Waste Management for the Swine Industry

The Need: North Carolina’s swine industry and associated agribusinesses employ an estimated 50,000 workers statewide and contribute approximately $8 billion annually to the state’s economy. Particularly in rural communities, the swine industry is an important segment of the economy. Yet the long-term sustainability of the industry is threatened by environmental and social issues.

Serving the Need: As director of the Animal and Poultry Waste Management Center in the College of Agriculture and Life Sciences, Dr. Mike Williams led a more than 5-year effort to evaluate and identify waste management technologies that might replace the lagoon and spray field technology now used on the majority of North Carolina swine farms. Williams led an effort that evaluated 17 alternative waste management technologies. In most cases, technologies were built full-scale on swine farms, then evaluated for at least a year. Williams identified four waste management technologies that he determined meet environmental criteria for new and expanding hog farms as spelled out in an agreement between the North Carolina Attorney General’s Office and Smithfield Foods, Premium Standard Farms and Frontline Farmers. Three of the technologies identified — a gasification system, an anaerobic digester and a fluidized bed combustion system — treat the solid portion of the waste stream. The fourth technology — a solids separation/nitrification and denitrification/soluble phosphorus removal system — treats the entire waste stream. At the same time, Williams outlined a process that could be used to put new waste management technologies on North Carolina swine farms with minimal impact to the state’s economically important swine industry.

Impact beyond North Carolina: The agreement between the Attorney General’s Office and the three swine industry representatives was designed to spur the development of what the agreement called “environmentally superior” waste management technologies for North Carolina’s swine industry. The technology evaluations done as part of the agreement have given the state’s swine industry, political leadership and policy makers the objective scientific and economic information needed to implement programs and time-line strategies to convert to new and innovative animal waste treatment technologies.

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