NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

CROSS WIND TRAP STRIPS

(Ac.)

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. A crosswind trap strip system shall consist of one or more strips across the prevailing wind erosion direction. This practice may also serve as a component of a conservation system that includes Conservation Practice Standards 589B, Cross Wind Stripcropping; 603, Herbaceous Wind Barriers; or 380, Windbreak/Shelterbelt Establishment.

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.

Vegetative Cover. Trap strips may consist of perennial or annual plants, growing or dead. Vegetation may consist of warm season or cool season grasses, legumes or legume-grass mixtures that meet the following criteria. Plant materials shall be selected for the following characteristics:

- Adaptation to the site.
- Erect during wind erosion periods.
- Tolerant to sediment deposition.
- Ability to withstand snow drifting.
- Compatibility to secondary purposes (i.e. provide wildlife food and cover).
- Will be in conformance with the respective Major Land Resource Area (MLRA) Vegetative Guide in Section II of the Field Office Technical Guide.

Criteria for the establishment of perennial herbaceous vegetation will be based on procedures in practice specification 589C.

Refer to locally accepted university or extension agronomy guides, or other accepted technical references for criteria to establish annual herbaceous vegetation that will be utilized for trap strips.

Additional Criteria to Reduce Soil Erosion from Wind

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 to be protected from erosion or deposition; or
- In recurring patterns interspersed between erosion-susceptible strips.

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

When the direction of trap strips deviates from being perpendicular to the prevailing wind erosion direction, the width of the erosion-susceptible strips shall be correspondingly reduced so that soil loss tolerance (T) is not exceeded.

Strip orientation shall not result in an angle of deviation that exceeds 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.

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

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.

Direction and Width of Strips of Sensitive Crops. 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. The effective width shall not exceed the width permitted by the crop tolerance to wind erosion*, as specified in Field Office Technical Guides, 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 the direction of trap strips deviates from being perpendicular to the prevailing wind erosion direction, the width of strips planted to sensitive crops shall be correspondingly reduced so that estimated soil loss does not exceed crop tolerance.

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

Vegetative Cover. Trap strips shall consist of vegetation that provides food and/or cover for the targeted wildlife species. Refer to Conservation Practice Standard 645, Upland Wildlife Habitat Management, for recommended species and seeding mixtures.

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

Trap Strip Height. The minimum height of trap strips designed for this purpose shall have a minimum expected height *of 1.5 to 3.0 feet to provide* adequate cover for 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); Conservation Practice Standards 603, Herbaceous Wind Barriers; 589B, Cross Wind Stripcropping; or 380, Windbreak/Shelterbelt Establishment, may be used with, or as alternatives to, trap strips to achieve the conservation objective.

CULTURAL RESOURCES CONSIDERATIONS

NRCS policy is to avoid any effect to cultural resources and protect them in their original location. Determine if installation of this practice or associated practices in the plan could have an effect on cultural resources. The National Historic Preservation Act may require consultation with the California State Historic Preservation Officer.

http://www.nrcs.usda.gov/technical/cultural.html is the primary website for cultural resources information. The California Environmental Handbook and the California Environmental Assessment Worksheet also provide guidance on how the NRCS must account for cultural resources. The e-Field Office Technical Guide, Section II contains general information, with Web sites for additional information.

Document any specific considerations for cultural resources in the design docket and the Practice Requirements worksheet.

ENDANGERED SPECIES CONSIDERATIONS

If during the Environmental Assessment NRCS determines that installation of this practice, along with any others proposed, will have an effect on any federal or state listed Rare, Threatened or Endangered species or their habitat, NRCS will advise the client of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid the adverse effects. Further assistance will be provided only if the client selects one of the alternative conservation treatments for installation; or with concurrence of the client, NRCS initiates consultations concerning the listed species with the U.S. Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game.

PLANS AND SPECIFICATIONS

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.

Specifications shall be recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

After establishment, perennial trap strips shall be fertilized as needed to maintain plant vigor. Noxious weeds shall be controlled with mowing or chemicals.

Mowing or grazing of trap strips shall be managed to allow re-growth to the planned

height before periods when wind erosion or crop damage is expected to occur.

Wind-borne sediment accumulated in trap strips shall be removed and distributed 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 is necessary, it shall be done only during non-nesting season.

REFERENCE

National Agronomy Manual, 190-V-NAM, Third Edition, June 2002, Part 502, Wind Erosion.