicate certificate will be charged \$15.

The proposed rule changes were presented to the Animal Agriculture Consulting Organization last fall and at the Environmental Protection Commission meeting in January. There may be some changes in DNR's proposal as it goes through the rulemaking process, but Gieselman anticipates the rule will be finalized sometime in June or July.



Comparison of beef feedlot systems

by Wendy Miller, Iowa Beef Center media specialist

Beef feedlot operators may find themselves needing to update their facilities due to current and pending environmental regulations. As intimidating as this may sound, producers still have choices, points out the Iowa Beef Center. "Perhaps the best way to compare the different feedlot designs is at the bottom line," said John Lawrence, director of the Iowa Beef Center. "Each design includes the initial investment, operating costs and animal performance, plus meets current environmental requirements. By thoroughly looking at all the numbers, producers can get a good grasp of how to spend their money."

The Iowa Beef Center compared five systems: earthen feedlot with a windbreak, earthen feedlot with a shed, concrete lot with shed, total confinement with a concrete floor, and total confinement with a slatted floor in increments of 750, 1,500, and 5,000 head. The findings were recently published in PM 1867, *Beef Feedlot Systems Manual*, a compilation of materials designed to assist producers in making educated decisions.

Animal performance varied across the systems. The open lot with a windbreak generally had the poorest feed efficiency, but the feed intake was better than slatted-floor confinement. Average daily gain was higher in the open lot without shelter than the slatted confinement, but worse in the other systems.

Total confinement with slatted floors produced animals with the lowest feed intake and average daily gain, but moderate feed efficiency. The open lot with a shed, concrete lot with a shed, and total confinement with a solid floor performed comparably to one another and had the best feed efficiency and average daily gain.

Initial investment per head was similar between the 750- and 5,000-head lots and slightly higher for the 1,500-head lot. The difference in investment is driven by the cost of environmental compliance. Feedlots with more than 1,000 head are required to have a runoff detention basin. The 5,000-head feedlot is able to spread these costs over more cattle than the 1,500-head lot and the smallest lot does not incur this expense. Adding the shed to the earthen lot more than doubles the initial investment for the 750-head lot and increases it 80 to 90 percent in the larger lots. The earthen lot is approximately one-third the cost of total confinement with slatted floors. The earthen lot with shed and concrete lot with shed have comparable initial investment. The concrete lot has higher animal density and less runoff to control than the earthen lot and thus has a lower cost of environmental compliance.

Overhead and operating costs, including the facility, manure hauling, fuel, utilities, and labor range from \$32.85 for the earthen lot with windbreak to \$59.53 for slotted floor confinement. Costs for the 1,500- and 5,000-head earthen lots are 35 and 30 percent higher than the 750-head earthen lot because of the detention basin. Over half of the added cost is related to pumping out the basin. This study assumed commercial pumping rates, but producers who own their own equipment may be able to empty their basins at a lower cost.

The difference between the systems declines when compared on a cost-of-gain basis, which incorporates animal performance. For feedlots with fewer than 1,000-head capacity, the earthen feedlot has the lowest cost-of-gain followed by the

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concrete lot. The larger feedlots, which require additional environmental structures, have a slightly higher cost-of-gain and the concrete lot is the lowest cost system.

This analysis of alternative beef feedlot systems indicates that new facilities in environmental compliance can be built and operated profitably. Although it appears that feedlots with fewer than 1,000-head capacity have a cost advantage, regulations requiring feedlots with as few as 300 head to adhere to the same standards

as the large feedlots have been proposed. Larger feedlots have an incentive to reduce the amount of runoff that they must hold in a detention basin. In addition to the added engineering and construction costs, the costs of emptying the basin are significant.

To learn more about beef feedlot systems, performance, and cost data, order a copy of PM 1867, *Beef Feedlot Systems Manual*, for \$2.00 plus shipping and handling through the ISU Extension Distribution Center, (515) 294-5247.

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