

Animal Agriculture in South Carolina: A Fact Book

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How Governments Are Responding

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South Carolina's New Regulations

New standards for the permitting of swine and other agricultural animal facilities went into effect on June 26, 1998. The requirements for meeting the new standards are numerous.

Existing swine facilities are considered permitted unless expansion is proposed or a new waste utilization area is added. A swine facility must have a permit if its capacity exceeds 210 finishing hogs or 30,000 pounds of animal live weight at any one time. Swine facilities with less than 70 finishing hogs (10,000 pounds of animal live weight) do not have to get a permit, but are required to have a waste management plan that conforms to regulations. Facilities with 70 to 210 finishing hog capacity (10,000 to 30,000 pounds of animal live weight) are not required to have a permit, but must submit to DHEC and implement a waste management plan that meets the regulations. Ranged swine facilities are not required to have a permit if the size of the range area is sufficient to allow for natural degradation or utilization of the swine waste with no adverse impact to the environment. However, DHEC may require a permit of any facility after a site visit. DHEC approval must be sought for any change in ownership or control of a facility; an increase in the permitted number of swine; increase in the normal production animal live weight; addition of waste utilization areas; change in swine waste treatment, handling, or disposal; or change in method of dead swine disposal.

Permit application fees depend on the size of the proposed facility. Large swine facilities are defined as having more than 420,000 pounds of normal production live weight. The application fee for permitting a large swine facility is \$680. For a small swine facility (less than 420,000 pounds of normal production live weight,) the permit application fee is \$340. Swine facilities with less than 30,000 pounds of live weight are generally not required to have a permit, so no fee is required. Animal facilities other than for swine are charged permit fees according to type of manure handling system. Wet operations (lagoons, tanks, etc.) are charged \$240 and dry operations are charged \$165.

The new 1998 regulations also provide for annual environmental operating permit fees for agricultural facilities. Large swine facilities will pay \$300 per year and small facilities will pay \$150. Other animal facilities will pay \$150 for wet operations and \$75 for dry operations. Any facility with a valid permit on July 1 of a year will be subject to the fee for that state fiscal year.

Before DHEC will consider an application, it must receive a completed application form. Among the things that must be included are¹⁸

- a) facility capacity,
- b) concentration of constituents in swine waste (though for new facilities, waste analysis information from similar facilities or from published sources may be used until 6 months after the new facility starts operation),
- c) swine waste handling and application information,
- d) facility waste utilization area information, details of groundwater monitoring wells and plans,
- e) an odor abatement plan,
- f) a vector abatement plan,
- g) a dead swine disposal plan,
- h) a soil monitoring plan,
- i) plans and specifications for all other waste treatment or storage structures,
- j) notification forms from all owners whose boundaries are within 1,000 feet of the facility's property and a tax map identifying inhabited dwellings that must be notified,
- k) an emergency plan,
- l) waivers of setback distances (if any), and
- m) the proper fee.

A complete application package must be received by DHEC before a permit can be issued. DHEC may ask for additional information. DHEC will conduct a site inspection before a permit is issued. The cumulative effect on the environment will be considered and DHEC will act to prevent increased air or water pollution. Alternative waste treatment and disposal methods may be required in watersheds which are nutrient-sensitive waters.

Notification of intent to construct or expand a large swine facility must be made (costs are included in application fees). Notice will be published in a local newspaper of general circulation. Persons on adjoining property, the appropriate county commission, the appropriate waste supply district, and any person who asks to be notified must be notified by first-class United States mail or by hand delivery of the notice. The notice will include instructions for public review and comment and will allow for a minimum 30-day comment period. If there is sufficient interest, DHEC will conduct a public hearing (30 days notice required.) If a permit is issued, at least 20 days must be allowed for appeals before the permit can become effective. The swine facility lagoon or waste-storage pond can only be built when the permit is effective with no appeals pending. To begin operations, the operator must have the preparer of the Waste Management Plan certify:

- 1) that construction has been completed in accordance with the approved Waste Management Plan and the requirements of the regulations,
- 2) that no portion of the facility is located in the 100 year flood plain unless properly protected,
- 3) a plan for the containment of lagoon failures, and
- 4) the design of the lagoon lining.

A final inspection may be required. Swine permits will be valid for no more than 7 years. Other permits do not expire.

Required setbacks are part of both the Swine Law of 1996 and the 1998 regulations concerning other animal operations. Setbacks are specified for potable wells, ditches, property lines, and waters of the state. Setback distances vary with the kind of facility, the size of the facility, the type of liner materials in a lagoon or storage pond, and the classification of waters nearby. Other factors that should be considered in siting facilities include proximity to the 100-year flood plain, soil type, location in watershed, proximity to areas such as state or national parks and forests, proximity to other known point source discharges and potential nonpoint sources, slope of the land, and air drainage way.

Swine waste lagoons and waste storage ponds must not exceed 4 acres of surface area and must, at a minimum, be designed to NRCS Technical Guide specifications. Liners are required and must have a permeability rate of 10^{-6} cm/sec or less. (Swine lagoons must have a combination of synthetic and natural liners; for others only natural liners are required.) If seepage has a negative impact on groundwater, the lagoon will be repaired at the owner's expense. Waste must be kept out of contact with groundwater. The minimum distance between the lowest point of the lagoon and the highest point of the underlying groundwater is 2 feet unless a commercial liner of at least 30 ml thickness has been properly installed. At least one up-gradient and two down-gradient monitoring wells are required at large swine facilities. DHEC may require monitoring wells for small operations. Monitoring wells must be permitted and sampled at least once a year. DHEC may visit routinely or randomly to sample wells. All underdrains must be removed from below the lagoon and surrounding area before a lagoon is constructed. Proper water levels must be maintained at all times. Any breach or other failure of a lagoon or waste pond must be reported immediately to DHEC, the appropriate local officials, and the owners or operators of any potable surface water treatment plant that could reasonably be expected to be adversely affected.

Regulations for waste utilization areas are designed to keep nutrients and other constituents of waste out of the water supply. Siting considerations are similar to those for lagoons including setbacks and other factors such as soil type, other sources of pollution, timing of waste application, type of vegetative cover, its nutrient uptake ability, and the timing of its harvest. Limits are placed on the amounts of nutrients and other constituents that may be applied to a given piece of land. Swine waste shall not be applied to land that is flooded, frozen, snow-covered, or saturated from recent precipitation or during inclement weather. Soils must be tested, equipment must be calibrated, and waste must be analyzed in accordance with the regulations. Groundwater monitoring may be required.

Spray irrigation systems must be designed for uniform application. Application rates should be based on the agronomic requirements of the crop. Conservation measures may be required to keep runoff from entering or leaving the waste utilization area.

Swine waste must be analyzed at least annually or when the feed composition is changed substantially. Dead swine must be disposed of in an approved manner as specified in the waste management plan.

DHEC may impose additional or more stringent requirements on a case-by-case basis as they determine the need. They may require the operator to investigate and remediate any adverse impact to the waters of the State. No waste can be released to the waters of the State unless it has been treated to drinking water quality. Swine medical waste cannot be disposed of in swine lagoons, waste storage ponds, or on land applied with swine waste.

Producers must use Best Management Practices to minimize odor problems. DHEC shall require remediation if it determines that an undesirable level of odor exists. Individuals or groups are not prohibited from lodging complaints against swine facilities.

Producers must keep good records including a copy of the approved Waste Management Plan, approved updates, and a copy of the permit(s). Records for each waste utilization area are to be developed and maintained including the amount of waste applied each time, sampling results of the waste, soil monitoring results, groundwater monitoring results, and cover crops grown. For the facility, records must be kept on monthly animal count and the normal production live weight and the mortality count and method of disposal. Records for the lagoon or waste storage pond must include monthly water levels and any groundwater monitoring results. Records must be kept for 8 years at an approved location. All records must be made available to DHEC during normal business hours on request.

All swine operations must submit the following to DHEC on an annual basis or more frequently if required: waste sampling results and the rolling average; soil monitoring results, if any; groundwater monitoring results, if any; calculated application rates for all waste utilization areas; and the adjusted application rates based on the most recent swine waste sampling and soil samples, as applicable. The application rate could also change due to a change in field use, crop grown, or other factors.

Operators of swine facilities, lagoons, waste storage ponds, or waste utilization areas must be certified under the program created by Clemson University. Failure to obtain certification (within 1 year of the effective date of the issued permit) will be considered a violation of the regulations.

Persons who violate these regulations or permits issued under these regulations are subject to criminal and civil penalties of the South Carolina Pollution Control Act.

Similar regulations apply for other animal species, also as of June 26, 1998. The application fees for non-swine animal agriculture are \$240 for farms using wet manure systems and \$165 for those with dry manure systems. The annual operating fees are \$150 for wet manure systems and \$75 for dry manure.

What the Federal Government Is Doing

The Federal government has had the power to regulate nonpoint pollution sources such as animal agriculture under the Clean Water Act since 1973. However, it chose to focus initially on point source pollution such as that from factories and sewage systems. The Environmental Protection Agency (EPA) delegated much of its agricultural enforcement authority to the states (currently 43 states). Although the primary criterion for delegation was enforcement of at least minimal standards set forth in the Clean Water Act, the results have been accusations of lax enforcement in some states and wide variations in regulations across the country.

The Environmental Protection Agency brought the issue of nonpoint pollution into the spotlight last fall on the 25th anniversary of the passage of the Clean Water Act. Vice President Gore directed the EPA and the USDA to cooperate with each other and with other government agencies to come up with a plan that will assure clean water for all Americans.

In April 1998, the EPA and USDA jointly released the *Clean Water Action Plan: Restoring and Protecting America's Waters*.¹⁹ No new legislative authority is required for the implementation of this plan; the existing legislation is sufficient. However, history tells us that Congress is likely to play a major role in shaping a new regulatory framework. The plan uses four key tools to build on the success of the last 25 years in order to further improve and protect the nation's waters.

The tool with the greatest impact on agriculture is titled **Strong Federal and State Standards**. The emphasis is on cooperation between the levels of government in order to address the remaining water quality problems in the United States. Some specific goals of this tool are to assure that fish and shellfish are safe to eat, to ensure safe beaches, to expand control of storm water runoff, to improve state and tribal enforceable authorities, to address polluted runoff, *to define nutrient reduction goals*, and *to reduce pollution from animal feeding operations*. The Clean Water Action Plan does not single out farmers. However, some very specific regulations are in store. According to proposed regulations issued in March 1998, permits will be required for all farms with more than 1,000 "animal units:" 1,000 cattle, 2,500 swine or 100,000 chickens. About 6,600 operations nationwide fit that criteria. Smaller operations will be required to have permits under some circumstances.

Another tool is the **Watershed Approach**. Looking at entire watersheds will encourage coordination between Federal, State, local, and tribal agencies along with the public. This should help to reduce or prevent pollution in the most efficient (and thus cost-effective) manner. **Natural Resource Stewardship** is the third tool. The Department of the Interior will spearhead the development of a Unified Federal Policy to protect water quality and aquatic systems on Federal lands. Federal land managers will work to improve water quality protection and to accelerate watershed cleanup. The loss of wetlands is to be reversed with a net increase of 100,000 acres per year by 2005 being the goal. The National Oceanic and Atmospheric Administration will take the lead in protecting coastal waters. Incentives will be provided for private landowners to reduce polluted runoff from agricultural, range, and forest lands along with expertise on how to accomplish this. By 2002, 2 million miles of conservation buffers are to be established. The fourth tool is **Information**. Informed citizens and officials are critical to watershed improvement. This should include information about existing water quality conditions and, also, information on how individuals can reduce water pollution.

On October 28, 1997, Senator Tom Harkin (D-Iowa) introduced S.1323, the Animal Agriculture Reform Act, "To regulate concentrated animal feeding operations for the protection of the environment and public health, and for other purposes." This act would put USDA in charge of regulating animal agriculture. It would require concentrated animal feeding operations to have approved, detailed waste management plans and to adhere to the plans. Some of the information required for such a plan are the location and size of the operation, the locations and names and addresses for adjoining properties, crop or cover crop information, plan for periodic nutrient testing of soil and animal waste, estimates of the amount of manure produced annually by each type of animal, description of management practices regarding application of waste and the prevention of soil loss, surface water pollution, ground water pollution and odors from animal waste, description of contingency measures, description of record keeping procedures, and any other requirements necessary to comply with this or other laws and regulation. Inspections would be required before a plan is approved to assure that the plan is adequate and after approval to assure compliance.

Under the bill, maximum levels for nitrogen, phosphorus, and other substances will be established. Aerial spraying will be restricted to minimize potential water pollution. Standards will be established for containment systems and their structures.²⁰ The bill was referred to the Committee on Agriculture on the day it was introduced. Hearings were held April 2, 1998. No amendments have been offered and no floor actions have been taken.

What's Happening in the States

This section highlights a few current events around the country involving animal agriculture. These are selected examples from the press. Clemson University is participating in a national project to track the status of Confined Animal Feeding Operation (CAFO) regulations in each state.

South Carolina. In Elloree, an Orangeburg County town of 800, citizens are fighting a proposed 8,400-pig nursery facility. The town is worried that odors from the pig farm near Santee State Park will discourage tourists. Elloree is trying to fix up its downtown to attract tourists' business. The State Department of Parks, Recreation and

Tourism has also gone on record as opposing the farm. Officials are concerned over odors and the possibility of leakage or overflow from lagoons fouling creeks that flow through the state park. DHEC issued a permit for the farm, but construction must be delayed until the appeal is heard. The farm's owner says the use of the land for a swine farm is nothing new. In 1996, Orangeburg County produced 37,400 pigs.²¹

Pfiesteria piscicida is algae that can cause fish deaths. There is some evidence that elevated phosphorus levels in water can trigger a "bloom" of such algae and lead to oxygen depletion. Fish are affected by the low oxygen levels and by lesions caused by the algae. Although *Pfiesteria piscicida* exists in South Carolina, there have not been any fish kills associated with it. The Task Group on Toxic Algae has developed a plan to discover and contain possible outbreaks. Advisories have been prepared which can be released to warn fishermen and swimmers if necessary. Water monitoring is being stepped up and local agents are being trained to recognize early signs of *Pfiesteria*. Doctors will be trained to identify "Estuary Associated Syndrome," the symptoms of exposure to *Pfiesteria* outbreaks.²²

North Carolina. The state is known for having welcomed corporate hog farming with open arms and then slammed the door when problems arose. The 2-year moratorium on new farms/permits remains in effect as regulations and the permitting process are debated. In the first quarter of 1998, state inspectors found 570 problems at livestock farms. Record rains increased the problems of high lagoon levels and limited the number of suitable days for field spraying. Tighter regulations meant more things were considered problems than before. But on the bright side, farmers were more likely to call regulators when they perceived a problem because they knew whom to call and because they felt they would be dealt with more leniently with respect to fines if they cooperated with the authorities. However, environmentalists argue that lagoons are a deficient technology that work only if there isn't much rain.

The moratorium is due to expire on March 1, 1999. However, there is a proposal in the NC House to extend the moratorium until October 1, 2000. Another proposal would extend it for 6 months, until Oct. 1, 1999. Some legislators are concerned that the current expiration date does not allow enough time to debate an extension of the moratorium when the legislature reconvenes in 1999.²³ Despite the existence of the moratorium, hog numbers in the state have continued to expand.

Researchers at North Carolina State University are investigating the increase in atmospheric ammonia levels in Sampson County. Viney Aneja of North Carolina State University says that hog barns and waste lagoons are the obvious source of nitrogen levels that have more than doubled in the last twenty years. The NC Division of Air Quality estimates that at least 186 tons of ammonia are discharged into the air daily by hog farms.²⁴

Maryland. In April 1998, Maryland passed legislation to protect the Chesapeake Bay from pollutants associated with *Pfiesteria piscicida*.²⁵ Farm groups succeeded in softening the impact of the bill by winning delays in the implementation of the new regulations. Most farmers will be required to test their soil and have fertilizer use reduction plans by 2001, and all will by 2004. Limits on both nitrogen and phosphorus are included in the legislation.

In May 1998, Tyson Foods agreed to pay \$6 million in Federal fines and for improvements in waste disposal stemming from practices at a Hudson Foods plant that Tyson had recently purchased. In June, Maryland officials accused Tyson of continuing to dump thousands of gallons of waste daily from its Berlin chicken-processing plant onto a 105-acre farm near Ocean City.²⁶ Although state authorities had notified Tyson in April that the practice violated Maryland's environmental laws, the practice was not stopped until the *Washington Post* reported the story.²⁷ State and company officials met July 2 to discuss Tyson's waste disposal options and the possibility of imposing fines.²⁸

Another Eastern Shore poultry farm, Allen Family Farms, is also accused of failure to meet environmental standards. The company is in the process of building a treatment plant.²⁹

Virginia. This neighbor of Maryland whose rivers also pour into the Chesapeake Bay did not pass legislation to regulate animal agriculture in 1998. Although bills were proposed that would have regulated the industry or at least studied the problems, none of them passed.³⁰

Kentucky. Kentucky passed emergency legislation to regulate hog farms in April, 1998.³¹

Colorado. Colorado has failed to pass state-wide regulations for large scale hog farms. Therefore, ranchers and farmers have joined with environmental groups in an attempt to put a ballot initiative on the November 1998, ballot. The initiative would require groundwater monitoring, deep-soil testing, coverage of lagoons, permits and inspections of waste disposal systems, and assurance of operators' ability to pay to correct environmental problems they might incur.³² The initiative passed.

Ohio. The Ohio EPA has announced that it plans to increase public notification and involvement in the permitting process for large livestock facilities. Local media and state and local officials will be notified at several stages in the permitting process. Comment periods and the possibility of public hearings are included in the plans.³³ The EPA plan comes in the wake of complaints over the approval of a large addition at Buckeye Egg Farm for which there was little public notice given. Rep. Jay Hottinger has proposed legislation requiring notification of permit applications for large livestock enterprises. Citizens feel these are step in the right direction, but that the EPA needs to look again at manure hauling and spreading.³⁴

Oklahoma. The Oklahoma House passed a 1-year moratorium on corporate hog facilities. However, the Senate repealed the moratorium effective August 1, 1998, while placing new restrictions on animal operations. The bill "Prohibits construction of any new or expanding swine facility requiring licensure until the Department of Agriculture issues a building permit; Provides various statewide setback requirements from the closest occupied residences, according to the size of the operation; Prohibits any licensed swine operation from locating within three miles of certain recreational sites or public drinking water supplies; Authorizes the Department of Agriculture to assess fees on licensed swine operations of 80¢ per animal unit capacity annually; Requires installation of leak detection systems or sufficient monitoring wells around each waste retention structure for the purpose of ensuring greater protection of the state's water supply; Requires waste education and training for all persons involved in the treatment, storage or application of waste from licensed facilities; and Requires licensed facilities to develop an Odor Abatement Plan to address methods for reducing odors caused by animal maintenance, waste storage and land application, and carcass disposal."³⁵

Oklahoma is also interested in regional cooperation with other states but efforts to establish an interstate compact were unsuccessful.³⁶ Of particular interest are Missouri and Arkansas whose rivers feed into Oklahoma waters.³⁷

What's Happening at the County and Local Levels

The role that local and county governments are being allowed to play varies from state to state. Some states are ruling that local opinions must be considered in permitting decisions. Other states have ruled that counties cannot regulate agriculture by zoning or other means. One danger of local permitting regulations is that they may be more politically motivated and subject to favoritism. On the other hand, it seems hard to deny a say to the people who will be most affected by a large animal operation.

There have been some attempts by local or county governments to regulate animal agriculture. In August 1997, the Attorney General of Kentucky issued an opinion that local governments can regulate industrial-scale hog operations by zoning or other means.³⁸ Last year in Missouri, environmentalists proposed legislation that would require public hearings on new, large farms and would require a county board's approval. It was given little or no chance of passage in that session of the legislature.³⁹ In March 1998, the Iowa Supreme Court overturned local ordinances restricting pig farms in Humboldt County finding that they conflicted with state laws.⁴⁰ In Tulare County, California, county officials are encouraging new dairies to locate in areas where the groundwater is deep (sometimes more than 100 feet below the surface.) The county authorities limit the number of cows per acre if two or more dairies are within a mile radius of each other in order to prevent clustering.⁴¹

In Florida, Regional Water Management Districts play a major role. First in the Lake Okeechobee area, now in the Suwanee River drainage area, these agencies are a major factor in permitting new operations and regulating existing ones.

South Carolina's new regulations were sparked in no small measure by the home rule issue. Local government interests sided solidly with environmental groups in the debate over new legislation.