Manure Turned into Beneficial Product

An innovative composting program helps one rural area populated with dairy farms to deal with long-standing water quality problems.

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The largest compost incentive program ever attempted in Texas--and probably in the United States--is under way northwest of Waco to help a rural area with 80,000 dairy cows and associated water quality problems.

Storm water runoff that contains manure has been a significant source of phosphorus in both the North Bosque and Leon rivers. High concentrations of phosphorus can cause excessive growth of algae and other aquatic plants, which rob water bodies of oxygen during decomposition.

A key strategy to improving water quality in the two watersheds has been removal of cow manure that otherwise would be applied to land as a disposal method.

In 2000, the TCEQ and the Texas State Soil and Water Conservation Board drew on federal funding assistance from Section 319 of the Clean Water Act to begin an ambitious project to transport excess manure out of the two watersheds. Once delivered to any one of six nearby composting facilities, the manure is turned into compost.

The initial aim of the two agencies was to remove 300,000 tons of cow manure from dairy farms in a three-year period. That benchmark was exceeded in less than two years.

As of August 2003, about 676,000 tons of manure had been hauled out of the watersheds: 450,000 tons from the North Bosque and 226,000 tons from the Leon.

For its part, the TCEQ has worked to ensure that the manure at the composting facilities is properly processed and contained, so no further water quality problems occur. This means checking to see that lagoons and berms are maintained as storm water controls.

The agency also has provided technical assistance to the commercial composters so that quality assurance requirements are met and the operations have adequate permits.

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At the compost facilities, the manure is heaped into long mounds, or windrows, in which decomposition occurs over many weeks as internal temperatures build to kill pathogens and weed seeds.

The compost then can be sold as a soil amendment or for erosion control.

The Texas Department of Transportation has been the lead buyer, contracting to buy and apply some 400,000 cubic yards of compost originating in the North Bosque and Leon watersheds to highway projects.

For governmental customers, the TCEQ has provided a $5 cash rebate for every cubic yard of compost purchased (the incentive ends in August).

As of August 2003, about 163,440 cubic yards of compost had been sold.

In fiscal 2003, about 28 percent of dairy manure in the two watersheds was removed through compost sales. The goal is to remove 50 percent each year.

The TCEQ and other monitoring partners continue evaluating water quality in both river basins.

Recently, the manure removal project was named one of 50 semifinalists in the 2004 Innovations in American

Government competition, sponsored by the Kennedy School of Government at Harvard. The program recognizes creative government programs that are forward-thinking and results-driven.

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