

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

**RESIDUE MANAGEMENT, RIDGE TILL  
(Acre)  
CODE 329C**

**DEFINITION**

Managing the amount, orientation, and distribution of crop and other plant residues on the soil surface year-round, while growing crops on preformed ridges alternated with furrows protected by crop residue.

**PURPOSES**

This practice may be applied as part of a conservation management system to support one or more of the following purposes:

- Reduce sheet and rill erosion
- Maintain or improve soil quality
- Alleviate cool wet site conditions
- Provide food and escape cover for wildlife

**CONDITIONS WHERE PRACTICE  
APPLIES**

This practice applies to all cropland and other land where crops are grown. This practice will generally be used to produce row crops and in some instances small grains. It cannot be used effectively where hay is a part of the crop rotation.

This standard includes tillage and planting methods commonly referred to as ridge till or ridge planting.

**CRITERIA**

**General Criteria Applicable to All  
Purposes Named Above**

Following crop harvest and any secondary residue removal, residues shall be maintained until planting.

Ridge height shall be maintained throughout the harvest and winter seasons by controlling equipment or livestock traffic.

After planting, residues shall be maintained in the furrows until the ridges are rebuilt by cultivation. Ridges shall be rebuilt to their original height and shape during the last row cultivation.

Loose residues to be retained on the field shall be uniformly distributed on the soil surface. Use cultivation and planting equipment designed to operate on ridges.

Generally cultivators are equipped with ridging attachments and planters are equipped with ridge planting attachments such as row cleaning devices and guidance systems.

### **Additional Criteria to Address Sheet and Rill Erosion**

The effectiveness of amount and placement of residue needed, and the orientation of ridges in relation to the contour, shall be determined using the Revised Universal Soil Loss Equation (RUSLE).

Partial removal of residue or crop growth by baling or grazing shall be limited to retain the amount needed to achieve the desired objective.

Planting and fertilizer placement shall disturb no more than one third of the row width. After planting, the top of the ridge shall be maintained at least 3 inches higher than the furrow between the ridges.

The ridge shall be shaped to prevent erosion along the row by directing runoff to the protected furrow area.

### **Additional Criteria to Maintain or Improve Soil Quality**

The amount of biomass needed to achieve the desired soil organic matter content shall be determined using the soil conditioning index. If crop growth or residue is partially removed, adequate residue shall be maintained to achieve the desired level of soil organic matter.

Cultivation to rebuild ridges shall be done using tools which maintain residues in the surface layer.

### **Additional Criteria to Modify Cool Wet Site Conditions**

Ridge height prior to planting shall not be less than 6 inches. After planting, the top of the

ridge shall be maintained at least 3 inches higher than the furrow between the ridges.

### **Additional Criteria to Provide Food and Escape Cover for Wildlife**

Crop residues shall be managed to provide food and/or cover for the targeted wildlife species. Use an appropriate wildlife habitat evaluation procedure as needed. Stubble shall be left standing over winter.

The value of residues for wildlife habitat can be enhanced by leaving rows of unharvested crop standing at intervals across the field.

## **CONSIDERATIONS**

Ridge till may be practiced continuously throughout some crop sequences. Ridge till may be managed as part of a residue management system which includes other tillage and planting methods such as mulch till or no till; however, its effectiveness will be reduced. In mixed systems, ridges must be periodically re-established. Selection of acceptable tillage methods for specific site conditions may be aided by an approved Soil Tillage Suitability Rating.

Production of adequate amounts of crop residues necessary for the proper functioning of this practice can be enhanced by selection of high residue producing crops and crop varieties in the rotation, use of cover crops, and adjustment of plant populations.

By providing a choice of weed control methods, this practice can reduce herbicide requirement.

Where improvement of soil condition is a concern, continuous ridge planting will allow

organic material to accumulate in the surface horizon. Reconstruction of ridges in the same row area year after year will maximize organic matter buildup and biological activity in the row.

Soil compaction may be reduced by controlled traffic, where wheel traffic from all operations is limited to the area between designated rows or traffic areas.

Where ridges direct runoff to areas of concentrated flow, these areas should be protected by grassed waterways, water and sediment control basins, underground outlets, or other suitable practices.

Ridge till systems should be established using the contour farming standard (330). For systems meeting the contour standard, the residue level should be a minimum of 50% after planting.

If this standard cannot be met the strip cropping standard may be used to establish allowable deviation from row grades. If this standard is used, the residue level should be a minimum of 75% after planting.

### **PLANS AND SPECIFICATIONS**

Specifications for establishment and operation of this practice shall be prepared for each field or treatment unit according to the Criteria, Considerations, and Operation and Maintenance described in this standard. Specifications shall be recorded using approved narrative statements in the conservation plan, specification sheets, job sheets, or other acceptable documentation. Documentation shall include criteria for establishing row grade and minimum residue levels between the rows after planting.

### **OPERATION AND MAINTENANCE**

All equipment operations will be conducted to keep tire traffic off of the ridges. Small odd areas, point rows or other turning areas may need to be planted using no till to avoid turning on ridges. An alternative would be to establish permanent vegetation where turning areas are needed in the areas just described. Initially this practice is most effective if started by cultivating and ridging with the last cultivation one year prior to establishing the practice. In order to build up surface residues, grow corn the first two years of this practice, after which a low residue crop such as soybeans may be grown. Cover crops such as rye grain may also be used to increase surface cover.

### **REFERENCES**

1. National Agronomy Manual, USDA Natural Resources Conservation Service
2. Conservation Research Report No. 41, Crop Residue Management To Reduce Erosion and Improve Soil Quality – Appalacia and Northeast, USDA, Agricultural Research Service, Washington D. C., August 1995
3. Predicting Soil Erosion by Water: A Guide to Conservation Planning with the Revised Universal Soil loss Equation (RUSLE). USDA Agricultural Handbook No. 703, 1997

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