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JOHN'S CORNER

ORGANIC FERTILIZERS AND NUTRIENTS 19

DRIED SEWAGE SLUDGES

by John Ferguson

The other day I was reading an article on organic fertilizers and it was talking about a product called Milorganite. The article was so full of mis-information that it seemed like it was written by a public relations firm (which it probably was). Hence I thought I would address this topic in today's column. In our area there are several products made from dried sewage sludge and sold as fertilizers such as; "Milorganite" from Milwaukee, "Hou-Actinite" from Houston and "Gro-Co" from Seattle. These products are often sold as organic, natural, non-toxic, safe for children and pets, etc. This statements are false and mis-leading. I went to the City of Houston public works website and they call Hou-Actinite an organic fertilizer which is not true as it does not meet the USDA standards (NOP) for organic products.

As a society we produce a lot of "poop" that has to be managed in some fashion. We spend billions of dollars every year in treating and handling our wastes. For years we just dumped it into the ocean which created major problems. Then we started putting it in landfills where it created problems such as large amounts of greenhouse gasses and water pollution. Now we are land applying it to our agricultural fields, composting some of it, and drying and pelletizing some of it.

In horticulture we have known for years that manure is one of the best ways to fertilize and improve our soil. We also know that as one goes up the food chain to more complex animals the manure becomes more complex and more valuable. Thus theoretically, humans at the top of the food chain have the most valuable and nutrient rich manure. The problem occurs with us in what we consume and how we collect our manure.

Everything gets flushed down the drain, from schools, drycleaners, hospitals, industries of all sorts, auto repair shops, etc. Literally thousands of chemicals can be found in sewage sludge from PCB's, pesticides, dioxins, radioactive wastes, asbestos, phthalates, heavy metals, petroleum compounds, and pharmaceuticals to



mention a few. The amount and type vary with the location of the sewage treatment plant. Trivia - The EPA allows over 20 times more toxic chemicals in the sludge than in Europe.

To make the dried sewage sludge products, the raw sewage goes through some form of digester where the raw fecal material is decomposed by microbes. This process creates a residual material of dead microbial bodies that we call sewage sludge ("Biosolids" is the politically correct name) after it is dewatered. Some of the toxic chemicals are bioremediated by the process but most remain in the sludge cake. The cake is then pressed into pellets and dried at high temperatures between 900-1200 degrees fahreneit. This extreme heat does kill all the pathogens and other microbes and may destroy some chemicals. The dried pellets are then bagged and shipped to market for use as a fertilizer.

There are hundreds of studies that show these type fertilizers will help plants grow stronger, larger and faster from turf grass to trees. Their functionality are not in question as it is well established.

Some of the chemicals will bind to soil and not be available to plants and others over time will biodegrade. However many chemicals and toxics will leach into our streams and groundwater. For example, these types products can contain over 2% phosphorous (P), a plant nutrient. Most of the soils in the USA have too much phosphorous hence it runs off into fresh water supplies where it creates an algal bloom that sucks oxygen (O₂) out of the water killing the aquatic life and leaving a putrid mess.

As a society we have to do something with our human waste products and generally one application of these type dried sewage sludge products will not cause toxic amounts of chemicals in the soil. *Most problems occur with repeated application.* If they are used wisely and away from waterways then some benefit can be derived. I have included a few references below and there are hundreds of papers on the internet.

Note: The long term solution is to change the laws and clean up our waste water treatment, where we do not allow toxic chemicals to be disposed in our sanitary sewers. Then the waste products will have a much higher value to society and can be reused with less problems.



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SUMMARY:

These products should never be used where food is grown or children may play, especially our yards and gardens. However there are applications where the benefits they provide have value and the dangers are minimized. They can be used to help establish vegetative cover at landfills or degraded sites, establish vegetation in erosion prone areas and along highways, establish vegetation and remediate old mine sites, and even help in re-growth of our forests after a fire or a clear cut.

PROS:

- good source of nutrients
- relatively inexpensive
- good availability
- available in bags or bulk
- pathogen free
- reported to repel deer in some areas

CONS:

- becomes very odorous when wet
- dust may bother some people
- contains toxic chemicals
- contains heavy metals
- upon wetting a good feedstock for pathogens to grow on
- some believe that exposure causes Lou Gehrig's disease and other health problems including death

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