

Digestate 101

A sustainable source of nutrients for your farm

Anaerobic digestate is a sustainable and valuable resource for the agricultural sector that can help to reduce input costs, improve soil health and build a circular economy.

For more information, visit: farmingbiogas.ca



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What is digestate?

Digestate is produced when organic material – such as manure or food waste – is processed through digestion. The other output of this process is biogas. Digestate is a nutrient rich product that contains virtually all the macro and micronutrients that were found in the original organic material that went into the digester. Its use as an organic fertilizer or supplement is gaining in popularity because of its nutrient content and because it's a good source of organic matter.

Why digestate matters?

It's safe & effective



Quality control measures at the digestion facility and sampling protocols for the finished product ensure the product is both safe to use and has a known fertilizer value.

lt's sustainable



Using digestate as a fertilizer completes the loop where the nutrients from food waste and farm by-products are returned to farms to grow future crops.

It can lower greenhouse gas emission

It's renewable



Food waste that would have otherwise gone to landfill is converted to energy and fertilizer, reducing waste and providing farmers an additional fertility source.



Using digestate can reduce a farmer's exposure to potential global supply chain uncertainty.



Digestate production and use can lower greenhouse gas emissions in several ways. It diverts waste from the landfill, reduces reliance on mineral fertilizers, adds stable organic matter to the soil, and is produced alongside biogas & RNG, a renewable source of energy.





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What feedstocks produce digestate?

What feedstocks are used in anerobic digesters depend on a few different elements: the amount of energy they will produce, availability, regulatory and safety considerations, as well as how they will affect the quality of the digestate. Here are some common examples of feedstocks processed by digesters in Canada:

- Manure and other agricultural residues (*this typically applies only to on-farm digesters)
- \cdot Food processing wastes
- Spoiled and off-spec food
- Animal and pet food processing residuals and off-spec products
- Fats, Oil and Greases (FOG) from slaughterhouses, restaurants, food processors, etc.
- Green bin material from residential sourceseparated organics collection programs

How does digestate support soil fertility & health?

Applying digestate to fields can improve soil fertility and health through the addition of nutrients and stable organic matter. Digestate provides a source of macro, micro and trace nutrients that will be available for plant uptake in the short and long term. The organic matter portion of the digestate will also contribute to the formation of stable soil organic matter as it has already been decomposed during the digestion process.

Know the details!

Digestate analysis from an accredited laboratory will tell you the exact nutrient profile of digestate. Review of this analysis and recommendations from a knowledgeable certified crop advisor is critical to get the most from digestate applications.

What's in digestate?

The contents of digestate depends on the feedstocks the digester processed. All digestate contains the following:

Organic matter

Organic matter from digestate will decompose slower than most manures, but much faster than most compost. It is important to work with a crop consultant to determine the expected rate of decomposition and mineralization from the organic matter that will be applied in the digestate.

Phosphorous

Typically, phosphorus (P) in digestate is very available for plant uptake, where 80 to 90 percent of the total P in digestate can be taken up by growing crops, which is like the crop available portion of total P in manure.

Nitrogen

Typically, digestate will have a relatively high percentage of mineral nitrogen (N), like that of liquid swine manure, which will be immediately available for crops. Digestate also contains organic N which will be slowly released through mineralization. Digestates with high mineral N are ideal for use as fertilizer, provided it is applied using Best Management Practices.

Other nutrients

Digestate is an excellent source for many macro, micro and trace nutrients that can benefit soil and crops. Crop micronutrient deficiencies are rarely seen in fields with regular applications of organic fertilizers or soil amendments. Nutrient concentrations and availabilities will vary depending on the feedstocks utilized in the digester and so, it is recommended that an analysis of the digestate is completed before application and analyzed by a certified crop advisor.



The Canadian Biogas Association is a member-driven industry organization that supports the diverse needs of the biogas and renewable natural gas (RNG) sector with the goal of building a strong, robust biogas & RNG industry in Canada. We represent companies that span the interests of biogas & RNG production. By working with the agricultural sector we can strengthen both industries by maximizing the utilization of organics, such as manure and food waste to produce renewable energy and fertilizer.

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