

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.

PURPOSE

- 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 susceptible to wind erosion.

CRITERIA

General Criteria Applicable To All Purposes

Number of Strips. One or more strips layed out across the prevailing wind erosion direction will constitute a cross wind trap strip system. Install a sufficient number of strips to reduce soil erosion to an acceptable level.

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

Establish a trap strip with a minimum width of 15 feet when vegetation or stubble in the strip is normally one foot or more in height during periods when wind erosion is expected to occur.

When the height of the vegetation or stubble in the strip is normally less than one foot then establish a trap strip with a minimum width of 25 feet during periods when wind erosion is expected to occur.

Vegetative Cover. Trap strips may consist of perennial or annual plants, growing or dead. Select plant materials based on the following characteristics:

- Adaptation to the site.
- Erect during wind erosion periods.
- Tolerant to sediment deposition.
- Compatibility to secondary purposes (i.e. provide wildlife food and cover)

Criteria for the establishment of perennial herbaceous vegetation are based on procedures found in the plans and specifications section on this standard.

Refer to locally accepted university or extension agronomy guides, or other

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

accepted technical references for criteria to establish annual herbaceous vegetation.

Other Criteria. Impact to cultural resources, wetlands, and Federal and State protected species shall be evaluated and avoided or minimized to the extent practical during planning, design and implementation of this conservation practice in accordance with established National and Florida NRCS policy, General Manual (GM) Title 420-Part 401, Title 450-Part 401, and Title 190-Parts 410.22 and 410.26; National Planning Procedures Handbook (NPPH) FL Supplements to Parts 600.1 and 600.6; National Cultural Resources Procedures Handbook (NCRPH); and The National Environmental Compliance Handbook (NECH).

Additional Criteria to Reduce Soil Erosion from Wind

Location of Trap Strips. Locate trap strips for this purpose 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.

Direction and Width of Erosion-Susceptible Strips. Measure the effective width of strips along the prevailing wind erosion direction during those periods when wind erosion is expected to occur. This effective width is not to exceed the width permitted to keep the potential soil erosion below the established soil loss tolerance (T).

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, then the width of the erosion-susceptible strips should be correspondingly reduced, so that soil loss tolerance (T) is not exceeded.

Orient strips in an angle of deviation that does not exceed 45 degrees during the management period(s) when wind erosion is expected to occur. The angle of deviation is the angle between an imaginary line

perpendicular to the long dimension of the strip and the prevailing wind erosion direction.

Determine the width of strips using current approved wind erosion prediction technology, which is found in the Florida Erosion Control Handbook. Calculations need to 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. A no erosion-exposed area should be 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

Placement of Trap Strips. Establish trap strips immediately upwind from areas used for sensitive crops. A no erosion-exposed area should be located between the trap strip and the crop to be protected.

Direction and Width of Strips of Sensitive Crops. Measure the effective width of strips along the prevailing wind erosion direction during those periods when sensitive crops are susceptible to damage by wind-borne soil particles. The effective width is not to exceed the width permitted by the crop tolerance to wind erosion*, as specified in the Florida Erosion Control Handbook, other accepted technical references, or other planned crop protection objective.

* 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.

When trap strips are installed in patterns alternated with strips of crops susceptible to damage by wind-borne particles and the direction of strips deviates from perpendicular to the prevailing wind erosion

direction, then the width of strips planted to sensitive crops should be correspondingly reduced, so that estimated soil loss does not exceed crop tolerance.

Determine the width of crop strips using current approved wind erosion prediction technology, which is found in the Florida Erosion Control Handbook, 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

Vegetative Cover. Establish trap strips with vegetation that will provide food and/or cover for the targeted wildlife species. For further guidance, see Florida NRCS Conservation Practice Standard, Upland Wildlife Habitat Management, Code 645.

Width of Cross Wind Trap Strip. The minimum width for this purpose is 30 feet.

Trap Strip Height. To provide adequate cover for the targeted wildlife species, the designed minimum height of trap strips need to be 1.5 to 3.0 feet.

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.

Grazing by wildlife may reduce the trapping capability of trap strips. In such cases, other Florida NRCS Conservation Practice Standards, including the Residue Management practices (Code 329, 345, or 346), Herbaceous Wind Barriers, Code 603, etc., may be used with, or as alternatives to, trap strips to achieve the conservation objective.

This practice may also serve as a component of a conservation system that includes Florida NRCS Conservation Practice Standards, Herbaceous Wind Barriers, Code 603, and Windbreak/Shelterbelt Establishment, Code 380.

PLANS AND SPECIFICATIONS

Plans and specifications are to be prepared for each field or treatment unit according to the criteria, considerations, and operations and maintenance described in this standard.

Specifications shall be recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation. As a minimum plans and specifications shall include:

1. Type of vegetation
2. Planting date of vegetation
3. Width of wind trap strip
4. Location of wind trap strip(s)
5. Height of the vegetation
6. Distance between wind trap strips

OPERATION AND MAINTENANCE

Maintain a good cover in the wind trap strip by periodically applying lime and fertilizer according to soil tests and needs of the crop. Apply according to Florida NRCS Conservation Practice Standard, Nutrient Management, Code 590. Weeds should be controlled by mowing or application of approved herbicides as needed, however, if these plant species do not diminish the objectives of the wind trap strip or impact adjacent crops, leave for wildlife. If

herbicides are used, read and follow all label warnings and directions. Apply herbicides and/or pesticides according to Florida NRCS Conservation Practice Standard, Pest Management, Code 595. Timing of mowing or herbicide applications should be based on wildlife considerations.

After establishment, fertilize perennial trap strips as needed to maintain plant vigor. Control weeds with mowing or chemicals, as needed.

Manage mowing or grazing of trap strips to allow regrowth to the planned height before periods when wind erosion or crop damage is expected to occur.

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

Re-establish or relocate trap strips as needed to maintain plant density and height.

When strips are designed to enhance wildlife habitat, restrict mowing or pruning 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 should be done only during non-nesting season.

REFERENCES

Florida NRCS Conservation Practice Standards

Nutrient Management, Code 590

Pest Management, Code 595

Residue Management, Codes 329, 345, and 346

Herbaceous Wind Barriers, Code 603

Upland Wildlife Habitat Management, Code 645

Windbreak/Shelterbelt Establishment, Code 380

General Manual – Titles 190, 420, and 450

National Planning Procedures Handbook

National Cultural Resources Procedures Handbook

National Environmental Compliance Handbook

NRCS, FL, July 2006

Florida Erosion Control Handbook

UF/IFAS – Agronomy Guides,
<http://edis.ifas.ufl.edu/deptlist.html>