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## GUIDELINES FOR HANDLING ANIMAL WASTES AS RELATED TO WATER AND AIR POLLUTION CONTROL

Considering the present emphasis being given to water and air pollution in the State of Washington, it is strongly suggested that livestockmen review their management practices as they relate to waste disposal programs and water and air quality management. In reviewing their own situation, it should be kept in mind that yesterday's waste disposal practices may not be the accepted practices of today and tomorrow. A livestock operator, when considering his herd's total waste on an equivalent population basis, can very possibly have a larger amount than the town he lives in or near.

### State Law

The state law dealing with water pollution states that:

. . . discharge of polluting matter in water is prohibited. It shall be unlawful for any person to throw, drain, run, or otherwise discharge into any of the waters of this State or to cause, permit, or suffer to be thrown, run, drained, or allowed to seep from drain fields, or otherwise discharged into such waters any organic or inorganic matter that shall cause or tend to cause pollution of such waters according to the determination of the Water Pollution Control Commission.

The state law dealing with air pollution enables local control authorities to be formed. Each livestockman should be aware of the requirements of the local air pollution control authority. Generally stated, the requirements would prohibit the emission of an air contaminant that would tend to cause air pollution as defined by the State Air Pollution Control Board.

### Guidelines Can Be Helpful

It is the intent of this publication to briefly outline some of the water and air pollution problems facing livestock people and to suggest guidelines which might aid them in meeting pollution regulations with a minimum cash outlay. Maintenance of feedlot areas to prevent area-wide odor and nuisance problems will be mandatory in some areas.

### Sprinkler Method of Disposal

The sprinkler method of manure disposal is used by many dairymen. Based on the pounds of fertilizer applied, a maximum of 500 dairy animal manure-days per acre per year has been established. This application is also based on a silt loam type of soil prevalent in many of the dairy sections of Western Washington. If the soil is a heavy clay, care must be taken to avoid surface runoff of the material. It has been established that a dairy cow produces 9 gallons of manure

a day, including solids and liquid. An application of 500 animal manure-days per acre would apply the following amounts of fertilizer: 212 lbs. of nitrogen, 38 lbs. of phosphate, 190 lbs. of potash. These figures are derived from E.M. 2592 entitled "Animal Waste Data and Population Equivalents" and is available at the County Extension Offices or the Extension Bulletin Department, WSU, Pullman. The above application of manure will normally not create pollution of underground water supplies but might contaminate shallow wells located in gravelly soil. However, the application must be no closer than 100 feet from a properly developed domestic water supply.

A manure sprinkler system should be operated in a manner which will not contaminate surface waters that are located on a farm or along its borders. Construction of dikes along stream banks would eliminate many problems. The application of manure spray must not be closer than 50 feet distance from surface waters. Nutrients and bacteria contained in this type of material further contribute to the downstream degradation of water quality.

Applications of liquid manure to the land should be applied according to existing wind conditions. To prevent drift of particles, do not operate in high wind. Consider neighboring property when windy conditions exist. Many farmers operate their sprinkler system early in the morning with highly successful results.

#### Good Neighbor Policy Best

Always consider the proximity of neighbors. Maintain good relationships with neighbors to prevent the possibility of being a nuisance. The State Law of Nuisance<sup>1</sup> has sharp teeth and is one that all livestock people should read and become familiar with.

#### Irrigation Systems Can Be Helpful

On farms where irrigation water is available, a good practice is to follow up the application of manure with water to wash it off plant growth and into the soil. Be sure that the soil is not saturated to the point that the "rinse" causes manure to run off rather than penetrate the soil. The application of water also flushes out the irrigation system to keep it from plugging up. Here's a point for dairymen to consider as related to odor control. Daily agitation of liquid manure in the holding tanks helps considerably to reduce objectionable odors.

#### Animals Kept Clear of Water Sources

Livestock no longer will be allowed access to stream beds. This has been common practice by some livestock operators in the past.

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<sup>1</sup>A study of court cases concerning the Law of Nuisance is included in a report entitled "Air and Water Pollution Program." Not numbered. The Law of Nuisance in operation is covered in detail in a report entitled "Law Suit Against a Dairy Operation by Urban Neighbors." Not numbered. For copies of the reports described above write to Office of Extension Agric. Engineer -- 220 Smith Bldg., WSU, Pullman, Wn. 99163.

Control of Wastes is Essential

Regardless of the method of manure disposal on the land, it must be prevented from going directly into water ways, low areas, or ravines leading to such water sources. Seepage into the soil initially provides a filtering situation and/or bacterial action which reduces the contamination potential. In the case of beef feedlot or dairy drylot operators, construction of dikes between feedlot and fences and any nearby stream enables the effluent to filter through the soil instead of running off on the ground surface.<sup>2</sup>

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<sup>2</sup>For further details see Extension Circular EC-361, "The Stockman's Role in Water Pollution Control," available at County Extension Offices or the Extension Bulletin Dept., WSU, Pullman.

SUMMARY

1. Do not apply more than 500 animal manure days per acre per year (herd of 50 cows would require not less than 36.5 acres to handle total waste for 1 year).
2. Do not place heavy application of animal wastes closer than 100 ft. to domestic water supply.
3. Do not place application of animal wastes closer than 50 ft. to an open supply of water, such as creek, river, lake or pond.
4. Do not operate sprinkler or liquid distribution system in a high wind. If wind is blowing, make sure it is blowing away from nearby neighbors.
5. Whenever possible, always flush newly-applied liquid wastes with water to wash materials into soil.
6. Agitate liquid-solids in holding tank not less than 30 minutes each day. Beating air into the waste material aids greatly in preventing the working of anaerobic bacteria. Without agitation, anaerobic bacterial prevail and they are the type largely responsible for offensive odors. Sometimes it is essential to agitate and empty the holding tank daily for best control of odors. This is particularly true of the smaller size holding tanks.
7. Fence waterways so that they cannot be contaminated by direct access of cattle.

"If the farmer follows the guidelines as suggested in this publication, both he and his neighbors should be happier."

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