

**Practice Specification
Cover Crop 340B (Code 340)
340KS PS Cover Crop 340B 2017**

1. Scope

The work shall consist of furnishing all materials and performing cultural operations necessary to grow and maintain the cover crop to protect soil and provide temporary protection for permanent vegetative cover.

2. Materials

Seed. Seed used in this specification will meet the requirements as stated in Kansas Noxious Weed Law (Kansas Statutes Annotated [K.S.A.] 2-1314) and the Kansas Agriculture Seed Law [K.S.A. 2-1415].

When seed is purchased, the seed tags will be evidence of the purity and germination of the seed. Time since date of seed test shall not exceed 9 months from the date the seed is planted.

Seed shall be of a quality that weed seed shall not exceed 0.5% of the aggregate of pure live seed (PLS) (% germination x % purity) and other material.

Fertilizer. All fertilizer shall be labeled in accordance with applicable state regulations and bear the warranty of the producer for the grade furnished.

Chemicals. All pesticides used in performing this practice shall be federally, state, and locally registered and shall be applied strictly in accordance with authorized and registered uses, directions on the label, and other federal or state policies and requirements. Chemical containers shall be properly stored and disposed of in a safe manner.

3. Seeding Mixture and Planting Date

The seed(s) and rate(s) specified on Form KS-ECS-4, Grass Seeding, shall be used.

The seeding rate(s) shall be the weight exclusive of any coating material. Any legume seed used shall be inoculated. Based on bag tags, seeding rates shall be adjusted to ensure the required amounts of pure live seed.

4. Seedbed Preparation

The area to be planted shall be weed free and have a firm seedbed which has previously been roughened by scarifying, disking, harrowing, chiseling, or otherwise worked to a depth of 2 to 4 inches, except when planting no-till, or otherwise specified on Form KS-ECS-4.

Seedbed preparation shall be suspended when soil moisture conditions are not suitable for obtaining a satisfactory seedbed.

5. Fertilizing and Seeding

Fertilizing. Fertilizer shall be distributed uniformly over the seedbed and applied according to a soil test within the criteria of Kansas Conservation Practice Standard 590, Nutrient Management, and as specified on Form KS-ECS-4.

Fertilizer shall be applied in any way that will result in uniform distribution. The fertilizer shall be incorporated into the soil. Incorporation may be as part of the seedbed preparation, or as part of the seeding operation, unless otherwise specified on Form KS-ECS-4.

Seeding. Seed shall be drilled or broadcast by hand, mechanical hand seeder, or power operated seeder. Drilling is preferred, but the use of row crop equipment may be used for row widths between 20 and 40 inches.

Where wind erosion is a consideration, cover and temporary cover crops, planted in rows greater than 20 inches will be planted perpendicular to the prevailing wind during the critical wind erosion management period.

Seeding shall be performed as nearly as practical across the slope unless otherwise specified on Form KSECS-4.

6. Irrigation

When specified, irrigation water shall be applied during the establishment period at the times and rates listed on Form KS-ECS-4.

7. Additional Cultural Operations

Managing Cover Crops.

a. Suppression may be necessary to maintain the practice objectives during the period critical to the practices intended purpose and may be accomplished by mowing and chemical applications. b. Control of the cover crop will be necessary and should be planned for prior to planting the covers.

1. Natural termination will be when climatic or growing conditions naturally terminate the cover crop such as freezing.

Whenever possible, plan cover crop plantings to take advantage of natural termination by way of freezing. Time the plantings to obtain the desired plant height or physiological development prior to the normally occurring killing frost date.

2. Mechanical controls will be mowing, tillage, rolling, or grazing.
 - a. Mowing should be done prior to seed development. Height may be determined by other practices being implemented in a conservation plan.
 - b. Rolling will be conducted in a way that will terminate the vascular transport functions of the cover crop. Rollers will be outfitted with horizontal knives or angle irons that are no more than 12 inches apart on the circumference of the roller. Knives or angle irons should not be sharp enough to chop the cover crop but the intended design is to lie over and crimp the plant stalks.
 - c. Grazing should be conducted at rates to allow re-growth to provide the necessary cover during the time critical to the intended purpose of the practice. Termination may require the application of herbicides or other treatment to control additional growth of the grazed cover crop.
3. Chemical termination will be through the lethal application of herbicides. Herbicides used to terminate growth shall be applied according to the herbicide label and/or the Kansas State University (KSU) Extension Bulletin "Chemical Weed Control for Field Crops, Pastures, Rangeland and Noncropland". This should be done prior to seed development, or when the cover has accomplished the planned objective and will not create detrimental effects to the subsequent crop, unless required for control of noxious weeds. Follow herbicide labels to determine crop compatibility for the subsequent crop after the initial cover crop.

8. Other Requirements

Other details for the establishment and maintenance of the plants including, but not limited to, the need for livestock and traffic control shall be applied as specified on Form KS-ECS-4.

Measures and methods that enhance fish and wildlife values, protect visual resources, and maintain or establish key habitats, shall be performed when specified on Form KS-ECS-4.

For critical or highly erodible areas, increase seeding rates to 1.5 times the recommended rate to obtain an effective stand that will control erosion.

For temporary cover for acid sites. For a period of 1 to 3 years after land shaping, a temporary cover crop of a winter annual is to be used. Rye, triticale, or oats may be seeded at the rate of 80 pounds per acre. Apply needed nutrients as indicated by a soil test.

Prior to planting the second year temporary cover crop, soil tests will be taken as needed to determine lime requirements. Apply nutrients as indicated by the soil test for the second year cover crop.

Specific soil tests should be conducted on areas of poor establishment of the first year cover crop to obtain a representative sample of problem areas. Retreat with recommended soil amendments as needed.

A third year temporary cover crop, nutrient, and soil amendment application may be used, if needed, to obtain an adequate seedbed for permanent vegetation.

The owner, operator, contractor, or other persons shall conduct all work and operations in accordance with proper safety codes for the type of equipment and operations being performed with due regards to safety of all persons and property.

Seeding specifications will be documented with Form KS-ECS-4.

9. Cover Crop Requirements for Permanent Vegetative Cover Establishment

A standing cover crop or surface mulch is important for the success of any seeding in Central and Western Zones. Cover crop residue helps maintain surface soil moisture that is critical to seed germination and permanent root system development.

A standing cover crop or surface mulch is required for any seeding on soils where erosion or moisture conservation is a concern. For additional information, refer to Kansas Conservation Practice Standard 484, Mulching.

A standing cover crop or surface mulch is required for MLRAs 72, 73, 74, 75, 77, 78, 79, and 80A.

Single or multi-species cover crops can be utilized. Cover crops should be managed to prevent the production of viable seed.

Maintain a minimum of 12-inch stubble height. A cover crop with growth exceeding 12 inches may be removed by mowing, haying, or grazing.

a. Sorghums. Sorghums may be planted as late as August 1 where sufficient moisture exists to establish a quick stand. Sorghum seed formation can be limited or controlled by use of male sterile (non self-pollinating) hybrids, and by planting late so that sorghums are not able to mature and form seed.

1. Forage sorghum—Seed forage sorghum (includes Sudan grass) during the summer prior to the planting of the range planting mix. Row spacing shall not exceed 20 inches. The seeding rate will be 3 to 12 pounds per acre.

2. Grain sorghum—Seed grain sorghum the summer prior to planting the range planting mix. Row spacing will not exceed 30 inches. The seeding rate will be 3 to 8 pounds per acre.

3. Exception—Forage and grain sorghum in 40-inch rows may be used on sandy soils in MLRAs 72, 73, 77, 78, and 79, where conditions do not permit the establishment of narrower row spacing. To have adequate cover of forage and grain sorghums, the following actual residue amounts are required at seeding time. The “I” factor from the Wind Erodibility Index is used to determine minimum residue levels.

“I” Soil Factor	Minimum Lbs. Residue/Acre at Seeding Time
56 or lower	1,750
86	2,000
134	2,250
220 and higher	2,250*

*If adequate sorghum residue cannot be produced or maintained, additional mulch will be applied until the listed minimum amounts are achieved.

b. Small Grain. A minimum residue amount of 1,500 pounds per acre of flat small grain equivalent will be present at range planting time. If adequate flat small grain equivalent residue cannot be produced or maintained, additional mulch will be applied until the 1,500 pounds is achieved.

1. Oats—Oats may be planted until September 15 in the fall prior to planting the range planting mix. Row spacing will not exceed 20 inches. The seeding rate will be 40 to 60 pounds per acre. Cover crops of oats will be killed, using the surface mulch, chemical method, from the fifth or sixth leaf stage until boot stage and prior to the emergence of the seeded range planting mix.

2. Winter wheat—Seed winter wheat in the fall prior to planting the range planting mix. Row spacing will not exceed 20 inches. The seeding rate will be 40 to 60 pounds per acre.

Wheat cover crops will be killed, using the Surface Mulch, chemical method, from the fifth or sixth leaf stage until the boot stage, and prior to the emergence of the seeded range planting mix.

Seeding into growing wheat that will be grazed-out by May 1 is an acceptable method. Do not graze when fields are wet and subject to compaction.

3. Rye—Rye or rye hybrids are not approved for use as a cover crop due to the potential allelopathic effects.

c. Surface Mulch.

1. Tillage—Prepare a seedbed by use of tillage operations that leaves a seedbed free of growing vegetation with crop stubble, weeds, or other vegetative material left on the surface. No inversion type of tillage operation is allowed. It may be necessary to repack the soil surface after this tillage operation to provide a firm seedbed.

2. Chemical—Prepare a seedbed by use of herbicides that suppress existing vegetation and leave mulch which will be seeded into without additional tillage (chemicals used must be federally and locally registered and must be applied strictly in accordance with registered uses, directions on label, and other federal or state policies and requirements).

Specific Site Requirements