

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

**RESIDUE MANAGEMENT, SEASONAL**

(Ac.)

**CODE 344**

**DEFINITION**

Managing the amount, orientation, and distribution of crop and other plant residues on the soil surface during a specified period of the year, while planting annual crops on a clean-tilled seedbed, or when growing biennial or perennial seed crops.

**PURPOSES**

- Reduce sheet and rill erosion.
- Reduce soil erosion from wind.
- Reduce off-site transport of sediment, nutrients or pesticides.
- Manage snow to increase plant available moisture.
- Provide food and escape cover for wildlife.

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies to all cropland and other land where crops are grown with the exception of:

- Non-irrigated cropland where winter grain/fallow rotations are followed or rotations that include low residue crops.
- Irrigated cropland subject to sheet and rill erosion with rotations that include low residue crops.

Seasonal residue management includes managing residues of annual crops from harvest until the residue is:

- Buried by tillage for seedbed preparation
- Removed by grazing, or
- Mechanically removed

It also includes the management of residues from biennial or perennial seed crops from the time of seed harvest until regrowth begins the next

season.

**CRITERIA**

**General Criteria Applicable to All Purposes**

A nutrient and/or pest management plan shall be prepared if required by the Quality Criteria for Water.

Residue shall be uniformly distributed over the entire field.

Combines or similar harvesting machines shall be equipped with spreaders capable of redistributing residues over at least 80 percent of the working width of the header.

When residues are left in rows after harvest or combines and harvesting machines do not adequately re-distribute residues, flail choppers, shredders, rotary mowers or harrows may be used to evenly distribute residue over the field surface.

Residues shall not be burned unless:

- Burning is an accepted practice in an Integrated Pest Management (IPM) program developed and recommended by the State Land Grant University.
- Residue shall not be burned unless the field(s) is to be immediately reseeded to a sod crop.

**Additional Criteria to Reduce Sheet and Rill Erosion and Erosion from Wind**

The amount and orientation of residue needed to reduce erosion within the soil loss tolerance (T) or any other planned soil loss objective shall be determined using current approved erosion prediction technology which includes Revised Universal Soil Loss Equation (RUSLE), Wind Erosion Equation (WEQ), Surface Irrigation Soil

## Loss Model (SISL).

Partial removal of residue by means such as baling, grazing, or other harvest methods shall be limited to retain the amount needed to meet the erosion reduction objective. The remaining residue shall be maintained on the surface through periods when erosion has the potential to occur, or until planting, whichever occurs first. Erosion prediction estimates 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 maintain the planned cover conditions.

### **Additional Criteria to Reduce Off-site Transport of Sediment, Nutrients or Pesticides.**

The amount and orientation of residue required to reduce off-site movement of agricultural chemicals during the specified period shall be determined using the appropriate assessment tool(s) [Windows Pesticide Screening Tool (WIN-PST), Phosphorus Index (PI), Leaching Index (LI), erosion prediction technologies, or other recognized tools] for the site conditions.

### **Additional Criteria to Manage Snow to Increase Plant-Available Moisture**

Harvesting equipment shall be adjusted to leave standing stubble at least 6 inches tall. Stubble shall be maintained in a standing orientation over winter to trap and retain snow.

Any tillage that occurs during this period shall be limited to undercutting tools such as blades, sweeps or similar implements that minimize residue flattening or burial.

### **Additional Criteria to Provide Food and Escape Cover 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.

Tillage operations shall be delayed until the end of the management period to maintain the food and cover value of the residue.

## CONSIDERATIONS

Removal of plant residue by baling or grazing may have a negative impact on resources. These activities should not be performed without full evaluation of impacts on other resources.

Where water quality is a concern, a buffer or filter strip should be placed between where the practice is applied and the water resource.

Application of animal waste which includes bedding or waste feed can be considered part of the minimum residue requirements. Manure application rates should be balanced with fertilizer applications as a part of a nutrient management plan.

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

Chopping or flailing straw after harvest on orchardgrass, tall fescue and perennial ryegrass seed fields promotes nutrient cycling, suppresses some weeds such as annual bluegrass and reduces nutrient and pesticide runoff.

When planting in a low residue seedbed, completing tillage and planting in a single operation, or by performing primary tillage no more than three days before planting can minimize exposure to erosion; and in limited moisture areas, can conserve moisture for germination. These "till-plant" systems can also increase the risk of root disease transmission from weeds and volunteer to the planted crop through the "green bridge" process.

Leaving standing stubble taller than the six inch minimum will increase the amount of snow trapped.

Leaving one or two rows of unharvested crop standing at intervals across the field can enhance the value of residue for wildlife habitat. Unharvested crop rows have the greatest value when they are adjacent to other cover types, such as grassy or brushy areas or woodland.

## PLANS AND SPECIFICATIONS

Site specific specifications are developed by the planner for each land unit being planned. Site

specific specifications are developed using current prediction and/or prediction tools, i.e.: RUSLE, WEQ, Soil Condition Index Rating, etc. and documented in the conservation plan &/or support documentation.

Specifications for establishment and operation of this practice shall be prepared for each field or treatment unit according to the Criteria described in this standard.

Specifications shall be recorded using Residue Management Seasonal Specification Sheet, 344-OR-Specification (under development), approved job sheets, narrative statements in the conservation plan, or other acceptable methods.

#### **OPERATION AND MAINTENANCE**

No operation and maintenance requirements have been identified for this practice.