



Soil Health with Cover Crops in Minnesota

This fact sheet is designed to give a quick overview of what it takes to successfully establish a cover crop. Natural resource professionals at the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) will assist you with specific recommendations for your cover crop project.

Cover Crop Overview

A cover crop is grasses, legumes, forbs or other herbaceous plants that are established for seasonal cover and conservation purposes.

Where the practice applies

Cover crops may be used on all lands needing vegetative cover for natural resource protection and improvement. Cover crops are an excellent tool when used in combination with other practices such as conservation crop rotations and residue management practices to improve soil health.

Cover Crop Benefits/Purposes

There are a variety of reasons to plant cover crops. They include:

- Reduce Soil Erosion from wind and water
- Improve Soil Health by improving organic matter
- Increase Soil Porosity & Infiltration
- Improve Soil Microbiology
- Produce/Scavenge Crop Nutrients
- Capture and recycle or redistribute excess nutrients in the soil profile
- Improve Nutrient Cycling
- Protect Water Quality
- Enhance Wildlife Habitat
- Protect growing crops from damage by wind-borne particles

- Minimize and reduce soil compaction
- Weed suppression
- Soil moisture management

Where the practice applies

When you decide to plant a cover crop, keep the following considerations in mind:

- Cover crop species, seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, planting methods, termination methods and dates will be consistent with approved local criteria and site conditions.
- The cover crop species selected will be compatible with the other components of the cropping system.
- Select herbicides used for the preceding crop(s) for compatibility with the planned cover crop species.
- Do not use plants that are included on the Minnesota noxious weed or invasive species list.
- Cover Crop residue will not be burned.
- Use plant species that enhance forage opportunities for pollinators by using diverse legumes and other forbs.
- Plan to establish and terminate cover crops to adequately protect during critical erosion period(s).
- Select cover crop species that produce high volumes above and below ground biomass to maintain or improve soil organic matter, improve soil structure, and increase soil moisture through better infiltration.
- Terminate cover crop as late as feasible while avoiding delays in planting of the cash crop, potential allelopathic (toxic) effects, soil moisture depletion, and/or nutrient immobilization.

discover the cover

Cover Crops:

- Restore Soil Health
- Protect Natural Resources
- Provide Wildlife Habitat
- Feed Livestock



Contact your local NRCS office to learn more about the technical and financial assistance available.

Natural Resources Conservation Service

www.nrcs.usda.gov

- Use multi-species mixtures that include different plant types to achieve multiple objectives/ purposes.
- Select cover crop species that have been shown to suppress difficult-to-control weeds.
- Where forage is an objective, select cover crop species with the desired forage traits and forage harvesting practices that will achieve the intended natural resource objectives and production goals of the subsequent crop(s).
- Where protecting growing cash crop seedlings from damaging wind-borne particles is of concern, select cover crops with upright growth habits and terminate at a stage of growth that will provide protection at the most vulnerable stage of growth.
- The correct timing of cover crop termination will be governed by the crop rotation, weather, grower's objectives and specific program/ insurance requirements.
- Cool season cereal crops such as rye, wheat, and/or triticale are better choices when planting is delayed until after mid-September. When planting cover crops in Northern States be mindful of the shorten growing season. Choose the correct cover crop for the time of planting of your rotation, to allow for adequate growth in the fall.

Maintenance of the Cover Crop Planting

- Control weeds in the cover crop by mowing or using herbicide application.
- Control soil moisture depletion by terminating the cover crop before excessive transpiration has occurred.
- If the cover crop is not meeting the purpose(s), change the cover crop species or adjust the management.

Reduce soil erosion on your row crop acre

Row crop production often leaves fields vulnerable to soil erosion. Cover crops can protect the soil that has been exposed to erosion after harvesting corn silage, soybeans, peas, sweet corn, or other low residue crops.

Cover crops provide multiple benefits beyond soil conservation. A growing cover crop can sequester unused soluble nutrients preventing leaching and runoff. Cover crops can provide quality forage for grazing or haying. Winter killed cover crops such as brassicas and oats ideally need 60 days of growth prior to the first killing frost in order to attain sufficient residue production. Cover crops should be considered when applying manure in the fall.

Learn more about Cover Crops

Cover Crops are increasingly used by farmers for the multiple benefits they contribute to soil and crop management systems. Farmers who invest in cover crops typically do so for higher yields, nutrient retention, soil improvement, forage for livestock, reduced erosion, reduced input costs, and a more sustainable cropping system overall.

Cover crops show promise in increase cropping system resilience to weather variability and may reduce production costs.

Cover crops are a valuable agricultural practice to reduce nutrient loading to water resources.

Interested in learning more? For more information about Cover Crops, visit your local USDA Service Center, or visit the Minnesota NRCS website at www.mn.nrcs.usda.gov, the Midwest Cover Crop Council website at <http://www.mccc.msu.edu/>, or contact your University specialists.

