United States Environmental Protection Agency

Swine Production and Environmental Stewardship

Management of manure and other by products of livestock production is a complex environmental issue. Manure and livestock by products can have both positive and negative environmental consequences. Manure can produce substantial benefits and/or result in severe environmental degradation. The actual environmental result depends upon choices that the producer makes.

The swine industry faces growing scrutiny of its environmental stewardship. The potential impact of an individual operation on the environment varies with animal concentration, weather, terrain, soils, production and waste management strategies, and numerous other conditions.

- What are your highest risk situations or practices for your livestock operation?
- Are you developing plans and investing resources to address the highest risk situations?
- Are you an environmental steward?

It is hoped that this pictorial review of management practices found in swine production will benefit you in identifying and implementing best management practices and being an environmental steward.

Managing Storage

- Manure and wastewater can be managed and stored to protect water quality.

A lined lagoon with adequate storage capacity protects ground and surface water.

Depth markers gauge wastewater levels and help avoid capacity issues.

Well maintained earthen lagoon facilitates proper operation and maintenance.

- Improperly stored and managed wastewater could pollute surface or ground water.

Improperly managed manure and wastewater could negatively impact water quality.

Overflowing lagoon has exceeded its capacity.

Lack of proper operation and maintenance results in a failed berm.

Land Application and Nutrient Management

- Properly applied manure is a valuable source of plant nutrients that improves the quality and productivity of soils.

- A Nutrient Management Plan allows efficient use of nutrients and protects water quality.

Even field application by incorporation reduces runoff and odor.

Creating and following nutrient management plans could improve the quality of soils.

A calibrated tank spreads manure evenly.

- Some application practices could cause problems.

Non-calibrated sprayers can result in excessive application of manure.

Manure from spray irrigation applied directly to a drainage ditch.

Application to saturated soils could result in runoff.

Public Perception

- Well maintained swine facilities can be managed to benefit the environment and improve public perception of the industry.

Grass filter strips protect surface water from manure and wastewater application.

Waste deposited under the surface of a lagoon could help reduce offensive odor.

A well maintained facility with sufficient acreage for land application of manure.

- Some practices could harm the environment and affect public opinion.

Poor lagoon border management could result in stability, pest, and odor problems.

Undersized and poorly managed lagoon.

Poorly managed facilities could affect public opinion.

Swine Confinement Areas

- Best Management Practices can be applied to swine confinement areas.

Well designed and maintained swine units.

Fly paper or index cards could be used to determine insect population and density.

Slotted floors facilitate waste handling and the recycling of wastewater.

- Some practices should be avoided.

Poorly designed and maintained facility.

Lack of insect control leads to animal stress, could increase the spread of disease and be a nuisance to neighbors.

Spilled feed wastes money and increases nutrient content of manure.

Other Practices

- Management Practices showing a concern for environmental health and safety.

Securing facilities prevents accidents, vandalism, and is a biosecurity precaution.

Precision feed management and the addition of phytase promotes animal health and nutrient management.

Develop an emergency management system.

Testing soils helps determine nutrient levels and plan for land application of manure.

Swine raised on pasture rotation system.

Testing manure promotes proper nutrient management.

For further assistance please contact your local office of USDA's Natural Resources Conservation Service or Extension office (http://offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map), conservation district (www.nacdnet.org/directory/index.htm), state environmental agency (http://cfpub.epa.gov/npdes/contacts.cfm?program_id=7&type=STATE), or state conservation agencies (http://nascanet.org/docs/state2.html). For assistance in contacting local offices, to obtain copies of this document or other types of assistance, contact EPA's Ag Center (www.epa.gov/agriculture) or call toll free 1-888-663-2155.

Photos courtesy of:
USDA (NRCS and ARS); FEMA; and EPA.

Office of Enforcement & Compliance Assurance
Washington, DC 20460

EPA 305-F-03-001
April 2003