

USDA  
NATURAL RESOURCES  
CONSERVATION SERVICE  
DELAWARE  
CONSERVATION PRACTICE  
STANDARD

RESIDUE MANAGEMENT;  
SEASONAL

CODE 344  
(Reported in Acres)

**DEFINITION**

Managing the amount, orientation, and distribution of crop and other plant residues on the soil surface during part of the year, while growing crops in a clean tilled seedbed.

**PURPOSES**

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

- Reduce sheet and rill erosion.
- 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 standard includes residue management methods practiced during part of the year from harvest until residue is buried by tillage for seedbed preparation.

**CONSIDERATIONS**

Partial removal of plant residue by such means as baling or grazing may produce negative impacts on resources. The effects of residue removal shall be considered when evaluating the impacts on soil, water, air, plant, and animal resources. These activities should not be performed if the result is excess removal of plant residues.

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 and row spacing.

When planting on a clean seedbed, exposure to erosion can be minimized by performing secondary tillage no more than three days before planting and by limiting the number of secondary tillage operations to the minimum needed for adequate seedbed preparation.

When planting on a clean seedbed in areas with limited moisture, performing secondary tillage no more than three days before planting can increase moisture for germination.

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

**CRITERIA**

**Criteria Applicable to All Purposes**

Loose residues to be retained on the field shall be uniformly distributed on the soil surface. Residues should be uniformly distributed during or immediately following harvest.

**Additional Criteria for Sheet and Rill Erosion.**

The amount of residue needed to reduce erosion within the soil loss tolerance (T) or any other planned soil loss objective, shall be determined using the Revised Universal Soil Loss Equation (RUSLE) erosion prediction technology. Partial removal of residue by means such as baling or grazing shall be limited to retain the amount and distribution of residue needed. The remaining residue shall be maintained on the surface through periods when sheet and rill erosion has the potential to occur or until planting, whichever occurs first. Calculations shall account for the effects of other practices in the conservation management system.

Any tillage that occurs during the management period shall be limited to methods that leave residue on the surface and maintain the planned cover conditions.

### **Additional Criteria for Wildlife**

The amount of residue, height of the stubble, and length of the management period necessary for meeting habitat requirements for the target species or wildlife population shall be determined using an approved habitat evaluation procedure.

Residues shall not be removed unless it is determined by the habitat evaluation procedure that removal would not adversely affect habitat values.

Tillage shall be delayed until the end of the management period to maintain the food and cover value of the residue. Stubble shall be maintained standing over winter.

### **SPECIFICATIONS**

Plans and specifications for this practice shall be prepared in accordance with the previously listed criteria. Plans and specifications shall contain sufficient detail concerning site preparation and establishment to ensure successful management of the practice. Appropriate conservation practice standards shall be used for designing and installing structural and vegetative measures. Documentation shall be in accordance with the section "Supporting Data and Documentation" in this standard.

### **OPERATION AND MAINTENANCE**

Proper adjustment, operation, and maintenance of equipment is essential for successful implementation of this practice.

Monitor residue remaining when corn stalks are mechanically removed for fodder or bedding at start of field operations. Adjust equipment setting if removal percentage is too high to meet residue remaining target.

If livestock grazes crop residue, monitor fields on a regular basis and remove livestock when remaining residue meets minimum requirements.

### **SUPPORTING DATA AND DOCUMENTATION**

The following is a list of the minimum data and documentation to be recorded in the case file:

1. Extent of planting in acres, field number where the practice located, and the location of the practice marked on the conservation plan map.
2. Assistance notes.
3. Ensure the percent residue needed is recorded in the conservation plan.

### **REFERENCES**

1. Lamarca, Carlos Crovetto. Stubble Over the Soil: The Vital Role of Plant Residue in Soil Management to Improve Soil Quality, 1996.
2. Renard, K.G., G.R. Foster, G.A. Weesies, D.K. McCool, and D.C. Yoder. Predicting Soil Erosion by Water: A Guide to Conservation Planning with the Revised Universal Soil Loss Equation (RUSLE). USDA Agricultural Handbook No. 703, 1997.
3. USDA Agricultural Research Service, Conservation Research Report No. 41, Crop Residue Management To Reduce Erosion and Improve Soil Quality - Appalachia and Northeast Washington, D.C., August, 1995.
4. USDA NRCS. Delaware RUSLE Manual (FOTG)
5. USDA Natural Resources Conservation Service. National Handbook of Conservation Practices
6. USDA Natural Resources Conservation Service, National Agronomy Manual