

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

CROSS WIND RIDGES

(Acre)

CODE 588

DEFINITION

Ridges formed by tillage, planting or other operations and aligned across the direction of erosive winds.

PURPOSE

- Reduce soil erosion from wind.
- Protect growing crops from damage by wind-borne soil particles.
- Reduce soil particulate emissions to the air.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to cropland.

It is best adapted on soils that are stable enough to sustain effective ridges and cloddiness, such as loamy and clayey soil materials.

It is not well adapted on soils with lower aggregate stability such as sandy soil materials and certain organic soils.

CRITERIA

General Criteria Applicable to All Purposes

Determine ridge orientation, height, spacing, and period of time that ridges are present, using currently approved wind erosion prediction technology. Plans shall account for other practices in the conservation management system.

The orientation of ridge building operations shall be as close to perpendicular to the predominant wind erosion direction as is practical for the farming system on the field or site. In no case shall the orientation exceed 45 degrees from perpendicular to the erosive wind direction during a critical wind erosion period.

In no case shall the ridge spacing be more than four times the ridge height during wind erosion periods.

Additional Criteria to Protect Growing Crops from Damage by Wind-Borne Soil Particles.

During those periods when sensitive crops are susceptible to damage by wind-borne soil particles, wind erosion shall not exceed the crop tolerance to blowing soil as specified in the National Agronomy Manual, Table 502-4, or other accepted technical references.

CONSIDERATIONS

To be most effective, crosswind ridges should be oriented perpendicular to the direction of erosive winds.

To decrease transport of wind-borne sediment and sediment-borne contaminants offsite, plan this practice as part of a resource management system.

Adjacent fields, roads or field corners may need treatment to stop saltation of soil particles onto fields protected by cross wind ridges.

Cross wind ridges are most effective where the soil erodibility index, (I) is 104 or lower. To be effective in coarse textured soils such as very fine sandy loams, fine sandy loams, sandy loams, and sand soils cross wind ridges should be established when soil is moist. Ridges on these soils will deteriorate quickly and shorten the protection period.

Cross wind ridges may be created at right angles to the predominant erosive wind direction on bare unprotected fields as a form of emergency tillage to decrease wind erosion. However, cross wind ridges generally have a temporary impact on reducing wind erosion, which may not last throughout the critical wind erosion period.

Cross wind ridges are most effective when used in combination with other practices in a conservation management system to decrease wind erosion.

PLANS AND SPECIFICATIONS

Prepare plans and specifications for each field or treatment unit according to the Criteria 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 specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

Establish or re-establish ridges with equipment such as chisel plows, drills with hoe openers or other implements that form effective ridges.

After establishment, maintain ridges through those periods when wind erosion should occur, or until growing crops provide enough cover to protect the soil from wind erosion.

Re-established ridges if they become ineffective, unless doing so would damage a growing crop.

REFERENCES

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

Skidmore, E.L. and N.P. Woodruff. 1968. Wind erosion forces in the United States and their use in predicting soil loss. USDA, Agriculture Handbook 346.
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USDA, NRCS. 2002. National Agronomy Manual. 190-V. 3rd ed., Part 502, Wind erosion.
<http://policy.nrcs.usda.gov/viewerFS.aspx?hid=19001>

USDA, NRCS. 1993. Soil survey manual. USDA Handbook 18.
<http://soils.usda.gov/technical/manual/>