Fall 2025
Discussion of Biosolids
Benefits and Risks

All information is presented on the condition that the people receiving it will make their own determinations as to the suitability of using the information for their own purposes and on the understanding that the information is not a substitute for specific technical or professional advice or services.

What are Biosolids?

Biosolids are solid organic matter recovered from a sewage treatment process and used as fertilizer

- It is common for farmers to use animal manure to improve their soil fertility
- Biosolids contain similar nutrients to those in animal manures
- Biosolids that are used as fertilizer in farming are usually treated to help prevent disease-causing pathogens from spreading to the public.
- Some sewage sludge cannot qualify as biosolids due to persistent, bioaccumulative and toxic chemicals, radionuclides, and heavy metals at levels sufficient to contaminate soil and water when applied to land.

Read More

https://www.cbc.ca/news/canada/earth-day-is-sewage-sludge-safe-for-farm-fields-1.2606919

https://en.wikipedia.org/wiki/Biosolids

Biosolids – What are the Possible Benefits

Biosolids provide essential nutrients, improve soil health, and reduce reliance on commercial fertilizers. They enhance soil structure, moisture retention, and erosion control, while supporting carbon sequestration and waste reduction.

- Nutrient Enrichment: Rich in phosphorus, nitrogen, sulfur, zinc, and copper.
- Increased Yields: Better soil health can boost crop productivity.
- Lower Fertilizer Costs: Reduces farmers' expenses.
- Reduced Energy Use: Local nutrient sources decrease energy and emissions.
- Waste Diversion: Biosolids recycling prevents landfill disposal.

Proper treatment and application, in accordance with regulations, are essential to minimize risks.

Biosolids – What are the Possible Risks

The use of biosolids in agriculture raises concerns about contamination from pollutants such as PFAS, microplastics, pharmaceuticals and heavy metals. Risks include food and water contamination, inhalation of contaminated dust, bioaccumulation in the food chain, and potential long-term damage to soil and water resources.

- Emerging Pollutants: Biosolids may contain pharmaceuticals, personal care products, and industrial chemicals.
- PFAS: Persistent "forever chemicals" can contaminate soil and water. https://www.canada.ca/en/food-inspection-agency/news/2023/05/the-canadian-food-inspection-agency-takes-action-to-address-forever-chemicals-in-the-environment.html
- Microplastics: These particles pose inhalation risks and can be absorbed by plants.
- Read More https://newsroom.carleton.ca/story/microplastics-pollution-farmland/#:~:text=In%20collaboration%20with%20scientists%20from,plastic%20bags%20from%20municipal%20wastewater.
- Metals and Level of Risks - Read More https://extension.missouri.edu/publications/wq427

Biosolids – Regulation and Best Practices

Canada regulates biosolids through federal and provincial frameworks. The Canadian Food Inspection Agency (CFIA) oversees commercial biosolids, including an interim PFOS standard of 50 ppb for PFAS. Provinces manage manufacturing, transport, and land application, requiring nutrient management plans and site-specific guidelines.

- Federal: CFIA enforces the Fertilizers Act and verifies compliance.
- Provincial: Provinces set guidelines for land application and require nutrient management plans.
- Ontario: Governed by the Environmental Protection Act and Nutrient Management Act, requiring Environmental Compliance Approvals and certified nutrient management plans. Site suitability and odour management are regulated.
- Oversight: The Ministry of the Environment, Conservation and Parks (MECP) monitors compliance; OMAFRA approves land application plans.

Arguments against the current system

Inadequate treatment: Critics argue that current regulations and treatment methods are insufficient to completely remove all harmful substances from biosolids, especially given the diversity of what goes into the municipal sewage systems (e.g., industrial waste).

Lack of transparency and testing: There are calls for more rigorous and ongoing testing to fully understand the risks associated with the long-term use of biosolids on agricultural land.

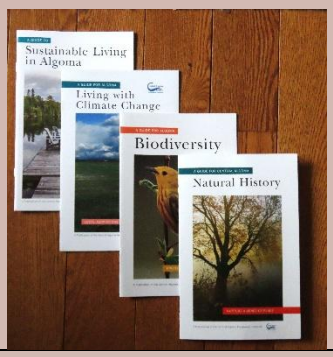
OMAFRA's Biosolids Guidelines

OMAFRA's biosolids guidelines focus on the land application of sewage biosolids as a fertilizer, requiring a Nutrient Management Plan (NMP) for all on-farm storage and application. Key regulations include limits on application rates based on plant-available nutrients, no application during the winter or when soil is frozen/snow-covered, soil pH requirements, stabilization of biosolids, and strict rules for separating storage from application, especially for odorous materials. Heavy metal concentration is a critical factor in determining the acceptability of biosolids for land application.

https://www.ontario.ca/page/sewage-biosolids-managing-urban-nutrients-responsibly-crop-production#:~:text=All%20on%2Dfarm%20storage%20and,in%20any%205%2Dyear%20period.

https://www.ontario.ca/page/non-agricultural-source-materials-nasm#:~:text=Liquid%20NASM%20may%20be%20stored,contact%20the%20local%20MECP%20office.

https://www.ontario.ca/page/storage-non-agricultural-source-materials-permanent-nutrient-storage-facility#:~:text=local%20MECP%20office.-,NASM%20odour%20considerations,commercial%2C%20community%20or%20institutional%20use



Natural History of Central Algoma

CAFC has a new publication - Natural History - A Guide to Central Algoma - Nurture A Sense of Place - available on our website now at https://www.centralalgomafreshwatercoalition.ca/reports-1

Become a member

Your annual membership fee will provide a base budget for work of CAFC and demonstrate the commitment of local partners working towards a common goal. A strong diverse group is an essential component in meeting the goals of the Central Algoma Region.

Central Algoma Freshwater Coalition

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