

May 20, 2010

Vol. IV, 2010

Excerpt from Michigan State University Extension Bulletin E-2780

Applying Biosolids to Land in Michigan

Lee W. Jacobs and Deliana S. McCreary

Potential Concerns with Land Application

Plant nutrients and organic matter are useful to plants and soils, but some of the metals and other components that may be present in biosolids are potentially harmful if not managed correctly. Primary concerns are parasites and pathogens, heavy metals and non-essential trace elements, and organic contaminants. Public acceptability is another issue. Even though biosolids must undergo a pathogen reduction treatment before being applied to land, pathogens (i.e., protozoa, bacteria, viruses and parasitic worms) may still be present. Once in the soil, however, these pathogens eventually will die off because of competition by well established soil microbial populations.

Trace elements (also referred to as pollutants) that can be present in biosolids include arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium and zinc. These trace elements are regulated by federal and state regulations and will be discussed later. Biosolids with too high concentrations are not allowed to be applied to land for beneficial use. Along with beneficial organic matter, biosolids also may contain organic chemical contaminants. Most organic contaminants that may find their way into the sewer system from consumer or industrial use will be broken down or decomposed during wastewater treatment. When biosolids are applied to land, any remaining organic chemicals will usually be decomposed in the soil by soil microorganisms. Therefore, organic pollutants in biosolids are not regulated by either Part 503 or the state Part 24 Rules (see next section for more on laws and rules). Odor and aesthetics are two concerns normally expressed by most citizens if a new biosolids application site is to be located near where they live. Citizens are also concerned with the health aspect of land application programs. These problems can be managed but must be anticipated and planned for in conducting educational programs. Though there can be no guarantees regarding these concerns, experience with the agronomic use of biosolids has been very reassuring and recent federal regulations and state rules provide direction to ensure that this practice is done safely.

Next Issue: Continued Excerpts from MSUE Bulletin E-2780