

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

CROSS WIND RIDGES

(acre)
CODE 589A

DEFINITION

Ridges formed by tillage or planting and aligned across the prevailing wind erosion direction.

Where water erosion along the furrows formed by ridges is a concern, the hazard can be reduced by farming across the slope according to the standards for CONTOUR FARMING.

PURPOSES

This practice may be applied as part of a conservation management system to reduce soil erosion from wind.

Surface roughening is most effective when the tillage operation will bring clods to the soil surface durable enough to resist wind erosion. Field investigations or local knowledge should indicate that sufficient roughness and cloddiness will result on the soils in each field.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to cropland, or other land where crops are grown.

When irrigation water is available, consideration should be given to establishing strips of fast growing cover during erosive, non-crop periods as an alternative.

It is best adapted on soils that are stable enough to sustain effective ridges, such as clayey, silty, and sandy loam soils.

It is not well adapted on unstable soils such as sands, loamy sands, and certain organic soils.

Endangered Species Considerations

CRITERIA

Acceptable combinations of ridge height, spacing, and direction are those having Ridge Roughness K values equal to 0.8 or less during those periods when wind erosion is expected to occur. K values are displayed in the National Agronomy Manual, Exhibit 502.62(a).

Determine if installation of this practice with any others proposed will have any effect on any federal or state listed Rare, Threatened or Endangered species or their habitat. NRCS's objective is to benefit these species and others of concern or at least not have any adverse effect on a listed species. If the Environmental Evaluation indicates the action may adversely affect a listed species or result in adverse modification of habitat of listed species which has been determined to be critical habitat, NRCS will advise the land user 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 landowner selects one of the alternative conservation treatments for installation; or at the request of the landowners, NRCS may initiate consultation with the Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game. If the Environmental Evaluation indicates the action will not affect a listed species or result in adverse modification of critical habitat, consultation generally will not apply and usually would not be initiated. Document any special considerations for endangered species in the Practice Requirements Worksheet.

Fields shall be listed or bedded up during erosive, non-crop periods as nearly as practical perpendicular to the direction of erosive winds.

Chisel or list across the prevailing erosion wind direction without introducing long furrow lengths on gradients, which will cause water erosion. Leaving alternate tilled and untilled strips of equal width can be effective.

CONSIDERATIONS

Transport of wind-borne sediment and sediment-borne contaminants offsite can be reduced by this practice when used in a conservation management system.

Some species are year-round residents in some streams, such as, freshwater shrimp. Other species, such as steelhead and salmon, utilize streams during various seasons. Be aware that during critical periods, such as spawning, eggs in gravel's, and rearing of young may preclude activities in the stream that may directly affect the stream habitat during those periods. For example there should be no disturbance of stream gravel beds that may have eggs in them. That could include any equipment in the stream or even walking in the stream or work upstream that may result in sediment depositing in the gravel beds. Document any special considerations for endangered species in the Practice Requirements Worksheet.

Water Quantity

This practice, to roughen the soil surface by tillage, to reduce the potential for wind erosion of cultivated land, may have little effect on water quantity at the time when it is installed. However, when precipitation occurs, early season infiltration may be increased making more water available to the root zone and runoff decreased.

1. Effects on the water budget, especially on evaporation and transpiration.

Water Quality

The practice will temporarily improve water quality because soil erosion by wind will be reduced and the potential for soil deposition in ditches or surface waters as sediment would decrease. Agricultural chemicals, that would be attached to the wind blown soil, would be less available for transport to downstream surface waters.

1. Effects on erosion and the movement of sediment and sediment-attached substances by wind to surface waters.
2. Effects on the use and management of nutrients and pesticides and resulting effects on surface and ground water quality.

PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each field or treatment unit and include the methods, time of tillage, and suitability of soils.

Indicate the direction and spacing of ridges and the type of chisel or lister equipment that will be used.

Indicate that equipment depth and speed will be adjusted to produce the maximum surface roughness and cloddiness.

When alternating strips are left untilled, indicate that they will be treated at a later date if prolonged effectiveness is needed.

Specifications shall be recorded using approved specification sheets, job sheets, or other acceptable documentation.

OPERATION AND MAINTENANCE

Ridges shall be reestablished by normal tillage and planting equipment such as chisel plows, drills with hoe openers, or other similar implements that form effective ridges.

After establishment, ridges shall be maintained through those periods when wind erosion is expected to occur, or until growing crops provide enough cover to protect the soil from wind erosion.

If ridges deteriorate and become ineffective due to weathering or erosion, they shall be reestablished unless doing so would damage a growing crop.