

Farmer Harry Buurma says sludge, shown here in pellet form on a neighbour's farm in Watford, Ont., is safe and no biosolids should be sent to landfill.

TORONTO STAR JULY 15/08

microbiologist, has found that the toxicity of such chemicals accumulates over time. Lewis lost his job with the U.S. Environmental Protection Agency in 2002 for blowing the whistle on the agency's promotion of sludge.

• **Pathogens:** Salmonella, E. coli and other disease-causing microorganisms could reproduce to unsafe levels in sludge. The EPA has admitted there is no scientific consensus on its safety. A study by the University of Ottawa confirmed that many pathogens and parasites can, in fact, survive in solid waste after the sewage treatment process.

The Canadian Infectious Diseases Society, a non-profit organization of medical and scientific professionals, is among those that have called for a moratorium on spreading sludge for that reason. The society is now part of the Association of Medical Microbiology and Infectious Disease Canada.

• **Metals:** The ministry tests for 11

metals. They are a concern because their concentrations are highly variable, depending on the treatment plant and their effects are so long-term, says McBride, who grew up on a farm near Goderich.

Particularly worrisome are zinc, copper, cadmium and molybdenum — all of which are currently tested — because each can affect plant, human or animal health.

• **Pharmaceuticals and personal care products (PPCPs):** Cornell University researchers have concluded that significant amounts of toxic chemicals from detergents, personal-care products and medications can end up in sewage sludge.

"What is the long-term effect on populations? We don't really know," says microbiologist Anthony Hay of Cornell.

When people consume medication, much of it is excreted and enters the sewage stream. Sludge opponents argue that when biosolids are spread on land, those drugs can end up in the

watersheds.

Evidence that such contaminants can survive in the water supply surfaced in a five-month investigation released by the Associated Press this year, which found a long list of medications, including antibiotics, anti-convulsants, mood stabilizers and sex hormones, present in the watersheds and drinking water of 24 major urban centres.

While pharmaceuticals appeared in only tiny amounts, the presence of so many drugs heightened worries about the consequences for human health.

A recent study in Ontario that appeared in the Water Quality Research Journal of Canada produced similar results; traces of drugs in water from 15 treatment plants.

**THE MINISTRY'S** Smith acknowledges that the composition of biosolids has changed over the years, but overall "they are a lot cleaner now than 10 or 15 years ago."

AARON HARRIS FOR THE TORONTO STAR

Sewage bylaws and public education on proper use and disposal of medications are reducing the potential risk from medications.

"People aren't flushing pills down the toilet as much," Smith says.

As to the standards the province has set, she says: "We're still comfortable with the numbers and the wait times we set. We think they're right."

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## SOILED LAND

Four-part series on the use of sewage sludge as fertilizer

**Yesterday:** Do we know enough?

**Today:** Some farmers love it but is it safe?

**Tomorrow:** What happens when things go wrong?

**Tuesday:** Food firms reject it and other options

## THEIR HOME

The Halton health department investigated complaints by the Egan and other families who lived near the lagoon but according to the local officer of health Dr. Bob Bial, no conclusions could be reached because of the small number of people involved and their mixed responses. (Of 14 surveyed, 10 linked their health problems to the lagoon.)

However, subsequent reports by the health department warned of potential risks to soil, water, food and human health if sludge is not properly stored and handled. The health department told the Star he could not discuss the Eagles' case because of a lawsuit.

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## 3 ONTARIANS WHO BLAME SLUDGE FOR HEALTH PROBLEMS

### Virginia Kostiuk, Castleton:

She had an hour's warning before sludge was sprayed on a neighbour's fields, "30 to 50 feet in the air" and as close as 50 metres from her front door. Within an hour, her eyes were watering from the acrid smell, her throat was sore, her skin itchy and she had trouble breathing. Her husband and 4-year-old son had similar symptoms. There have been no sludge applications around their home, northeast of Cobourg, since then probably because "everyone was so angry," she says. She complained to the health and environment ministries and local health

authorities but there was nothing concrete linking the family's health problems with biosolids.

### Enid Lipsett, Unionville:

Her granddaughter Madison, now 7, got sick with severe diarrhea, nausea, breathing difficulties and rashes during several visits to Lipsett's weekend home in the country in 2001. Sewage sludge from Toronto had been stockpiled then spread less than 300 metres from their Warkworth property over the three months she became ill. The medical officer of health, Dr. Alex Hukowich, investigated their complaints and concluded sludge was

to blame.

### Ralph Erickson, Thamesville:

The two years his neighbour was storing and spreading sludge were "the worst . . . we ever had." Clouds of dust would rise 15 metres in the air and drift over his property near Chatham, making his family feel ill, sore and itchy, he recalls a few years later. The environment ministry "tried to say it was safe," Erickson says. "I don't believe the government at all. I know how my wife and kids felt." The neighbour told him to "get used to it." Erickson hasn't spoken to him since.

bles. He thinks it could be bad for business. "If I had a vegetable stand, I wouldn't be selling it because of the image."

People recoil at the thought of eating food grown in their own feces, regardless of how it might have been treated. That perception helps fuel the division within the agricultural community on the merits of sludge. While some farmers like Buurma can't get enough of the stuff, others are reluctant because of public opposition and concerns about safety and liability.

The Ecological Farmers Association of Ontario recently passed a resolution calling for a moratorium on spreading sludge and for more research to determine its long-term effects. The organization is concerned that harmful chemicals and pathogens in biosolids are contaminating the food chain.

While a number of farmers believe sludge has made their livestock ill, the evidence is largely anecdotal. But some argue the uncertainty is enough to raise questions about its use.

Fred Price used biosolids on his farm near Hanover more than 10 years ago. After feeding his 100 head of beef cattle hay grown on sludge-treated land, only half the usual number of cows became pregnant, he says.

"You couldn't find anything wrong with them but once we quit spreading sludge and once they went onto pasture in the spring, they were breeding again."

Price suspects the cause was hormones found in birth control drugs finding their way into the land through the sludge. He says three other farmers experienced similar problems.

His farm is now sludge-free. "I sure don't want it any more. I'm always looking for cheaper ways to get fertilizer but it ended up costing a lot."

Donald Good is an Ottawa lawyer who has spent years warning farmers about the inherent risk of using material "contaminated with human diseases."

"Never adopt a practice that undermines the confidence of consumers in the safety of food you produce," he advises farmers. "The application of sewage sludge to farmland does just that."

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