



Cross Wind Trap Strips

Iowa Job Sheet

Natural Resources Conservation Service (NRCS)
Des Moines, Iowa

Iowa Conservation Practice 589C
May 2015

Definition

Strips of grass or other herbaceous cover established in one or more strips perpendicular to the most erosive wind events.

Purpose

This practice is applied to support one or more of the following purposes:

- » Reduce soil erosion from wind and wind-borne sediment deposition.
- » Induce snow deposition to improve soil moisture management.
- » Improve plant health by protecting the growing crops from damage by wind-borne soil particles.
- » Improve air quality by reducing the generation of airborne particulate matter.

Applying the Practice

This practice applies to cropland but may be used on wildlife, recreation, or other lands where crops are grown and this form of protection is needed.

Orientation and Width of Trap Strips

The appropriate orientation and width of the trap strips is determined using current NRCS approved wind erosion prediction technology. The minimum width shall be:

- » **At least 15 feet** when vegetation or stubble in the strip will normally be one foot or more in height when wind erosion is expected. The effective width of strips should be measured along the prevailing wind direction when wind erosion is expected.
- » **At least 25 feet** when the effective height of the vegetation or stubble in the strip will normally be less than one foot when wind erosion is expected. The effective strip width should be measured along the prevailing wind direction when wind erosion is expected. Strip width may be adjusted upwards to meet equipment needs.



Vegetative Cover

Trap strips may consist of perennial or annual plants, growing or dead that meet the following criteria:

- » Adapted to site conditions.
- » Erect during critical wind erosion periods.
- » Living vegetation is tolerant to sediment deposition.
- » Tolerant to accumulated snow deposition in places where significant deposition is expected.

For species selection and establishment, refer to the practice standard for Conservation Cover (327). Criteria for establishment of standing residue are in the practice standards for No-till (329) and Reduced Till (345).

GOAL: Reduce Soil erosion from Wind and Wind-Borne Sediment Deposition and Improve Air Quality by Reducing the Generation of Airborne Particulate Matter

Location of Trap Strips

Trap strips established to reduce soil erosion from wind and wind-borne sediment deposition and improve air quality by reducing the generation of airborne particulate matter should be located:

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- » 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 Crop Strips

Measure the width of the cropped strips along the prevailing wind direction when wind is expected. Determine the width of cropped strips using current NRCS approved wind erosion prediction technology. Calculations should account for the effects of other practices in the conservation management system. Soil loss rate will meet the planned soil loss objective.

GOAL: Induce Snow Deposition and Soil Moisture Management

Location of Trap Strips

Trap strips should be established immediately upwind from areas to where snow will accumulate.

Direction, Minimum Height and Interval Width

Place trap strips as perpendicular to the snow-bearing winds as possible. The minimum height of the vegetation should be 3 feet. The distance between strips should be no more than 20 times the height of the vegetation in the winter months.

GOAL: Improve Plant Health by Protecting Growing Crops from Damage by Wind-borne Soil Particles

Location of Trap Strips

Establish trap strips immediately upwind from areas used for sensitive crops. There should be no potentially erodible area located between the trap strip and the crop to be protected.

Direction and Width of Sensitive Crop Strips

The width of the crop strips is determined using NRCS approved wind erosion prediction technology to estimate wind erosion during specific crop stage periods.

The effective width will not exceed the width permitted by the crop tolerance to wind erosion (the maximum rate of soil blowing that crop plants can tolerate without significant damage due to abrasion, burial, or desiccation) as specified in the NRCS National Agronomy Manual or other accepted

technical references or planned crop protection objective for the period needed for the crop protection.

Type of Trap Strips

- » **Annual Crop Barriers** harvested 12-18 inches above the ground such as corn, sorghum, or sunflowers should consist of 10-12 feet (four rows at 30-36 inch spacing). Annual crop barriers such as unharvested small grain should have a minimum barrier width of 12 feet.
- » **Permanent Crop Barriers** should consist of tall stiff-stemmed grasses such as Switchgrass, Big Blue Stem, Indiangrass, Eastern Grama grass, or Tall Wheatgrass. Each barrier will consist of a minimum of four rows on sand soils and two rows on other soils. Rows may be spaced 6 to 42 inches apart. Determine the width of the crop strip using current approved wind erosion prediction technology to estimate wind erosion during specific crop stage periods. Calculations should account for the effects of other practices in the conservation management system.

Other Considerations

Wildlife may use trap strips as cover or travel corridors. When planning for wildlife in the area, consider vegetation that provides food or cover for local species.

- » Consider adding forbs and legumes for pollinators, native bees and other beneficial insects. Utilize a diverse mix of plant species that bloom at different times throughout the year.
- » Trap strips with multiple structural levels within the strip will maximize wildlife use.
- » Choose plants tolerant to herbicides used on adjacent crops or other land uses.
- » Reduce spacing for plants prone to damage by blowing wind and wind-borne sediment.
- » If drifting snow or grazing wildlife reduce the effectiveness of the trap strip, other conservation practices, including residue management (329 or 345); herbaceous wind barriers (603); stripcropping (585); or windbreak/shelterbelt establishment (380), may be used with or alternatives to trap strips to achieve the conservation objective.

Operation and Maintenance

After establishment, perennial trap strips may need to be fertilized to maintain plant vigor. Noxious weeds will need to be controlled.

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Mowing or grazing trap strips should be managed to allow re-growth to the planned height before periods when wind erosion or crop damage is expected to occur. When possible, schedule harvest, mowing or other mechanical disturbance of vegetation outside of the primary nesting season for ground-nesting birds.

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

trap strip re-establishment if necessary.

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

Periodically evaluate trap strip effectiveness to meet the planned purpose(s) and adapt management as needed.



Cross Wind Trap Strip Plan

Cooperator: _____

Date: _____

Tract/Field #: _____

Planner/Location: _____

Acres: _____

Crop Year: _____

Previous Crop: _____

Planned Crop: _____

Purpose for Planning and Applying this Practice (check all that apply)

- Reduce soil erosion from wind and wind-borne sediment deposition.
- Induce snow deposition to improve soil moisture management.
- Improve plant and soil health by protecting growing crops from damage by wind-borne soil particles.
- Improve air quality by reducing the generation of airborne particulate matter.

Trap Strips Design, Layout, Vegetation

No. of trap strips: _____

Planned trap strip height (in.): _____

Distance between trap strips (ft.): _____

Trap Strip No.	1	2	3	4	5	6	7	8
Trap strip width (ft.)	30							
Trap strip length (ft.)	200							
Acres	0.14							

Vegetation type: Annual Perennial Growing Dead

Plant Species: _____

Seeding rate (lbs. PLS/acre): _____

Seeding depth: _____

Planned seeding date: _____

Predicted wind erosion periods: _____

Prevailing wind direction during predicted wind erosion periods: _____

Trap strips orientation (perpendicular to prevailing wind direction): _____

Trap Strips Establishment

Site/seedbed preparation: <i>(firm, weed free)</i>	
Seeding:	
Fertilizer: <i>(based on current soil test)</i>	
Mulching:	
Other:	

Certification

I have received this plan, including the Operation and Maintenance requirements, and agree to implement as designed.		
Cooperator		Date
I have received this plan, including the Operation and Maintenance requirements, and agree to implement as designed.		
Conservationist	Title	Date