

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSTRUCTION SPECIFICATION**

**RESIDUE AND TILLAGE MANAGEMENT, RIDGE TILL**

**1. SCOPE**

The work shall consist of performing cultural operations to produce crops or hay in a manner that maintains acceptable yields and provides adequate residues on the soil surface from harvest until after the next planting. The soil is left undisturbed from harvest to planting except for nutrient injections. Planting is done in a seedbed prepared on ridges. Crop residue is left on the soil surface in the furrow between the ridges. Ridges are reconstructed during row crop cultivation operations.

**2. MATERIALS**

Chemicals used in performing this practice shall be federally, state, and locally registered, and shall be applied strictly in accordance with authorized registered uses, directions on the label, and other federal, state, and local policies and requirements.

Chemical containers shall be properly stored and disposed of in a safe manner according to state and local ordinances or procedures.

Ridges are typically built and reformed at cultivation or when hilling or ditching for furrow irrigation. Planters will be equipped with sweeps, row cleaners, horizontal disks, or coulters capable of planting through and/or moving existing residue into the furrow.

Row cleaning attachments may remove between one half to two inches of the ridge top, leaving a residue free, moist soil into which seeds are planted.

Harvesting implements used for small grain will be equipped with devices that will distribute the crop residue over approximately 80 percent of the working width of the header.

Procedures for estimating amounts of crop residue retained may be found in Kansas Agronomy Technical Notes KS-1, SCS-CRM-01, SCS-CRM-02, and National Agronomy Manual Part 502.

**3. CULTURAL OPERATIONS**

**Managing for Soil Erosion Control.** In rainfall erosion areas, the tillage and planting system shall provide at least 30 percent coverage of the soil surface with plant residues after planting a crop unless otherwise specified on the Cropland Field Management Record in the Revised Universal Soil Loss Equation Version 2 (RUSLE2). The soil shall be left undisturbed from harvest to planting except for nutrient injection. Planting shall be completed in a seedbed on ridges with sweeps, disk openers, coulters or row cleaners. Residue shall be left on the surface between ridges and ridges rebuilt during cultivation. Planting shall be performed as nearly as practical across the slope, establish guidelines compatible with planting equipment. For the most effective erosion control, orient rows on the contour, see Conservation Practice Standard and Specification 330, Contour Farming. Ridge height will be three to five inches higher than the adjacent furrows at planting time. Ridges will be shaped to shed water to the adjoining furrow. Ridges should be six to eight inches tall after the final cultivation. Direct rows to outlet in stable areas such as waterways, grass strips, and field borders.

In wind erosion areas, the tillage and planting system shall maintain the standing crop stubble with at least 1000 pounds per acre of flat, small grain residue equivalent on the soil surface throughout the

critical wind erosion management periods unless otherwise specified on the Cropland Field Management Record in RUSLE2. The soil shall be left undisturbed from harvest to planting except for nutrient injection. Planting shall be completed in a seedbed prepared on ridges with sweeps, disk openers, coulters, or row cleaners. Residue shall be left on the surface between ridges and ridges rebuilt during cultivation.

Ridges should be formed perpendicular to the prevailing wind during the management period most

**Managing for Available Soil Moisture.** In systems designed to maximize available soil moisture crop stubble should be left standing during the winter period to increase the potential for snow catch. The minimum distance between the bottom of the furrow and the top of the crop stubble shall be at least 10 inches for crops on row spacing less than 15 inches and at least 15 inches for crops with row spacing greater than 15 inches. When shredding of stalks and stubble are included in the system, these practices should be conducted after primary snowfall periods to reduce evapo-transpiration at the soil surface. A minimum of 50 percent residue cover shall be maintained on the soil surface throughout the year.

**Managing for Pest Reduction.** Weed control shall be accomplished with herbicides, cultivation, cover crops, and crop rotations. Maintain a diverse crop rotation that will disrupt life cycles and not provide carry over diseases. Manage chemical diversity to reduce the potential of resistance to applied chemicals. Managing insect populations requires early detection and control to keep populations below an economic loss threshold. Monitor border areas for potential population expansions and control prior to infestations of the cropping area where feasible.

Tillage or chemical application operations will be timed with crop rotations to disrupt pest life cycles to prevent population growth beyond the economic thresholds.

**Managing for Soil Organic Matter Content.** Crop rotations will consist of at least 50 percent non-fragile, high residue producing crops.

#### Residue Types

Nonfragile	Fragile
Alfalfa or legume hay	Canola/Rapeseed
Barley *	Dry beans
Buckwheat	Dry peas
Corn	Fall seeded cover crops
Flaxseed	Lentils
Forage Silage	Mustard
Grass Hay	Potatoes
Millet	Safflower
Oats *	Soybeans
Pasture	Sugar Beets
Popcorn	Sunflowers
Rye *	Vegetables
Sorghum	
Triticale *	
Wheat *	

\* If a combine is used with a straw chopper or otherwise cuts straw into small pieces in harvesting small grain, then the residue should be considered as being fragile.

Conduct a periodic soil test to monitor levels of soil organic matter. Additional organic biomass in the form of livestock waste and/or increasing the intensity of the crop rotation and reduction of tillage operations may be needed to reduce the potential of further soil organic matter degradation.

**Managing for Wildlife Food and Cover.** Residue height, amount, and time period shall be determined using an approved habitat evaluation procedure. Residues shall not be removed unless it is determined by the habitat evaluation procedure that removal would not adversely affect habitat values.

When managing for migratory waterfowl and/or sandhill cranes maintain residue cover during both the fall and spring migrations.

#### **4. OTHER REQUIREMENTS**

Residue shall not be burned.

Partial removal of residue by means of haying or grazing shall be limited to the amount needed to meet the desired objectives.

Adjust the equipment tire spacing to avoid running on the ridges to maintain height and shape.

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 regard to the safety of all persons and property.

#### **Planning and documentation requirements:**

- Identified problem
- Producers objectives
- Location Map – field numbers, map, or sketch of the area planned
- Measured acres
- Cropping sequence and planned residue, kind, amounts, percent surface cover required, and orientation
- Critical time periods to maintain residue
- Documentation of applied residue in pounds or percent by planning unit.