

INCORPORATING PERENNIALS

Perennials maintain the soil cover and have higher root biomass than annuals, thus providing soil stability, enhanced soil health, and increased carbon sequestration potential. You can incorporate perennials into your crop rotation or convert a field to permanent perennials. Increasing the proportion of perennials in rotation results in two times more carbon sequestration compared to annual cropping with the same nitrogen input, while permanent perennial cover can be harvested numerous times for up to 10 years for crops and much longer for forages, shrubs and trees.

Implementation Tips

- Convert some annual crops to perennials. Perennial crops are effective in capturing and fixing carbon, returning nutrients to the soil and improving soil health. They are often less challenging to manage than annual crop rotations, but they may require different planting/harvesting equipment.
- Work with an agronomist to determine which perennial species are appropriate for your site conditions and operation. Consider species in the following categories:
 - Legumes (e.g., alfalfa, clover)
 - Grasses (e.g., timothy, fescue)
 - Flowering forbs (e.g., phacelia, flax)
 - Biomass perennials (e.g., switchgrass, giant miscanthus)
- Plant a mixture of forages for increased resiliency to the effects of climate change, such as drought, as well as a range of regrowth capacity after harvest.

Resources

- **Website:** Soil Conservation Council of Canada (dfc-plc.info/IP1)
- **Manual:** Forage BMP Manual, Canadian Forage and Grasslands Association (dfc-plc.info/IP2)
- **Research study:** Farm-scale Assessment of Greenhouse Gas Mitigation Strategies in Dairy Livestock-Cropping-Systems (dfc-plc.info/IP3)
- **Research study:** Yanni, S.F., Laporte, A.D., Rajsic, P., Wagner-Riddle, C., Weersink, A., 2021. The environmental and economic efficacy of on-farm beneficial management practices for mitigating soil-related greenhouse gas emissions in Ontario, Canada. *Renewable Agriculture and Food Systems* 36, 307-320. (dfc-plc.info/IP4)

Benefits



Carbon sequestration



Increased resiliency to the effects of climate change



Improved soil health



Enhanced biodiversity



Estimated return on investment

Low



On-farm emission mitigation potential +++



“We’re starting to plant in all perennials. The local watershed district has a cost-share program that allows us to plant alfalfa and grass in low-lying areas. We have some land beside an aquifer, so it’s better in perennials. I am also in the planning stage for my dairy cows to graze, I have started planting some land in grazing feed. It can’t be done overnight, but I have a plan in motion and it’s cutting down on costs, too.”

— Marianne, a dairy farmer in Manitoba