



# Odor and Nutrient Management

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## Design Rules for Open Feedlots in Place

by Karen Grimes, Iowa Department of Natural Resources

The Environmental Protection Commission approved new design rules for the construction of open feedlots on Aug. 15.

Commissioners passed the rules on an emergency basis to provide design standards for open feedlot producers who are anxious to construct this fall. The rules become effective on Sept. 14.

This is particularly important for producers who plan to use alternative technologies and for more than 100 producers who are participating in the Iowa Plan for Open Feedlots. These producers, who must have a construction permit, will now have standards allowing them to meet both state and federal requirements.

With some concern from the U.S. Environmental Protection Agency about a lack of enforcement on open feedlots, the rules will provide validity to construction permits issued by the DNR, particularly for building alternative technology systems.



Alternative technology systems include site-specific designs for vegetated treatment areas and other means of treating the runoff from open feedlots after solid manure has been settled out.

As with any construction improvements, producers should work closely with design engineers so that designs accommodate their individual management styles. Producers should consider actual cropping practices and management during the design stage. Because of Iowa's spring and fall rains, producers need to be certain that they have adequate land application fields available for the chosen effluent control system.

Whether or not the system is successful will depend upon how well the producer can work with the design, construction and management of the system.

The DNR will also proceed with the normal rulemaking process, so that producers and other stakeholders will have a chance to provide public input on the rules.

The actual rule can be found on the DNR Web site at <http://www.iowadnr.com/afo/newrules.html>. More information can also be obtained from Gene Tinker, coordinator of the DNR's animal feeding operations, at (515) 281-3103.





## New DNR Rules Regulate Manure Stockpiling

by Karen Grimes, Iowa Department of Natural Resources

The Environmental Protection Commission passed new rules for open feedlots that prohibit manure stockpiles in locations that would affect state waters. Commissioners passed the rules on an emergency basis to provide design standards for open feedlot construction this fall. Stockpiling rules also become effective on Sept. 14.

This is a common sense rule that requires manure stockpiles to be placed away from streams and other locations that could carry manure or manure-contaminated water to a stream.

The new rule requires producers to avoid grassed waterways, roadsides or stream edges that might carry uncovered manure right into a stream. Stockpiles within 200 feet of a drainage tile intake must be located downgradient of the intake.

Specific set-back distances require stockpiles to be located at least 200 feet from a known sinkhole, cistern, abandoned well, unplugged agricultural drainage well, agricultural drainage well surface tile inlet, drinking water well, a designated wetland, lake or water source.

However, if a 50-foot wide vegetated buffer strip is placed around the sensitive area and the stockpile is located outside that buffer, then the 200-foot separation distance does not apply.



Stockpiles also need to be set back at least 800 feet from high quality water resources such as trout streams and many other quality lakes and streams. A list of high quality water resources is available on the DNR Web site at <http://www.iowadnr.com/afo/files/hqwr2.pdf>. Producers can also find information on land application requirements at <http://www.iowadnr.com/afo/files/sepdstb4.pdf>.

Gene Tinker, the Department of Natural Resource's coordinator of animal feeding operations can provide additional information. He can be reached at (515) 281-3103.

## Comprehensive Nutrient Management Planning for Your Production Facility

by Lara B. Moody and Robert T. Burns, Department of Agricultural and Biosystems Engineering

The Comprehensive Nutrient Management Plan (CNMP) concept has been developed by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) to be an overall conservation plan addressing all aspects of an animal feeding operation. Additionally, the Environmental Protection Agency (EPA) recognizes that CNMPs address the requirements of the Nutrient Management Plan necessary for the maintenance of a National Pollutant Discharge Elimination System (NPDES) permit.

The USDA requires animal production operations obtaining financial and technical assistance funds for the implementation of conservation programs to have a CNMP.

In 2002, the Farm Security and Rural Investment Act (Farm Bill) increased the amount of conservation program funds available to animal feeding operations, and introduced the certified Technical Service Provider (TSP) as a source of technical assistance for producers. Through the Farm Bill, producers can contact a TSP, request the development of CNMP and then may be reimbursed for a TSP's services with conservation program funds, if available.



### What is a CNMP?

A CNMP is a conservation system developed in accordance with NRCS planning policy that addresses all aspects of an animal feeding operation. Though there may be similarities between developed CNMPs, each one is unique to a particular production facility. The six basic elements addressed in a CNMP are:

- 1. Manure and Wastewater Handling and Storage**
- 2. Nutrient Management**
- 3. Land Treatment Practices**
- 4. Record Keeping**
- 5. Feed Management**
- 6. Other Utilization Activities**

Addressing these six elements will assist the producer in meeting soil and water conservation goals as well as reducing the potential and actual threats to water quality and public health from their operations. As defined by NRCS, a CNMP is a group of conservation practices and management activities that when implemented as part of a conservation plan will help ensure that both production and natural resource protection goals are achieved. The potential impacts of soil erosion and manure on water quality are a key natural resource concern.

### Elements of a CNMP

While all six elements should be considered by a producer, and documented accordingly, they do not all have to appear within the CNMP. At a minimum, the plan should address actions pertaining to a facility's production area and the land on which the manure and organic by-products will be applied. This means that if an operator applies manure to his crop production area, the plan should at least cover elements 1-4 as listed above.

### Manure and Wastewater Handling and Storage

This element addresses issues concerning structures and other areas within a production facility used for manure transfer, treatment, and/or storage. Within this section, the CNMP should identify concerns and provide documentation of adequate manure collection, storage and/or treatment to allow for land application of the material, as well as for dead animal disposal. In addressing these concerns, the CNMP should also take air quality and pathogens into consideration.

### Nutrient Management

This element addresses issues concerning the land application of manures and all other nutrients amended to production fields related to the livestock operation. The CNMP will show how to implement land application procedures in a way that minimizes the potential adverse impacts to the environment and public health. Consideration should also be given to air quality, pathogens and salt and heavy metal build-up (that may result from application of manures in some regions).

### Land Treatment Practices

This component addresses erosion and runoff from fields or other locations on the farm. Within this section conservation practices affecting the land application site are evaluated and implementation procedures are discussed.

### Record Keeping

This element is essential to the implementation of a CNMP. Records document and demonstrate that activities associated with the CNMP have been implemented. It is the responsibility of production facility owner/operators to maintain the required records.

### Feed Management

This component is not a requirement of a CNMP, but feeding strategies should be addressed if they are needed to reduce manure nutrients generated in excess of available crop nutrient requirements. A professional animal nutritionist should be consulted if feed management alternatives are being considered. Strategies may include phase feeding, amino acid supplemented low crude protein diets, the use of low phytin phosphorus grain and enzymes or simply reducing nutrients that may currently be fed in excess of animal needs.



### Other Utilization Activities

When available manure nutrients exceed crop requirements or where land application of manure would cause significant environmental risk, alternative uses should be considered. Feasible alternatives should be selected that are equally as cost-effective as land application if possible. Because these alternatives are not conventional, industry standards do not always exist, and NRCS conservation practice standards may not be available.

### Purpose and benefit of a CNMP to a producer

When implemented, a CNMP should help ensure that animal and crop production as well as natural resource protection goals are achieved. Because a CNMP uses conservation practices to beneficially use animal manures, it also assists animal feeding operations in meeting regional and federal water quality goals and regulations. There are many ways a producer can benefit from the development of a CNMP for his/her facility.

- A CNMP has the potential to be recognized as an EPA NPDES nutrient management plan
- The CNMP development process assists a producer to assess possible production and water quality protection concerns at the operation
- The cost of a CNMP developed by an NRCS certified TSP may be reimbursed by USDA and the CNMP can be used to meet an EPA NPDES nutrient management plan requirement
- A CNMP is a tool that will help develop a sustainable operation

In 2003, when the EPA revised the NPDES effluent limitation guidelines, it updated the rule that affects concentrated animal feeding operations CAFOs. As part of the rule change, a very clearly defined nutrient management plan is now required as part of the permit. While the defined nutrient management plan is not outlined similarly to the six possible elements of a CNMP, it does address many of the same issues. Though there may be some state specific differences between CNMPs and EPA nutrient management plans, the key difference is that a CNMP is required to be developed by an NRCS employee trained to prepare them or an NRCS certified TSP. When prepared by a TSP, fees for services may be reimbursed through guidelines outlined in the 2002 Farm Bill.

### How can a producer obtain a CNMP?

A producer can choose to have a CNMP completed by an NRCS employee or a certified TSP. If a producer chooses to have an NRCS employee develop a CNMP for his or her facility, there may be a waiting period involved due to other NRCS commitments. Alternatively, a producer may choose to hire a TSP who can provide the services in a shorter time frame. To use a certified TSP whose services will be reimbursed, a producer must first sign up for NRCS's Environmental Quality Incentives Program (EQIP). The District Conservationist in the area NRCS office will be able to assist you in the process. A Web site for the TechReg program ([www.techreg.usda.gov](http://www.techreg.usda.gov)) provides information the producer can use to select a TSP; The District Conservationist can also provide you with a list of TSPs active in your area.

Services provided by TSPs are reimbursed based on "not-to-exceed" rates (NTEs) developed by NRCS. The producer and the technical service provided can negotiate service fees. However, fees in excess of the NTE must be compensated by the producer. Not-to-exceed rates can be determined for a given service using the rate calculator on the TechReg Web site.

### Additional Sources of Information

The USDA has three publications that provide more information about comprehensive nutrient management plans.

**USDA-NRCS.** *Comprehensive Nutrient Management Planning Assistance Available from Technical Service Providers.* <http://www.nrcs.usda.gov/programs/afo/2003pdf/TSP%20CAFO%20Fact%20Sheet.pdf>

**USDA-NRCS.** CNMP Fact Sheet obtained from USDA-NRCS Web site on 8/19/05.

<http://www.nrcs.usda.gov/programs/afo/pdf/CNMPFactSheet.pdf>

**USDA-NRCS.** 2003. Part 600.5 – *Comprehensive Nutrient Management Planning Technical Guidance. National Planning Procedures Handbook.*

[http://www.nrcs.usda.gov/programs/afo/cnmp\\_guide\\_index.html](http://www.nrcs.usda.gov/programs/afo/cnmp_guide_index.html)



## Who Needs to be Certified as a Manure Applicator?

by Karen Grimes, Iowa Department of Natural Resources

Questions from manure applicators at a recent field day showed that there is still some confusion about who needs to be certified. Manure applicators also had questions about which type of applicator certification is right for them.

In addition to meeting manure applicator certification requirements, applicators are reminded they must also meet applicable separation distances for land application of manure. A fact sheet identifying these requirements can be found at <http://www.iowadnr.com/afo/files/sepdstb4.pdf>. Applicable separation distances for land application of manure must be followed during application.

There are two types of manure applicator certification: **commercial** and **confinement** site. Commercial applicators are companies that charge a fee to transport, handle, store or apply manure and are in the business of applying manure. Whether a sole proprietor or a business, the commercial company, its manager and each of the employees involved must be certified. If fees are being charged for the nutrient content of the manure, the applicant must be commercially certified.

For commercial applicators, the source of the manure does not matter. Manure can be from a confinement feeding operation, an open feedlot (confined, but unroofed or partially roofed) or a small animal feeding operation. Manure can be liquid or dry. Certified commercial representatives do not need to have a separate confinement site certification to apply manure from their own facilities.

Confinement site applicators are those who apply manure from a confinement feeding operation manure storage structure and do not charge application fees or for the nutrient value of the manure. Confinement site operators whose facilities contain 500 animal units or less are not required by law to be certified, but are encouraged to attend training classes and must follow proper application techniques (see Table 1).

An applicator who is actively engaged in farming and trades work with another producer or who has a custom farming operation and applies manure as an incidental part of that operation must still be certified. In this case, the applicator does not need the commercial certification, but does need to be certified as a confinement site applicator.

Jeff Prier of the Iowa Department of Natural Resources can answer questions about who needs to be certified and what kind of certification is needed. He can be reached at (712) 262-4177.

**Table 1. To calculate the animal unit capacity of your facility, multiply the maximum number of animal species confined at one time by the appropriate factor in the third column, then total the numbers.**

Animal Species	No. Head	x Factor	=	AUC
Slaughter or feeder cattle :	<input type="text"/>	1.0	=	<input type="text"/>
Immature dairy cattle :	<input type="text"/>	1.0	=	<input type="text"/>
Mature dairy cattle :	<input type="text"/>	1.40	=	<input type="text"/>
Swine over 55 lbs :	<input type="text"/>	0.4	=	<input type="text"/>
Swine 15 lbs to 55 lbs :	<input type="text"/>	0.1	=	<input type="text"/>
Sheep and lambs :	<input type="text"/>	0.1	=	<input type="text"/>
Horses :	<input type="text"/>	2.0	=	<input type="text"/>
Turkeys 7 lbs. or more :	<input type="text"/>	0.018	=	<input type="text"/>
Turkeys less than 7 lbs. :	<input type="text"/>	0.0085	=	<input type="text"/>
Broiler or layer chickens 3 lbs. or more :	<input type="text"/>	0.01	=	<input type="text"/>
Broiler or layer chickens less than 3 lbs. :	<input type="text"/>	0.0025	=	<input type="text"/>
<b>Total AU's</b>				= <input type="text"/>





## Producers Must Account for Commercial Fertilizer on Manure Application Fields

by Karen Grimes, Iowa Department of Natural Resources

### New rule

State law has required manure management plans (MMP) for confinement feeding operations that have more than 500 animal units since 1999. The 500 animal unit capacity includes confinement operations with more than 1,250 finishing hogs, 500 beef cattle or 350 dairy cattle.

These plans are used to determine crop nutrient needs and to plan manure application rates. They are valuable tools for crop producers to make the best use of nutrients, provide the optimum fertilizer for crop growth and to protect water quality. The Iowa Department of Natural Resources enforces this state law.

Until Aug. 26, 2005, animal producers were not required to keep records of additional commercial fertilizer applied to the manured fields. A new rule requires animal producers to track commercial fertilizer application, even on land that they do not own or rent. This new rule will require careful communication and cooperation between crop producers who want to use manure and the livestock producers who produce it.

However, it is important to track these nutrients to prevent over application of fertilizer and possible movement of excess nitrogen (N) or phosphorus (P) to a lake or stream where they can degrade water quality.

### Record commercial P and N applied to manured fields

Starting Aug. 26, confinement animal producers who need a manure management plan (MMP) must account for both manure and commercial sources of nutrients applied to crop fields.

If the animal producer owns or rents the land, they must keep records of how much commercial nitrogen and phosphorus has been applied to fields where manure from a confinement is applied. The records should be kept with the manure management plan.

### Statement needed when owner or renter is not the animal producer

If a confinement producer does not own or rent all the land where manure is applied, then the confinement producer must obtain a signed statement from the landowner or renter of the crop field, indicating how much commercial fertilizer has been or will be applied. The signed statements must be available at the confinement site prior to manure application. The statements are required even if no commercial N or P will be added.

Crop producers should expect animal confinement producers to contact the landowner, operator or renter to obtain a signed statement of intent. The animal producer will use this statement to adjust rates in the manure management plan, if needed.

Crop producers may also want to obtain a copy of the MMP for the fields that they own or rent.

The total N and P applied cannot exceed the maximum rates indicated in the MMP regardless of the source of the nutrient, commercial fertilizer or manure. If a crop producer decides to add commercial fertilizer that was not listed in their statement of intent, the crop producer must report this to the livestock producer. Crop producers should add additional fertilizer only after fall stalk tests or spring soil tests show the need for additional nutrients.

### Forms

The DNR has developed a form that producers can use, making the process easier. Producers can check the DNR Web site at <http://www.iowadnr.com/afo/forms.html> under manure management plans to find form number 542-8167.

### Recordkeeping

Records of actual application rates must be kept for three years or the length of the crop rotation, whichever is longer. Starting in August 2006, records must be kept for five years or the length of the crop rotation, whichever is longer. Livestock producers should keep the statements from crop producers, and any records of fertilizer added to the fields, for the same length of time.

For more information, contact Cindy Martens at (712) 262-4177 in the DNR Spencer field office or the regional DNR field office.



### Announcements

#### Monthly Manure Plan Workshops

Kris Kohl, ISU Extension agricultural engineer, has scheduled a series of manure plan development workshops for producers who need to complete a manure management plan or who need to file their annual updates with the Iowa Department of Natural Resources. Workshops are scheduled for Sept. 19, Oct. 24, Nov. 21, and Dec. 15. Each workshop starts at 10 a.m. and concludes at 3 p.m. The fee to attend a workshop is \$25. For more information or to register for a workshop please see <http://extension.agron.iastate.edu/immag/info/05idnrmgtbrochure.pdf> or contact the Buena Vista County Extension Office at (712) 732-5056.

#### 2005 Comprehensive Nutrient Management Plan (CNMP) Development Course

The national CNMP Development Course is scheduled for Nov. 15 - 17, at the Holiday Inn Downtown in Portland, Ore. Registration for the course is now open. Information about the course, lodging and registration is available on-line at the following Web site: <http://www.ucs.iastate.edu/mnet/cnmp/home.html>

Completion of this course is required to become certified as a Technical Service Provider (TSP) in the CNMP Development area by the Iowa State University (ISU) national TSP certification program. Under a national memorandum of understanding with USDA, individuals certified under the ISU program can be recognized as certified TSPs in the CNMP Plan Development area nationally by NRCS under TechReg. If you are interested in becoming a CNMP Technical Service Provider, certification information is available at the following Web site: <http://www.abe.iastate.edu/wastemgmt/cnmpcertification.htm>



The 2005 CNMP Development course will be taught using an updated curriculum based on the CNMP Core Curriculum developed under a joint effort by Iowa State University, the University of Tennessee, Michigan State University, Purdue University, the University of Idaho, and the Natural Resources Conservation Service as part of a CSREES Extension Education Water Quality project.

If you have additional questions, please contact Lara Moody at [lmoody@iastate.edu](mailto:lmoody@iastate.edu) or (515) 294-7355 or Robert Burns at [rburns@iastate.edu](mailto:rburns@iastate.edu) or (515) 294-4203.

#### RUSLE2 and Iowa P Index Workshops

Two RUSLE2 and Iowa P Index workshops have been scheduled for December 2005. The first workshop will be held on Dec. 8, at the Dows Convention Center and the second workshop is scheduled for Dec. 16 at the fairgrounds in Knoxville. Registration information will be available on the IMMAG Web site in early November. If you have questions regarding these workshops, please call Kapil Arora at (515) 382-6551.

#### John M. Airy Symposium

The John M. Airy Symposium: *Visions for Animal Agriculture and the Environment* to be held Jan. 5-6, 2006 in Kansas City, MO will provide a forum for discussing the future challenges and solutions which the livestock industry (swine, poultry, beef and dairy) must address with research. With new technologies rapidly unfolding and efforts to enhance federal funding for environmental research well under way, now is the time, and this symposium is the place, to define visions for the future course of livestock production and the environment. Outcomes of the workshop include 1) defining the environmental hurdles that limit progressive livestock production, 2) outlining a vision of how to overcome these limitations, and 3) prioritizing future livestock and environmental research. Industry representatives, government officials, agricultural engineers, environmental consultants, animal scientists, environmental organizations, and nutrition consultants are encouraged to attend.

This event will be held at the Embassy Suites, 7640 NW Tiffany Springs Parkway, Kansas City, Missouri 64153. For more information contact Trina Zimmer, Iowa State University at (515) 294-0847 or [http://www.iowabeefcenter.org/content/Airy\\_home.htm](http://www.iowabeefcenter.org/content/Airy_home.htm).

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