

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:

1. Reduce soil erosion from wind.
2. Induce deposition and reduce transport of wind-borne sediment and sediment-borne contaminants downwind.
3. Protect growing crops from damage by wind-borne soil particles.
4. 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 and annual herbaceous vegetation are found in Section IV FOTG, Appendix A - Seeding Tables. Single forages and mixtures listed in Table 3, Appendix A are suitable for this practice, EXCEPT for the ANNUALS. In addition, standard agronomic rates for winter wheat and cereal rye can be used.

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:

1. Trap strips shall be wide enough to trap saltating soil particles and store wind-borne sediments originating upwind.
2. 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.
3. 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.
4. The “**Critical Period**” for most Ohio conditions is mid-April to mid-June unless local field or crop situations require additional periods of protection.

c. Vegetative Cover:

Trap strips may consist of perennial or annual plants, growing or dead (e.g. wheat or rye stubble from the prior year). Plant materials shall be selected for the following characteristics:

1. Adaptation to the site.
2. Erect during wind erosion periods.
3. 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:

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

b. Direction and Width of Erosion-Susceptible Strips:

1. 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.
2. The **effective width** of strips shall be measured 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.
3. The width of strips shall be determined using current approved wind erosion prediction technology (Section I-Field Office Technical Guide - FOTG). 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

a. Location of Trap Strips:

Trap strips shall be established 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

1. 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.
2. The effective width shall be measured along the prevailing wind erosion direction during those periods when sensitive crops are susceptible to damage by wind-borne soil particles. It shall not exceed the width permitted by the crop tolerance to wind erosion (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), as specified in FOTG-Section I, other accepted technical references, or other planned crop protection objectives.

3. The width of the crop strips shall be determined using current approved wind erosion prediction technology 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

1. 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.
2. 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.
3. 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.
4. 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, HERBACEOUS WIND BARRIERS (422A), etc., may be used with, or as alternatives to, trap strips to achieve the conservation objective.
5. Consider using existing residue cover that could provide the desired trapping and also permit the establishment of an annual crop during the "Critical Period" using no till or strip till.
6. Consider using crops in the trap strips that will provide an economic return.

PLANS AND SPECIFICATIONS

1. 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 described in this standard.
2. Specifications shall be recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation. The minimum documentation criteria for this practice is outlined on the last page of this standard.

OPERATION AND MAINTENANCE

1. After establishment, perennial trap strips shall be fertilized as needed to maintain plant vigor. Weeds shall be controlled with mowing or chemicals.
2. Mowing or grazing of trap strips shall be managed to allow regrowth to the planned height before periods when wind erosion or crop damage is expected to occur.
3. Wind-borne sediment accumulated in trap strips shall be removed and distributed over the surface of the field as determined appropriate.
4. Trap strips shall be re-established or relocated as needed to maintain plant density and height.
5. 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 is necessary, it shall be done only during non-nesting season (Spring through July-15th).

REFERENCES:

National Standard Cross Wind Trap Strips (589c), March 1999
Jobsheet 589c
National Agronomy Manual
Wind Erosion Equation (WEQ), Section I, FOTG

Practice Documentation For: <i>Cross Wind Trap Strips - 589c</i>
The following documentation must be in the case folder or engineering subfolder.
Practice Planning
<ol style="list-style-type: none"> 1. Is the practice part of a conservation plan? 2. Have the purpose(s) for the practice been identified? 3. Is the location of the practice identified on a map or plan drawing?
Practice Design
<p>Have the following design criteria been addressed?</p> <ol style="list-style-type: none"> 1. Number of Strips and the width of the strips. 2. The type of cover in the strips to be compatible with the soil and planned purpose. 3. Location and direction of the trap strips. 4. Trap strip height.
Practice Installation / Application
<p>Does the practice meet the minimum criteria for the planned purpose(s)?</p> <p>Have the following criteria been documented in the assistance notes or practice jobsheet?</p> <ol style="list-style-type: none"> 1. Number of Strips and the width of the strips established. 2. The type of cover in the strips. 3. Location and direction of the trap strips. 4. Trap strip height. 5. Acres established.
Practice Deficiencies
<p>If applicable, have the practice deficiencies been communicated with the decisionmaker?</p>
Practice Maintenance
<p>Have the following maintenance actions been communicated to the decisionmaker?</p> <ol style="list-style-type: none"> 1. Fertilized needed to maintain plant vigor. Noxious weeds shall be controlled with mowing or chemicals. 2. Mowing or grazing of trap strips shall be managed to allow regrowth to the planned height before periods when wind erosion or crop damage is expected to occur. 3. Wind-borne sediment accumulated in trap strips shall be removed and distributed over the surface of the field as determined appropriate. 4. Trap strips shall be re-established or relocated as needed to maintain plant density and height. 5. 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 is necessary, it shall be done only during non-nesting season.
<p>Other Comments:</p>