

# Waste & Recycling News

## Sewage sludge turns a profit for Kansas City

By Kerri Jansen

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The fields of corn and soybeans at Birmingham Farm, owned by [Kansas City, Mo.](#), look like the crops at any other farm.

But unlike most farmland, these fields are fertilized with biosolids produced by the city's wastewater treatment process.

Each year Birmingham Farm uses about 55,000 dry tons of biosolids, sometimes called "sewage sludge," from the city's main wastewater treatment plant, Blue River. Its history stretches back to the 1970s when the city first started applying biosolids from a smaller treatment plant to 300 acres of farmland.

Prior to the farm's creation, the city incinerated all of its sludge, said Kurt Bordewick, manager of [Kansas City Water Services'](#) wastewater treatment division. The city bought an additional 600 acres in the 1980s and installed digesters at Blue River to generate biosolids for the farm. Over the next couple decades, the farm grew to more than 1,300 acres, farmed by tenant farmers who shared one-third of their gross revenues with the city. In 2006, the city took over operation of the farm and now collects all of the income from its crops, averaging about \$350,000 per year after deducting the costs of seeds and farming operations, farm manager Tim Walters said. The city, which used to run two incinerators full-time, now runs one incinerator part-time and hasn't sent solid residuals to a landfill in more than seven years.

Material from Blue River is processed by digesters then pumped underground to lagoons at the farm where the sludge is allowed to settle. In the spring and fall, the liquid biosolids are sprayed onto the fields via an elaborate system of pipes, returning nutrients to the soil and helping support plant growth.

To prevent contamination problems, the city takes soil and surface water samples and maintains 18 groundwater monitoring wells, including four downstream along the Missouri River. Access to the farm is restricted as a further safety measure.

"We're in control of everything," Walters said.

The crops grown at the Birmingham Farm are not intended for direct human consumption. Harvested corn and soybeans are taken to a grain elevator owned by [Cargill Inc.](#), an international producer and marketer of agricultural products. A portion of the crops are used to produce biofuel; ethanol from corn and biodiesel from soybeans. The crops are also used for feed or industrial uses.

"We can't account for every soybean that comes out of the farm, but some of those soybeans go to generate biodiesel," Bordewick said.

The energy consumption of the farm is much less than the energy required to incinerate sludge, Bordewick said. Biosolids are only applied 30 days each year, so most of the time those pumps remain off.

"We feel we're ... greatly improving and enhancing our carbon footprint by going this route as opposed to incineration," Bordewick said.

Despite the stigma that sometimes comes with recycling sewage materials, the city has run into little opposition to the project, he said. One neighboring farmer expressed dissatisfaction, so "we offered him a good price for the property, and bought his farm," Bordewick said.

The biggest struggles for the city's biosolids project have been drought and mechanical troubles, he added. Drought can cut the farm's yield by as much as half, and Walters said he's lost several pumps to clogs and other unforeseen issues.

Nonetheless, Bordewick said he sees "a long future" of biosolids application at the farm.

"Hopefully we will procure more farmland and build more digesters to continue with this effort and get out of the incineration business altogether," he said.

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