

## ENVIRONMENT

# Hog Heaven

**Pig farmers are in trouble if they can't find some way to clean up the waste. A new composting technology may come to their rescue.**

BY STEPHAN HERRERA

**H**OG FARMING IS A MIXED BLESSING to North Carolina. It brings in 1.3 billion a year but produces 37 billion gallons of waste that stink up the place. In 1995, heavy rains flooded a hog farm's waste lagoon, pouring 23 million gallons into the New River and Pamlico Sound, fouling drinking water and killing fish. Lawmakers were angry.

"The hog farmer is now public enemy number one in environmental circles," says Garth Boyd, who manages hogs for Murphy Family Farms, North Carolina's largest pork producer.

The Environmental Protection Agency plans to impose tough new waste disposal rules on big animal farms. These will come on top of North Carolina state requirements and could cost farmers there \$600 million.

The rules could benefit one little Denver-based outfit Bion Environmental Technologies. Bion has developed a hog-waste system that tames odor, eliminates toxicity and turns common pig manure into nutrient-rich organic fertilizer. Its biggest market is North Carolina, second only to Iowa in hog production, and a big user of organic fertilizer for golf courses, nursery plantings and strawberry farms.

Murphy Family Farms is a customer. The company spent \$250,000 on a Bion system for its French's Creek

farm in White Lake, N.C. and has since ordered one more system.

"The farmers with the Bion system came out of hurricanes Dennis and Floyd with their systems intact," says Evan Jones, a professor emeritus of biochemistry at North Carolina State in Raleigh.

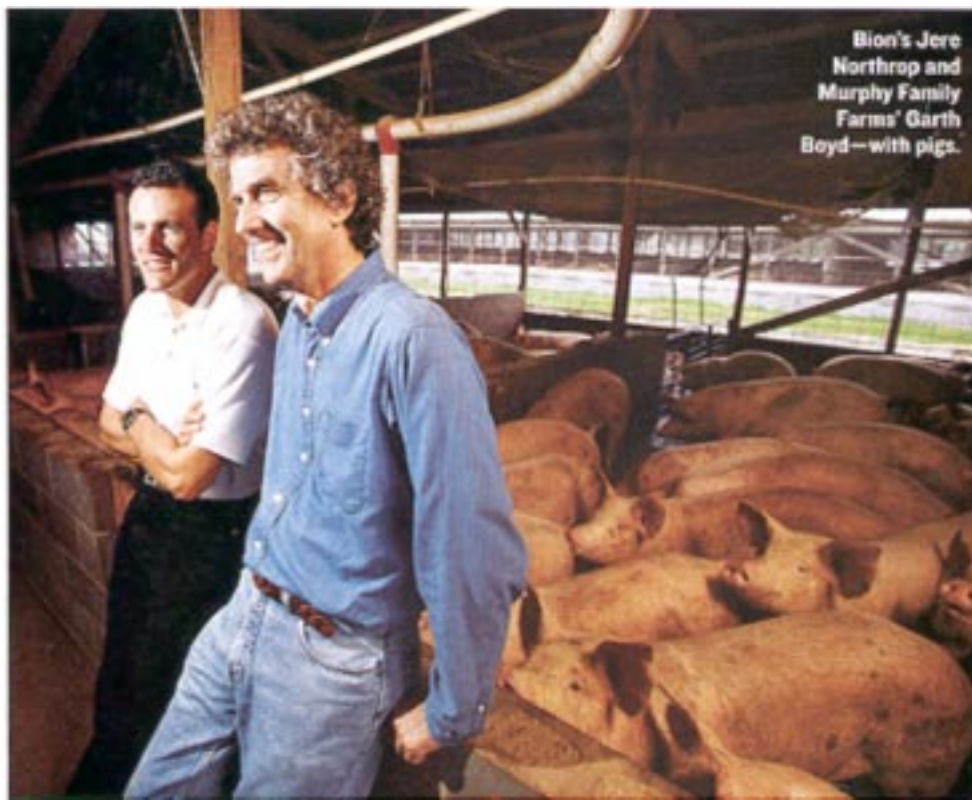
Bion's system is an adaptation of the classic urban sewage treatment plant. Hog waste is flushed from barns and pens into a series of shallow plastic-lined earthen pools. An aerator agitates the first pool by pumping oxygen into it, thus promoting the growth of microbes that oxidize the odor-causing ammonia into nitrates. Those nitrates are reduced

less powder which is good fertilizer (with 4% nitrogen, 2% phosphorus and 1% potash). Right now, Bion is offering it to customers at low prices.

Contrast the conventional handling of hog waste from giant farms: The waste is channeled into giant lagoons, where it sits for two to six months and then is collected as a liquid fertilizer, which farmers can spray on fields. Those lagoons can be smelled for miles.

Microbiologist Jere Northrop hatched the idea for the Bion system while managing municipal waste systems in upstate New York. Northrop, 57, founded Bion in 1989 with his brother, Jon, who serves as chief executive.

The company is still tiny, with revenues under \$250,000, and it is still losing money. But it is growing rapidly. It



to nitrogen gas, which is then vented into the atmosphere. Meanwhile, as the slurry moves through the system, solid wastes are removed and prepared for sale. You can stand next to these treatment pools and scarcely smell a thing.

What comes out of the final pool, three months later, is a muddy soil that is dried to make a black, odor-

moved 16,000 tons of fertilizer last year and will more than double that number this year.

Bion has gotten a lot of phone calls since Hurricane Floyd upended farms along the coast. The company's market-building days may be coming to an end, and with them, the days of giveaway systems and discount fertilizer.

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