

MONEY FROM MUCK

BY STEPHEN CASS

Farmers have used manure in slurry form for years as an organic fertilizer. But animal feces can be a dangerous pollutant, and handling liquid waste is messy at best. EarthRenew, a company based in Calgary, Alberta, says it has a better way: converting manure into dry granules. It has developed a low-cost process that can be adapted for a range of industrial needs while generating electricity for rural communities at the same time.

plant at a feedlot outside Calgary. According to the company, the two-acre plant takes in waste from 25,000 head of cattle (waste that would otherwise have to be trucked away) and can produce up to 77,000 tons of organic fertilizer per year. Much of the cost of operating the facility is offset by selling the electricity it generates—enough to power about 3,000 homes.

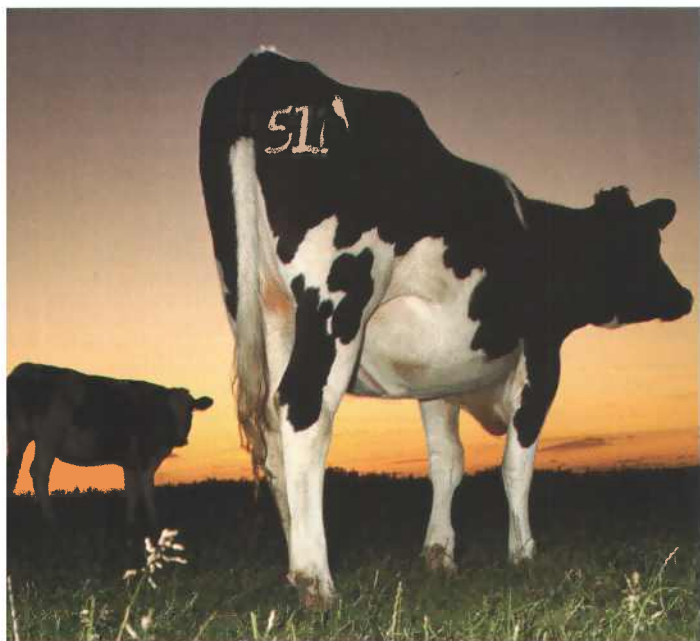
EarthRenew hopes to open more facilities over the coming years, including plants that process municipal waste. Although fertilizer derived from human waste is prohibited for organic crops, it can be used for conventional crops and for other applications, such as maintaining golf courses.

The facilities' high-temperature exhaust can also be tapped for purposes such as water desalination and industrial processing.

The basic idea is to marry a high-temperature cooker with a power station that is fueled by natural gas. The cooker is the first step in converting raw manure into granules of fertilizer. Intense heat during the cooking process also kills pathogens such as *Salmonella* and *E. coli*.

Dry fertilizer can be handled and stored more easily than slurry or compost. It can even be mixed with seed when crops are planted, so farmers do not have to go back over their fields later to fertilize them. And because the granules release nutrients slowly over time, farmers do not need to apply fertilizer as often.

Earlier this year EarthRenew opened its first commercial



HOW IT WORKS

When people hear “manure” and “electricity” together, they may assume that methane from the manure is being used. Not so here, where natural gas is burned and the combustion directly powers turbines. The turbines, in turn, drive generators that produce electricity, which is sold to the local power company. The hot exhaust goes into a giant cooker that can reach 1000 degrees Fahrenheit. As manure is fed into the cooker, the heat drives off its water content and kills any microbes that may be present. Killing microbes reduces the risk of introducing a foodborne illness into the food supply. Once dried, the manure is granulated, packaged, and shipped.

