Animal Science

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Poultry Manure and Environmental Concerns

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Poultry manure can be utilized as a valuable resource or it can be a pollutant of surface and ground water. Approximately 232,000 tons of poultry manure are produced each year on Tennessee's commercial poultry farms.

The way poultry manure is handled, stored and applied to the land will determine whether the manure is a valuable resource or a pollutant. Most poultry manure is applied as a fertilizer on pasture, small grains or row crops. With improper management, poultry manure can have an adverse impact on the environment. One of the goals of any manure management program should be to prevent the pollution of surface and ground water.

Environmental Concerns

Today, maintaining the quality of our surface and ground water is an issue that concerns everyone. At least water quality should concern everyone. This means that all poultry producers must do their part to insure that poultry manure does not in any way pollute surface and ground water.

Poultry manure can contaminate water by (1) leaching through the soil, (2) runoff, where manure has been stored or applied to the land and (3) direct discharge into the water. Excessive application of poultry manure to land can lead to water quality concerns as well as to odor and insect problems. Reduced crop yields could also result from over-application of manure.

The major potential water contaminants are nitrogen, phosphorus and bacteria. The nitrogen contamination may come from stockpiled manure or from manure applied to the land. An increase of nitrogen in water is serious because of human health concerns.

Also, ecological problems related to aquatic life can result from the discharge of phosphorous and organic matter from the manure into the water. An increase of phosphorous in water can cause rapid growth of algae. A significant increase of organic matter in water will cause low levels of oxygen in the water, which can result in the death of fish and other aquatic life.

All animal manure, including poultry manure, are potential sources of bacteria, viruses, fungi, parasites and other disease-causing organisms. These pathogens, when

transmitted from manure to water, can infect humans through drinking water, water contact with the skin and consumption of aquatic animals. Fortunately, most pathogens die in a short period of time. However, given the right conditions, some may live and persist in surface and ground water for an extended period of time.

Manure Handling and Storage

The clean-out of poultry houses often results in some form of stockpiling or storage of manure. Limited clean-out time or adverse weather conditions means the manure sometimes will have to be stockpiled before it can be applied to the land. Tennessee state law requires stockpiled poultry manure to be stored in a building or be covered with a protective cover if stored outside. Proper storage of manure is essential to maintain its nutrient value for crops.

NEVER stockpile the manure near a well, stream, pond or any other water source. The water drainage from the storage site should filter through a grassy area before it enters any body of water. When removing the manure from the storage area, be sure to remove all the waste and clean the area thoroughly.

Manure Application

The nutrient content of poultry manure will vary due to type and age of the chicken, diet, number of grow-outs on the same litter, management, storage and handling procedures. It is a good practice to have the manure analyzed for nutrient content prior to application.

Soil testing of the land where poultry manure is to be applied is important. Nutrient imbalances and possible contamination of water can occur when excessive rates of manure are applied. Do not apply manure at rates that would result in nutrient levels in excess of soil test recommendations.

Crop nutrient requirements will vary depending upon the type of crop, soil type, yield, and cropping practices. Excessive manure application can lead to nutrient toxicity problems in plants.

Caution must be exercised when spreading manure on the land. The following guidelines should be utilized when spreading manure:

* Maintain a vegetative buffer between the application site and adjacent wells, streams, ponds, lakes or other water resources.

* Soil test regularly to monitor soil nutrient and pH levels

* Apply the manure at recommended rates

* Use lower application rates on shallow soils

* Calibrate spreading equipment and apply litter uniformly

* Whenever possible, incorporate the manure into the soil as soon as possible after spreading

* Apply manure based on plant phosphorous needs to fields that have a high phosphorous level

* Use water run-off control practices on fields with slopes over 6 percent

* On pasture and hay, spread the manure during the growing season

* During fall and winter, manure should be spread on fields growing winter crops

* Cover the manure in vehicles when hauling over public roads

* Be considerate of your neighbors and try to minimize conflicts when spreading manure

Poultry manure is a valuable resource when handled and utilized properly. To protect the environment, it is extremely important to use good management practices when handling, storing and spreading poultry manure.

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