

A Practical Guide:

Digestate after wheat harvest with a cover crop

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What is digestate?

Digestate is a sustainable and valuable resource that can reduce input costs and improve soil health. Digestate is produced when organic material – such as manure or food waste – is processed through anaerobic digestion. It is nutrient rich and contains nearly all the nutrients that were found in the original organic material that went into the digester.

How is digestate used?

Digestate products can be used as organic fertilizers or as soil amendments supplying readily available nutrients, micronutrients and organic matter to sustain or improve soil quality.

Digestate producers and managers employ best management practices when handling and applying digestate to farmland. Best management practices that incorporate the [4Rs of nutrient management](#) will achieve the most economically and environmentally beneficial use of digestate products.

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What does applying digestate on your farm look like exactly? In this example, the farm has no access to animal manure but can access a solid digestate product from a nearby biogas plant. The farmer wants to maintain soil quality and has incorporated a fall application of digestate ahead of seeding a cover crop. They have custom applicators lined up for application. Let's dive in.



This guide is ideal for farmers who...

- Have no access to animal manure
- Are seeding a cover crop
- Have winter wheat in their rotation

On-farm example: Field stats



Soil type: Huron clay loam



Rotation: corn, soybeans, wheat (yield goal 200, 55, 100 bu/acre respectively)



Application: Scheduled for early August after winter wheat harvest



Soil test: 15 P; 90 K; pH 7.2 (medium-low P and K fertility levels)



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Seasonal Activities

Late summer	Late fall	Spring
<ul style="list-style-type: none"> • Harvest wheat • Apply digestate ahead of seeding a cover crop 	<ul style="list-style-type: none"> • Till cover crop 	<ul style="list-style-type: none"> • Field preparation • Plant corn • PSNT to determine additional fertilizer N

Digestate is applied during the growing season when cover crops can utilize the nutrients and enhance nutrient cycling for subsequent crops. Nutrients in the applied digestate, retained by the cover crop, will support a corn crop seeded the following spring.

Benefits

- ✓ Solid digestate provides nutrient benefit and supplies approximately 2.4 tons/acre (5.3 tonne/ha) of organic matter which, as effective organic matter, will help maintain or increase stable soil organic matter.
- ✓ The nutrients and organic matter from digestate can increase cover crop biomass by 40% and this biomass can supply in the range of 2-4 tons/acre (4.5-9 tonne/ha) organic matter depending on cover crop species and growing conditions.
- ✓ Available nitrogen supplied by the digestate and retained by the cover crop reduced the need for mineral nitrogen fertilizer by about 50 percent.
- ✓ Solid digestate provides a nitrogen credit for subsequent crops in rotation.
- ✓ In addition to primary nutrients, the digestate supplied valuable amounts of secondary and micronutrients not supplied by mineral NPK fertilizers.

Watchouts

- ⚠ High pH and ammonium-N content can result in some volatilization loss on the day of application if incorporation is delayed, especially if weather conditions are sunny, warm and windy.
- ⚠ Weather conditions in spring can impact how quickly the nitrogen from the digestate and cover crop will be available. Since exact availability is difficult to predict due to weather conditions, side-dressing additional fertilizer N can help fine-tune requirements based on spring weather.
- ⚠ Monitor application due to the high phosphorus content of the solid digestate since depending on soil fertility levels, high rates of solid digestate could increase risk of phosphorus loss to water sources.

For more detailed information on nutrient application and calculations refer to pages 78-80 of the [Canadian Digestate Management Guide](#).

Ready to get started?

Connect with digestate producers near you!

There's no one place to find digestate. To source a supplier near you, CBA recommends contacting a biogas plant in your region and asking them directly. You can find a list of projects at biogasassociation.ca and check out their member list for potential suppliers.

TIP! Ask your custom applicator and your agronomist to see if they have a lead on local digestate.

The biogas & RNG industry is growing rapidly. Keep your ear to the ground as more digestate sources will become available through the growing network of producers.

Discover biogas for your farm!

If you're exploring biogas for the first time, or if you're ready to plan a facility for your farm, farmingbiogas.ca is the go-to source for agricultural biogas information and connections in Canada.



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.

Check out these resources to get started!



Is biogas & RNG a fit for your farm?

Take the [online self-assessment tool](#) to start exploring if it's a fit for you.



Meet the farmers fueling Canada's clean energy

Learn how three Canadian farmers use anaerobic digesters on their farms.



Want to learn more?
farmingbiogas.ca

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