

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

**STRIPCROPPING**

(Ac.)

**CODE 585**

**DEFINITION**

Growing planned rotations of erosion-resistant and erosion susceptible crops or fallow in a systematic arrangement of strips across a field.

**PURPOSE**

This practice supports one or more of the following purposes:

- Reduce water erosion  
(Resource concern: Soil erosion - Sheet, rill, & wind erosion).
- Reduce wind erosion  
(Resource concern: Soil erosion - Sheet, rill, & wind erosion).
- Reduce the transport of sediment and other water and wind borne contaminants  
(Resource Concerns: Water quality degradation – Excess nutrients in surface and ground waters and Pesticides transported to surface and ground waters).
- Protect growing crops from damage by wind-borne soil particles  
(Resource Concern: Degraded plant condition – Undesirable plant productivity and health).

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies on cropland.

**CRITERIA**

**General Criteria Applicable to All Purposes**

Alternate strips of crops that are susceptible to erosion with strips of erosion-resistant crops or cover. Orient rows as close as practical to perpendicular to the critical wind and water erosion vectors.

**Strip Width.** Strip width should be multiples of the width of the planting equipment, and determined with the current erosion prediction tool. Be sure to account for the effects of other practices in the conservation management system.

**Vegetative Cover.** Follow a planned rotation for the strips. At least 50% of the rotation must be erosion resistant crops or sediment trapping cover in any given year.

No two adjacent strips can be in an erosion-susceptible condition at the same time. However, two adjacent strips may be in erosion-resistant cover at the same time.

Follow the planned crop rotation on each adjacent strip while the point or year in the sequence of the rotation is staggered or offset.

Select vegetation that will tolerate the anticipated depth of deposited sediment.

Acceptable cover is specified by each specific purpose as stated below.

**Additional Criteria to Reduce Water Erosion and Associated Transport of Sediment and Other Water-borne Contaminants**

**Number of Strips.** Plant two or more strips within the conservation planning slope length or “L.”

**Alignment of Strips.** Plant strip boundaries parallel to each other and as close to the contour as practical.

**Strip Width.** The width of a strip cannot exceed the critical slope length for contouring.

If a correction strip is required, that strip may vary in width but can be no narrower than the widest working field implement used to traverse the strip.

Where field contours become too sharp to keep machinery aligned with the contour during field operations, establish sod turn-strips on sharp ridge points and valleys. They should be wide enough to allow the equipment to be lifted and/or turned and meet the same rows across the turn strip.

**Minimum Row Grade.** Row grades for soils with slow to very slow infiltration rates (soil hydrologic groups C or D), or for crops sensitive to ponded water conditions, should be designed with positive row drainage of not less than 0.2 percent if ponding is a concern.

**Maximum Row Grade** Do not exceed one-half of the up-and-down hill slope percent used for conservation planning, with a maximum of 4 percent row grade.

Up to a 25% deviation from the design row grade is permitted within 150 feet of a stable outlet.

When the row grade reaches the maximum allowable design grade, establish a new baseline (key line) up or down slope from the last contour line and use it for layout of the next contour pattern.

**Headlands/End Rows:** On fields where row crops and tillage are a part of the rotation, and the slope is steeper than the maximum allowable row grade for that field, maintain the headlands/end rows in permanent sod.

#### **Additional Criteria to Reduce Wind Erosion and Associated Transport of Sediment and Other Wind Borne Contaminants**

**Number of Strips.** At least two strips are required to constitute a strip cropping system.

**Alignment of Strips.** Run strip boundaries parallel to each other.

**Orientation.** Orient strips as close to perpendicular to the critical wind erosion direction for the susceptible period as practical.

**Width of Strips.** Measure the effective width of strips along the prevailing wind erosion direction during those periods when wind erosion is expected to occur..

When the orientation of erosion-susceptible strips deviates from perpendicular to the prevailing wind direction, adjust the width of the

strips using current wind erosion prediction technology.

#### **Additional Criteria to Protect Growing Crops from Damage by Wind-borne Soil Particles**

**Strip width.** Measure the effective width along the prevailing wind direction during those periods when crops are susceptible to damage from wind-borne soil particles.

Do not exceed the width permitted by the crop tolerance to wind erosion during specific crop stage periods as determined by the current wind erosion prediction technology. Refer to crop tolerance to blowing soil (Table 502-1) in the National Agronomy Manual, other accepted technical references, or other planned crop protection objectives.

When the orientation of erosion-susceptible strips deviates from perpendicular to the prevailing wind direction, adjust the width of the strips using current wind erosion prediction technology.

**Number of Strips.** At least two strips are required to constitute a strip cropping system.

**Alignment of Strips.** Run strip boundaries parallel to each other.

**Orientation of Strips:** Orient strips as close to perpendicular to the critical wind erosion direction for the susceptible period as practical.

#### **CONSIDERATIONS**

Strip cropping may need to be used in combination with other conservation practices to meet the goals of the resource management system.

To improve cropping system diversity and associated benefits, consider a crop rotation at least three years in length including at least three crop species from different plant families.

Wildlife benefits can be enhanced by selecting species and management practices that provide habitat for pollinators, wildlife, and or desired organisms.

Consider delaying mowing on sod turn-strips until after the nesting season.

To capture and manage soil moisture, select crops, crop sequence, and varieties with sufficient density and cover to intercept runoff

and/or blowing snow. Manage the height of standing residues to maximize snow trapping potential,

Stripcropping can reduce airborne particulate matter (PM) emissions.

The conservation crop rotation on stripcropped fields should be consistent with the farm enterprise crop mix and/or associated livestock operation. These will influence the proportion of row crops, close growing crops, specialty crops, cover crops, and grass/legume forage crops.

Prior to design and layout, obstruction removal or changes in field boundaries or shape should be considered, where feasible, to improve the effectiveness of the practice and the ease of performing field operations across the slope.

Prior to layout, inspect the field to find key points for commencing layout or getting a full strip width to pass by an obstruction or ridge saddle. Whenever possible, run the strip boundary parallel with fence lines or other barriers, as long as row gradient criteria are met. Account for access road widths when they must cross the field, and adjust the strip boundary on either side accordingly.

When this practice is used in combination with diversions or terraces coordinate the strip layout with the diversion or terrace grade and spacing so that strip boundaries will parallel terraces wherever possible within the criteria for row grade. Where grass-back or narrow-base terraces are used, allow for the uncropped width along the terrace so that the same strip width is maintained for all strips in the field.

Stable outlets may be necessary where runoff results in concentrated flow erosion.

Acceptable stable outlets include grassed waterways, field borders, filter strips, water and sediment control basins, or underground outlets for terraces and diversions.

When the erosion-resistant strip is living vegetation, the species established on non-organic operations, should either be tolerant to herbicides used on the cropped strips or protected from damage by herbicides used on the cropped strips

## PLANS AND SPECIFICATIONS

Prepare and record specifications for establishment and operation of this practice for each field according to the Criteria, Considerations, and Operation and Maintenance described in this standard.

## OPERATION AND MAINTENANCE

Sediment that accumulates along strip edges should be smoothed, or removed and distributed over the field.

Mow sod turn-strips at least once a year. Harvesting is optional.

Manage erosion-resistant strips in the rotation to maintain the planned vegetative cover and surface roughness.

If the strip alignment is lost due to adjacent strips being in hay or permanent cover, reestablish the original strip alignment and width.

## REFERENCES

Foster, G.R. 2004. Draft reference guide, Revised Universal Soil Loss Equation Version 2, (RUSLE2). National Sedimentation Laboratory, Oxford, MS.

Foster, G.R. 2005. Draft science documentation, Revised Universal Soil Loss Equation Version 2, (RUSLE2). National Sedimentation Laboratory, Oxford, MS.

Renard, K.G., G.R. Foster, G.A. Weesies, D.K. McCool, and D.C. Yoder, Coordinators. 1997. Predicting soil erosion by water: A guide to conservation planning with the Revised Universal Soil Loss Equation (RUSLE). U.S. Department of Agriculture, Agriculture Handbook No. 703.

USDA, ARS. 2006. The wind erosion prediction system, (WEPS ver. 1.2.9), User Manual, 2011 Wind Erosion Research Unit, Manhattan, Kans.

USDA-AMS National Organic Program Final Rule 7 CFR Part 205.

<http://www.ams.usda.gov/AMSV1.0/nop>

USDA-AMS National Organic Program National List of Allowed and prohibited Substances.

<http://www.ams.usda.gov/AMSV1.0/nop>