

10 Good Reasons to Use Cover Crops on the Farm

Here are 10 good reasons why you should consider using cover crops on your farm.

1. Prevent Soil Erosion

Cover crops form a protective layer over the soil surface, shielding soil particles from the impact of raindrops and wind, thereby minimizing soil losses. Root systems of cover crops bind soil particles together, improving soil aggregation and enhancing its ability to resist erosion. Additionally, cover crops can improve soil porosity allowing water to infiltrate more easily reducing surface runoff.



Demonstration showing how cover crops reduce soil erosion by holding it in place against forces like rain.

2. Improve Nutrient Cycling

Cover crops take up nutrients from the soil and release them slowly as they decompose. Fall-planted cover crops can scavenge nutrients remaining after harvest. Some cover crops are especially well suited to mobilizing nutrients in the soil (e.g., buckwheat with phosphorus). Legume cover crops can fix atmospheric nitrogen and make it available to the following crop. This is an attractive option to reduce reliance on expensive fossil fuel derived nitrogen fertilizer.

3. Increase Soil Biology

Cover crops release many chemical compounds into the soil from their roots including carbohydrates, organic acids, proteins and lipids. These exudates support diverse ecological communities that contribute to healthy plant growth. Terminated cover crops also supply a source of nutrients for soil organisms as they decay.

4. Sequester Carbon

Cover crops have the capacity to increase the organic matter content of soils over time. Increasing the organic matter content of a hectare of soil by 1% would remove 11 tonnes of carbon from the atmosphere (*can someone double check my math on this - Carolyn?*). Be patient, soil organic matter changes take time.

5. Improve Soil Physical Characteristics

Certain cover crops (e.g., tillage radish) penetrate deep into the soil, breaking up compacted layers improving soil aeration. Farmers report better trafficability and less rutting while harvesting late season crops where cover crops have been established. Improved soil structure can also improve water holding capacity and increase resiliency to drought.

6. Suppress Weeds

Cover crops can directly or indirectly suppress weeds through competition, creating a physical barrier, ecological interactions, or by biochemical means (allelopathy).



Some cover crops can be terminated to create a mat over the soil, smothering weeds that would emerge in the spring.

7. Interrupt Disease and Pest Cycles

Cover crops can provide habitat and food sources for beneficial organisms such as predatory insects, parasitic nematodes, and microorganisms that can help control pest populations. Some cover crops release biochemicals that can inhibit fungi, nematodes, and insects. Brown mustard, for example, contains compounds similar to commercially available soil fumigants and acts as a biofumigant after plow down.

8. Supply Livestock with Forage

Certain cover crops can be used as forage for livestock, providing additional income or feed resources to extend the grazing season.

9. Support Biodiversity

A multi-species cover crop mix can provide habitat for beneficial insects, fostering biodiversity, natural pest control and foraging areas for native pollinators.

10. Economics

The long-term viability of our agricultural systems requires that investments be made in soil conservation and soil health. Using cover crops is one form of investment, with costs including seed, equipment and labour. There may also be an opportunity cost associated with passing up growing a more profitable crop. The economic payoffs will instead be realized in the long term in the form of more self-reliance, through decreased external inputs, like fertilizer, and resiliency in the face of weather and climate changes.

While the benefits of cover crops are numerous, it's important to acknowledge potential challenges such as delayed soil warming, interference with planting due to biomass accumulation, allelopathic effects on subsequent crops, disease and pest hosting, and the risk of becoming weeds if not properly managed. The Nova Scotia Federation of Agriculture's Living Labs Project is currently studying cover cropping and hopes to measure the impact and find solutions to address some of these limitations.

Funding:

- [On-Farm Climate Action Fund \(OFCAF\)](#)

Resources:

- [Cover Crop Selection Tool - Perennia](#)
- [Perennia Cover Crops Channel - YouTube](#)
- [Managing Cover Crops Profitably - SARE](#)
- [Under Cover – A guide to Using Cover Crops in the Maritimes – ACORN](#)
- [Nitrogen Credits from Legume Cover Crops - Perennia](#)
- [Building Soils for Better Crops – SARE](#)
- [Under Cover – Integrating Cover Crops into Silage Corn Systems – University of Vermont](#)
- [Growing Mustard for Biofumigation \(NB Agriculture\)](#)
- [Cover Cropping for Pollinators and Beneficial Insects – Xerces](#)

For additional information and resources:

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