

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

COVER CROP

(Acre)

CODE 340

DEFINITION

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

PURPOSES

- Reduce erosion from wind and water.
- Increase soil organic matter.
- Manage nutrients in the soil profile.
- Promote biological nitrogen fixation.
- Increase biodiversity.
- Pest management.
- Provide supplemental forage.
- Soil moisture management.

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, rolling down, 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 to control erosion to within the soil loss tolerance (T) or other planned soil loss objectives.

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 Promote Biological Nitrogen Fixation

The specific Rhizobia bacteria will either be present in the soil or the seed will be inoculated at the time of planting legumes. Nitrogen credits from legume cover crops will be accounted for in the nutrient management plan.

Additional Criteria to Manage Nutrients in the Soil Profile

When managing for excess nutrients, cover crops will be established and 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 managing cover crops to maintain residual nutrients within the growing zone, the above ground biomass will be maintained on or near the soil surface to accommodate the slow release of nutrients into the soil.

Additional Criteria to Increase Soil Organic Matter

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

The cover crop will be terminated as late as feasible to maximize plant biomass and still prepare the seedbed for the subsequent crop.

All soil erosion will be maintained below the tolerable (T) levels.

Tillage operations and depth will be reduced to slow the rate of decomposition of crop residues, green manure cover crops and residual organic matter.

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 Pest Management

Species for the cover crop will be selected for their chemical or physical competition 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.

When managing for insect pests, reduce the use or select insecticides that are least harmful to beneficial and predatory insects. Reduce cultural practices, such as tillage and burning, that destroy beneficial insect habitat. Include pollen and nectar producing covers to provide alternative food sources for beneficial insects during periods when pest populations are sparse.

Additional Criteria to Provide Supplemental Forage

Species selected will have desired forage traits, be palatable to livestock, and not interfere with the production of the subsequent crop.

Forage provided by the cover crop may be hayed or grazed as long as sufficient biomass is left for resource protection.

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.

CONSIDERATIONS

The cover crop should be terminated as late as feasible to maximize plant growth and still prepare the seedbed for the subsequent crop.

Deep-rooted species provide maximum nutrient recovery.

Deep-rooted and tuberous rooted species should be considered to assist in penetrating restrictive root zones and compacted soil layers for improved water infiltration.

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

If the legume is to be planted for nitrogen fixation, the correct bacterial inoculant should be applied to the seed to ensure maximum nodulation. Use only fresh bacterial inoculant and re-inoculate if seed is not planted within 48 hours of initial treatment. In annual legumes, nitrogen fixation peaks at flowering. With seed formation, N fixation ceases and nodules slough from the roots.

Plant materials that are fleshy and rich in sugars and protein will release nutrients rapidly but leave little long lasting organic matter. Plants that are fibrous release nutrients slowly but provide more stable organic matter.

Avoid cover crop species that attract potentially damaging insects or will have detrimental alleopathic effects on the following crops.

Acceptable benefits, for most purposes, are usually accomplished when the plant density is at least 25 stems per foot, the combined canopy and surface cover is at least 60 percent, and the above ground (dry weight) biomass production is at least 2,700 lb./acre.

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

PLANS AND SPECIFICATIONS

Plans and specifications will be prepared for the practice site. Plans will specify identified

problems, producer objectives, and desired benefits for the practice. The Kansas state standard will specify practice requirements for site specifications. Specifications will include, but not be limited to, recommended species, seeding rates and dates, establishment and termination methods, nutrients needed, and other establishment information. Specifications can be recorded in narrative format, on job sheets, or forms designed to provide specific requirements for the practice.

OPERATION AND MAINTENANCE

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

Control weeds in the cover crop by mowing or herbicide application.