

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

CROSS WIND TRAP STRIPS

(Acre)

CODE 589C

DEFINITION

Herbaceous cover resistant to wind erosion established in one or more strips across the prevailing wind erosion direction.

PURPOSES

This practice may be applied as part of a conservation management system to support one or more of the following purposes.

- Reduce soil erosion from wind
- Induce deposition and reduce transport of wind-borne sediment and sediment-borne contaminants downwind
- Protect growing crops from damage by wind-borne soil particles
- Provide food and cover for wildlife

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to cropland, or other land where crops are grown.

This standard includes the location of cross wind trap strips and their management for identified uses.

Criteria for the establishment of perennial herbaceous vegetation are included in the Colorado Critical Area Planting, 342 Conservation Practice Standard.

Guidance for selection of perennial vegetation is included in Colorado Plant Materials Technical Note 59, 2002, Plant Suitability and Seeding Rates for Conservation Plantings in Colorado.

Refer to locally accepted university or extension agronomy guides, or other accepted technical references for criteria to establish annual herbaceous vegetation.

CRITERIA

General Criteria Applicable To All Purposes Named Above

a. Number of Strips

A cross wind trap strip system shall consist of one or more strips across the prevailing wind erosion direction.

b. Width of Trap Strips:

Trap strips shall be wide enough to trap saltating soil particles and store wind-borne sediments originating upwind.

The width of the trap strip shall be at least 15 feet, when vegetation or stubble in the strip will normally be one foot or more in height during periods when wind erosion is expected to occur.

The minimum width of the trap strip shall be at least 25 feet when the effective height of the vegetation or stubble in the strip will normally be less than one foot during periods when wind erosion is expected to occur.

c. Vegetative Cover:

Trap strips may consist of perennial or annual plants, growing or dead. Select plant materials for the following characteristics.

- Adaptation to the site
- Erect during wind erosion periods
- Tolerant to sediment deposition

Additional Criteria to Reduce Soil Erosion from Wind

a. Location of Trap Strips:

Trap strips established for this purpose shall be located as follows:

- At the windward edge of fields, or;
- Immediately upwind from areas within fields to be protected from erosion or deposition, or;
- In recurring patterns interspersed between erosion-susceptible strips.

b. Direction and Width of Erosion-Susceptible Strips:

When trap strips are installed in patterns alternated with erosion-susceptible crop strips, and the direction of strips deviates from perpendicular to the prevailing wind erosion direction, the width of the erosion-susceptible strips shall be correspondingly reduced.

Measure the effective width of strips along the prevailing wind erosion direction during those periods when wind erosion is expected to occur. It shall not exceed the width permitted by the soil loss tolerance (T), or other planned soil loss objective.

The width of strips shall be determined using the Excel WEQ Spreadsheet, Colorado Field Version, 2003. Calculations shall account for the effects of other practices in the conservation management system.

Additional Criteria To Induce Deposition And Reduce Transport Of Wind-borne Sediment And Sediment-borne Contaminants Downwind

Location of Trap Strips:

Establish trap strips immediately upwind from areas to be protected from sediment deposition. There shall be no erosion-exposed area located between the trap strip and the area to be protected from sediment deposition.

Additional Criteria To Protect Growing Crops From Damage By Wind-borne Soil Particles

a. Placement of Trap Strips:

Trap strips shall be established immediately upwind from areas used for sensitive crops. There shall be no erosion-exposed area located between the trap strip and the crop to be protected.

b. Direction and Width of Strips of Sensitive Crops:

Where trap strips are installed in patterns alternated with strips of crops susceptible to damage by wind-borne soil particles, and the direction of strips deviates from perpendicular to the prevailing wind erosion direction, the width of strips planted to sensitive crops shall be correspondingly reduced.

Measure the effective width along the prevailing wind erosion direction during those periods when sensitive crops are susceptible to damage by wind-borne soil particles. The width shall not exceed that permitted by the crop tolerance to wind erosion*, as specified in the NRCS National Agronomy Manual, Table 502-4.

* Crop tolerance to wind erosion is the maximum rate of soil blowing that crop plants can tolerate without significant damage due to abrasion, burial or desiccation.

The width of the crop strips shall be determined using the Excel WEQ Spreadsheet, Colorado Field Version, 2003, to estimate wind erosion during specific crop stage periods. Calculations shall account for the effects of other practices in the conservation management system.

Additional Criteria to Provide Food and Cover for Wildlife

a. Vegetative Cover:

Trap strips shall consist of vegetation that provides food and/or cover for the targeted wildlife species.

b. Trap Strip Height:

The minimum height of trap strips designed for this purpose shall have a minimum expected height that provides adequate cover for the targeted wildlife species.

CONSIDERATIONS

The effectiveness of Cross Wind Trap Strips is maximized when strips are oriented as close to perpendicular as possible to the prevailing wind erosion direction for the period for which the system is designed.

Selection of plants for use in trap strips should favor species or varieties tolerant to herbicides used on adjacent crops or other land uses.

When trap strips are designed to enhance wildlife habitat, plant species diversity within the strip should be encouraged. Trap strips that result in multiple structural levels of vegetation within the strip will maximize wildlife use.

Some plants are damaged by blowing wind as well as by wind-borne sediment. In such cases, the spacing between trap strips may have to be reduced from that obtained using wind erosion prediction technology.

Drifting snow or grazing by wildlife may reduce the trapping capability of trap strips. In such cases, other conservation practices, including the residue management practices (329A, 329B, or 329C, herbaceous wind barriers (422A), etc., may be used with, or as alternatives to, trap strips to achieve the conservation objective.

PLANS AND SPECIFICATIONS

Plans and specifications for establishment and maintenance of this practice shall be prepared for each field or treatment unit according to the Criteria, Considerations, and Operation and & Maintenance sections of this standard.

Specifications shall describe the requirements for applying this practice to meet the intended purpose.

Record practice specifications on the Colorado Cross Wind Trap Strips 589C, Conservation Practice Job Sheet, 2004. Complete form CO-ECS-5, Grass Seeding Planned and Applied, for each field or treatment unit. Complete Job Sheet CO 612, Tree/Shrub Establishment, as applicable.

OPERATION AND MAINTENANCE

After establishment, fertilize perennial trap strips as needed according to a Nutrient Management Plan, Code 590 to maintain plant vigor. Plan and implement a Pest Management Plan, Code 595 if noxious weeds are present.

Manage Mowing or grazing of trap strips to allow re-growth to the planned height before periods when wind erosion or crop damage is expected to occur.

Remove Wind-borne sediment accumulated in trap strips and distribute over the surface of the field as determined appropriate.

Trap strips shall be re-established or relocated as needed to maintain plant density and height.

When barriers are designed to enhance wildlife habitat, they shall not be mowed or pruned unless their height and width exceeds that required to obtain the wildlife objective and they become competitive with the adjoining land use. When mowing or pruning are required, conduct the operation(s) only during non-nesting season.

REFERENCES

Colorado Field Office Technical Guide, Section I. Plant Materials Technical Note No. 59. 2002. Plant Suitability and Seeding Rates for Conservation Plantings in Colorado. USDA, Natural Resources Conservation Service. Lakewood, CO.

http://efotg.nrcs.usda.gov/references/public/CO/COPMTN_59_Text.pdf

Colorado Field Office Technical Guide, Section IV. Critical Area Planting 342 Conservation Practice Standard. 2004. USDA, Natural Resources Conservation Service. Lakewood, CO.

<http://efotg.nrcs.usda.gov/references/public/CO/CO342.pdf>

National Agronomy Manual, 3rd Ed., 2002. Part 502.42, Tolerances in wind erosion control. USDA, Natural Resources Conservation Service. Washington, DC.

http://policy.nrcs.usda.gov/scripts/lpsiis.dll/M/M_190_NAM.htm

Colorado Field Office Technical Guide, Section I, Erosion Prediction, Excel Wind Erosion Equation (WEQ) Colorado Guidance Document. 2003. USDA, NRCS, Lakewood, CO.

http://efotg.nrcs.usda.gov/references/public/CO/CO_Excel_WEQ_Guidance.pdf