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Sludge: Waste or Fertilizer

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Sewage sludge has generally been perceived by the public as well as the agricultural community as a waste which has little beneficial use and needs to be disposed of in landfills or incinerated. However, with the enormous quantities of waste generated (approximately 12 million tons of sludge annually), landfill space has become scarce. Many states estimate that their landfill capacity will be exhausted in the near future. For this reason many states have banned disposal of sludge in landfills.

Diminishing landfill space, increasing landfill costs, and concern over air pollution from incineration of wastes have generated a strong interest in finding alternative methods for sludge disposal. One alternative is to use sludge as a fertilizer on pasture grasses. Not only is sludge a source of slow release plant nutrients (e.g. nitrogen, phosphorus, sulfur, micronutrients, etc.), it can also increase the organic matter content of soils. The concept of using organic wastes such as sludge is not new. Organic wastes have been used by people around the world for thousands of years to fertilize crop land. Prior to fertilizers being introduced in the early 1940's, the major way of fertilizing was to use organic wastes!

In the past there had been concern over heavy metal contamination from sludges. Over the past 40 years sludges have become substantially cleaner and heavy metal contamination of the environment from sludge application is of little concern. A number of years ago the Environmental Protection Agency came out with specific heavy metal limits for sludges which must be met before it can be applied to land. The concentrations of nutrients and heavy metals in sludge should be provided by the sludge hauler to the end user.

Sludges (biosolids) are organic slow release fertilizers. Using these materials as an organic slow release fertilizer for crops and grasses grown in Florida would be a beneficial source of nutrients compared to inorganic fertilizers which leach more readily than slow release fertilizers in sandy soils. For the past number of years there has been a dramatic increase in the number of cattleman using sludge on their pastures. In fact the demand by ranchers for sludge has become so high it is very difficult to find sources of sludge!

For the past six years researchers at the Range Cattle Research and Education Center have conducted field and laboratory experiments to determine the potential uses of sludge (biosolids) as an alternative to more costly inorganic fertilizers for pasture grasses. Results indicate that both yields and quality (protein and digestibility) of bahiagrass and ryegrass are significantly increased with the addition of biosolids. Research has also shown that approximately 60-70% of the nitrogen in biosolids is available to the plant the first year with the other 30-40% becoming available over time. The studies also indicate that sludge last over a longer time span then inorganic fertilizers. This is a great advantage on our sandy soils where it is quite common for inorganic fertilizers to leach rapidly. The studies have also shown there to be no detrimental effects on the environment from application of sludge or biosolids. Using sludge may in fact become a best management practice to help reduce nitrogen and phosphorus runoff and leaching from sandy soils!