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Using Sludges on Florida Pastures

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With the increased costs of fertilizers and low cattle price there is a need to evaluate alternative economic sources of fertilizers for pastures. Sludge (also called biosolids) is an alternative source of nitrogen fertilizer which is becoming increasingly popular for fertilization of pasture grasses. Not only is it a good source of nitrogen it also contains other valuable nutrients (such as sulfur, phosphorus, potassium, iron etc.). In addition sludge is an organic source of nitrogen, thus making it a slow release fertilizer. Research conducted by the University of Florida indicates that approximately 60% of the nitrogen in sludge is available to the plant the first year with the other 40% becoming available over time.

Sludge can also be applied to agricultural land to improve physical properties (e.g., water retention, infiltration, aggregate stability) and chemical characteristics of soils.

Because sewage sludge is a source of nutrients for crops, and also a potential ground and surface water contaminant, we need to better understand its fate and transformation in soils where it is applied. An application rate of 10 tons per acre of sludge containing 5% N supplies 1000 lbs. N/acre to the land, and this quantity may exceed crop assimilative capabilities, provided all the N is released and made available to plants. Consequently losses may occur to the environment. In the past, there had been concern over heavy metal contamination from sludges. Over the past 30 years sludges have become substantially cleaner and thus heavy metal contamination of the environment from sludge application is of little concern. The concentrations of nutrients and heavy metals in sludge should be provided by the suppliers.

However, studies are still being conducted at the Range Cattle Research Center in Ona to determine the rate of nutrient availability for sludges applied to Florida soils. Using sludge 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. Before sludge can be used by growers in Florida there is a need to demonstrate that it is a safe and viable source of nutrients for crops in Florida. Researchers at the Ona Research Center are currently evaluating the potential of using sludge as a fertilizer for pastures in Florida. Both field and laboratory studies have been conducted to determine optimum application rates for sludges and the rate of nutrient availability for pasture grasses. Results of a 3-year field study at Ona indicate addition of biosolids can increase both ryegrass and bahiagrass production as well as increasing the protein content of the grasses. Research also shows that biosolids last longer in the soil than inorganic sources of nitrogen. Thus, using sludges or biosolids may be an economical alternative source of fertilizer to be considered on pasture grasses in Florida.