ECONOMIC SOLUTION

# COMPOSTING ROAD-KILLED DEER IN NEW YORK

*About 8,000 deer are killed annually on state highways in the lower Hudson Valley region, creating a disposal challenge. Transportation and environmental officials opted to give static pile composting a try.*

*Theresa Laibach and Jean Bonhotal*

THE white-tailed deer population in New York State has increased over the past few decades, with the current population estimated at slightly over one million animals. Along with a greater prevalence of deer is the increased amount of residential and commercial development that has occurred in upstate New York. This has impacted deer habitat and behavior, contributing to more deer-related motor vehicle accidents (DVAs). NYS Department of Transportation (DOT) pays private contractors $30 to $80/carcass for pick up and disposal — totaling just over $1.1 million during FY's 2000-02.

Contracts with private service providers can be costly and do not ensure proper disposal. State DOT and local highway departments are well suited to manage the road kill generated in each region. They have staff collecting the carcasses, wood chips for the carbon source and substations generally located in outlying areas where the general public does not have access.

In the summer of 2001, a group of solid waste managers who are members of the Hudson Valley Regional Council were concerned about increasing numbers of road-killed deer complaints received from the public. According to the NYS DOT, approximately 8,000 deer are killed annually on state highways in the lower Hudson Valley region. The figure would be much higher if town and county road mortalities are factored in. The group came to an impasse as to how to properly handle disposal of road-killed deer in the seven counties just north of New York City. Traditional disposal methods, such as removal by private contractors, self-hauling to transfer stations or pit burial in the highway-right-of-way, were becoming impractical for economic reasons, regulatory issues and logistics. The regional Department of Environmental Conservation (DEC) staff also participated in council meetings, and Theresa Laibach of DEC was tasked with looking at disposal alternatives.

## THE COMPOSTING ALTERNATIVE

During this time, the livestock mortality and butcher waste composting program being undertaken by Cornell University's Waste Management Institute (CWMI) was being promoted throughout the state. New York farmers were experiencing similar problems with securing affordable, dependable access to animal carcass/residual disposal services. CWMI documented field success by farmers using passively aerated static piles to compost farm animal mortalities. The process could be conducted year-round, accomplished with readily available equipment, required minimal labor and management, and proved cost-effective. It was also preferable to pit burial, enhancing groundwater protection or dragging off-site, to keep vector populations under control — particularly coyotes. In consultation with Jean Bonhotal of CWMI, it was agreed that composting could be an effective treatment method for deer carcasses as well. The next step would be to undertake a composting field study using road-killed deer.

**In the successful pilot project, deer carcasses are placed in a two-feet deep wood chip bed and covered with a layer of finished compost. Layering method is continued to achieve proper pile temperatures.**

During the summer of 2002, a pilot project for deer carcass composting was initiated at Green Haven Correctional Facility in southern Dutchess County, New York. This site was selected because of the extensive experience the prison had with composting food residuals (see "Comparing Composting Technologies At Correctional

Facilities," March 2003) and because Dutchess County Department of Public Works (DPW) expressed an interest in supplying deer for the pilot. The deer carcass composting was conducted separately from the other prison composting operations. Dutchess County DPW delivered between five to 20 deer carcasses each Friday via dump truck to the prison over a 6-month period. When the carcasses arrived, a bucket loader would lay a bed of wood chips approximately 2-feet deep in a windrow formation. Each carcass would then be picked up by the bucket loader one at a time and laid side by side on the wood chips. Once half the carcasses delivered were placed in the wood chips, they would be covered with a layer of finished compost and the rest of the carcasses would be added as a second layer in the same manner as the first. Another 2-feet of wood chips would cover the double-layered windrow, which would then be left to compost passively for four to six months.

The windrow would be extended each week until the space allocated was used, then a new pile would be started. This method made it easy to keep track of how long carcasses had been composting. Unlike larger carcasses like dairy cows, animals such as deer, goats, sheep and poultry need to be composted in layers to achieve proper temperatures in the pile.

Temperature monitoring indicated sufficient heating (up to 160°F) to address pathogen reduction, and complete volume reduction in body mass (with the exception of skulls and longer bones in mature deer). Chronic Wasting Disease (CWD) is a concern in wild deer populations but not present in New York. There is no evidence that composting effectively kills CWD. Additional monitoring and sampling will be required to fully characterize the level of pathogen reduction achieved and to allow for more flexibility in beneficial reuse of the composted material.

Following the success of this pilot project, the NYS DOT petitioned DEC for approval to compost road-killed deer carcasses in Ulster County. To date, 12 New York DOT counties have given approval to compost deer carcasses throughout the state. Because of this trend, NYS DOT is reviewing their agency's overall management practices for road killed animals. Future efforts in NYS will include demonstrations at a number of DOT substations, workshops and testing of the end product. Education is the key to proper implementation of this process. Testing needs to be done to ensure health and safety of people composting the deer and finding the best uses for the end product. There will be many possible uses for the compost in highway construction projects. ■

*Theresa Laibach is with the New York State Department of Environmental Conservation. Jean Bonhotal is with the Cornell Waste Management Institute in Ithaca, New York.*