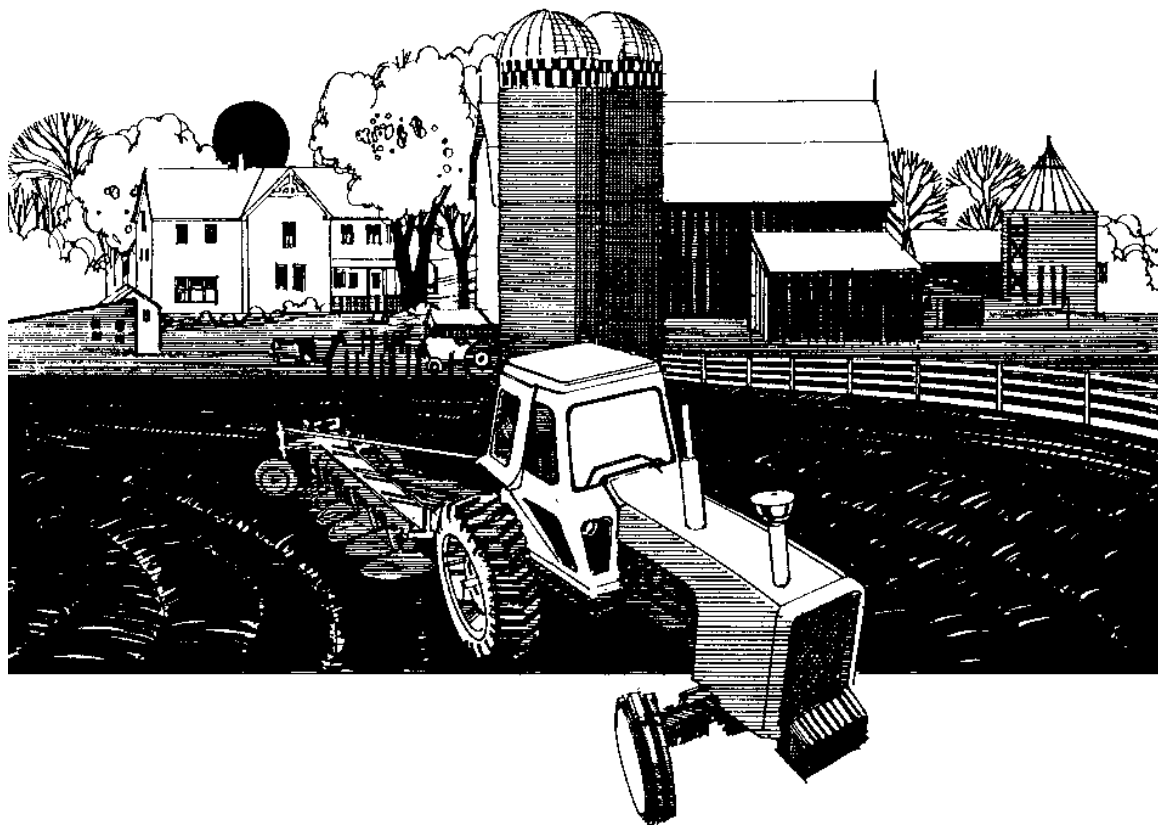

**South Carolina
FARM•A•SYST**



Managing Animal Waste

An Environmental Self-Assessment

Clemson University
Lake and Watershed Association of South Carolina
USDA Water Quality Project
USDA Natural Resources Conservation Service
South Carolina Department of Health and Environmental Control
South Carolina Department of Natural Resources
U.S. Environmental Protection Agency
USDA Farm Service Agency
South Carolina Department of Agriculture
South Carolina Soil and Water Conservation Districts

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E X T E N S I O N

Before Completing Your Self-Assessment

This animal waste management self-assessment is an important part of the Farm-A-Syst program. This voluntary program helps you evaluate activities and conditions on your farm that could be a threat to your drinking water and to water quality in nearby streams, rivers, lakes, groundwater, and other sources. This introductory information will help you understand the importance of managing animal wastes, from water quality, health, and environmental perspectives. Read it carefully before completing this self-assessment.

This self-assessment is one in a series of voluntary environmental self-assessments in the Farm-A-Syst program. For a complete picture of all activities or conditions on your farm that could affect water quality, review and complete the other Farm-A-Syst environmental self-assessments. You are also encouraged to review and complete other self-assessments in the companion Home-A-Syst program. Materials for both programs are available at your county Extension office.

Your responses to this self-assessment are for your use. Although completing this self-assessment is voluntary, taking a few minutes to respond to it may help you identify potential areas on your farm that could lead to water quality problems. You may find it useful to involve your spouse and/or children in completing your self-assessment. If you need help or follow-up information, contact your county Extension office.

Why You Should Be Concerned About Animal Wastes

If not managed properly, animal wastes from hog, beef, dairy and poultry operations can affect your health, water quality, and the health of others. Bacteria in animal wastes can contaminate drinking water and may cause potentially serious illnesses. High levels of nitrates, a form of nitrogen that develops naturally in animal wastes, in drinking water may particularly harm unborn or young infants and young livestock. Nutrients in animal wastes that enter streams also may lower oxygen levels and kill fish and other wildlife. Odors from animal operations may cause problems with neighbors and create a negative public perception of agriculture.

Proper animal waste management reduces these concerns. Animal wastes are an important source of plant nutrients for crop production. Other aspects of animal production, such as how animal carcasses are disposed of and silage storage methods, also may contaminate water by introducing bacteria or nitrates. For these reasons, silage storage and animal carcass disposal are included in this self-assessment.

To protect water quality, your animal waste management system should be properly designed, built, and maintained. At a minimum, your animal waste lagoon, animal waste storage area, or animal waste land application area should be at least 100 feet from a private well or other water source; at least 300 feet is advisable. You should also apply animal wastes to growing crops or pastures when possible and according to approved application rates. Animal waste land applications should also be 1,000 feet or farther from neighboring residences. Cover any animal wastes transported on public roads to avoid possible pollution.

A Word About Regulations

For your information, some activities in this self-assessment are listed in bold type to indicate they could violate state water quality, health, or environmental laws. These laws and regulations concern the potential of animal wastes to contaminate your own water supply, the water supply of others, or any designated state waters such as a lake, stream, and other water sources.

The South Carolina Department of Health and Environmental Control (DHEC) requires permits for all confined animal feeding operations. The Pollution Control Act says it is illegal to dispose of any waste without an approved Waste Management Plan. South Carolina DHEC issues construction permits for all confined facilities. For more information, call DHEC or the NRCS.

Always keep in mind that although regulatory considerations are important, they should not be the only factor in your animal waste management decisions. Many unregulated activities on your farm can affect water quality. Consider required distances between animal wastes and a water source as minimum safe distances and try to maintain farther distances if possible.

If you need more information about these regulations, contact the SC DHEC or your county health department. For information on designing, building and maintaining an animal waste management system, contact your county Natural Resources Conservation Service office or county Extension office. See the back cover of this publication for information on how to contact these agencies.

Understanding Self-Assessment

Your drinking water and other water supplies are least likely to be contaminated by animal wastes if you use all of the low-risk practices listed in this self-assessment. You may not be able to use all low-risk practices.

As you complete your self-assessment, do not be alarmed if you check several or even many high-risk statements. This does not automatically mean your farm has water quality problems. It does, however, tell you that corrective action is needed to avoid potential problems.

A score sheet is included on the inside back page of this publication to help you better understand your completed self-assessment. If you need additional help, contact your county Extension office.

Directions

This self-assessment is a series of three-part statements, each with a low, medium, and high ranking. This ranking relates to the level of risk to your drinking water quality or other environmental risks associated with that activity or condition. First, read all statements in each set; then check the box that best describes conditions on your farm. Some parts of this self-assessment may not apply to you; read all parts and respond to those that do. Remember, this self-assessment is for your information, and your goal is to apply as many low-risk practices as you can.

Part 1. General *(All livestock farmers should complete this section.)*

Low Risk

- You have an organized plan to manage animal wastes. You know their nutrient content and value, land-apply them as recommended, and keep good records of land applications.
- Your animal waste storage and treatment facilities are more than 100 feet downhill from a well or water source.
- You regularly check animal waste storage and treatment facilities for leaks, spills, or overflows and make repairs before any losses.

Medium Risk

- You manage and land-apply animal wastes according to a plan, but don't know their nutrient content and value. You keep some records of animal waste land applications.
- Your animal waste facilities are more than 100 feet on grade with or slightly uphill from a well or water source.
- You occasionally check animal waste facilities and make repairs at the first sign of leaks, spills, or overflows.

High Risk

- You have no plan to manage and land-apply animal wastes and don't know their nutrient content and value. No records are kept of any land-applied animal wastes.
- Your animal waste storage and treatment facilities are uphill less than 100 feet from a well or water source, **or pollution from facilities reaches a well or other water source.**
- Your animal waste facilities are generally ignored and not checked for leaks, spills, or overflows.

* **Bold type** means, in addition to being a high-risk practice, this activity violates South Carolina water quality or health laws.

Part 1. General (Continued)

Low Risk

Your animal waste storage and treatment facilities are designed and built to handle current and future capacity. You manage them properly to prevent overloading and overflows.

You soil test animal waste land application areas every year and regularly calibrate land application equipment to make sure recommended, uniform rates are applied. You try not to apply wastes within 24 hours of rain.

You land-apply all animal wastes more than 100 feet from a well, stream, or other water source. This buffer strip has growing crops or vegetation.

Your livestock feeding, loafing, or grazing area is more than 100 feet from a well. Livestock have no direct access to a stream or waterway.

Medium Risk

Your animal waste facilities are designed and built to specifications existing at the time, but don't always function correctly because of age or system overload.

You soil test animal waste land application areas every 2 to 3 years. You usually calibrate land application equipment and check weather conditions before land-applying wastes.

You usually land-apply animal wastes at least 100 feet from a well or water source, but sometimes apply wastes generously to lawn and gardens near the well without considering the nutrient needs of plants.

Your livestock feeding, loafing, or grazing area is 100 feet from a well, or livestock have limited access to a stream or surface water source.

High Risk

Your animal waste facilities are not built to design specifications, or you have no facilities to store and treat animal wastes.

You seldom or never soil test animal waste land application areas, don't calibrate land application equipment, and land-apply wastes regardless of the weather.

You frequently land-apply animal wastes less than 100 feet from a well or other water source, **or pollution from land-applied wastes reaches a well or other water source.**

Your livestock feeding, loafing, or grazing area is less than 100 feet from a well, or livestock have unlimited access to a stream. **Animal wastes enter a stream or other surface waters.**

* **Bold type** means, in addition to being a high-risk practice, this activity violates South Carolina water quality or health laws.

Part 2. Liquid Animal Wastes *(Complete this section if you have a lagoon or other above-ground system.)*

Low Risk

Your animal waste lagoon was designed and installed according to the approved engineering standards and is site-specific to your farm. The system holds all liquids and is more than 100 feet from a well or water source.

Your animal waste lagoon is large enough to handle sludge; waste water; 90 to 180 days wastewater storage; and 25 year, 24-hour storm precipitation. There are no overflows.

You regularly pump down your animal waste lagoon according to recommended procedures. Enough liquid is left to meet treatment needs, and enough space is left above the liquid to account for heavy rains and to prevent overflows.

You apply liquid animal wastes to crops or vegetation during the growing season according to an approved waste management plan that considers the nutrient content of wastes and crop nutrient needs.

Medium Risk

Your animal waste lagoon was built in silt or clay loam soil and holds all liquids. The system is more than 100 feet from a well or water source.

Your lagoon meets existing treatment needs, but sludge has built up to where an overflow of heavy rains is possible if the recommended wastewater volume is maintained.

You regularly pump down your lagoon, but don't always leave enough liquid to meet treatment needs or enough space above the liquid to account for heavy rainfall events.

You apply liquid animal wastes uniformly to crops or vegetation but without knowing the nutrient content of wastes or crop nutrient needs.

High Risk

Your animal waste lagoon is not designed to approved standards, or is built in sandy soils without an interior liner. The lagoon does not hold all liquids and is **less than 100 feet from a well or other water source.**

Your lagoon does not meet existing animal waste treatment needs, and **overflows happen during normal use or after rains.**

Your lagoon is seldom or never pumped down and **overflows happen during normal use or after rains.**

You land-apply liquid animal wastes over and over on small, uncropped areas and less than 100 feet from a well or other water source, **or pollution from land-applied liquid wastes reaches a well or other water source.**

* **Bold type** means, in addition to being a high-risk practice, this activity violates South Carolina water quality or health laws.

Part 2. Liquid Animal Wastes *(Continued)*

Low Risk

- Your milking center wastewater (dairy farmers only) drains directly into a liquid manure storage facility and is land-applied with other wastes.

Medium Risk

- Your milking center wastewater drains outside to a grass or vegetated area.

High Risk

- Your milking center wastewater drains outside into a ditch that **flows to a surface water source or drains to a well.**

Part 3. Solid Animal Wastes *(Complete this section if you store solid or dry wastes.)*

Low Risk

- Your solid animal waste storage facility is designed so all uphill runoff water and roof water are directed away from the storage area.

Medium Risk

- Most uphill runoff water and most roof water are directed away from your animal waste storage area.

High Risk

- No uphill runoff water or roof water is redirected before it reaches your animal waste storage area. Water runs freely through the storage area or livestock yard.

- You clean and scrape your dairy livestock yard daily to prevent heavy waste accumulation. Wastes are land-applied at least weekly to avoid sanitation problems.

- You clean and scrape your dairy livestock yard about once a month. Wastes are land-applied monthly.

- You seldom or never clean and scrape your dairy livestock yard. **Waste is allowed to accumulate and causes sanitation problems.**

- If you temporarily store solid animal wastes in an open air manure stack, it is on a concrete slab with a heavy plastic cover and more than 100 feet from a well or water source. All surface water runoff is channeled away from the stack.

- If you temporarily store solid animal wastes in an open air manure stack, it is on high ground on clay or heavy soils with a plastic cover and more than 100 feet from a well or water source.

- If you temporarily store solid animal wastes in an open air manure stack, it is on high ground on sandy soil without a cover and less than 100 feet from a well or water source, or **pollution from stored solid wastes reaches a well or other water source.**

* **Bold type** means, in addition to being a high-risk practice, this activity violates South Carolina water quality or health laws.

Part 3. Solid Animal Wastes *(Continued)*

Low Risk

- If you temporarily store solid animal wastes in a contained manure stack, it is in a building with side walls and a concrete floor and is more than 100 feet from a well or water source.

Medium Risk

- If you temporarily store solid animal wastes in a contained manure stack, the storage area has a roof and a packed clay soil floor and is more than 100 feet from a well or water source.

High Risk

- If you temporarily store solid animal wastes in a contained manure stack, the storage area has a leaking roof, a sandy soil floor, or is less than 100 feet from a well or water source, **or pollution from stored solid wastes reaches a well or other water source.**

- You fully tarp or cover all solid animal wastes hauled on public roads to avoid polluting road ways and ditches.

- You usually tarp or cover solid animal wastes hauled on public roads, but sometimes don't cover wastes hauled very short distances.

- You usually don't tarp or cover animal wastes hauled on public roads. Wastes that blow off the truck **enter a ditch and pollute surface waters.**

Part 4. Silage Storage *(Complete this section if you store silage at any time.)*

Low Risk

- You reduce the amount of silage liquid produced during storage by using harvesting methods to keep the silage moisture content at or below 65 percent at the time of storage.

Medium Risk

- The moisture content of silage stored on your farm is 66-80 percent when it is put into storage.

High Risk

- The moisture content of silage stored on your farm is more than 80 percent when it is put into storage.

- Your upright concrete silo has a concrete floor, or your open trench or bunker silo has concrete sides and floor with an outside plastic cover. All silage liquids are contained in the storage area.

- Your upright concrete silo has a dirt floor, or your open trench silo has an interior liner and plastic cover. Most silage liquids are contained in the storage area.

- Your open trench or open pit silo is built in sandy soil with no interior liner or no plastic cover. **Silage liquids seep into ground water or drain to a well or other water source.**

* **Bold type** means, in addition to being a high-risk practice, this activity violates South Carolina water quality or health laws.

Part 4. Silage Storage (Continued)

Low Risk

- Your silage storage facility (any type) is more than 100 feet downhill from a well or other water source.

Medium Risk

- Your silage storage facility is more than 100 feet on grade with or slightly uphill from a well or other water source.

High Risk

- Your silage storage facility is less than 100 feet uphill from a well or water source. **Silage liquids drain downhill to a well or other water source.**

-
- Your silage storage facility (any type) is well-maintained and in good condition and needs no repairs.

- Your silage storage facility is maintained only as needed, but is in generally fair condition with some repairs needed.

- Your silage storage facility is not well-maintained and is in poor condition and needs major repairs.

Part 5. Animal Carcass Disposal

Low Risk

- You dispose of occasional dead farm animals by composting, contacting a local incinerator or rendering company where available, or you contact your local health department or veterinarian for approved sanitary disposal methods.

Medium Risk

- You dispose of occasional dead farm animals by covering them with at least two feet of dirt and more than 100 feet from a well or other water source, or by burning.

High Risk

- You dispose of occasional dead farm animals by **dumping in a stream or gully, or by allowing them to decompose in the open near a residence.**

-
- You dispose of dead poultry (commercial poultry farmers only) in a well-designed and functioning composting bin. Used compost is land-applied or recycled according to recommendation.

- You dispose of dead poultry by incineration or through a poultry rendering facility.

- You dispose of dead poultry in underground pits less than 300 feet from a well, or dead birds are **piled up uncovered or dumped in a gully, stream, or near other water sources.**

* **Bold type** means, in addition to being a high-risk practice, this activity violates South Carolina water quality or health laws.

Your Farm-A-Syst Score Sheet

This score sheet helps you understand your self-assessment of animal waste management by letting you compare your low, medium, and high risk activities and conditions. To do your score sheet, use a pocket calculator and follow these steps:

First, count your answers for each level of risk in your self-assessment. Write these numbers in the three spaces in column A of the chart below.

Second, add these numbers to give your total number of answers. Write this number in each of the three spaces in column B. You'll use this same number each time to figure a percentage.

Third, divide your number of answers in each level of risk by your total number of answers. Multiply your answer each time by 100 to convert this number to a percent.

	<u>A</u>	<u>B</u>
Number of low risk answers	_____	_____
Number of medium risk answers	_____	_____
Number of high risk answers	_____	_____

	-:-	_____	x 100 = _____ %
	-:-	_____	x 100 = _____ %
	-:-	_____	x 100 = _____ %

Using percentages is an easy way to compare your low risk, medium risk, and high risk activities or conditions. For example, if your percentage in the lower right column is 50, it means that 50 percent of the activities or condi-

tions in your self-assessment are a high risk to water quality or the environment.

Although there are no “passing” or “failing” grades on your self-assessment, you may find it useful to compare your percentage of high risk activities to the environmental scorecard below.

- Less than 25% high risk answers — You're far ahead of the pack in your water quality protection program for managing animal waste.
- 25% to 50% high risk answers — Your water quality program for managing animal waste is generally on track. A nudge could push you closer to the top.
- 51% to 65% high risk answers — You're doing some things right, but have a way to go in your water quality program for managing animal waste.
- 66% to 100% high risk answers — There's no cause to panic; however, there is a significant potential for water quality problems on your farm resulting from animal waste. Information and assistance to help correct high-risk activities and conditions is available from the offices listed at the end of this publication.

For more information

- *South Carolina water quality regulations*

SC Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201
(803) 734-5300

- *South Carolina health regulations (sanitation and well separation distances)*

Your county health department

or

SC Department of Health and Environmental Control (803) 734-5300

- *Designing, installing, or maintaining animal waste management systems*

Your county Natural Resources Conservation Service office

or

SC Department of Health and Environmental Control (803) 734-5300

or

Natural Resources Conservation Service
1835 Assembly Street, Room 950
Columbia, SC 29201
(803) 253-3891

- *Animal waste cost-share assistance*

Your county Consolidated Farm Service Agency

or

Consolidated Farm Service Agency
1927 Thurmond Mall, Suite 100
Columbia, SC 29201-2375
(803) 765-5186

For further information, consult:

Clemson Extension leaflets
AEnL 555 - Livestock and Poultry Wastes
EC 673 - Land Application of Animal Manure

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U.S. EPA
USDA Cooperative Extension
SC Department of Health and Environmental Control
Clemson University Cooperative Extension Service
Lake and Watershed Association of South Carolina
USDA Natural Resources Conservation Service
SC Department of Natural Resources
USDA Farm Service Agency
SC Department of Agriculture
SC Soil and Water Conservation Districts

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**County Extension Offices
Telephone Numbers, and Addresses**

<i>County</i>	<i>Telephone</i>	<i>Address</i>
Abbeville	(864) 459-4106	Box 640, Abbeville 29620
Aiken	(803) 649-6671	Box 2007, Aiken 29802
Allendale	(803) 584-4207	Box 577, Allendale 29810
Anderson	(864) 226-1581	Box 1797, Anderson 29622
Bamberg	(803) 245-2661 (803) 793-5607	Box 299, Bamberg 29003-0299
Barnwell	(803) 259-7141	Box 468, Barnwell 29812
Beaufort	(803) 525-7118	Box 189, Beaufort 29901-0189
Berkeley	(803) 761-6900	Room E-1, 223 N. Live Oak Dr., Moncks Corner 29461
Calhoun	(803) 874-2354	112 Courthouse Annex, St. Matthews 29135
Charleston	(803) 722-5940	259 Meeting St., Charleston 29401
Cherokee	(864) 489-3141	Box 700, Gaffney 29342
Chester	(803) 385-6181	Box 548, Chester 29706
Chesterfield	(803) 623-2134	Box 149, Chesterfield 29709
Clarendon	(803) 435-8429	11A West Rigby St., Manning 29102
Colleton	(803) 549-2596	Box 1086, Walterboro 29488
Darlington	(803) 393-0484	Mozingo Bldg., Darlington 29532
Dillon	(803) 774-8218	Box 631, Dillon 29536
Dorchester	(803) 832-0135	Box 248, St. George 29477
Edgefield	(803) 637-3161	Box 509, Edgefield 29824
Fairfield	(803) 635-4918	Box 329, Winnsboro 29180
Florence	(803) 661-4800	P.O. Box 13499, Florence 29504
Georgetown	(803) 546-4481	Drawer 1100, Georgetown 29440
Greenville	(864) 232-4431	Greenville Co. Sq., 301 Univ. Ridge Suite 4300, Greenville 29601-3660
Greenwood	(864) 229-6681	Box 246, Greenwood 29648
Hampton	(803) 943-3421	Box 646, Hampton 29924
Horry	(803) 248-2267	Box 1005, Conway 29526
Jasper	(803) 726-3470	Drawer A, Ridgeland 29936
Kershaw	(803) 432-9071	Box 248, Camden 29020
Lancaster	(803) 283-3302	Box 10, Lancaster 29721
Laurens	(864) 984-2514	219 Laurens St., Laurens 29360
Lee	(803) 484-5416	Box 232, Bishopville 29010
Lexington	(803) 359-8515	219 E. Main St., Lexington 29072
McCormick	(864) 465-2112	Box 1150, McCormick 29835
Marion	(803) 423-8285	Box 1220, Marion 29571
Marlboro	(803) 479-6851	Box 80, Bennettsville 29512
Newberry	(803) 276-1091	Box 160, Newberry 29108
Oconee	(864) 638-5889	Box 400, Walhalla 29691
Orangeburg	(803) 534-6280	Drawer 1206, Orangeburg 29116-1206
Pickens	(864) 868-2810	Box 995, Pickens 29671
Richland	(803) 929-6030	P.O. Box 192, Columbia 29202
Saluda	(864) 445-8117	Box 246, Saluda 29138
Spartanburg	(864) 596-2993	Box 1010, Spartanburg 29304
Sumter	(803) 773-5561	Box 2377, Sumter 29151-2377
Union	(864) 427-6259	Box 711, Kirby Road, Union 29379
Williamsburg	(803) 354-6106	Box 700, Kingstree 29556
York	(803) 684-9919	Box 669, York 29745

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