Soil Potentials for Waste Disposal

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Eastern Oklahoma has numerous concentrated poultry feeding operations. A by-product of this industry is the waste or litter generated. It has been accepted practice to apply these wastes to the land for the nutrients and for disposal. One of the industries leaders recently expanded their operation to include the production of pork. They began with three farms. One farm is a farrowing-nursery operation with 3,000 sows (Sus sp.). The other two farms are feeding operations with 8,000 pigs each. With these numbers, they came under the Oklahoma Feedyards Act. The act has as one of its requirements, a waste disposal plan (Fig. 1 and 2). The producers submitted the type plan they had been using in other states which showed tons of waste produced and acres of land for disposal. In the past, a simple division was made and a rate of tons per acre or pounds of N per acre was determined. The Oklahoma State Department of Agriculture administers the Oklahoma Feedyards Act and was preparing to issue a license for the swine production facilities. However, before they had completed steps to issue the license, they began to receive comments from interested residents in the area who were voicing concern for the water quality in the area.

The area is unique in several ways. It is characterized by clear, free flowing streams which discharge into Spavinaw Creek which has two reservoirs that are part of Tulsa’s water supply. The local residents as well as the officials of Tulsa’s water system were concerned that the application of large volumes of waste to the land could cause pollution of the surface and groundwaters. Local opposition was developing and the licensing Agency was being pressured to not approve the swine production facilities.

Joe Marak, of the Oklahoma State Department of Agriculture referred the swine producers to the Soil Conservation Service (SCS) at Jay, Okla. The district conservationists requested assistance from Robert F. Heidlage, area engineer and Lyle C. Shingleton, area agronomist.

Marak, Heidlage, Shingleton, and others met with the swine producers to discuss a Waste Management Plan. The decision was made that if the SCS would develop the Waste Management Plan, the licensing Agency would approve it.

The procedure in the Agricultural Waste Management Handbook was used along with test results for determining amounts of waste and nutrients to be utilized. The N accounting method was used. Storage losses, application losses, and other factors were considered and total pounds of N to be utilized was determined.

1 Area engineer and area agronomist, SCS, Claremore, OK, respectively.