United States Environmental Protection Agency

Dairies 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 dairy 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, 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 on dairy farms 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.

Depth markers gauge wastewater levels and help avoid capacity issues.

Well maintained earthen manure storage pond.

Tank storage with sufficient freeboard.

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

Overflowing manure storage pond has exceeded capacity.

Uncontained discharges from manure storage ponds could contaminate surface water.

Manure overflows this storage area and threatens nearby streams with degraded water quality.

Land Application and Nutrient Management

- Properly applied manure is a valuable source of plant nutrients that improves the quality and productivity of soils.
- A Comprehensive Nutrient Management Plan allows efficient use of nutrients and protects water quality.

A calibrated tank spreads manure evenly.

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

Even liquid manure application by drag line incorporation.

- Some application practices could cause problems.

Application to frozen soils could result in runoff.

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

Spreading on saturated ground could result in runoff.

Public Perception

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

Limiting direct access for cattle to streams protects water quality and shows good environmental stewardship.

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

A well maintained and managed dairy facility.

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

Surface water could become polluted if animals are allowed direct access.

Uncovered and uncontained manure stockpile.

Poorly managed facilities could affect public opinion.

Production Areas

- Best Management Practices can be applied to dairy production areas.

Covered livestock holding areas minimize the mixing of stormwater with manure and help keep the animals cool.

Well designed and properly maintained manure management systems prevent runoff.

A bermed livestock yard prevents runoff.

- Some practices should be avoided.

Animals should not be allowed direct access to surface waters.

Runoff from confinement area.

Piped discharges of barnyard and milkhouse wastewater could pollute surface water.

Other Practices

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

Securing facilities prevents accidents and vandalism.

Covered compost and manure storage minimizes runoff.

Gutters separate clean and dirty water and prevent water from accumulating in corrals.

Dairies may use methane recovery systems to reduce air emissions and as an alternate energy source.

A centrally located water tank allows cattle rotation on different pastures.

Bermed, secured, and covered silage prevents runoff.

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-03-003
April 2003