

**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.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on sloping land where crops are grown. This includes sites with established hillside ditches or vegetative barriers.

Contour farming is most effective on slopes between 2 and 10 percent. The practice is not well suited to rolling topography having a high degree of slope irregularity because of the difficulty meeting row grade criteria.

CRITERIA

General Criteria Applicable to All Purposes

Minimum Row Grade

Row grades for soils with slow to very slow infiltration rates (soil hydrologic groups C or D), or for crops sensitive to ponded water conditions for periods of less than 48 hours, shall be designed with positive row drainage of not less than 0.2 percent on slopes where ponding is a concern.

Maximum Row Grade

The row grade shall be aligned as closely as possible to the contour to achieve the greatest erosion reduction.

Soil type, undulations on the field, distance between rows and cultural practices for the crop being produced will determine the practical limitations for adherence to a true contour. Most crops growing in steep upland will permit reasonable variations from the true contour in the accomplishment of the objective of the practice. Use the Revised Universal Soil Loss Equation to determine effectiveness of the practice.

On land with slopes less than 25 percentage, the maximum grade of rows shall not exceed half of the RUSLE field slope percentage up and down hill slope percent used for erosion prediction, whichever is less. Up to 3 percent row grade is allowed for a maximum of 150 feet of the approach to a grassed waterway, field border or other stable outlet.

On steep upland land sites with hillside ditches or contour furrowing with very high ridge (> 8 inch high), the ditch or furrow itself will provide permanent guidelines for the contour farming operations. The grade of these ditches or furrow may be either constant or variable but must not exceed that which will result in excessive velocity for the soils encountered. The ditch grade usually varies depending upon design consideration for hillside ditches (Refer to conservation practice standard Hillside Ditches, Code 423). The crop rows between the hillside ditches should normally have a grade of no more than that of the hillside ditches.

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.

Use of conservation tillage system and crop residue will permit reasonable variation from the maximum allowable grade of the rows.

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, and 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 contour line established.

Minimum Ridge Height

The ridge height shall be designed to reduce soil erosion compared to that of rows oriented 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 criteria is not required for close-grown crops, such as small grains, when runoff is reduced compared to that of rows planted up and down the slope. As a minimum, plant height shall be at least 6 inches high and the spacing between plants within the row shall not be greater than 2 inches.

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 hill slope that is longer than the critical slope length, unless supported by other practices

(e.g., *terraces, diversions*) that 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, and diversions*.

CONSIDERATIONS

Prior to design and layout, obstruction removal and changes in field boundaries or shape should be considered, where feasible, to improve the effectiveness of the practice and the ease of performing farming operations.

Provide safe outlet such as Grassed Waterway, Code 412 or other suitable practices to protect areas of existing or potential concentrated flow erosion.

Factors that impact the effectiveness of contour farming includes ridge height, furrow grade, cover and roughness, and the critical slope length.

Contour farming is frequently used in combination with conservation practices standards Residue Management, No Till, Code 329A, Residue Management, Mulch Till, Code 329C, Residue Management, Seasonal, Code 344, Hillside Ditches, Code 423 and 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.

Record the furrow lengths and grade for each field on approved specification sheets job sheets, narrative statements in the conservation plan.

OPERATION AND MAINTENANCE

Perform all tillage and planting operations near the contour.

Maintain contour markers on grades that when followed during establishment of each crop, will maintain crop rows at designed grades.

Field boundaries, crop row and access roads with acceptable grades may be used as guides.

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

Maintain well-established vegetation in the outlet to reduce sediment transport offsite.

REFERENCES

Predicting Soil Erosion by Water, A Guide to Conservation Planning with the Revised Universal Loss Equation (RUSLE). USDA Agricultural Research Service Handbook No. 703.

NRCS Conservation Practice Standards:

Grassed Waterway, Code 412

Vegetative Barrier, Code 607

Residue Management, No Till, Code 329A

Residue Management, Mulch Till, Code 329C

Residue Management, Seasonal, Code 344,

Hillside Ditches, Code 423