

Letter-to-the-editor published in the Rappahannock Record (www.rrecord.com)

Jan 6, 2004

Sewage Sludge as Fertilizer:

Free municipal sewage sludge (“sanitized” by use of the term “biosolids”) may seem good for the farmer, but it is bad for Chesapeake Bay. The organic material in sludge is decomposed by microbes and released to the environment slowly, just as a fallen tree decomposes slowly with time. Crops that are actively growing consume some of the nutrients (nitrate and phosphate) released from the organic material by microbes. Just as is true of chemical fertilizer, the process of nutrient uptake is only about 50% efficient at typical high crop yields. But when the crop is not growing, say when corn is drying in the field, microbes continue to actively release nitrate and phosphate from the sludge to the soil. Nitrate not used by the crop is flushed out of the soil, resulting in pollution of groundwater and surface water, and the nearest waterway. In order to provide sufficient nitrogen for the crop, the Virginia Department of Conservation and Recreation (DCR) allows nitrogen in sludge to be applied at a higher rate than would be true for conventional fertilizer. According to DCR, 52% of the nitrogen in sewage sludge is used by crops over three years, but only 30% of the nitrogen is available the first year. This means that a crop requiring 120 pounds of nitrogen per acre is fertilized with sludge at a rate of 400 ($400 * 0.3 = 120$) pounds of nitrogen per acre. About half the excess nitrogen is pollution. Sewage sludge is also very phosphorus-rich, and massively overloads soils with phosphorus. Both nutrients in sludge are discussed more thoroughly in the NAPS “Stewardship Tip” available on-line at the Northumberland Association for Progressive Stewardship web site www.napsva.org.

Farmers have the right to use sewage sludge as sanctioned by the State. But they, and everyone else, need to understand the consequences of that decision. The “free fertilizer” also means “free disposal” of an unwanted product for generators and appliers. Land application of sewage sludge doubles the nitrogen pollution that would occur if only chemical fertilizer were used, and also increases phosphorus pollution. There is no such thing as a “free lunch.” Somebody pays. In this case, the cost is borne by those whose livelihoods or life-styles are linked to the water quality of local waterways, rivers and the Bay.

Dr. Lynton S. Land, P. O. Box 539, Ophelia
Emeritus Prof. Geological Sci, U. Texas Austin