

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
CONTOUR FARMING

(Acre)

CODE 330

DEFINITION

Tillage, planting, and other farming operations performed on or near the contour of the field slope.

PURPOSES

- ◆ To reduce sheet and rill erosion.
- ◆ To reduce transport of sediment and other water-borne contaminants.
- ◆ To increase water infiltration.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies, where crops are grown, on sloping land for control of water erosion and on flatter slopes to conserve moisture.

Contour farming is most effective on slopes between 2 and 10 percent. This practice will be less effective in achieving the stated purpose(s) on slopes exceeding 10 percent and in areas with 10-year-frequency, single storm EI values greater than 140. The practice is not well suited to rolling topography having a high degree of slope irregularity because of the difficulty meeting row grade criteria. (EI = total storm energy times the maximum 30-minute intensity).

CRITERIA

General Criteria Applicable to All Purposes

Contour Baselines or Guidelines

Terraces, diversions or contour buffer strips shall be used as baselines or guidelines for contour farming. When these practices are not present, a contour baseline or guideline must be established.

Minimum Row Grade

Positive row grades of not less than 0.2 percent shall be used on slopes where ponding is a concern. These row grades are applicable on soils that have slow to very slow infiltration rates, soil hydrologic groups C or D, and with crops that are sensitive to water ponding of less than 48 hours.

Maximum Row Grade

The row grade shall be aligned as closely as possible to the contour to achieve the greatest erosion reduction. The maximum grade of rows shall not exceed 2 percent or one half of the up and down hill slope percent that is used for erosion prediction, whichever is less. Up to 3 percent row grade may be permitted within 150 feet of the approach to a *grassed waterway, field border* or other stable outlet.

Headlands or end rows that are steeper than the maximum row grade criteria stated above shall have a cover-management condition no greater than 3 or established to permanent field borders. [Cover-Management Conditions are described in Chapter 6, *Predicting Soil Erosion by Water, A Guide to Conservation Planning with the Revised Universal Soil Loss Equation (RUSLE)*. 1997. USDA Agricultural Research Service, Agricultural Handbook No. 703].

When the row grade reaches the maximum allowable design grade, a new baseline shall be established up or down slope from the last contour line and used for layout of the next contour pattern. All tillage and planting operations will follow the established contour line.

Minimum Ridge Height

NRCS, Texas
April, 2001

<p>Conservation practice standards are reviewed periodically, and updated if needed. To obtain the most current version of this standard, contact the Natural Resources Conservation Service.</p>

The ridge height shall be designed to reduce soil erosion when compared to rows that are installed up and down the slope. As a minimum, this practice shall be designed to achieve a 0.5-2 inch ridge height during the period of the rotation that is most vulnerable to soil erosion.

Ridge height design will be determined using on site conditions and current erosion prediction technology approved for use.

The minimum ridge height criterion is not required when close spaced crops that reduce runoff, such as small grains, are planted.

The minimum ridge height criteria is not required where the practice *residue management, no-till/strip-till*, is used on the contour, if at least 50 percent surface residue is present between the rows after planting.

Critical Slope Length

A contour farming layout shall not occur on a slope longer than the critical slope length, unless it is supported by other practices (e.g., *terraces, diversions*). These practices either reduce slope length below the critical length or reduce overland flow velocities. Increasing residue cover and roughness will change the vegetative cover-management conditions and decrease overland flow velocities. Increasing roughness alone is not sufficient to reduce the critical slope length.

The computation of critical slope length shall be determined using approved erosion prediction technology.

Stable Outlets

All runoff from contouring shall be delivered to stable outlets, such as *grassed waterways, field borders, water and sediment control basins, or underground outlets for terraces and diversions*.

CONSIDERATIONS

Prior to design and layout, obstruction removal, changes in field boundaries and shape should be considered to improve the effectiveness of the practice and make farming operations easier.

If using *residue management, ridge-till*, on the contour, avoid crossing over ridged rows at

correction areas. Consider sod turn strips if correction areas are unavoidable.

Ridge height may vary throughout the year as a result of tillage, planting, some harvest operations, hilling, row cultivation, and weathering.

The width of correction areas, and the distance between baselines, should be adjusted for equipment operation widths.

Grassed waterways, water and sediment control basins, underground outlets, or other suitable practices should be used to protect areas of existing or potential concentrated flow erosion.

There are several factors that impact the effectiveness of contour farming to reduce soil erosion. These factors include: 10-year storm EI_{10} value, ridge height, furrow grade, slope steepness, soil hydrologic group, cover and roughness, and the critical slope length. Management can influence cover and roughness, row grade, and ridge height.

Contour farming may need to be used in combination with other conservation practices to meet the goals of the conservation management system.

PLANS AND SPECIFICATIONS

Specifications for establishment and operation of this practice shall be prepared for each field 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

Perform all tillage and planting operations parallel to contour baselines or *terraces, diversions, or contour buffer strip* boundaries, where these practices are used, provided the applicable row grade criteria are met.

Where *terraces, diversions, or contour buffer strips* are not present, maintain contour markers on grades that, when followed during establishment of each crop, will maintain crop

rows at designed grades. Contour markers may be field boundaries, a crop row left untilled near or on an original contour baseline, or other readily identifiable, continuous, lasting marker.

All tillage and planting operations shall be parallel to the established marker. If a marker is lost, re-establish a contour baseline within the applicable criteria set forth by this standard prior to seedbed preparation for the next crop.

Farming operations should begin on the contour baselines and proceed both up and down the slope in a parallel pattern until patterns meet.

Where field operations begin to converge between two non-parallel contour baselines, establish a correction area that is either permanently in sod, established to an annual close-grown crop, or is in cover-management condition 3.

Where contour row curvature becomes too sharp to keep machinery aligned with rows during field operations, establish sod turn strips on sharp ridge points or other odd areas as needed.

Renovate *field borders* to maintain the required ground cover, in accordance with practice standard 386, Field Borders. An adequate field border width should be maintained to allow room for the turning of farm machinery and implements.

