

Landowner _____



What are cross wind ridges?

Cross wind ridges are formed by tillage, planting, or other farming operations and aligned across the prevailing wind erosion direction.

Purpose

Cross wind ridges are used on cropland to reduce soil erosion from wind, protect growing crops from damage by windborne soil particles or reduce soil particulate emissions to the air.

How it helps the land

Cross wind ridges provide an effective way to help control wind erosion forces by creating a rough or unlevel soil surface. This breaks up and reduces the wind velocity blowing across the soil surface. The soil particles being lifted or pushed by the wind return to the soil surface and are trapped in depressional areas between the ridges.

Where the practice applies

Cross wind ridges are applied on cropland where wind erosion is a potential risk. They are best suited to soils that are stable enough to sustain effective ridges and cloddiness through wind erosion periods. Soils that are clayey, silty, and loamy in texture generally provide adequate structure for ridges. Sands and loamy sands are more unstable and are not well adapted for sustaining ridges.

This practice, when used alone, may not provide adequate control of wind erosion on a field. Other conservation practices need to be considered and used in combination with this practice. Conservation practices, such as, maintaining crop residues on the soil surface, reducing tillage operations, growing cover crops, or applying crop rotations can be used in combination with this practice and supply additional protection from wind erosion.

Where to get help

For assistance in planning and designing cross wind ridges, contact your local Natural Resources Conservation Service (NRCS) or your local Conservation District office.

Applying the practice

Ridges can be established by using ordinary farming equipment such as bedders/listers, chisels, or drills with hoe openers.

Ridge Height, Spacing and Direction

Many combinations of ridge height, ridge spacing and ridge direction may be used for this practice.

Cross wind ridges are installed across the prevailing wind erosion direction. They should be installed as perpendicular to the erosive wind direction as possible. This will provide the greatest protection from wind erosion.

Ridge height and spacing work together in the overall design and are influenced by the soil susceptibility to wind erosion. For example, the sandier the soil, the more susceptible to wind erosion it will be.

Any combination of ridge height, spacing and direction which provides a soil ridge roughness factor (K_{rd}) of 0.5 or less will meet the criteria of this practice. Soil ridge roughness factors (K_{rd}) can be determined at your local NRCS/Conservation District office.

Considerations

Ridge heights need to be maintained through the periods when wind erosion is most likely to occur or until growing crops provide enough cover to protect the soil from wind erosion. Wind erosion may occur virtually every month in Oklahoma. However, the greatest period of risk for wind erosion occurs in the months of March and April.

Ridges may deteriorate and become ineffective due to weathering, erosion, or even a change in expected prevailing wind erosion direction during the erosive period. Ridges should be re-established as soon as they become ineffective.

Operation and maintenance

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

Cross wind ridges established on bare fields for emergency tillage shall be re-established if they become ineffective during the critical wind erosion 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 reduce wind erosion.

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

Specifications

Site-specific requirements are listed on the specifications sheet. Additional provisions are illustrated on the job sketch sheet. Ridge height and spacing of cross wind ridges is determined using current NRCS wind erosion prediction technology or the applicable tables found in the National Agronomy Manual. Specifications included in this job sheet are prepared in accordance with the NRCS Field Office Technical Guide. See practice standard Cross Wind Ridges (588).

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