

Natural Resources Conservation Service  
Conservation Practice Standard

CONTOUR FARMING  
(Ft.)  
CODE 330

**DEFINITION**

Farming sloping land in such a way that tillage, planting, and other farming operations are performed on the contour (this includes following established grades of terraces or diversions).

**PURPOSE**

- 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 cropland and on recreation and wildlife areas where other cultural and management practices in a cropping system do not control soil and water loss.

This practice is not well suited to rolling topography having a high degree of slope irregularity.

**CRITERIA**

Minimum row grade. Row grades for soils with very slow infiltration rates (hydrologic soil group D), will be designed with positive row drainage of not less than 0.5 percent. Outlets for all systems designed with positive row drainage shall be stable and non-erosive.

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 one half of the up and down hill slope length used for erosion prediction or 2 percent, whichever is less. Up to 3 percent row grade may be permitted for short distances up to 150 feet as crop rows approach a grassed waterway, field border or other stable outlet.

Headlands or end rows that are steeper than the maximum row grade criteria stated in the previous paragraph shall have a RUSLE cover-management condition no greater than 3.

Minimum ridge height. A low ridge height (2 to 3 inches) shall be left after tillage and/or planting operations when cover-management conditions 4 to 7 are present. A very low ridge height (0.5 to 2 inches) may be left after planting when surface cover is 75 percent or greater. Cover-management conditions are described in Section I-D-3 of the FOTG and in Chapter 6, *Predicting Soil Erosion by Water, A Guide to Conservation Planning with the Revised Universal Soil Loss Equation "RUSLE"*, USDA Agricultural Research Service, Agricultural Handbook No. 703.

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 that either reduce slope length below critical (e.g., terraces or diversions) or reduce overland flow velocities. Increasing residue cover or roughness that changes the vegetative cover-management condition can decrease overland flow velocities.

Stable outlets. Redirected runoff shall be delivered to stable outlets, such as grassed waterways/vegetated filter systems, underground outlets for terraces or diversions, water and sediment control basins, or field borders/filter strips.

**CONSIDERATIONS**

Prior to design and layout, obstruction removal or 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.

If using ridge-till on the contour, avoid crossing over ridged rows at correction areas. Consider

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

sod turn strips if correction areas are unavoidable.

The width of correction areas, and the distance between baselines, should be adjusted for equipment working widths. Correction areas should be planted and maintained in sod.

Even though the ridge height criteria may not be met with some no-till/strip-till practices, it is best to align these practices across steep slopes to prevent runoff from concentrating in the row.

There are several factors that impact the effectiveness of contour farming to reduce soil erosion. These factors include: 10-year EI value, ridge height, furrow grade, slope steepness, soil hydrologic group, cover and roughness, and the critical slope length. Cover and roughness, row grade, and ridge height can be influenced by management and provide more or less benefit depending on design.

Contour farming is most effective on slopes between 2 and 8 percent.

Terraces, diversions, and contour guidelines should be laid out parallel where feasible to facilitate more efficient use of equipment.

Field roads should be planned and built where they will be least likely to receive and convey runoff water.

Contour farming reduces the rate and the amount of runoff. This may increase percolation which may increase groundwater recharge. This increased infiltration may also increase the potential for groundwater to be polluted by soluble substances in vulnerable areas.

Contour farming reduces erosion and sediment production thus reducing amounts of sediment and attached pollutants entering surface waters.

## 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 or narrative statements in the conservation plan.

Perform all major tilling, planting, and cultivating within the following guidelines:

- a. Planting of crops and tillage operations shall be parallel to existing terraces or diversions.
- b. Where terraces or diversions do not exist, buffer strips or other permanent guidelines shall be laid out as nearly on the contour as feasible. Acceptable grades are those listed under maximum row grade. Field boundaries and field roads that are on acceptable grades may be used as guides.

P values for contour farming are specific for each county and are contained in Section 1-D-3, Field Office Technical Guide.

A water disposal system that will effectively control concentrated flow erosion is essential when concentrated flow erosion is evident. In most cases water disposal systems will have to be installed when applying contour farming.

**Table 1 - SLOPE LENGTH LIMITS FOR CONTOUR FARMING**

<u>LAND SLOPE</u>	<u>MAXIMUM LENGTH 1/</u>
Percent	Feet
1 to 2	800
2.1 to 5	400
5.1 to 8	200
8.1 to 12	125

1/ Maximum length of slope for contour farming to be effective without a water disposal system. These are maximum lengths for uniform (smooth and without irregularities) fields and depend on soil properties, management, and storm characteristics.

## OPERATION AND MAINTENANCE

Perform all tillage and planting operations parallel to terraces, diversions, vegetative barriers, or buffer strip boundaries where these

practices are used, provided the applicable row grade criteria are met. Where these practices 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 markers. 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.

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

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 RUSLE 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.

Ridge tops may be planted to row crops if row grades are within limits. These ridge tops should be planted last and harvested first.

### **References**

Predicting Soil Erosion By Water; Agriculture Handbook Number 703; USDA; 1997.