

Winter 2009-2010, No. 2

COMMERCIAL AND MUNICIPAL BY-PRODUCTS: ARE THESE USEFUL SOURCES OF NUTRIENTS?

“One man’s trash, is another man’s treasure” can have application when it comes to nutrient management. The use of materials considered as waste by a manufacturing plant, city, or farm, can be considered a resource by someone else. For millennia there has been common practice of disposing of waste products by spreading these materials on farm land. Often, this can be beneficial to growing crops. For example, when manure from a livestock facility is spread and incorporated onto nearby fields of neighboring farms, the plant nutrients in the manure are utilized by subsequent crops.

Application of municipal and industrial waste by-products onto agricultural land is also a common handling method. Often, these products contain plant nutrients and utilizing them as sources of nutrients is beneficial to both the city or factory and crop production on the farmland. However, industrial wastes often contain elements or compounds that are not required or beneficial to crops and in some cases can increase residually in soils to the point of crop toxicity, or be taken up into the harvested portions of crops to the point that the feed or food becomes unsuitable for livestock or human consumption. For example bio-solids from some municipal sewage treatment plants do contain plant nutrients from human waste, but also can contain heavy metals from cleaning and construction compounds that limit how much and how often municipal bio-solids can be applied to land.

When landowners are approached by a company wanting to apply an industrial by-product onto their land, there are a few matters to consider. First, does the product contain plant nutrients and is the mix and amount of nutrients manageable as part of the farm’s nutrient management plan? Second, are the levels of unneeded and/or potentially toxic elements or compounds low enough to allow land application without adverse crop or environmental consequences? This can be especially important if multiple applications of the products are planned over a number of years. Third, will the landowner be compensated for inconveniences or economic costs due to when the products are applied on fields?

If a company wants to apply a waste product containing plant nutrients at no cost or even compensate the landowner financially, the owner needs to know all the subsequent effects before agreeing to receive the waste product. In some cases, there may not be much benefit to the farmer, either as a source of plant nutrients, or as a source of payment for disposal. But if the product will have no adverse effects on crop production, or long-term soil health, they may agree to receive the product. One example common in the Northern Great Plains region is the land application of oil-field drilling fluids. These drilling fluids are produced when oil and gas wells are drilled. They are made up of water and added compounds needed to lubricate the drill bits of oil rigs, mixed with ground-up rock material from the surface down to the oil or gas containing geologic formations. When an oil well is drilled in an area, the adjacent land owners can be contacted to see whether they are willing to allow land application of drilling fluids. This land application can be much less expensive than if the drilling fluids are hauled to a landfill for disposal, and environmentally the landowner can help reduce material entering local municipal landfills.

Land application of waste products can be a so-called “treasure” to a farmer if it contains plant nutrients needed to grow crops, or if the financial compensation for allowing application helps the economic stability of the farm operation. However, it is important that the farmer be aware of all the elements and compounds and their concentrations contained in the waste material and whether or not it will be beneficial, or at least not adverse, to crop production and land environmental health in both the short-term and long-term. It is useful for a landowner to have advice from an agronomic and environmentally knowledgeable consultant or crop adviser before agreeing to receive waste products onto their fields.

– TLJ –

For more information, contact Dr. Thomas L. Jensen, Northern Great Plains Director, IPNI, 102-411 Downey Road, Saskatoon, SK S7N 4L8. Phone: (306) 652-3535. E-mail: tjensen@ipni.net.

Note: *Plant Nutrition TODAY* articles are available online at the IPNI website: www.ipni.net/pnt