CSREES National Water Quality Program

Title: Application of GIS for public outreach related to a hog facility project

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Organization: North Dakota State University

State: ND **Region:** Northern Plains and Mountains **Year of Funding:** 2000

Theme: Animal Waste Management

Situation: The permit to operate two large hog facilities in Towner County North Dakota is under review by the North Dakota Department of Health (NDDH). Public concerns about potential impacts to local water resources have been expressed and require analyses by an objective third party. Presentation of information combining knowledge of animal waste management and local water resource assessment was provided within a public format.

Objectives: The objective of the project was improving the public's knowledge of the science applied to hog facility siting and management in Towner County.

Methods: Accepted methods to determine the quantity and quality of hog manure were applied based on the proposed size of each facility. Manure application was considered within the context of overall potential for nutrient delivery to local water resources using a geographical information system (GIS) computer analysis. Interactive maps of factors contributing to potential nutrient delivery were produced and disseminated for public use. Results of the analyses were also presented to the public as a series of computer generated slides.

Partnerships: Organizations contributing to the public outreach program included: county, area, and state offices for NDSU Extension; North Dakota Department of Health (NDDH); Elite Swine; Natural Resources Conservation Service (NRCS); and Dakota Resource Council.

Research: Indirectly, research and outreach have been integrated through the application of standards, criteria, and analyses based on scientific methods. Information presented was based on the results of research related to animal waste facility design, construction, and maintenance. Analyses of potential nutrient delivery were based on selection of important factors determined from previous scientific studies.

Resources: Extension specialists that provided the technical information were available to the outreach program, because their positions were funded under an EPA 319 grant and a USDA 406 Water Quality grant. The Extension agent that organized the public meeting and continues to serve as an information contact in Towner County is funded by state and local appropriations.

Results: The outputs from this outreach effort include public accessible information packaged as computer slides that explain: animal waste facilities; animal waste application; and potential water resource impacts. Public meeting attendance consisted of approximately 100 individuals representing local interests, Elite Swine, and other state and federal organizations. Outcomes include a common understanding of the animal waste issue, which includes realistic impacts and solutions. As an example, Elite Swine has already expressed a desire to utilize the potential nutrient delivery map to adjust their application practices in sensitive areas.