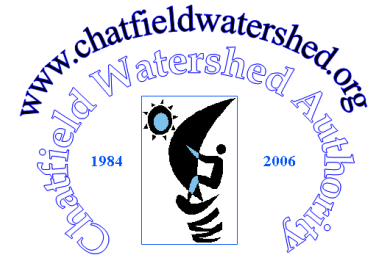


Chatfield Watershed Authority



Adopted: April 26, 2006

Policy: Reviewing Manure Management and Stabled or Confined Animal Nutrient Generation

This Policy shall apply to new facilities where animals are or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period (“Animal Facility”) within the Chatfield Watershed. It shall also apply to existing Animal Facilities that are enlarged, expanded, extended, increased, altered, or moved for any reason within the Chatfield Watershed. If an existing Animal Facility discontinues use for any reason for a period of more than 12 consecutive months, the facility shall comply with the requirements of this Policy.

The Chatfield Watershed Authority (“Authority”) recognizes animal manure and associated liquid waste stream is a contributing factor in nonpoint source pollution within the Chatfield Watershed. An Animal Facility or similar project can lead to an accumulation of nutrients in site-specific locations over the long term, especially in areas with repeated applications. Excessive loading of nutrients can degrade surface and alluvial groundwater water quality and cause exceedances of Water Quality Standards and risks to human health and the environment. As such, the Authority will apply the estimated nutrient loading numbers from the following table when reviewing Animal Facilities involving manure and associated liquid waste stream management.

Table 1 Approximate quantity per 1000 lb animal equivalent per year and fertilizer nutrient composition of various types of animal manure at time applied to the land¹

Type of livestock	Bed vs. no bedding	Manure Tons	Dry matter	Total Nitrogen	Ammonia	Phosphorus	Potassium
			%				
Swine	w/bedding	6.1	18	8	5	3.08	5.81
	w/o bedding	6.1	18	10	6	3.96	6.64
Beef cattle	w/bedding	2.6	50	21	8	3.52	21.58
	w/o bedding	2.5	52	21	7	1.76	19.09
Dairy cattle	w/bedding	9.1	21	9	5	1.76	8.3
	w/o bedding	10.6	18	9	4	1.76	8.3
Sheep	w/bedding	6.5	28	14	5	3.96	20.75
	w/o bedding	6.5	28	18	5	4.84	21.58
Poultry	w/litter	4.4	75	56	36	19.8	28.22
	w/o litter	7.3	45	33	26	21.1	28.22
Poultry deep pit	(compost)	4.3	76	68	44	28.2	37.35
Turkey	w/litter	7.2	29	20	13	7.04	10.79
	w/o litter	9.5	22	27	17	8.8	14.11
Horses/ Mules/ Donkeys²	w/o bedding	8.2	21	12	2	2.8	7.5
	w/bedding	9.7	46	19	4	1.76	11.62

1 – Adapted from multiple sources. Colorado data was included where available. (See references)

2- Values for horses, but assumes other equines such as mules and donkeys

Manure management strategies (solid waste and liquid waste stream) used in the Chatfield watershed should not increase the total annual load of total nitrogen or total phosphorus above ambient conditions where such waste can or potentially can reach surface waters in the watershed or within the groundwater.

It is presumed that Animal Facilities will store manure in a contained area, and will haul the manure out of the Chatfield Watershed. However, Animal Facilities may secure a waiver from the Authority to keep manure in the watershed provided the following three steps are met by the applicant:

- (1) Calculate the estimated annual wasteload based on 1,000 pound animal equivalents as per Table 1 for nutrients;
- (2) Identify best management practices and mitigation strategies to reduce nutrient contributions; and
- (3) Outline a monitoring and reporting plan that should prove effectiveness of the proposed management strategy.

If monitoring or inspection indicates that manure or nutrients are not adequately retained or may be contributing nutrients into the watershed, the waiver will be revoked and the owners will be required to store and haul manure to an off-site location.

References

J.G. Davis and A.M Swinker. 2004. Horse Manure Management. CSU Cooperative Extension Bulletin No. 1.219. Colorado State University.

Waskom and Davis. 1999. BMPs for manure management, Colorado State University Bulletin No. 568a.

D.F. Leikam and R.E. Lamond. 2003. Estimating Manure Nutrient Availability. Department of Agronomy Bulletin MF-2562. Kansas State University Agricultural Experiment Station and Cooperative Extension Service.

Saskatchewan Agriculture and Food. 1999. Nutrient Values of Manure. Farmfacts 5M ISSN 0840-9447 LON0299.

Natural Resources Conservation Service (NRCS) www.nrcs.usda.gov (This site has multiple listings on manure management, assessment tools (e.g., The Phosphorus Index) and manure characteristics)

Texas Animal Manure Management Issues (TAMMI) Website is an electronic informational clearinghouse, developed and designed with a mission to provide agricultural waste management education and information on demand.
<http://tammi.tamu.edu/>

United States Department of Agriculture. Confined Animal and Manure Nutrient Data System - <http://www.ers.usda.gov/>