



Cattle Producer's Handbook

Miscellaneous Section

1065

Cow-Calf Management for Water Quality Protection and Odor Control in the Pacific Northwest

*Ron E. Sheffield, Waste Management Engineer
Scott Jensen, Livestock Extension Educator, Canyon County
University of Idaho*

Beef cattle production in the Pacific Northwest is strong because of bountiful natural resources: Water, soil, rangeland and forests, and clean air. Yet competition exists for these resources from other activities such as tourism and rural development. Cattle producers have a vested interest in protecting these natural resources. The challenge exists to find a balance between sustaining the environment and the social well being of all natural resource users. When and where producers place cattle on their land is important when considering the environmental health of the landscape.

The objective of this fact sheet is to recommend best management practices (BMP's) to help beef producers manage cattle to protect water quality. By voluntarily adopting these practices, environmental concerns can be addressed on the farm with the freedom and flexibility not available through regulation.

Beef cattle produce large volumes of manure (Table 1). Good manure management prevents water pollution and improves herd health, forage management, and parasite control.

Maintaining water quality should be a concern for all cattle producers. The key concept to protecting water quality is to prevent manure and manure-contaminated runoff from entering water resources. The environmen-

tally sound management of animals and the manure they generate can protect the quality of water.

Improper management of water resources can result in manure accumulation, soil compaction, and loss of vegetative cover. Such conditions increase the potential for erosion and manure runoff, which reduces water quality by contributing to non-point source pollution.

The goal in pollution prevention is to avoid contaminating ground and surface water with undesirable microbes and excess nutrients. Ecological problems can result if manure and sediments are discharged into the water. Excess nitrogen and phosphorus can encourage excessive aquatic plant growth. When this plant material dies, the resulting decomposition removes oxygen from the water, which can result in the death of desirable fish and other aquatic life. Fish species, such as carp, that can better tolerate the low oxygen conditions often increase in numbers, and desirable species (trout, bass, and crappie) decline.

Animal manure can also be a source of disease-causing organisms. These pathogens can infect humans and animals through contact with a contaminated water source. By implementing the following BMP's, beef cattle producers can work to protect water quality and maintain an environmentally sound operation.

Grazing Management

Manure distribution and disposal are generally not problems for cattle grazing good quality pastures, however, environmental damage and impaired water quality can be the result of overloading soil with manure by overgrazing pastures. Even farms with few animals, if mismanaged, can contribute to the degradation of water quality. Grazing animals can contribute to non-point source pollution through their impact on vegetation.

Table 1. Typical beef manure characteristics.

Animal (wt) (lb)	Nutrient content (lb/day)			
	(lb*)	(N)	(P ₂ O ₅)	(K ₂ O)
500	30	0.17	0.13	0.15
750	45	0.26	0.19	0.22
1,000	60	0.34	0.25	0.30
1,250	75	0.43	0.31	0.38

*Pounds produced per day on a wet or "as excreted" basis.
Source: Adapted from Livestock Waste Facilities Handbook.