

Biosolids: A low-cost fertilizer option



CHEAP FERTILIZER: Biosolid "cake" spreads like any other manure product.

By **JOHN VOGEL**

HIGH fertilizer costs have made poultry litter and livestock manure almost worth their weight in gold — dry weight, that is. But supply and transportation costs limit availability.

If that's your case, consider another source of considerable savings: biosolids, treated sewage sludge from wastewater treatment facilities. They're rich in nitrogen, phosphorus, micronutrients and organic matter, contend Ned Beecher and Bill Toffey, respective spokesmen for the New England Biosolids and Residuals Association and Mid-Atlantic Biosolids Association.

But don't take just their word for it. Consider Joe Hazelgrove's experience in central Virginia.

Savings approached \$200 an acre

"We are extremely pleased," says the dairy producer who milks 270 cows not far from Farmville, Va. "The problem is, we can't get enough." His operation's dairy manure can't fill the need of the farm's 2,000-acre crop base.

Since 1996, biosolids have been applied to 100 to 300 acres each year. Most goes on corn ground; some is top-dressed on pasture and grass for hay.

A biosolids application company helps with the farm's nutrient-manage-

Key Points

- Biosolids save Hazelgrove \$200 an acre on fertilizer and lime, and they boost yields.
- Organic matter's value in building soil tilth grows over time.
- Heavily regulated, biosolids must fit the farm's nutrient-management plan.

ment plan. "They test soil every year and maintain pH. Liming is also taken care of by the company," says Hazelgrove.

"Our corn has done better in biosolids fields than elsewhere because of water-holding by the added organic matter. We save about \$200 per acre on fertilizer and lime. Our corn yield has gone from 100 bushels per acre to as much as 200 bushels, and hay yields have gone from 2 to 3 tons per acre to 4 to 6 tons — when moisture wasn't limiting."

Hazelgrove's farm was one of the area's first to use Farmville biosolids. "Within 12 months of us starting, 100 more farms had signed up to use biosolids here in Cumberland County," he adds.

U.S. farms, landscapers, horticulture, forestry and land reclamation use 3 million dry tons of biosolids every year, says Beecher. "That's about 54% of all sewage sludge produced."

"Biosolids are used to raise hops, ornamental shrubs and trees, wheat, citrus

groves, and even for growing rapeseed to produce biodiesel," adds Toffey.

Worth a careful look

Hazelgrove carefully researched biosolids before deciding. He contacted experts at Virginia Tech, Penn State, University of Maryland and his own state's Department of Health, which regulates biosolids use. His advice is:

■ Talk with people who have tried biosolids to find out about the proper use and what to expect.

■ Know the rules and regulations. "Make sure it's used properly and that land appliers follow the letter of the law," he adds. "We have the policy handbooks in my office."

■ Know that inspections are required by the state. Does Hazelgrove mind the inspections? "No," he replies. "We're proud of what we do."

When problems arise

Some biosolids do generate objectionable odors, acknowledge Beecher and Toffey. Sometimes they're managed poorly, and nuisance situations and conflicts develop — just as with livestock manure.

As Hazelgrove stresses, land application "has to be done right. And, odors have to be considered and managed carefully."

Get real scoop about biosolids

APPLYING something derived from sewage waste to crops isn't that much different than applying animal manure, insist Ned Beecher and Bill Toffey, biofuel association spokesmen. As with manure, biosolids add slow-released nutrients and organic matter to improve soil tilth and water-holding capacity.

"You'll hear and read about potential risks, such as heavy metals, traces of chemicals, and pathogens," says Beecher. "These things are inevitably found in wastewater. While they are legitimate concerns, state and federal regulations address these issues and ensure proper management practices."

■ Discharge to sewers of potentially toxic materials is prohibited, points out Toffey. "That's why industries working with such materials are required to have pretreatment programs to remove those hazardous substances before discharge." Modern wastewater treatment involves many treatment stages that dilute, decompose or volatilize those substances.

■ Biosolids also must be treated to reduce or eliminate pathogens. "Class B" biosolids, typically used on farms, generally have equal or lower pathogen levels than most untreated manure, adds Beecher.

■ By regulation, biosolids must be applied according to agronomic rates, with setbacks or buffers, and other restrictions. Among the restrictions are limits on public access. Following those restrictions, U.S. EPA and other researchers have concluded that biosolids applied to soils in accordance with regulations present minimal risks to human health or the environment.

For more details on biosolids, visit these Web sites:

- U.S. EPA biosolids site: www.epa.gov/owm/mtb/biosolids
- National Biosolids Partnership: www.biosolids.org
- New England Biosolids and Residuals Association: www.nebiosolids.org/farmers.html
- Mid-Atlantic Biosolids Association: www.mabiosolids.org
- Virginia Dept. of Health biosolids program: www.biosolids.state.va.us/index.html
- Virginia Biosolids Council: www.virginiabiosolids.com
- Maine Dept. of Environmental Protection biosolids program: www.maine.gov/dep/rwm/residuals/index.htm
- New Hampshire Dept. of Environmental Services biosolids program: www.des.state.nh.us/www/septs/slud.htm
- New York Dept. of Environmental Conservation biosolids program: www.dec.state.ny.us/website/dshmr/redrecy/la2.htm
- Pennsylvania Dept. of Environmental Protection biosolids program: www.depweb.state.pa.us/biosolids/site/default.asp?watersupplyNav=30160



To learn more about biosolids ...