



Cover Crop Mixture Source: <https://www.covercropstrategies.com/articles/1133-farming-with-covers-is-like-playing-chess>



Daikon Radish Cover Crop Source: <https://sustainableagriculture.net/blog/cover-crops-good-for-crop-yields-soil-health-and-bottom-lines/>

Cover Crops

Cover crops are plants that are grown with the primary goal of protecting and improving the soil. Cover crops can be used seasonally or year-round and have many benefits for all types of farming systems.

Benefits of Using Cover Crops

Reduced Soil Erosion

Cover crops help reduce or eliminate wind and water erosion in two ways; by acting as a physical barrier and by binding the soil in place. Above-ground plant material covers the soil and acts as a shield to the elements, while the roots bind to the soil and hold it in place.

More Soil Organic Matter/Carbon

Cover crops increase soil organic matter as well as soil organic carbon by adding plant materials to soils that would typically be left bare. As described in greater depth in the “Soil Organic Carbon” fact sheet, more organic carbon from living plants means better soil structure, improved water holding capacity and infiltration, less nutrient leaching, increased nutrient availability, and greater soil biodiversity.

Reduced Compaction

Deep rooted cover crops, such as oilseed radish, can break through compacted soil layers and create channels or pores in the soil that help water and air penetrate deep into the soil. These pore spaces also provide pathways for cash crop roots to grow.

Improved Soil Fertility

Legume cover crops, such as clover and peas, fix nitrogen that can be used by the next crop. Additionally, certain deep rooted cover crops such as cereal rye or alfalfa can bring up other nutrients from deep in the soil layers to be used by subsequent crops.

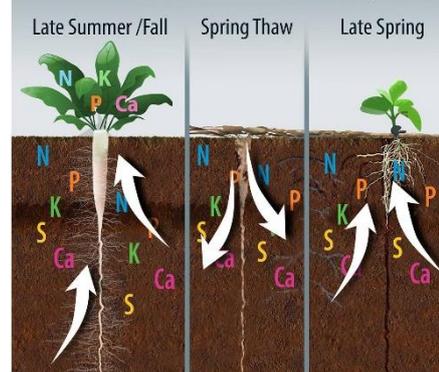
Reduced Nutrient Loss

Certain cover crops, such as rye for example, act as nitrogen “catch crops”. Catch crops are good at finding and using excess nitrogen and other nutrients left in the soil after the harvest of a cash crop, which reduces nutrient leaching. They also protect perennial plants from winter injury by stopping late season vegetative growth.

Pest Control

Many cover crops are excellent at reducing weed, insect, nematode, and disease populations. For example, cereal rye releases a chemical that suppresses weed populations; pearl millet can reduce nematode populations; mustard can prevent soilborne diseases such as fusarium.

Cover Crops and Nutrient Capture



Cover crops can increase the amount of nutrients available for the next crop by taking up nutrients that remain in the soil and holding them in plant tissue until they are released the next spring, when they can be used by the following crops. *Courtesy: Cover Crop Solutions*

Source: <https://www.croplife.com/crop-inputs/nutrient-management-among-key-benefits-planting-cover-crops/>

Types of Cover Crops

Legumes

Legumes are plants that fix nitrogen and make it available for the next crop. These plants can reduce fertilizer use and are regularly used in organic production to add nutrients to the soil.

Examples:

- Clover's
- Hairy Vetch
- Alfalfa

Grasses

Grasses are non-legume plants that are excellent soil nutrient scavengers. They produce a high amount of biomass quickly, which is good for soil carbon building and soil erosion protection.

Examples:

- Rye
- Annual Ryegrass
- Oats

Brassicas

Brassicas are broadleaved, fast growing, non-legume scavengers. They make great cover crops as they release chemicals that can help control certain nematodes, insects, weeds, and diseases.

Examples:

- Mustard
- Oilseed Radish
- Rapeseed/Canola

Other Broadleaf Cover Crops

Other broadleaved cover crops can be used to protect the soil, reduce pest populations, extract nutrients from the soil, provide pollen for beneficial pollinators, etc. **Examples:** Buckwheat, Sunflowers, Safflower

Cover Crops by Season

Post-Harvest Cover Crops

Post-harvest cover crops are commonly planted in the fall after the harvest of the main cash crop. They act as barriers and protectors of the soil during the fall and winter months when the soil would typically be bare.

Inter-Seeded Cover Crops

Inter-seeded cover crops are planted into an existing crop during the growing season to prevent erosion, add soil nutrients, reduce nutrient loss, increase soil carbon, improve soil structure, and suppress weeds.

Full-Season Cover Crops

Cover crops can be grown year-round to maximize the benefits they provide. *Green manures* are cover crops that are grown specifically to add nutrients and organic carbon to the soil and are often used as full-season covers, especially in organic systems.



Red Clover Inter-Seeded into Winter Wheat

Source: <https://www.country-guide.ca/crops/back-to-cover-crop-basics-with-red-clover/>

Things to Consider Before Choosing a Cover Crop

- **What are your goals?**
 - Reduce erosion? Add nitrogen to the soil? Suppress pests?
- **What are the growing conditions?**
 - Growing conditions change from year to year and season to season
- **Crop rotation**
 - Where in your rotation will you use cover crops? What crop comes before/after the cover crop?
- **Planting methods and establishment**
 - How will you plant the cover crop? When will you plant it?
- **Termination methods**
 - How will you terminate the cover crop? Could it become a weed? Will it overwinter?
- **Cover Crop Decision Making Tool:** <http://decision-tool.incovercrops.ca/>

Resources:

OMAFRA. 2016. Cover Crops: Adaptation and Use of Cover Crops. http://www.omafra.gov.on.ca/english/crops/facts/cover_crops01/cover.htm

GLASI. Cover Crops. <https://thamesriver.on.ca/landowner-grants-stewardship/farmland-bmps/farmland-bmp-cover-crops/>

OMAFRA. Inter-Seeding Cover Crops. <http://www.omafra.gov.on.ca/english/environment/bmp/AF169.pdf>