NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

CONTOUR FARMING

(acre)

CODE 330

DEFINITION

Farming sloping land in such a way that preparing land, planting, and cultivating are done on the contour. (This includes following established grades of terraces or diversion.)

PURPOSE

To reduce sheet and rill erosion .

Manage surface water runoff to increase plant available moisture

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on sloping cropland to reduce sheet and rill erosion. It is most suitable on uniform slopes (≤ to the critical slope length) ranging from 4 to 12 percent.

The practice is impractical to unsuitable on undulating to rolling topography because of the difficulty of staying within row grade limits.

CRITERIA

To Reduce Sheet and Rill Erosion

a. Row Grade, Strip Boundaries, and Baselines:

The contour grade should be designed to achieve the greatest soil erosion reduction practical but shall not exceed four percent row grade, except for short distances of 100 feet or less towards stable outlets (grassed waterways, etc.).

P sub-factor value is based on RUSLE information contained in the Section I of the Field Office Technical Guide (P subfactor Tables P1, P2, P3 and P4). The FOCS RUSLE program makes this calculation after the appropriate data are entered for EI_{10}, cover management, ridge height, field slope, hydrologic soil group, and furrow grade. These conditions must exist on the entire site (Conditions cannot be averaged over the entire field).

b. Stable Outlets:

Surface flow from contoured crop rows must be designed with a positive row grade towards a stable outlet. Stable outlets include grassed waterways, underground outlets for terraces or diversions, water and sediment control basins, field borders in permanent sod or similarly stabilized areas.

c. Critical Slope Length:

The critical slope length for contour farming is determined using approved erosion prediction technology in Section I of the FOTG.

The contour practice shall not be used on a hill slope longer than the critical slope length (as determined above) if the contour practice (P) exceeds that needed to meet soil loss level specified by the resource conservation objective, unless supported by other practices (e.g., terraces) that reduce slope length below the critical length or a stripcropping system that extends the critical slope length.

d. Field borders (Headlands or End Rows)

On fields where row crops are a part of the rotation, keep headlands or end rows in permanent sod if their row grade would be steeper than the designed grade of the crop strip.

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e. Level of Erosion Control:

Calculations for estimating the expected level of erosion reduction shall be made using approved erosion prediction technology to estimate average annual sheet and rill erosion when contouring is applied individually or in combination with other components of the planned conservation management system.

Additional Criteria to Manage Runoff to Increase Plant Available Moisture.

Row grade and ridge height:

Where Contour farming layouts are designed to increase plant available moisture by creating temporary surface storage, row grade shall not exceed 0.5 percent, and ridge heights shall not be less than 4 inches.

CONSIDERATIONS

Protect areas of existing or potential concentrated flow erosion (reverse gradient reaches >150 feet) by any one or more suitable conservation practices, such as grassed waterways, water and sediment control basins, or diversion terraces.

Design and install the layout to best facilitate operation of all machinery.

Where contour row curvature becomes too sharp to keep equipment aligned with rows during field operations, establish sod turn strips on sharp ridge points. In drainageways, establish grassed waterways at least to the point of sharp curvature.

Areas of existing or potential concentrated flow erosion should be protected by grassed waterways, water and sediment control basins, underground outlets, or other suitable practices.

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

Where field slopes exceed the slope length limits given in the P subfactor section in Section I of the Field Office Technical Guide, consider one of the following to maintain the effect of the conservation practice:

- Establish structures such as terraces or diversions to break up the slope.
- Establish contour buffer strips or stripcropping to increase the slope length limits.

Critical slope lengths can be increased by retaining crop residue on the soil surface using crop residue management practices. Certain tillage practices can also be used on the cultivated strips to increase random roughness to cause deposition to occur in depressions between soil clods. Grass or grass-legume field borders should be used in place of end rows wherever end rows exceed 3 percent row grade**.**

Turn strips should be established when curves are too sharp to facilitate equipment operation.

Correction lines will be needed whenever furrow grade exceeds the planned row grade for the site. The width of correction areas, and the distance between them, may be adjusted for equipment size within the criteria given above.

Prior to design and layout, consider removing any obstructions or making changes in field boundaries or shape, where possible and feasible, to improve the effectiveness of the practice and the ease of performing farming operations.

Prior to layout, inspect the field's position on the landscape to find key points for commencing layout.

When slope length exceeds the critical slope length for the cover management condition best characterizing the field to be contoured and the soil loss objective is not reached, then establish structures, such as terraces, to reduce the slope length.

The residual cover provides early and late season nesting and escape cover for many species of wildlife displaced from other mowed areas.

PLANS AND SPECIFICATIONS

Specifications for installation and maintenance of Contouring shall be prepared for each field according to the Criteria, Considerations, and Operations and Maintenance described in this standard, and shall be recorded on Nebraska Conservation Planning Sheets, job sheets,

narrative statements in conservation plans, or other acceptable documentation.

OPERATION AND MAINTENANCE

Conduct all farming operations except on headlands or end rows with gradients less than the criteria set forth in this standard.

Mow sod turn strips and waterways at least annually.

Renovate vegetated field borders (headlands or end row area) as needed to keep ground cover above 65 percent. Renovation shall only include the immediate seedbed preparation and reseeding {refer to Field Border (386)}. Maintain adequate field border (headland or end row) width to allow farm implements room to turn.

All tillage and planting operations shall parallel terraces, diversions, contour stripcropping or contour bufferstrips where these practices are used, providing that the criteria for row grade described above are not exceeded.

Where these practices are not present, contour slope markers shall be established on grades which will accomplish the specified furrow grade, and be maintained as specified. Acceptable markers include narrow strips of perennial vegetation or marker rows. All tillage and planting operations shall parallel the established markers or marker rows.

Ridge height may vary throughout the year as a result of cultivation, equipment traffic, and weathering. Planting and other field operations shall be managed to maintain the design height during the most critical erosion periods (generally after planting).