



Domestic Wastewater Residuals

Fact Sheet for Florida's Farmers and Ranchers

Domestic wastewater residuals (a.k.a. sewage sludge, biosolids) are the treated solids from a municipal wastewater treatment facility. In Florida, approximately 83% of residuals generated are beneficially used. Approximately 66% is land applied as Class B residuals (described later), primarily through surface application to pastures. Beneficial use of residuals in accordance with regulations is considered safe, and protective of public health, animals, and the environment.

Benefits of Using Residuals

- Residuals provide plant nutrients (nitrogen, phosphorus, potassium, calcium, sulfur and magnesium and important micronutrients) in a slow-release form to crops.
- Residuals provide the soil with organic matter that enhances the water-holding capacity of the soil, rate of water infiltration into the soil, soil structure, and microbial activity of the soil.
- Most facilities provide residuals to farmers and apply them free of charge, thus reducing fertilizer costs.

Residuals Regulations

- Federal and state residuals regulations are primarily designed to prevent or minimize potential impacts of nutrients, pathogens, and heavy metals.
- Federal - Title 40 Code of Federal Regulations (C.F.R.) Part 503 (enforced by EPA Region IV in Atlanta).
- State - Chapter 62-640, Florida Administrative Code (F.A.C.), administered by the Florida Department of Environmental Protection (DEP). Land application of septage is primarily regulated by the Florida Department of Health under Chapter 64E-6, F.A.C.
- County and local governments may have enacted more restrictive ordinances on residuals uses. Many of these ordinances have been enacted in response to concerns from local citizens, especially concerns about odors and truck traffic.

The Two Types of Residuals Most Common in Florida

Class AA Residuals (highest quality) are treated to eliminate pathogens and meet strict pollutant criteria. As a result, Class AA residuals may be used without restriction and may be sold to the public. Certain Class AA products are found in stores and garden centers. Class AA residuals are generally managed similar to commercial fertilizers and if sold, should be registered fertilizers in accordance with FDACS requirements. Class AA residuals may come in several forms depending on how they are treated and may be in a fertilizer-like pellet or may be in a granular, cake, or liquid form.

Considerations for Farmers When Using Class AA Residuals

- Use of Class AA residuals provides greater advantages for the farmer than other classes of residuals. Class AA residuals do not have harvesting restrictions, grazing restrictions, public access restrictions or regulatory impacts to future land buyers. Additionally, most county residuals ordinances exempt Class AA residuals.
- The wastewater treatment facility or residuals manufacturer should provide the farmer with an analysis of the residuals (total N, P and K on a dry weight basis) and a recommendation that the residuals be applied at a rate not exceeding the agronomic rate. The agronomic rate is based on the site vegetation. The farmer may want to ask for the calcium carbonate equivalency of the material and whether the residuals were alkaline-treated.

Class B Residuals are treated to reduce pathogens but some pathogens may remain. The remaining pathogens die off over time when exposed to the environment. To minimize the potential for human exposure to any remaining pathogens, the regulations require the use of Class B residuals to meet a number of management and site restrictions.

Considerations for Farmers When Using Class B Residuals

- Class B residuals requirements include, but are not limited to, restricted public access for one year; setbacks to surface waters and drinking water wells; a 30-day grazing restriction; and varying harvesting restrictions. Farmers should take these delays into account when deciding where to apply and use Class B residuals. Class B residuals must be applied in accordance with an Agricultural Use Plan (detailed below) and are required to meet ceiling pollutant limits and lifetime site cumulative loading limits.
- Regulations require residuals to be applied at an agronomic rate to minimize or prevent nitrogen leaching. Application rates are based on the nutrient content of the residuals and the needs of the crops. Florida also requires phosphorus to be considered in certain geographic areas. An Agricultural Use Plan (AUP) for each land application site to be used by the wastewater facility must be approved as part of the facility permit. The AUP identifies the site and the use of residuals at the site including, among other items, the areas to be applied, the crops to be grown, features for which setbacks must be met, and the application rates. Although the AUP is submitted by the wastewater facility, the landowner must sign the AUP form to acknowledge the accuracy of the AUP.
- Wastewater generators (treatment facilities), applicators, and landowners are all subject to Chapter 62-640, F.A.C. While the department holds the generators ultimately responsible for the proper treatment and use of their residuals, farmers and landowners should be knowledgeable about the regulations so that they can avoid potential violations and thus, possible enforcement by the Department. Again, a person accepting residuals for their land must comply with Chapter 62-640, F.A.C. If a farmer finds a practice of the residuals' hauler questionable, the farmer should contact the appropriate DEP District Office.
- The farmer should consider the potential future uses of the property.
 - a) Will usage of Class B residuals affect a land sale in the future?
 - b) Class B restrictions not fulfilled prior to sale still apply (i.e. public access, grazing and harvesting restrictions).
 - c) Cumulative or lifetime loadings of metals for non-Class AA residuals are tracked. The loadings information is important to disclose to future owners of the land. Additionally, some real estate and loan companies may request soil assessments and may use other criteria to assess the property at the time of sale.

Further Considerations for Farmers When Using Residuals

- Farmers should carefully consider the application rates of alkaline-treated Class AA and B residuals. The calcium carbonate equivalency should be taken into account, especially if the residuals are being used on a crop like bahiagrass that favors lower pH soil.
- Residuals do not qualify for use in the USDA certified organic program, not even Class AA.
- The farmer should consider the end product and if the user of the end product will mind the use of residuals.
- Farmers should also consider their neighbors' concerns about nuisance issues such as odors and truck traffic, aesthetics of the residuals spread on the fields and the safety of land application (especially for the land application of lime-treated residuals). Different treatment methods, management practices, and methods of application, can reduce or contribute to nuisance related issues, even for some types of Class AA residuals.

Relevant Websites for More Information Related to Residuals

FL DEP Chapter 62-640, F.A.C.: <http://www.dep.state.fl.us/legal/rules/wastewater/62-640.pdf>

FL DEP residuals site: <http://www.dep.state.fl.us/water/wastewater/dom/reshome.htm>

FL DEP District Offices and Contact Information: <http://www.dep.state.fl.us/secretary/dist/>

US EPA biosolids site: <http://www.epa.gov/OWM/mtb/biosolids/index.htm>

UF IFAS Fact Sheet, "Biosolids: Are These Residuals All the Same?": <http://edis.ifas.ufl.edu/AG114>

UF IFAS Fact Sheet, "Assessing Economic Value of Biosolids": http://edis.ifas.ufl.edu/BODY_AG115

National Biosolids Partnership: <http://www.biosolids.org/>