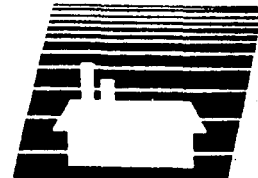


Land Resources Fact Sheet



July 1987

WHAT IS SEWAGE SLUDGE? Sewage sludge is the residual solids with varying amounts of water generated during wastewater treatment. Sludges vary in composition from community to community based on the source of wastewaters, relative quantities and types of wastes in the community, and the type of treatment the sewage receives.

WHAT IS LAND APPLICATION OF SEWAGE SLUDGE? Land application is using sludge on agricultural land to provide nutrients for crop growth and to increase organic matter in the soil.

WHY DO MUNICIPALITIES WANT TO SPREAD SLUDGE ON LAND? There are currently three acceptable means of sludge management: (a) Incineration is one effective management method, but high fuel costs, air pollution, and ash disposal problems have restricted its use. (b) Landfilling, another viable option, is being used primarily by small communities. However, landfill disposal of sludge used valuable and scarce landfill capacity. (c) Land application appears to be the most economically, environmentally, and politically acceptable means of sludge management. It allows for decomposition and use of the sludge to benefit crop production and land reclamation.

IS AGRICULTURAL USE OF SLUDGE NEW? The land application of sewage sludge as a nutrient source and soil conditioner has been practiced in Europe and Asia for centuries and in this country for decades. While the agricultural use of sludge is not new, application is now strictly regulated based on sludge quality and crop nutrient requirements. Currently, approximately 40 percent of the sludge generated in this country is applied to land by farmers.

HOW IS LAND APPLICATION OF SLUDGE REGULATED IN WEST VIRGINIA? Land application of sewage sludge is monitored by the Water Resources Division of the West Virginia Department of Natural Resources, in cooperation with the WVU Extension Service. Soil-site conditions and proposed cropping systems are evaluated at each site. Sludge analyses are assessed to determine acceptability for land application and proper loading rates. When a treatment plant wishes to put sludges on the land, the local WVU Extension Office arranges a meeting with its staff and interested landowners. Representatives of the local Health Department and Soil Conservation Service also participate in developing sludge management plans.

WHY IS THERE INCREASED INTEREST IN SLUDGE MANAGEMENT? There are two major reasons for increased interest in sludge management. First, advanced sewage treatment methods are removing more solids from wastewater before discharging it into streams. These treatments result in the generation of greater quantities of sludge. Second, sludge management is now benefiting from new scientific information and improved laboratory analyses which help monitor that sludges are safe for land application.

WHAT DETERMINES HOW MUCH SLUDGE IS APPLIED ON ONE YEAR? Because sludge is used by farmers as a nutrient source and since nitrogen is the prominent plant nutrient in sludge, the nitrogen content of the sludge and the nitrogen requirement of the crop are considered.

WILL THE SPREADING OF SLUDGE ON LAND CONTAMINATE GROUND AND SURFACE WATERS? Nitrogen and phosphorus are the principal components which could reach ground or surface waters from land applied sludge. Nitrogen, in the nitrate form, has the potential to leach to the groundwater. Annual sludge application rates are usually based on crop nitrogen requirements. The amount of plant available nitrogen applied with sludge is limited to that which would have been applied as an inorganic fertilizer, in order to minimize nitrogen leaching to the groundwater. Phosphorus, on the other hand, may reach surface waters through sediment carried in runoff. Surface waters are protected by the requirement of buffer zones to streams and lakes.

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