

# Biochar for dairy manure: What it is and how it's used

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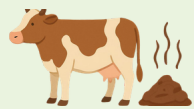
## What is biochar?

Biochar is a stable, charcoal-like material produced by heating agricultural or forestry wastes at high temperatures in low-oxygen conditions. It is carbon-rich, highly porous, and extremely durable. **These properties allow biochar to absorb and retain water, nutrients, and gases, making it well suited for use as a soil and manure amendment.** When applied to agricultural fields, biochar can improve soil structure and provide nutrients while also storing carbon in the ground for hundreds of years.

Livestock and dairy farms in the Fraser Valley produce about 2.7 million tonnes of manure each year. Managing this large volume is challenging due to limited storage space, nutrient leaching, odours, greenhouse gas emissions, and short windows for land application.

In this context, biochar can benefit livestock producers. Excess manure can be converted into biochar, blended with manure, and then distributed. This process makes it easier to manage manure and produces a soil amendment that supports farm productivity. In addition, other locally available agricultural by-products, such as compost and plant trimmings, can be turned into biochar and blended with manure. Together, these approaches offer new ways to reuse manure and help produce slow-release fertilizers that are increasingly in demand.

*When well-made and strategically applied, biochar can:*



Reduce odours  
and improve  
air quality



Create slow-release  
fertilizer, reducing the  
need for external inputs



Improve soil  
structure and  
microbial activity



## How is biochar made?

Biochar is produced through **pyrolysis**, a process where organic materials (feedstocks) are heated at high temperatures (300-700 °C) under low-oxygen conditions. **Feedstocks can come from agricultural and forestry waste like manure, compost, and trimmings.** The low-oxygen environment prevents the material from fully burning, transforming it into a carbon-rich, charcoal-like substance rather than ash.

The characteristics and quality of biochar depend on the feedstock used and how it is produced. Poor feedstocks or production conditions may produce contaminated biochar that contains harmful compounds like heavy metals. For this reason, biochar should be tested before it is used.

## How can biochar be used?

Biochar can be used at different stages of livestock and manure management like:

**Manure management:** Manure can be converted into biochar to manage excess volumes, which can be then mixed with manure and applied directly on-farm or distributed.

**Co-composting:** Biochar can be added to manure- and plant-based compost to support beneficial microbes that speed up the composting process and reduce nutrient losses.

**Odour reduction:** Biochar can be added to animal bedding, compost, or stored manure to absorb moisture and reduce odours.

**Field application:** Once charged, biochar can be applied to the field as a slow-release fertilizer.

## Is biochar right for your farm?

Biochar will not work the same way on every farm. Its benefits depend on soil type, biochar quality, how much is applied, and on-farm conditions (e.g., storage infrastructure). Since biochar stays in the soil for a very long time, it is important to think carefully about how it is sourced, produced, and used. **Using biochar may require extra storage space, labour, and equipment.** Dry biochar can be dusty and, in some cases, flammable, so it should be stored in cool, dry conditions and kept away from ignition sources.

In the Fraser Valley, limited local supply may affect cost and availability, especially for larger applications. Starting with small trials can help producers decide whether the long-term benefits are worth the investment for their operation.

## Resources and opportunities

Scan me!

Biochar has many potential benefits, and this factsheet is just a starting point. Curious about using biochar on your farm? [Scan the QR code to find out how to get involved and shape biochar's use in BC!](#)

Factsheet prepared by:



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