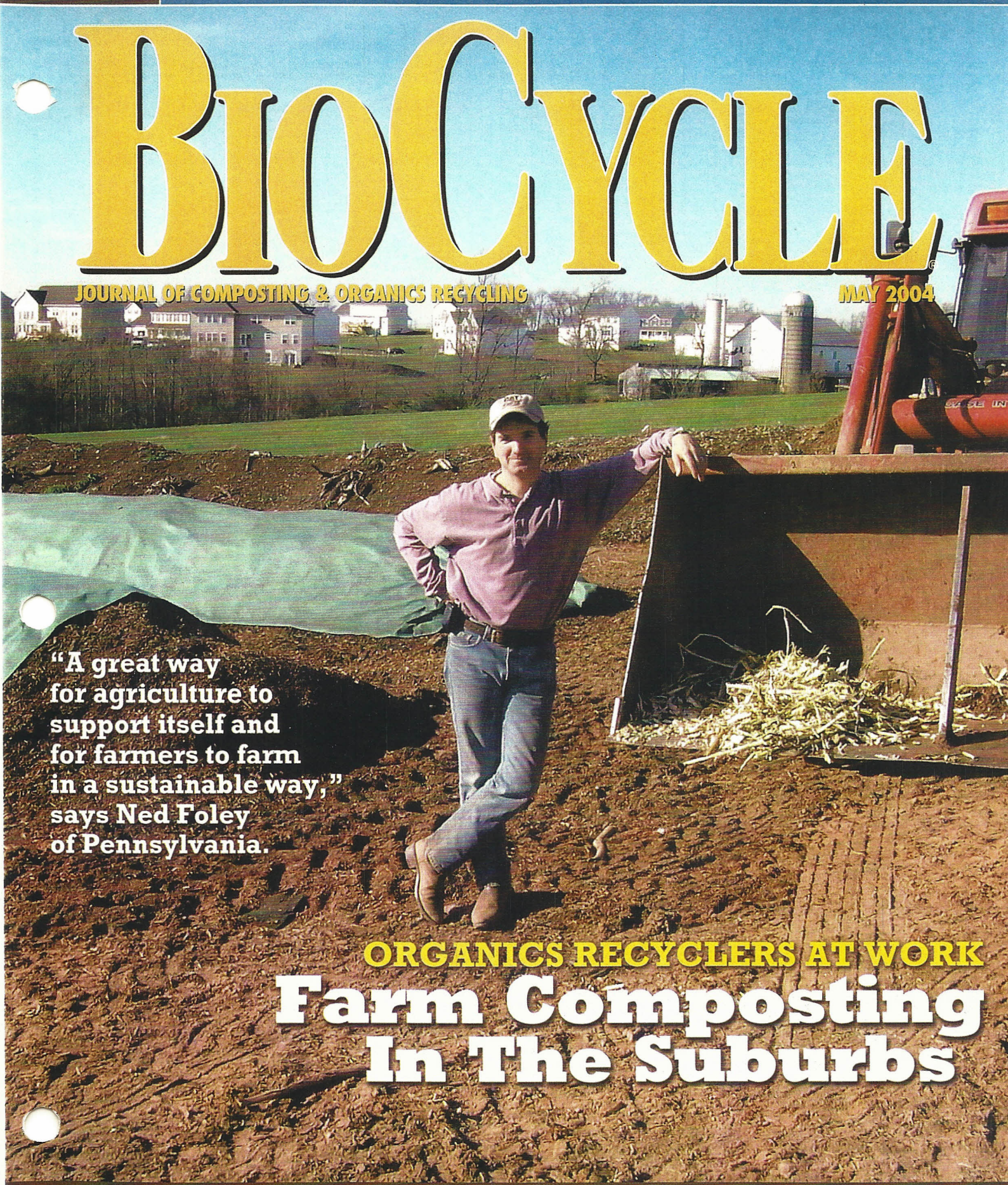


# BIOCYCLE

JOURNAL OF COMPOSTING & ORGANICS RECYCLING

MAY 2004



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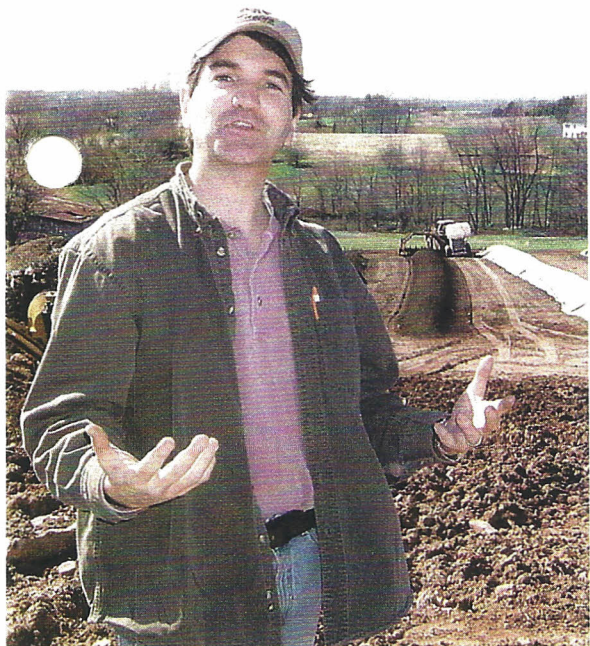
## ORGANICS RECYCLERS AT WORK **Farm Composting In The Suburbs**

WHAT REGULATORS LOOK FOR IN COMPOSTING FACILITIES  
EVOLUTION OF A WOOD RECYCLING COMPANY ■ COMPOSTING ECONOMICS  
HYDROGEN FROM ALGAE ■ CLOPYRALID LEVELS DECLINE, CONTROVERSY CONTINUES



## A WINNING SCENARIO

# FARM COMPOSTING IN THE SUBURBS



**"On-farm composting is a great way for agriculture to support itself and for farmers to farm in a sustainable way," says Ned Foley, whose windrows generate a popular product for neighbors, arboretums and landscape designers.**

**A** DESIRE to settle in the "country" has turned Attorney Edward "Ned" J. Foley, Jr. into not just a farmer, but a composter as well. In 1999, Foley and his wife, Gail, rented 30 acres and a rundown farmhouse in Upper Providence Township in Montgomery County, Pennsylvania, northwest of Philadelphia. "I grew up in a subdivision," says Foley. "I have zero farming background. When I got married, I wanted to live in the country. Royersford was pretty much all working farms at the time. You could see five or six working farms from our place. I started helping neighbors bale hay. We became friends and I got bit by the farming bug and established Two Particular Acres. I applied the same approach to farming as I did to my law studies, reading everything I possibly could. So I had the book stuff down, which, of course, doesn't mean anything unless you put it to practice."

Foley began growing timothy hay and grains (no-till corn, soybeans and oats) for his own three "rescue" horses and the increasing number of horse stables in the area. But, with commodity prices low and the cost of fertilizer recently jumping to \$360 a ton, Foley soon discovered what farmers have known for generations: Farming is not a get-rich-quick proposition. In fact, it's a darn hard way to try to make any money. "My law practice pays for the pleasure of farming," Foley says, only half joking.

### EXPANDING THE FARMING OPERATION ... SUSTAINABLY

To improve the economics, Foley expanded his farming operation to up to 100 acres by renting nearby fields. But he didn't stop there. Foley also diversified his operation, getting into composting. He added value to what his land produced, and focused on direct marketing to eliminate any middlemen, who routinely pocket most

*"I compost because I want to farm," says Ned Foley, who processes horse manure, yard trimmings and other feedstocks to reduce fertilizer bills and improve soil quality.*

George DeVault



profits in agriculture.

"When we began farming, the organic matter content of our soils was less than two percent, which creates stressful growing conditions," he says. "The soil we manufacture can have ten percent or greater organic matter, which, in many cases, will alleviate mineral fertilizer needs. I don't want to go back to \$5,000 fertilizer bills. My bill this year will be under \$500. My pesticide use has been cut by 80 percent."

His farm is now, in a word, sustainable, he believes. While he still uses some pesticides, Foley sees farm chemicals as only one tool in the farmer's toolbox. "If I see a worm in an ear of corn, I break that section off and eat the rest. I'd rather be on the tractor running a cultivator than a sprayer." For many farmers, though, such realizations come too late. "We are the only one left now," Foley notes sadly of area farms. All he can see from his farm today is "house farms" bristling with \$500,000 homes.

Historically, the township has been highly agricultural with large family farms, reports the township's website. However, over the last decade, many of the last remaining farms were sold to housing developers who are constructing large, single family, executive style homes. In 2000, the median household income was \$75,789 and, in 2002, the median price of a home was \$215,000. In a nutshell, developers have



bought up every acre they could get their hands on. "We've been the holdout," Foley says. "We get letters once a week urging us to sell. I don't even answer them."

#### GETTING INTO THE BUSINESS OF COMPOSTING

Foley's initiation to composting came with handling manure from his own horses and area stables to fertilize his fields of timothy hay — his main cash crop. Then, on rented farmland, he was faced with piles of wood chips that had partially composted on their own. A landscaper had a long-term agreement with the landowner to dump chips there. The chips kept coming.

While delivering hay to nearby stables, he kept noticing growing stockpiles of manure. The problem stemmed from a lack of infrastructure to properly store, remove and/or dispose of the manure in this densely populated region. "I can create an organic solution," Foley recalls thinking. "I deliver hay to them, haul back manure, and compost it with wood chips and other available amendments. At the same time, we started getting neighbors knocking on the door, asking, 'Hey, how can I get some of this stuff?' The people who were buying these homes and taking away land base — taking away the places to spread

manure — were part of the solution. These people were willing to pay much more for composted mulch than a bushel of corn or soybeans or anything else."

With no small amount of money from his own pocket, the state's first on-farm composting permit and a \$43,000 state grant for "compost infrastructure development," Foley was finally in business. He leaves six roll-off containers at area stables and other locations. When the dumpsters are full of manure or other compostable material, customers call for pickup.

The on-farm compost permit allows Foley to use a composting operation as an integral part of his farming operation (as long as it meets the statutory definition of a "normal farming operation," which Two Particular Acres does). The permit allows for "the management, collection, storage, transportation, use or disposal of manure, other agricultural waste and food processing waste, screenings and sludges on land where the materials will improve the condition of the soil, the growth of crops or in the restoration of the land for the same purposes." Explains Foley: "We are allowed to utilize up to five acres of the farm for composting purposes and we are permitted to have up to 3,000 cubic yards of material per acre on site at any one time. Total retention time for material is one year. Obviously the permit is designed to keep material flowing rather than stockpiling."

"When we began farming, the organic matter content of our soils was less than two percent, which creates stressful growing conditions."

The compost recipe consists of manure, straw or spoiled hay, green yard trimmings, wood chips, clay (for binding salts and building humus) and overs or finished compost. The compost pad is a packed clay surface. Composting time is ten to 12 weeks and curing is a minimum of 30 days. A Sandberger tractor-powered 10-foot compost turner is used to manage the windrows. All wood chips are reground with a Sundance Kid II horizontal grinder, then utilized as a bulking agent and carbon source.

Foley rents a screen as needed, producing three-eighth inch compost for application to his hay fields and half-inch compost for soil incorporation and for sale to customers, in-



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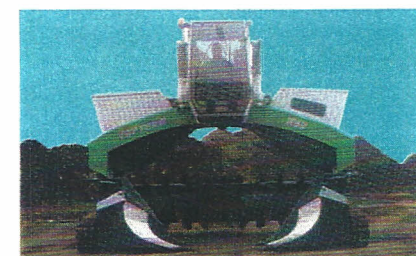


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cluding neighbors, arboretums and country clubs, and high end landscape designers. The screened chips are sold as mulch and some are recycled back into compost production.

"Currently, we utilize more than we sell out that will gradually change as we develop our retail and wholesale business," says Foley. "We have a small roll off truck that we utilize for pick up of feedstock and delivery of finished material. We also have a very limited amount of pickups at the farm. With our own trucking, we have greater control over inflow and outflow of material and we usually schedule pulls and deliveries at the same time to make the trucking cost-effective."

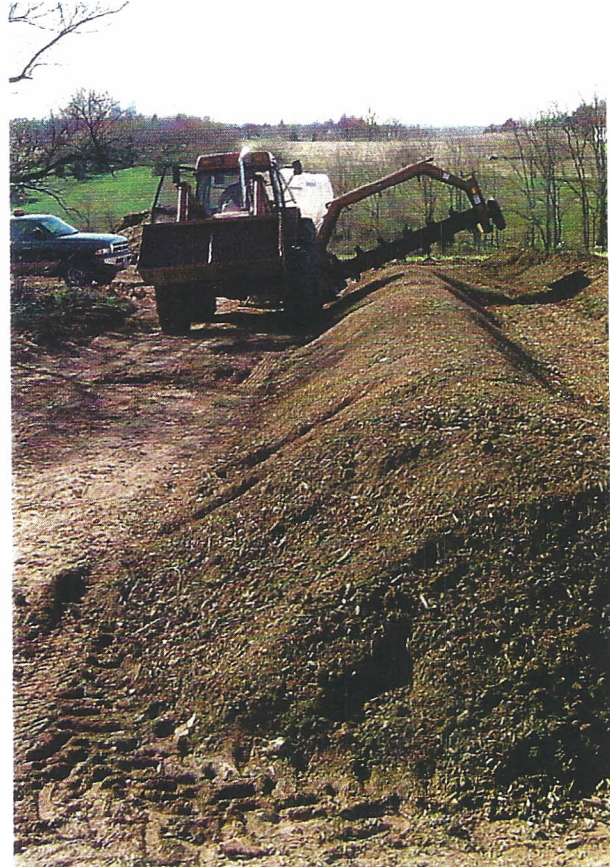
He adds that the ability to rent equipment like screens has been enormously helpful to his start-up farm composting operation. "We only need a screen for several hours a month, yet to own one is a huge capital investment for us right now. We were fortunate to connect with Dials Marketing in Red Hill, Pennsylvania, which has started a business renting Orbit screens to composters, farmers and recyclers. Composting equipment for the on-farm to medium scale compost business is starting to mature due to the availability of smaller scale machinery that can be used on the farm and hauled with a pick-up truck and because of enterprises that do the rentals. This obviously makes the On-Farm Permit much more feasible since we don't have to make a huge capital investment in a machine that is not used everyday."

#### **POLITICAL PRESSURES**

Two Particular Acres' operations seem like a win all around — for the stables, area homeowners and the Foleys. It makes so

**A 10-foot, tractor-powered turner is used to manage windrows over a ten to 12-week period.**

**Compost feedstocks include manure, straw or spoiled hay, yard trimmings, wood chips along with overs or finished compost.**



much sense that Foley wrote a letter to the township last winter, inviting it to drop off yard trimmings for composting, instead of trucking them to a landfill. Then, 45 days later, the township sent Foley a letter. It was certified, return receipt requested. The letter ordered him to "cease and desist" his composting activities, forthwith. Despite his on-farm composting permit from the state, the township said that Foley's composting oper-

## **THE BUSINESS AT A GLANCE**

**T**wo Particular Acres (TPA) is a 30-acre farm in Upper Providence Township, Montgomery County, Pennsylvania (suburban Philadelphia). Owner-operator Edward J. Foley, Jr., P.C.

February 3, 2003 — TPA receives first on-farm composting permit in state from Pennsylvania Department of Environmental Protection (DEP). Permit allows up to 3,000 cubic yards of material per acre on site. Up to five acres may be set aside for composting.

Permitted to accept manure, yard trimmings, source-separated food residuals from food markets, grocery stores, food banks, food distribution centers, school cafeterias and institutions, source-separated newspaper and corrugated paper (cardboard). Food waste is limited to 500 tons or 1,000 cubic yards per acre.

June 12, 2003 — TPA receives \$43,000 compost infrastructure devel-

opment grant from the state to buy six roll-off containers and a compost turner.

Equipment — Owns Case IH 100-hp MFWD loader tractor with creeper gear, Sandberger tractor-powered 10-foot compost turner, Sundance Kid II horizontal grinder, Peterbuilt single axle roll-off container truck that is small (30,000-pound capacity) and easily maneuverable, six roll-off collection containers. Rents a screen (easily towed behind pickup truck) for finish screening of product.

Products — Compost, mulch, topsoil, and hay.

- Compost is high quality and, in many cases, made to order utilizing a method to insure high microbial counts and destruction of pathogens and weed seeds. Available year-round in both vegetative- and manure-based versions. Screened or unscreened.

- Mulch is "chipper chips" and manure, blended to precise proportions,

then composted in aerated windrows for up to one year. Reground to a fine texture using a proprietary recipe. Uses no construction waste (pallets), no chemicals or dyes. Manure-free mulch also available.

- Top soil consists of screened and blended composts and sand containing up to about 10 percent organic matter.

Customers — Homeowners, golf courses, nurseries, landscapers, horse stables and even zoos.

Landscapers and homeowners drop off yard trimmings (leaves, grass, brush and other woody material) and pay tipping fee. Their vehicles are reloaded with compost, mulch or topsoil.

E-mail [ejf@twoparticularacres.com](mailto:ejf@twoparticularacres.com). For details on Pennsylvania's on-farm composting permit program, contact PA Department of Environmental Protection, Waste Minimization and Planning Division, (717) 787-7382.





ation violates his R-1 agricultural zoning.

"They have not backed off," Foley says. Neither has Foley. He is still making compost. The farmer-attorney argued his case before the township Zoning Hearing Board on February 19, 2004. The Pennsylvania Supreme Court has defined composting as being well within the definition of the realm of agricultural enterprises. "After all, we are doing it primarily to feed our own farm," he says. "But the township attorney said if the Zoning Board approved my operation, the supervisors would appeal. It's distracting. It's frustrating. I should be spending my time on the business. I never thought these guys would be the problem. All of the neighbors are in support of what we're doing."

What's the problem? The only thing Foley can figure is that the township wants to build some walking trails next to his property on recreational land "donated" to the township by a developer. "I could move it, if they insist. So, far they're not. They just want me shut down," he says. "I'm trying to be a good steward. I run a clean operation. I've become very good at what I'm doing. I do not generate any odors."

As manure arrives at his farm, it is immediately put into piles with a high carbon content, blended and capped with finished compost to seal in odors. Windrows are covered with Toptex fleece, primarily to protect piles from the elements. "This was a good idea," says Foley, "given the amount of moisture this area has received in the past year or so." The only downside is the labor involved in putting on and taking off the covers when the windrows need to be turned. An attachment on the back of the turner is used to roll the covers back and then recover the piles. Any leachate from composting pads flows into Foley's hayfield. "We still are relatively small and probably always will stay small," he explains. "I made lots of mistakes. Still do. I just don't want the mistakes to be fatal ones. That's why when I started, I started very small."

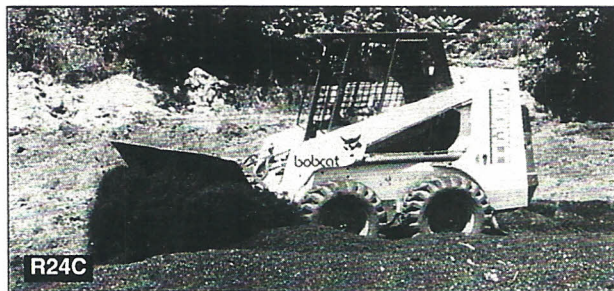
"Composting is not going to overtake what we do on the farm. I compost because I want to farm. I don't farm because I want to compost. I believe in this stuff and I want to make it happen, to make lemonade out of lemons. On-farm composting is a great way for agriculture to support itself and for farmers to farm in a sustainable way. Our permit is a great way to preserve open space and cut back on inputs. If I can get a small tipping fee, reduce inputs and increase yields, there is nothing better. I don't understand why every farmer in the state doesn't have one."

Foley brings this message to whomever will listen. Toward that end, he serves on the Organics Council of the Professional Recyclers of Pennsylvania and speaks at events such as the annual conference of the Pennsylvania Association for Sustainable Agriculture ([www.pasafarming.org](http://www.pasafarming.org)). Foley will be one of the featured speakers at the 34<sup>th</sup> Annual BioCycle National Conference in Philadelphia June 21-23, 2004.

While reluctant to provide sales figures at this time, Foley notes that the compost operation is definitely an asset. "I can say that with the price of commodities, composting is the difference between being financially able to farm and not farming at all. There is significant pressure to sell out to developers which we do not want to do. Our township is not supportive of our efforts to save this farm but we are still hopeful that they will come to realize that this is a way to preserve a farm without governmental assistance." ■

George DeVault is a contributing editor to BioCycle. For more information about Ned Foley's operation, go to [www.twoparticularacres.com](http://www.twoparticularacres.com).

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