Roadkill compost

Turn dead animals into disease-free ground cover.

No one knows exactly how many *Odocoileus virginianus*—i.e., white-tailed deer—are killed by motorists each year, but suffice it to say it's tens of thousands. The extremely adaptable, extremely fecund species is found in all but three states.

In Maryland, motorists kill roughly 1,500 a year. Instead of burying the carcasses along the road, selling them to a zoo, or paying a contractor to haul them away, the state has another solution: Turn them into nutrient-rich soil conditioner that combats erosion and sucks up contaminants before they reach storm sewers.

(continued)

The finished product smells earthy, says Doug Moeller of the Montana DOT, which composts deer, elk, and moose. In fact, he says, "odor's not been an issue—and we have some houses pretty close to some sites." Photos: Maryland State Highway Administration
The Maryland State Highway Administration isn’t the first agency to use roadkill in this way. Cornell University’s Waste Management Institute in Ithaca, N.Y., has done workshops or presentations for agencies in Arizona, California, Florida, Kansas, New Jersey, Maine, Montana, New Mexico, Pennsylvania, Texas, Vermont, Washington, West Virginia, and Canada.

Unlike vegetative matter, composting animals keeps carcasses from polluting ground and surface water. The ideal composting site is well drained and fairly immune to flooding.

“Roadside burial usually consisted of three people, a dump truck, and an excavator,” says Charlie Gischlar, a spokesperson for the Maryland State Highway Agency. “We now use only a dump truck and two people.”

Seven years ago, limited right of way and the proximity of remains to developed areas prompted the agency to expand its composting program to include animal as well as vegetable matter. Employees supplemented what they already knew with training through the cooperative extension program of the University of Maryland’s College of Agriculture & Natural Resources, and now compost deer in a private and controlled environment at two facilities.

They have virtually no direct contact with the carcasses during the process. In addition to hard hats and reflective vests, they wear latex gloves and rubber boots, and use Quatraklean as a disinfectant and deodorizer.

Crews use a hoist to lift the animals out of a dump truck and into the bucket of a wheel loader. They then place a layer of the carcasses into a large bin, keeping a couple of inches between each animal. They cover the layer with 8 to 10 inches of a 50/50 mixture of horse manure collected from a local farm and wood chips from brush and tree cuttings. This process is repeated until the 30-cubic-yard bin reaches its capacity of roughly 40 carcasses. It takes about nine months to fully “cook” a batch.

Based on recent research conducted on three New York State DOT test sites as well as three of its own sites, Cornell’s Waste Management Institute recommends composting remains for 12 months and using the material in “low-public-contact settings” such as highway rights of way. Researchers buried (continued)
bags of intestinal and fecal matter in compost piles made of four adult deer and 3 yards of wood chips, then monitored bacteria levels in samples taken over two years. The results are available at http://cwmi.css.cornell.edu/tirc.htm.

The research didn’t explore the effect of composting on prion diseases such as chronic wasting disease.

The fear of spreading that particular disease is one reason the Montana DOT isn’t permitted to apply compost made from deer, elk, moose, and the occasional antelope along public rights of way. Instead, the agency keeps material at maintenance facilities while working with the state’s Department of Environmental Quality (DEQ) and Fish, Wildlife, and Parks Department to identify potential uses.

Fear of disease transmission may be overblown, however. There’s been only one instance of chronic wasting disease in the decade that the New York State DOT has composted deer, and it was traced to a farm where the animals are raised to sell as meat.

The Maryland State Highway Administration is permitting an incinerator at one composting facility to satisfy state regulators that the rabies pathogen is being killed off, but it may be an unnecessary expense. The rabies virus lives for only a short period of time, and would be killed in the composting process.

“Any animal — bears, whales, and raccoons, for example — can be safely composted,” says Jean Bonhotal of Cornell’s Waste Management Institute. “Regulators who are worried about disease transmission should look at the results of our study.”

The institute publishes just about everything you need to learn how to compost animal remains, including how the process works, where to set up a facility, how to lay animals for maximum biodegradation, and why the process works even with frozen carcasses. Go to http://cwmi.css.cornell.edu/roadkillfs.pdf.
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