

Department of Legislative Services
Maryland General Assembly
2012 Session

FISCAL AND POLICY NOTE

Senate Bill 594 (Senators Pinsky and Frosh)
Education, Health, and Environmental Affairs

Agriculture - Nutrient Management - Application of Nutrients

This bill establishes specified prohibitions and requirements relating to the application of animal manure or biosolids to agricultural land at various times of the year. The bill applies to a person who is required to have a nutrient management plan in accordance with the Agriculture Article.

Fiscal Summary

State Effect: The bill increases nonbudgeted capital and/or operating expenditures associated with wastewater treatment plants owned and/or operated by the Maryland Environmental Service (MES), to the extent land application of sewage sludge is limited. However, because the Maryland Department of Agriculture (MDA) is already in the process of developing new requirements for the timing of nutrient application, such impacts may occur even in the absence of this bill. Revenues are not materially affected.

Local Effect: Certain local governments incur increased costs to dispose of or store sewage sludge to the extent land application of sewage sludge during the winter is limited. However, because MDA is already in the process of developing new requirements for the timing of nutrient application, such impacts may occur even in the absence of this bill. **This bill may impose a mandate on a unit of local government.**

Small Business Effect: Potential meaningful.

Analysis

Bill Summary: The bill prohibits a person from applying animal manure or “biosolids” to agricultural land between November 1 and March 1 – unless the animal manure or biosolids are injected into the soil, with greater than 90% of the animal manure or

biosolids remaining below the soil surface. During the rest of the year, if a person applies animal manure or biosolids to agricultural land, the person must inject the animal manure or biosolids into the soil or incorporate the animal manure or biosolids into the soil within 24 hours after application.

Beginning July 1, 2017, a person may not apply fertilizer to agricultural land that has a phosphorus fertility index value that is greater than 150, as defined and measured by the University of Maryland.

Beginning July 1, 2020, MDA may not authorize the application of animal manure or biosolids to agricultural land between September 10 and November 15, even if there is a lack of storage capacity.

“Biosolids” is any thickened liquid, suspended or settled solid, or dried residue extracted from sewage at a sewage treatment plant including domestic sewage that contains recognized plant nutrients or liquid byproducts that meet federal and State regulations for beneficial use by land application or other methods. The term includes sewage sludge.

Current Law:

Nutrient Management Plans

Pursuant to the Water Quality Improvement Act of 1998 (Chapters 324 and 325), agricultural operations with \$2,500 or more in gross annual income and livestock operations with 8,000 pounds or more of live animal weight must have and comply with a nutrient management plan for nitrogen and phosphorus. Different implementation dates applied to operations using chemical fertilizers and operations using sewage sludge or animal manure. Operations using sewage sludge or animal manure have been required to comply with a nutrient management plan for nitrogen and phosphorus since July 1, 2005.

MDA certifies and licenses nutrient management consultants and businesses to prepare nutrient management plans for farm operations and also issues certificates to farm operators to develop their own plans. In consultation with the Nutrient Management Advisory Committee, MDA is required, by regulation, to prescribe the criteria, form, and content for certified nutrient management plans applicable to licensees and certificate holders and also establish specified continuing education, recordkeeping, and reporting requirements.

Under MDA regulations, timing of nutrient application is one of the elements required to be addressed in determining a nutrient management plan’s recommendations. Timing for nutrient applications must (1) be as close to plant nutrient uptake periods as possible; (2) maximize plant utilization efficiency and minimize the potential for nutrient

movement; and (3) be consistent with specified guidelines within the *Maryland Nutrient Management Manual*. The manual does not specifically address timing of the winter application of sewage sludge, but it contains specific restrictions on the winter application of manure – specifying that manure may be applied in the winter (November 16 through February 28) only if the farm operation has inadequate storage, a nonstackable manure, and no other reasonable option to manage it. Specified guidelines must be followed if winter application is necessary because of inadequate storage, but they are intended only as a temporary measure. The manual encourages livestock and poultry producers to have adequate manure storage to accommodate manure production through the winter months.

The manual also establishes guidelines regarding the application of manure during the fall months (September 1 through November 15), specifying that manure may be applied as a starter fertilizer if rates and timing follow specified recommendations for fall seeded crops, and that manure may be applied at fall planting above those rates only if storage is inadequate and it is necessary to avoid application during the winter.

Under current regulations, if a soil sample analysis shows a phosphorus fertility index value of 150 or greater, a specified risk assessment method must be used to determine the potential risk for phosphorus pollution to move from agricultural land to State waters. This tool is used by nutrient management planners and farmers to make farm management decisions.

Maryland Department of the Environment Regulation of Sewage Sludge

The Maryland Department of the Environment (MDE) regulates the land application of sewage sludge, with any applicable regulations adopted by MDE requiring the approval of MDA. A person must have an MDE sewage sludge utilization permit, for each utilization site, in order to utilize (including land application) sewage sludge in the State.

Various requirements are specified in MDE regulations for the application of sewage sludge to agricultural land. Relevant to the application of sewage sludge during the fall or winter months, the regulations prohibit, subject to certain exceptions, application to agricultural land under certain adverse weather conditions – specifically, when the soil is saturated, the ground is covered with snow, or when weather conditions prevent adherence to a requirement to incorporate the sludge into the soil. Under the exceptions, sewage sludge may be injected into soil through up to six inches of snow and may be surface applied to frozen ground under certain circumstances. When sludge is applied to the soil in late summer or fall, sludge application must cease and a crop must be planted by October 31. In addition, sewage sludge may not be applied to agricultural land from November 1 through February 28 unless specified conditions are met. Specifically, sludge must be surface applied or subsurface injected using specified application

methods; slopes must not exceed certain percentages; and fields may not be plowed or disced following the application of sludge. MDE is authorized to impose other restrictions if considered necessary to protect public health and the environment.

Use and disposal of sewage sludge is also regulated by the federal government under 40 CFR 503.

Background: Some farmers depend on animal manure and sewage sludge for their land's nutrient value. Animal manure is used as a fertilizer and it adds organic matter to soil which may improve soil structure, aeration, moisture-holding capacity, and water infiltration. To determine how much manure is needed to fertilize agricultural land, the nutrient content and the rate nitrogen becomes available for plant uptake needs to be estimated.

Sewage sludge is one of the final products of the treatment of sewage at a wastewater treatment plant, after treatment has broken down the organic matter and killed disease-causing organisms. According to MDE, more than 700,000 wet tons of sewage sludge is generated in Maryland each year. MDE indicates that the application of sewage sludge to agricultural land recycles nutrients, saves landfill space and money, and helps reduce nutrient pollution to the Chesapeake Bay.

MDA and MDE have been discussing requirements for the timing of nutrient application (including chemical fertilizer, animal manure, and sewage sludge) in the fall and winter, to be included in the *Maryland Nutrient Management Manual* (which is incorporated by reference in MDA regulations). MDA drafted nutrient management regulations that prohibit nutrient applications at specified times and submitted them to the Joint Committee on Administrative, Executive, and Legislative Review in November 2011, but the regulations were withdrawn prior to being published in the *Maryland Register* to allow additional stakeholder discussions. MDE advises that its regulations will be revised to establish consistency with MDA's nutrient management regulations.

State Fiscal Effect: State finances are affected in fiscal 2013 and future years to the extent the bill limits land application of sewage sludge. The restriction of that disposal option may increase capital and/or operating costs borne by the State to store or dispose of in another manner sewage sludge generated at wastewater treatment plants owned and/or operated by MES.

MES currently uses land application as a disposal option for sewage sludge generated from three of its wastewater treatment plants (one of which is owned by MES and the other two are owned by the State but operated by MES), contracting to have sewage sludge hauled to farm sites in Virginia. MES indicates that regulations in Virginia are projected to become more stringent, which could limit future disposal options, and that

land application of the sewage sludge in Maryland could become an alternative at some point in the future.

MES indicates that, if it is not able to apply sewage sludge to land during winter months, it would need to construct additional storage. The three major MES-operated wastewater treatment plants utilizing land application to dispose of sewage sludge serve State, local, and private facilities. Transporting the sewage sludge to landfills would increase MES' costs in comparison to land application, and any increase in costs would be allocated among the users of the plants, including the State. MES is in the process of developing estimates for the volume of storage needed and the capital costs for these storage facilities.

Legislative Services notes that, while the bill establishes specified criteria for the timing of nutrient applications, MDA is already in the process of developing new requirements, which could be adopted even in the absence of this bill. Thus, the potential impacts discussed here may occur even in the absence of the bill.

Local Fiscal Effect: Local governments are affected to the extent the bill limits the land application of animal manure or sewage sludge. Local government-owned/-operated wastewater treatment plants that currently rely on land application to dispose of sewage sludge may be required to find other means to dispose of the sewage sludge or store it, which may result in an increase in costs. The Washington Suburban Sanitary Commission advises the bill may have a significant impact on its operations and finances in the future, as it may be required to build storage facilities that cost several million dollars.

MDE indicates that there are roughly 43 publicly owned wastewater treatment plants in the State that are authorized for land application of sewage sludge. Many plants do not currently have enough storage capacity to store all of their output over the winter, and constructing new storage or composting facilities takes significant time and resources. Not counting land acquisition and permitting costs, which vary based on location, the estimated capital cost for building a storage facility, as estimated by Synagro Central, LLC, the largest sewage sludge utilization company in Maryland, is \$733.76 per wet ton. Overall, the bill could require winter storage for an estimated 98,000 wet tons, requiring about \$72 million (assuming there is no existing capacity at the wastewater treatment plants) to build storage facilities.

Legislative Services notes that, while the bill establishes specified criteria for the timing of nutrient applications, MDA is already in the process of developing new requirements which could be adopted even in the absence of this bill. Thus, the impacts discussed here may occur even in the absence of the bill.

Small Business Effect: Small businesses involved in the generation or management/disposal of animal manure and/or sewage sludge are affected to the extent they can no longer apply nutrients to land or it becomes more expensive to do so. Presumably a change in the means of disposing of (or storing) a significant percentage of the animal manure and sewage sludge generated in the State may be detrimental to certain small businesses involved with or using land application but possibly beneficial to others that may generate business from other means of disposal or storage.

The bill is expected to have a significant effect on the approximately 500 dairy farmers in the State who would have limits placed on how or if they could apply manure. MDA estimates that 300 dairy farmers would require winter storage facilities, which could cost several million dollars to construct.

Because injection of nutrients into the soil between November 1 and March 1 is authorized, the bill may benefit small businesses that sell or rent manure injectors.

Additional Information

Prior Introductions: None.

Cross File: None.

Information Source(s): Baltimore City; Kent, Montgomery, and Worcester counties; Maryland Department of Agriculture; Department of Natural Resources; Maryland Department of the Environment; Department of General Services; Maryland Environmental Service; Washington Suburban Sanitary Commission; Department of Legislative Services

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