

NATURAL RESOURCES CONSERVATION SERVICE
MONTANA CONSERVATION PRACTICE STANDARD

COVER CROP (ACRE)

CODE 340

DEFINITION

Grasses, legumes, forbs, or other herbaceous plants established for seasonal cover and other conservation purposes.

PURPOSES

- Reduce erosion from wind and water.
- Sequester carbon in plant biomass and soils to increase soil organic matter content.
- Capture and recycle excess nutrients in the soil profile.
- Promote biological nitrogen fixation.
- Increase biodiversity.
- Weed suppression.
- Soil moisture management.
- Reduce particulate emissions into the atmosphere.

CONDITIONS WHERE PRACTICE APPLIES

On all lands requiring vegetative cover for natural resource protection

CRITERIA

General Criteria Applicable to All Purposes

Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, and planting methods will be consistent with approved local criteria and site conditions.

The species selected will be compatible with the nutrient management and pest management provisions of the plan.

Cover crops will be terminated by harvest, frost, mowing, tillage, and/or herbicides in preparation for the following crop.

Herbicides used with cover crops will be compatible with the following crop.

Cover crop residue will not be burned.

Additional Criteria to Reduce Erosion from Wind and Water

Cover crop establishment, in conjunction with other practices, will be timed so that the soil will be adequately protected during the critical erosion period(s).

Plants selected for cover crops will have the physical characteristics necessary to provide adequate protection.

The amount of surface and/or canopy cover needed from the cover crop shall be determined using current erosion prediction technology.

Additional Criteria to Sequester Carbon in Plant Biomass, in the Soil, and to Increase Soil Organic Matter Content

Cover crop species will be selected on the basis of producing high volumes of organic material to maintain or improve soil organic matter.

The NRCS Soil Conditioning Index (SCI) procedure will be used to determine the amount of biomass required.

The cover crop will be terminated as late as feasible to maximize plant biomass production, considering the time needed to prepare the field for planting the next crop.

NRCS, MT
September 2005

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version, of this standard contact the Natural Resources Conservation Service.

Note: This type of font (AaBbCcDdEe 123...) indicates NRCS National Standards.
This type of font (AaBbCcDdEe 123...) indicates Montana Supplement.

Additional Criteria to Capture and Recycle Excess Nutrients in the Soil Profile

Cover crops will be established and be actively growing before expected periods of high precipitation that can cause leaching.

Cover crop species will be selected for their ability to absorb large amounts of nutrients from the rooting profile of the soil.

The aboveground biomass will be removed from the field for maximum nutrient removal efficiency, when nutrients will not be recycled through a subsequent crop.

Additional Criteria to Promote Biological Nitrogen Fixation

Only legumes or legume grass mixtures will be established as cover crops.

The specific Rhizobium bacteria for the selected legume will either be present in the soil or the seed will be inoculated at the time of planting.

Additional Criteria to Increase Biodiversity

Cover crop species shall be selected that, have different maturity dates, attract beneficial insects, serve as a trap crop for damaging insects, and/or provide food and cover for wildlife habitat management.

Additional Criteria for Weed Suppression

Species for the cover crop will be selected for their chemical or physical characteristics to compete with weeds.

Cover crops residues will be left on the soil surface to maximize allelopathic (chemical) and mulching (physical) effects.

For long-term weed suppression, perennials and/or biennial species can be used.

Additional Criteria for Soil Moisture Management

Terminate growth of the cover crop sufficiently early to conserve soil moisture for the subsequent crop.

Cover crops established for moisture conservation shall be left on the soil surface until the subsequent crop is planted.

In areas of potential excess soil moisture, allow the cover crop to grow as long as possible to optimize soil moisture removal.

Additional Criteria to Reduce Particulate Emissions into the Atmosphere

Manage Cover crops and their residues so that at least 80% ground cover is maintained during planting operations for the following crop.

CONSIDERATIONS

Maintain an actively growing cover crop as late as feasible to maximize plant growth, allowing time to prepare the field for the next crop.

Use deep-rooted species to maximize nutrient recovery.

Consider that grasses utilize more soil nitrogen, and legumes utilize both nitrogen and phosphorus.

Avoiding cover crop species that attract potentially damaging insects.

For most purposes for which cover crops are established, the anticipated benefits are usually accomplished when the plant density is at least 25 stems per square foot, the combined canopy and surface cover is at least 60 percent, and the above ground (dry weight) biomass production is at least 2700 lb/acre.

Cover crops may be used to improve site conditions for establishment of perennial species.

Consider using plant species that enhance biomass collection opportunities.

PLANS AND SPECIFICATIONS

Plans and specifications will be prepared for the practice site. Plans for the establishment of cover crops shall include:

A cover crop establishment plan shall include the following information:

- 1. Locations map: field numbers and a map or sketch of the area to be established.**
- 2. Measured acres.**
- 3. Date implementation is scheduled and applied.**
- 4. Before and after soil loss prediction documentation.**
- 5. Soil Conditioning Index calculation.**
- 6. Planting date and termination date.**

7. **The cover crop specifications sheet.**
8. **The cover crop job sheet**

OPERATION AND MAINTENANCE

Control growth of the cover crop to reduce competition from volunteer plants and shading.

Control weeds in cover crops by mowing or by using other pest management techniques.