

Odor

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Registration deadline approaching for Iowa Plan for Open Feedlots

by Karen Grimes, Iowa Department of Natural Resources

Registration for the Iowa open feedlot program exceeded 1,000 producers on November 1, an unprecedented response for a voluntary, cooperative program designed to help producers bring their lots into environmental compliance. However, the window of opportunity closes at year's end for producers who want to register their open feedlots with the Department of Natural Resources (DNR). After December 31, 2001, open feedlots cannot qualify for the Iowa Plan for Open Feedlots, a program that gives them extra time to design and complete a compliance plan.

Registration is important for larger lots, especially those with more than 1,000 animal units, and some mid-sized lots that need a federal permit. Mid-sized lots with 200 head of dairy cattle or 300 head of beef cattle could need a permit if they discharge directly into a stream. Under federal regulations, the lots that need a permit also need a runoff control basin. All lots, regardless of size, need a solids settling system. Whether the open feedlot size is large



This issue

Registration deadline approaching for Iowa Plan for Open Feedlots

2002 Manure applicator certification training

Alternative feedlot systems

Manure management assistance for open feedlots

or small, it pays to talk to DNR staff before constructing any manure control structure to be sure that the structure meets current environmental requirements.

Registering before December 31, 2001, will buy time for producers who need to have a permit, allowing them to plan their system and construct it without a penalty from the DNR for not having a permit. Other benefits of registering for the program include the following:

- limited immunity from DNR penalties for some water quality violations,
- freedom from inspections from the U.S. Environmental Protection Agency (EPA) during the remainder of 2001, and
- freedom from DNR routine inspections in 2001.

The three-part plan includes voluntary registration by producers, an in-house environmental assessment by the DNR followed by an on-site evaluation to determine environmental priorities, and producer compliance with current regulations. To date, 222 in-house environmental assessments and 11 on-site evaluations have been completed.

The Iowa Plan for Open Feedlots was developed to respond to the EPA's criticism of the DNR's permitting and enforcement efforts.



The EPA reviewed state programs and inspected open feedlots in the four-state EPA Region VII of Iowa, Nebraska, Kansas, and Missouri last year. The EPA's data show that Iowa has issued permits for less than 10 percent of the 310 open feedlots that need a National Pollutant Discharge Elimination System permit.

If you have questions about the Iowa Plan for Open Feedlots, please call Wayne Gieselman at 515-281-5817, Barb Lynch or Ken Hessenius at 712-262-4177, or me at 515-281-5135. For more information about the Iowa Plan for Open Feedlots, visit <http://extension.agron.iastate.edu/immag/openfeedlot/plan.html> on the IMMAG Web site.

2002 Manure applicator certification training

by Angela Rieck-Hinz, Department of Agronomy

Program planning for the 2002 Manure Applicator Certification program is currently underway. Both confinement site and commercial manure applicators should plan now to attend a training session in January or February 2002.

Due to changes in the program rules as administered by the Iowa Department of Natural Resources, commercial applicators should be aware that a universal expiration date became effective in July 2001. All commercial applicators with certificates that

expire on December 31, 2001, need to attend training and submit their application forms and fees before March 1, 2002, or be assessed a late fee. Commercial applicators with certificates that expire between January 1 and June 30, 2002, need to attend 3 hours of annual training before the expiration date on their certificate. If they receive their 2002 training, and submit the application form and appropriate fee, their expiration date will be extended to December 31, 2002.

All commercial manure applicators are encouraged to attend the Satellite Downlink program scheduled for January 8, 2002. The 3-hour program, as required by law, will begin with registration at 8:30 a.m. with the program running from 9 a.m. to 12:30 p.m. Contact your local extension office for a list of extension offices that will be hosting the program. Program registration brochures will be mailed to all currently certified commercial applicators in December 2001. Commercial applicators should be aware that availability of videotape training between January 1 and March 1, 2002, is not guaranteed at this time and applicators are encouraged to attend the satellite downlink.

Confinement site manure applicators also need to be aware of the universal expiration date that will start for most applicators in December 2002. Confinement site applicators

with certificates that expire between January 1 and December 31, 2002, will need to attend 2 hours of training before the expiration date on their certificates. If they received their 2002 training before their expiration date, their certificates will be extended to December 31, 2002, with no additional fee.

After current certificates expire, confinement site applicators can begin the 3-year cycle of training again. Under the new universal expiration date, they will have a 60-day grace period after their certificate expiration, until March 1, to receive their annual training or pass a test. Renewal certificate applications postmarked after March 1 will be assessed a late fee.

Confinement site applicators are encouraged to attend one of the training workshops listed in the table below. Contact your local extension office for more details.

Confinement Site Manure Applicator Continuing Instruction: Dates and Locations 2002

County	Telephone	Date	Time	Alternatives
Adair	515-734-8412	January 31, 2002	1:30 p.m.	
Adams	641-322-3184	January 22, 2002	1:30 p.m.	
Allamakee	563-568-6345			See Winneshiek
Appanoose	641-856-3885			See Davis
				See Wapello
Audubon	712-563-4239			See Adair
				See Shelby
Benton	319-472-4739			See Iowa
				See Linn
				See Grundy
Black Hawk	319-234-6811			
Boone	515-432-3882	February 7, 2002	1:30 p.m.	
Bremer	319-882-4275			See Butler
Buchanan	319-334-7161	January 22, 2002	1:30 p.m.	
Buena Vista	712-732-5056	January 31, 2002	1:30 p.m.	
Butler	319-267-2707			See Bremer
Calhoun	712-297-8611			See Pocahontas
Carroll	712-792-2364	February 27, 2002	7:00 p.m.	
Cass	712-243-1132			See Adams
				See Adair
				See East Pottawattamie
Cedar	563-886-6157	February 12, 2002	1:30 p.m.	
Cerro Gordo	641-423-0844			See Worth
Cherokee	712-225-6196	January 17, 2002	1:30 p.m.	
Chickasaw	515-394-2174	January 10, 2002	9:30 a.m.	
Clarke	641-342-3316			See Wayne
Clay	712-262-2264			See Palo Alto
Clayton	563-245-1451	February 15, 2002	1:30 p.m.	
Clinton	563-659-5125	January 22, 2002	1:30 p.m.	
Crawford	712-263-4697			See Monona
Dallas	515-993-4281	February 12, 2002	7:00 p.m.	

**Confinement Site Manure Applicator Continuing Instruction:
Dates and Locations 2002 (cont.)**

County	Telephone	Date	Time	Alternatives
Davis	641-664-2730	February 14, 2002	1:30 p.m.	
Decatur	641-446-4723			See Wayne
Delaware	563-927-4201			See Buchanan
Des Moines	319-754-7556	February 6, 2002	1:30 p.m.	
Dickinson	712-336-3488			See Emmet
Dubuque	563-583-6496	January 11, 2002	1:30 p.m.	
Emmet	712-362-3434			See Dickinson
Fayette	563-425-3331	January 8, 2002	1:30 p.m.	
		February 27, 2002	1:30 p.m.	
Floyd	515-228-1453	January 10, 2002	1:30 p.m.	
Franklin	641-456-4811	February 14, 2002	9:30 a.m.	
Fremont	712-374-2351			See Page
Greene	515-386-2138	February 7, 2002	9:30 a.m.	
Grundy	319-824-6979			See Black Hawk
Guthrie	641-747-2276			See Adair
Hamilton	515-832-9597	February 6, 2002	1:30 p.m.	
Hancock	641-923-2856			See Winnebago
Hardin	641-648-4850	January 31, 2002	1:30 p.m.	
		January 31, 2002	7:00 p.m.	
Harrison	712-644-2105			See Shelby
Henry	319-385-8126	February 6, 2002	9:30 a.m.	
Howard	563-547-3001	February 12, 2002	1:30 p.m.	
Humboldt	515-332-2201			
Ida	712-364-3003			See Woodbury
Iowa	319-642-5504	January 14, 2002	1:30 p.m.	
Jackson	563-652-4923			See Clinton, Dubuque
Jasper	515-792-6433	January 22, 2002	9:30 a.m.	
Jefferson	641-472-4166	February 11, 2002	1:30 p.m.	
Johnson	319-337-2145	February 20, 2002	7:00 p.m.	
Jones	319-462-2791			See Linn, Cedar
Keokuk	641-622-2680	January 17, 2002	9:30 a.m.	
Kossuth	515-295-2469	February 25, 2002	1:30 p.m.	
Lee	319-835-5116			See Henry, Des Moines
Linn	319-377-9839	January 16, 2002	1:30 p.m.	
Louisa	319-523-2371	January 17, 2002	1:30 p.m.	
Lucas	641-774-2016			See Wayne
Lyon	712-472-2576	January 14, 2002	9:00 a.m.	
Madison	515-462-1001			See Dallas
Mahaska	641-673-5841	February 18, 2002	1:30 p.m.	
Marion	641-842-2014	January 22, 2002	1:30 p.m.	
Marshall	515-752-1551	February 12, 2002	1:30 p.m.	
Mills	712-624-8616			See Page See East Pottawattamie
Mitchell	515-732-5574	February 12, 2002	9:30 a.m.	
Monona	712-423-2175			See Crawford
Monroe	641-932-5612			See Mahaska, Wapello
Montgomery	712-623-2592			See Adams, Page
Muscatine	563-263-5701	February 12, 2002	9:30 a.m.	

**Confinement Site Manure Applicator Continuing Instruction:
Dates and Locations 2002 (cont.)**

County	Telephone	Date	Time	Alternatives
O'Brien	712-757-5045	February 12, 2002	1:30 p.m.	
Osceola	712-754-3648	January 14, 2002	1:30 p.m.	
Page	712-542-5171	February 7, 2002	1:30 p.m.	
Palo Alto	712-852-2865			See Clay
Plymouth	712-546-7835	January 17, 2002	9:00 a.m.	
Pocahontas	712-335-3103			See Calhoun
Polk	515-261-4204			See Story, Jasper, Dallas
Pottawattamie East	712-482-6449	February 13, 2002	7:00 p.m.	
Pottawattamie West	712-366-7070			See East
Pottawattamie				
Poweshiek	515-623-5188			See Jasper
Ringgold	641-464-3333			See Adams, Wayne
Sac	712-662-7131	January 31, 2002	7:00 p.m.	
Scott	563-359-7577	February 27, 2002	7:00 p.m.	
Shelby	712-755-3104	February, 21 2002	1:30 p.m.	
Sioux	712-737-4230	January 28, 2002	1:30 p.m.	
Story	515-382-6551	February 7, 2002	7:00 p.m.	
Tama	515-484-2703			See Marshall
Taylor	712-523-2137			See Adams, Page
Union	641-782-8426			See Adams
Van Buren	319-293-3039			See Davis, Jefferson
Wapello	641-682-5491	February 11, 2002	7:00 p.m.	
Warren	515-961-6237			See Marion
Washington	319-653-4811	February 18, 2002	7:00 p.m.	
Wayne	641-872-1755	February 11, 2002	1:30 p.m.	
Webster	515-576-2119			
Winnebago	641-584-2261			See Hancock
Winneshiek	563-382-2949			See Allamakee
Woodbury	712-279-2157			See Ida
Worth	515-324-1531			See Cerro Gordo
Wright	515-532-3453	February 6, 2002	9:30 a.m.	



Alternative feedlot systems

by *Christa Hartsook, Iowa Cattlemen's Association*

Iowa and federal laws require that all feedlots must settle the solids from feedlot runoff. Concentrated animal feeding operations (CAFOs), feeding operations with greater than 1,000 animal units (a.u.), must contain all runoff from the feedlot, including liquid in a total containment basin. However, smaller feedlots may release liquids after settling solids. Total containment is expensive and labor-intensive. The proposed Environmental Protection Agency (EPA) regulations for Iowa's open feedlots would

require total containment structures to be built in Iowa, at a high cost to cattle producers.

The Iowa Cattlemen's Association has been working with EPA officials to allow for implementation of alternative structures, such as vegetative filter strips or a combination of an infiltration area and a constructed wetland, for feedlot operators who have less than 1,000 a.u. and who do not discharge directly into waters of the state. Both alternatives seem practical and less expensive for Iowa producers.

Iowa State University (ISU) began researching the effectiveness of a constructed wetland to remove harmful nutrients from effluent in 1997, when an infiltration area and a wetland were constructed below the ISU Beef Nutrition Farm. The nutrition farm consists of a 56- by 756-ft concrete feedlot and an additional 11- by 340-ft earthen lot. Total capacity is approximately 500 head between the two lots.

Research by Jeff Lorimor, ISU ag and biosystems engineering state specialist and cooperator with the Iowa Beef Center, suggests that wetlands can handle high nitrate levels. Lorimor and coworkers want to study how well the wetland would turn ammonia from the effluent into nitrate, and there has been considerable interest from producers of all species to study a wetland.



Initially, Lorimor constructed an infiltration area 120 by 350 ft below both feedlots. All the feedlot solids were settled and then stored in concrete bunkers. Runoff was collected and carried to this infiltration area through a 14-in. underground pipe. The infiltration area reduced the phosphorus and converted the ammonia into nitrate. Tile lines carried the infiltrated water to a 90- by 150-ft wetland, which was 18 in. in depth. The wetland further treated tile effluent before releasing it into the waterway. The outcome of 2 years of sampling on the overall nutrient reduction is shown in Table 1.

Lorimor and coworkers have been pleased with the overall results of the wetland and infiltration area. Most of the cleanup occurs in the infiltration area, but they are not satisfied with the water released—it still needs to be cleaner.

The infiltration field is sized at one-quarter the area of the feedlot and the wetland is one-fifth the area of the infiltration field. This technology is expected to remove more than 90 percent of the nutrients from the

effluent. The wetland can be loaded at a rate of 3 to 10 lb of nitrogen per acre per day.

According to Lorimor, the wetland and infiltration system offer producers a lower cost-effective method to treat their runoff. It also requires less management. However, unless the regulations are changed, these

alternative technologies are only available for feedlots with less than 1,000 a.u.

Vegetative filter strips offer another low-cost alternative to total containment. The vegetative filter strips are equal to the area of the feedlot and are expected to remove 80 percent of the nutrients from the effluent. The liquid is allowed to spread over the surface of the forage and soak in to the ground. It is important that the vegetative cover is thick enough to retain the liquid until it soaks into the ground and that it does not form a gully wash.

Table 1. Nutrient reduction results after 2 years of sampling in a wetland.

	Runoff (mg/l)	Remaining (mg/l)	Reduction (%)
Nitrate N	0.9	1.4	-55.2
Ammonia N	108	14.6	86.3
Phosphorus	34	0.9	91.4



Manure management assistance for open feedlots

by Paul Miller, USDA-Natural Resources Conservation Service, Des Moines

Many open feedlot operators across Iowa have registered their feedlots with the Iowa Department of Natural Resources (IDNR) and will be working with them to determine what, if any, manure runoff controls are needed for the facilities. If structures are needed a producer can receive engineering assistance from private consultants, Iowa State University Extension, or Natural Resources Conservation Service (NRCS) personnel.

The NRCS provides technical assistance in the planning, design, and construction of manure management systems by concentrating on collection, storage, treatment, and use of manure and by incorporating these components into an overall conservation system for the farm. Financial assistance may be available through state and federal cost-sharing programs to help producers implement components and practices of a manure management system. Currently, in Iowa, Environmental Quality Incentive Program (EQIP) cost-share dollars are available to feedlot owners with less than 1,000 animal units (a.u.). Current proposals in the Farm Bill discuss eliminating the feedlot size factor for cost-share eligibility requirements.

When providing technical and financial assistance, NRCS must follow their conservation practice standards and specifications. It is important to note that NRCS's standards may be different than the requirements of IDNR.

When NRCS provides assistance on an open feedlot, they conduct an open lot system evaluation by assigning points to five categories. The point total assists the planner in determining what level of manure control or treatment is needed for the facility. The first category evaluated is the size of the operation. The larger the operation the more points that are assigned.

The second and third categories are evaluated together with the points summed. The second category is the distance to a water

of the state or a tile surface intake that would receive at least part of the storm runoff from the feedlot. The distance is measured along the flow path from the feedlot to the surface water or surface intake. In this instance, the shorter distances receive the greater point values. The water use designation or surface water classification as shown in the Iowa Administrative Code is used as the third evaluation category. The higher quality water use designations will have higher points. If multiple water uses are evaluated for one feedlot site, the points for the distance and water use for each different water source are evaluated and the greatest point total is used in the overall site evaluation.

The fourth category is the distance from a feedlot to a town or city. Points are assigned only if the flow from the feedlot runs toward an urban area with more points for closer distances. The fifth category is the flow distance to a drainage well, water supply well, or sinkhole that is located such that runoff from the feedlot could directly enter or infiltrate within 25 feet of the well or sinkhole.

After the five categories are computed and added together, the point total is finalized with an adjustment factor. The adjustment factor considers the dilution effect of the drainage area adjacent to the feedlot. It is determined by dividing the watershed area, including the feedlot, above the point where the runoff reaches the water of the state by the area of the feedlot. The lower the ratio of drainage area-to-feedlot area, the higher the points that are added to the other factors.

The final point total assists the planner in determining the minimum level of manure treatment. The treatment levels include solids settling only, solids settling plus filter strip or other additional treatment, and total containment of all manure and runoff from the 25-year, 24-hour storm. NRCS uses this evaluation process to ensure adequate controls are planned to minimize manure and runoff effects on the environment and that the plan

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meets NRCS standards. It is important to note that the NRCS minimum standards may be different than IDNR requirements. For assistance in planning a manure management system for your open feedlot, please contact

your local NRCS office. The NRCS staff can inform you of the minimum standards and let you, the producer, decide what level of assistance you need.

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... and justice for all

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