



Iowa Farm* A* Syst

A Farmstead Assessment System

Assessing your **Dead Animal Management Practices**

What is Iowa Farm A Syst?

Iowa Farm*A*Syst is a farmstead assessment system developed to assist rural residents in protecting their water resources, particularly their drinking water. Individuals can tailor the Iowa Farm*A*Syst program to meet their needs by choosing specific topics that fit their farmstead or acreage. The Iowa Farm*A*Syst program is based on a series of 11 units. Each unit provides information on the subject area and an assessment worksheet to evaluate on-farm practices affecting water quality. Also included in the units are references to Iowa environmental laws and technical assistance contact information.

How will I know which unit will help me?

You will be able to identify the most useful Iowa Farm*A*Syst units by asking yourself the following questions.

Do you...	Review/print this Iowa Farm*A*Syst unit
Get your drinking water from a private well?	Water Well Condition & maintenance
Have any unused or abandoned wells on the farm?	Water Well Condition & maintenance
Have a private system to dispose of bathroom and kitchen wastewater?	Household Wastewater Management
Have feedlots or barnyards?	Open Feedlot Manure Management
Raise livestock in confinement?	Confinement Livestock Manure Management
Dispose of dead animals on your farm?	Dead Animal Management
Use or store pesticides?	Pesticide Storage & Management
Use or store fertilizer?	Fertilizer Storage & Management
Use or store petroleum products?	Petroleum Storage & Management
Use or store hazardous materials such as chemicals, batteries, or petroleum products?	Hazardous Materials Storage & Management
Have a manure storage unit?	Assessing Your Emergency Response Planning for Manure Spills

How do I start assessing my farmstead?

The 11 Iowa Farm*A*Syst units are each designed to be stand-alone units. However, the first step to assessing your farmstead should be to draw a map of the area and label any potential sources of contamination. Every farmstead is unique. You need to evaluate your farmstead's site characteristics to determine the potential for groundwater and surface water contamination. This unit can help you get started. After you have mapped your farmstead, consider what management decisions may be affecting the quality of your water resources. This process will help you to prioritize which of the other Iowa Farm*A*Syst assessments you may want to complete.

For more information or to download additional Iowa Farm*A*Syst units, visit www.iowafarmasyst.com or Contact **Rick Robinson**, Iowa Farm Bureau (515) 225-5432

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Dead Animal Management

There's an old adage that says, the only things in life that are certain are birth, death and taxes. Farmers are quite accustomed to dealing with all three. However, most people do not think about the possibility of contaminating their drinking water with mishandled dead animals. Your drinking water may be endangered by disease-causing bacteria and excess nutrients from dead animals improperly disposed of on your farm. This section focuses on how to manage on-farm livestock deaths while maintaining the quality of your drinking water.

In the past, the most popular method for disposing of dead livestock was through a rendering service. However, in recent years the number of rendering plants has greatly decreased, rendering fees have greatly increased, and on-farm biosecurity is becoming more of a concern. These factors are leading animal producers to explore alternatives to rendering. Rendering, burial, composting and incineration will each be discussed in this publication.

Do you...

- Store dead animals on your farmstead for more than 24 hours?
- Bury or compost dead animals within 100 feet of your water well or a surface water body?
- Bury or compost dead animals within a flood plain?

If you answered "YES" to any of these questions, you may be at high risk for contaminating ground and surface water, jeopardizing the health of your family or violating Iowa law. Read on to learn how you can minimize these risks.

"What are the benefits and special considerations for using a rendering service on my farm?"

Rendering

Rendering is a practice that converts dead animals to a value-added product, such as protein feed. If rendering services are readily available or a farm is producing few dead animals, it may be convenient to dispose of animals by using a rendering service.

On the downside, the rendering truck may be a source of disease as it travels from farm to farm. Because the cost of rendering has risen, some farms are exploring the use of alternative disposal methods. Additionally, weekend pickup is not offered, and it is often difficult to get a pick up in a timely manner. Iowa law requires that all dead animals be disposed of within a reasonable time period after death. This is generally considered to be within 24 hours of death. Finally, the expense of rendering has increased significantly over the last several years. These factors have led many producers to explore alternative disposal methods.

Dead animals to be picked up by a rendering service should be placed in a secure structure to prevent access by pets, wild animals and rodents.

“Are there laws that impact how I bury dead animals?”

Burial

Burial is a very common practice and is often the disposal method of choice for catastrophic livestock losses. However, frequent burial of dead animals can be time consuming and nearly impossible in the winter.

Nutrients and disease-causing organisms released from decomposing animal bodies can pollute ground and surface water and may contaminate your drinking water. Many soils in Iowa are not well suited for burying livestock.

DNR rules outline the requirements for legal burial of dead animals. To ensure the quality of your water is not harmed by nutrients or bacteria from improper livestock burial, follow these rules as defined by Iowa law:

- The dead animals must result from the animal operation located on the premises where burial occurs. Refer to the blue box below for guidelines on the maximum number of animals that can be buried on one site each year.
- Dead animals must be buried within a reasonable timeframe, generally defined as within 24 hours of death.
- Dead animals must be buried in soils that are classified as moderately well drained, well drained, somewhat excessively drained or excessively drained. Other soils can be used if artificial drainage is used to maintain a water level depth more than two feet below the burial depth. Refer to Iowa Farm*A*Syst *Assessing Your Farmstead Characteristics* for more information on determining soil types and depth to water table.
- The burial pit must be no deeper than six feet.
- The dead animals must be immediately covered with a minimum of six inches of soil and finally covered with at least 30 inches of soil.
- Dead animals cannot be buried in flood plains, wetlands or on a shoreline. The table below details separation distances required by Iowa law between burial sites and water sources.

According to Iowa law, all dead animals must be disposed of within a reasonable time-period of death. “Reasonable” is generally considered to be within 24 hours of death.

According to the Iowa law, the maximum number of dead animals that can be buried on one acre in one year are:

- 7 cattle, slaughter or feeder
- 44 swine, butcher or breeding
- 73 sheep or lambs
- 400 poultry.

All other species are limited to two dead animals per acre.

Animals that die within two months of birth may be buried with no regard to number.

The animals should be buried at a number of sites on the premises, not all at one site.

In the event of a catastrophic loss of animals, DNR may grant a special permit allowing for higher burial numbers. The decision as to whether a permit will be granted is handled on a case-by-case basis, depending on the characteristics of the burial site and the risk for water quality impairment.

Although not a water quality concern, Iowa law does require farmers to notify the Iowa One Call System at least 48 hours prior to digging more than 15 inches deep. The purpose of Iowa One Call is to prevent damage to Iowa’s underground facilities infrastructure. The Iowa One Call system can be accessed at no cost by calling 800-292-8989 or dialing 811.

Separation Distance from Burial Site

Private water wells: 100 feet

Public water wells: 200 feet

Surface water bodies, such as streams, lakes, ponds or intermittent streams: 100 feet

Adjacent property lines: 50 feet

Inhabited neighboring residence: 500 feet

“I’ve heard a lot about composting. Is it a viable alternative for my farm?”

Composting

Composting creates a humus-like product containing nutrients and organic matter which is beneficial to cropland. Composting of dead animals first caught on in the mid 1980s for disposal of daily mortalities at poultry farms in the South. The Midwest has been slow to adopt composting practices because it was thought that the cold winter climate would hinder the process. However, research has shown that composting in Iowa can work just as well as it does in the South. Composting isn’t just for poultry either, as it is being rapidly adopted by swine farms in Iowa, as well as cattle operations.

The composting process speeds up the normal decay process. Successful composting is similar to following a recipe that provides optimum conditions for bacteria and fungi. Poor conditions for these organisms slow the composting process and often result in bad odors or release of contaminated liquids. However, if done correctly, composting is a simple, reliable, safe and cost effective alternative to other dead animal disposal practices.

The following factors all contribute to the success and speed of the composting process.

- **Moisture** content is crucial to the composting process and should be maintained between 40 and 60 percent. Compost should be moist, but not soggy.
- **Co-composting materials** surround the dead animal protecting it from rodents, insects and scavengers and provide carbon, which acts as food for microbes. Good options for co-composting material include wood chips, ground corn stalks, cobs or stover, sawdust, poultry litter or other used bedding.
- **Carbon and nitrogen** are key ingredients. An optimum 25:1 (C:N) ratio is needed for favorable microbial activity.
- **Oxygen** is required by the microbes. Without oxygen, unpleasant odors may form and the process will take longer. To increase oxygen availability and avoid odor problems, periodically turn compost, use a relatively coarse co-composting material and avoid overly wet compost.
- **Heat** is a by-product of microbial activity and is needed to sustain the degradation process. Internal temperatures of a compost pile should reach 120° to 150° F. Heat also kills disease-causing microorganisms and improves the safety of the compost.

For more information on composting and other methods of dead animal disposal, contact the Solid Waste Permitting section of the DNR. Contact information can be found on page 7.

“Are there laws that impact how I compost dead animals on my farm?”

Composting Regulations

The Iowa DNR has defined the following rules to ensure the quality of your water is not harmed by bacteria or excess nutrients from improper composting. A permit is not necessary if the following requirements are met:

- Dead animals must be placed into the composting pile within 24 hours of death.

- Dead animals in the compost must be placed on an adequate base layer of bulking agent (12 to 24 inches, depending on number and type of animals) with 6 to 12 inches between carcasses and at least a 12 inch cover layer.
- Composting must be done in a manner which prevents the formation and release of runoff and leachate and controls odors, insects and other vermin.
- Composting must be conducted on an all-weather surface of compacted soil, compacted granular aggregates, asphalt, concrete or similar impermeable material. The surface must permit access during inclement weather.
- Dead animals are not to be removed from the composting process until all flesh, internal organs and soft tissue have been fully decomposed.
- The finished compost material cannot be stored longer than 18 months.
- The compost must be applied to cropland at an agronomic rate and in such a manner to prevent runoff. Application to land other than cropland requires prior approval by the DNR.
- Producers may compost their own dead animals from multiple production sites at one single production site. When transporting dead animals, use the most direct route that avoids biosecurity hazards.
- If you suspect animals have died from an infectious or reportable disease, contact the State Veterinarian prior to disposing of the animals. Contact information is located on page 7 of this publication.
- If a catastrophic event occurs that results in more than your annual expected death loss, contact your Iowa DNR Field Office for guidance and approval on dead animal disposal. Contact information is located on page 7 of this publication.

Separation Distance from Composting Facility

Private water wells: 100 feet

Public water wells: 200 feet

Surface water bodies, such as streams, lakes, ponds or intermittent streams: 100 feet

Adjacent property lines: 50 feet

Inhabited neighboring residence: 500 feet

“Can I incinerate dead animals on my farm?”

On-Farm Incineration

Incineration provides little concern for water quality and disease transmission because the dead animals are reduced to ashes at very high temperatures. However, there may be some concern for air quality if your incinerator is not sized or managed properly.

Incinerators are costly to purchase and operate and require a certain level of maintenance and management. It is against Iowa law to use homemade incinerators or open burning to dispose of dead animals. The DNR has determined that on-farm incinerators used for disposing of dead animals are exempt from the requirement to obtain a construction permit from the DNR Air Quality Bureau. However, on-farm incinerators must comply with the minimum operating requirements of Iowa’s air quality rules. Contact the DNR Air Quality Bureau (see page 7 of this publication for contact information) for more information on minimum operating requirements.

“What if I experience a catastrophic event that requires disposal of large numbers of animals?”

Most of the disposal methods discussed in this publication can also be used in the case of mass animal mortalities. However, this usually requires advanced planning and may require a special permit. If you need to dispose of a catastrophic loss, contact the local DNR field office for assistance. You can also phone the DNR 24 hour emergency response line at [515-281-8694](tel:515-281-8694). If the animals are diseased, contact the state veterinarian for guidance. Contact information can be found on page 7 of this publication.

For more information

Iowa Department of Natural Resources

Web: www.iowadnr.com

Phone: [515-725-8307](tel:515-725-8307) Solid Waste Permitting: [515-281-8150](tel:515-281-8150) 24 hour Emergency Response: [515-725-8694](tel:515-725-8694)

DNR Environmental Services Field Offices

Atlantic: [712-243-1934](tel:712-243-1934), Des Moines: [515-725-0268](tel:515-725-0268), Manchester: [563-927-2640](tel:563-927-2640), Mason City: [641-424-4073](tel:641-424-4073),

Spencer: [712-262-4177](tel:712-262-4177), Washington: [319-653-2135](tel:319-653-2135)

- Provides assistance with understanding Iowa laws for compost facilities.
- Assists with burial location and permitting for catastrophic losses.

DNR Air Quality Bureau

Web: www.iowacleanair.gov Phone: [515-725-9500](tel:515-725-9500)

- Provides assistance with rules and permitting for on-farm incineration.

Iowa Department of Agriculture and Land Stewardship

Animal Industry Bureau/State Veterinarian

Web: www.iowaagriculture.gov/animalindustry.asp Phone: [515-281-8601](tel:515-281-8601)

- Tracks reportable livestock diseases.
- Assists with catastrophic burial.
- Provides assistance with understanding and interpreting Iowa's laws for on-farm burial.

Natural Resources Conservation Service

Web: www.ia.nrcs.usda.gov Phone: [515-284-4769](tel:515-284-4769)

Contact the local NRCS/SWCD (Soil and Water Conservation District) office located in your county.

- Provides access to information on soil type and depth to water table through the county soil survey.

Iowa State University Extension

Web: www.extension.iastate.edu Phone: [800-262-0015](tel:800-262-0015)

Contact your county extension office. The county director, ag engineer or area livestock field specialist may be able to answer your questions or direct you to other extension specialists.

- Distributes publications on a variety of topics, including dead animal composting. Publications are available from the Extension Distribution Center, Ames, IA, [515-294-5247](tel:515-294-5247). Many of the publications are available online at www.extension.iastate.edu/store/.
- Provides website and other outreach materials communicating the latest research on dead animal composting at <http://www3.abe.iastate.edu/pigsgone/> and www3.abe.iastate.edu/cattlecomposting/.

Midwest Plan Services

Web: <https://www-mwps.sws.iastate.edu> Phone: [800-562-3618](tel:800-562-3618)

- Develop and distribute agricultural publications covering topics including: on farm composting facilities; agricultural engineering; farm business management; animal production; construction; grain and post-harvest; soil, air, and water management; manure management; and ventilation for livestock housing.

Assessment: Dead Animal Management Practices

Evaluate your potential risk for having unsafe drinking water as a result of the condition and maintenance of your dead animal management. The evaluation areas are in the shaded "Risk" column. Choose the risk category that best fits your situation. Note how likely you are to have drinking water problems, as indicated by "low risk," "moderate risk" and "high risk."





Take special note of the critical evaluation points. If you fail to meet these standards, your drinking water supply is in immediate danger.




Those situations that violate Iowa law are indicated by '!'.

Risk	Low Risk	High Risk
Rendering service		
Temporary dead animal storage	<ul style="list-style-type: none"> ○ Dead animals are nearly always picked up within 24 hours of death AND ○ Dead animals are stored in a secured structure until pick up. 	<ul style="list-style-type: none"> ○ Dead animals not disposed of within 24 hours of death OR ○ Dead animals left in the open OR ○ Dead animals stored near wells or surface water.
Burial		
Site location	<ul style="list-style-type: none"> ○ Dead animals buried outside of flood plains and wetlands AND ○ Dead animals are 100 feet or more from a private water well AND ○ Dead animals are 100 feet or more from a surface water body. 	<ul style="list-style-type: none"> ○ Dead animals buried in flood plains or wetlands OR ○ Dead animals buried within 100 feet of a private water well or surface water body.
Burial Process	<ul style="list-style-type: none"> ○ Dead animals immediately covered with six inches of soil AND ○ Dead animals eventually covered with 30 inches of soil AND ○ Burial pit less than six feet deep AND ○ Groundwater table does not enter the burial pit. 	<ul style="list-style-type: none"> ○ Dead animals not immediately covered with six inches of soil OR ○ Permanent coverage of dead animals with soil is less than 30 inches deep OR ○ Burial pit more than six feet deep OR ○ Water from groundwater table enters burial pit.
Composting practices		
Composting Site	<ul style="list-style-type: none"> ○ Composting site located outside of 100 year flood plain AND ○ Composting site is 100 feet or more from private water wells AND ○ Composting site is 100 feet or more from the nearest surface water body. 	<ul style="list-style-type: none"> ○ Site located in a 100-year flood plain OR ○ Site is less than 100 feet from private water wells OR ○ Site is less than 100 feet from the nearest surface water body.

Risk	Low Risk	High Risk
Composting process	<ul style="list-style-type: none"> ○ Dead animals are completely covered with organic material AND ○ Composting done in a manner that prevents runoff of leachate. 	<ul style="list-style-type: none"> ○ Dead animals are not sufficiently covered with organic material AND ○ Composting not conducted in a manner that prevents runoff of leachate. 
Incineration practices		
Incineration practices	<ul style="list-style-type: none"> ○ Dead animals are incinerated on-farm within 24 hours of death AND ○ incineration meets minimum air quality standards. 	<ul style="list-style-type: none"> ○ Dead animals are not incinerated within 24 hours of death OR ○ Incineration does not meet Iowa's minimum air quality standards OR ○ Dead animals disposed without use of incinerator, such as open burning. 

 Critical

 Violates Iowa law

