

## **Nutrient Losses When Storing Poultry Litter in the Field**

Greg Binford, University of Delaware

Temporary storage of poultry litter in fields after removal from the poultry production facility prior to spreading as a fertilizer is a common practice in the Delmarva region. There is concern, however, on the potential losses of nutrients to the environment during this field storage. The objectives of this project were to quantify the types and amounts of nutrients being lost from these piles during storage. Production-size piles were utilized for this project, because all previous research has used small research-size piles that may not adequately compare to actual practices used in production agriculture.

The results of this project demonstrate that inorganic N (ammonium +nitrate) is being lost from temporary piles of poultry litter. Soil samples were taken to a depth of 48 inches from more than 30 different sites that had each stored 100-ton piles of poultry litter a for at least 90 days, and these samples showed a range of 2 to 29 pounds of inorganic N left in the soil after the poultry litter had been removed. Covering the piles with polyethylene resulted in no significant reduction in N losses from the piles into the underlying soil. Soluble salt levels in the surface layer of the soil following poultry litter storage usually prevented establishment of crops in the area where the litter was piled. Regression analysis showed that potassium and sulfur were the main contributors to the soluble salt levels, and inorganic N levels had only small insignificant impacts on soluble salt concentrations. The poultry litter piles had only minimal impacts on soil test phosphorus concentrations. Overall, the results from this project showed that amounts of N lost from temporary piles of poultry litter were quite small and represented about 0.2% of the amount of N in the litter pile.

## **Building On-Farm Composting Capacity to Prevent Pollution**

Gregory Evanylo, Virginia Tech

Limited options for disposing of and/or using agricultural (including mortalities), municipal and industrial waste by-products efficiently contribute to air and water quality degradation. Improperly handled manure results in volatilization of ammonia, whose re-deposition increases surface water eutrophication. Waste disposal methods such as incineration generate nitrogen oxides (NO<sub>x</sub>) which can be harmful to human health and damage vegetation. Landfilling of organic wastes produces the greenhouse gases methane and nitrous oxide. Antibiotics and other bioactive organic compounds may accumulate in soil, be assimilated by food and feed crops, and be transported to water. Disease-causing pathogens may also be transported from land-applied wastes to drinking water supplies. Efficient composting of waste by-products will reduce many of the detrimental environmental effects and generate a beneficial by-product whose substitution for synthetic fertilizers can reduce soil, water and air degradation during production and land application.

Representatives of state and federal agencies and non-profit and private companies have developed partnerships in Virginia to build the capacity of on-farm composting to transform agricultural, municipal and industrial waste residuals into beneficial products to prevent pollution and improve soil and water quality. Farmers are being trained to compost waste and market the products and educators/technical experts are being trained to teach and promote composting and the purchase and use of compost products. The amounts of waste residuals being composted, purchased and land-applied in Virginia are increasing.

## **Healthy Lands for Healthy Horses: Increasing the Adoption of Best Management Practices on Horse Farms in Ontario**

Darryl Finnigan, Ontario Ministry of Food, Agriculture and Rural Affairs

The Ontario Environmental Farm Plan Program began in 1992, has undergone significant changes through the years, and continues to be a model of success today. More than 35,000 Ontario farmers have voluntarily participated in environmental farm plan educational workshops.

Since April 2005, Ontario farmers have completed more than 17,500 environmental improvement projects identified in their environmental farm plans. Building on this success, the Ministry of Agriculture, Food and Rural Affairs is working with partners to examine how to increase the participation of horse farms in the program. The province is experiencing growth in the equine sector, resulting in new farms both large and small. However, horse farms are often considered as a type of agricultural operation that is very different from livestock or field crop operations. This presentation will examine the approach taken in trying to better engage this sector of agriculture.

