

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

RESIDUE MANAGEMENT, SEASONAL

(Acre)
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.

PURPOSE

- Reduce sheet and rill erosion.
- Reduce soil erosion from wind and associated airborne particulate matter.
- Harvest and utilize renewable bioenergy feedstocks.
- Increase plant-available moisture
- Provide food and escape cover for wildlife

CONDITIONS WHERE THIS PRACTICE APPLIES

This practice applies to all cropland including cropland where biomass is removed for biofuel feedstocks.

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.

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service [State Office](#) or visit the [Field Office Technical Guide](#).

CRITERIA**General Criteria Applicable To All Purposes Stated Above**

Uniformly distribute all residues over the entire field.

Equip combines or similar harvesting machines with spreaders capable of redistributing residues over at least 80 percent of the working width of the header.

Do not burn residues unless burning is an accepted practice in an integrated pest management (IPM) program developed and recommended by the University of Florida, Institute of Food and Agricultural Sciences (IFAS). See [Florida NRCS conservation practice standard, Integrated Pest Management, Code 595](#), for further guidance on IPM.

Limit tillage operations during the residue management period to undercutting tools such as blades or wide sweeps that minimize residue flattening or burial

Avoid or minimize to the extent practical impact to cultural resources, wetlands, and Federal and State protected species during planning, design and implementation of this conservation practice. For more information, see National and Florida NRCS policy, [General Manual \(GM\) Title 420-Part 401, Title 450-Part 401, and Title 190-Parts 410.22 and 410.26](#); National Planning Procedures Handbook (NPPH, [Handbooks Title 180 Part 600](#)) FL Supplements to Parts 600.1 and 600.6; National Cultural Resources Procedures Handbook (NCRPH, [Handbooks Title 190 Part 601](#)); and The National Environmental Compliance Handbook (NECH, [Handbooks Title 180 Part 610](#)).

Additional Criteria To Reduce Sheet and Rill Erosion, Reduce Wind Erosion, and Harvest and Utilize Renewable Bioenergy Feedstocks

Determine the amount and orientation of residue needed to reduce erosion within the soil loss tolerance (T) or any other planned soil loss objective using current approved erosion prediction technology.

Limit partial removal of residue by means such as baling, grazing, or other harvest methods to retain the amount needed to meet the erosion reduction objective. Maintain the remaining residue on the surface through periods when

erosion has the potential to occur, or until planting, whichever occurs first. Account for the effects of other practices in the conservation management system when estimating erosion.

Additional Criteria to Provide Food and Escape Cover for Wildlife

Determine 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 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 crop 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.

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 in the rotation, by the use of cover crops, and adjustment of plant populations and row spacing.

If Residue Management (Florida NRCS conservation practice standard Codes 329, or 345) is planned for the following year crop, then adequate residue should be left to meet the minimum required for those practice standards.

When planting into a clean tilled 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.

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.

In areas that are in non-attainment for PM10, and for other areas with particular sensitivities to PM from dust, residue cover is especially important and should ensure that off-site PM levels are

below critical thresholds, including maintenance of proper visibility.

Consider the relationship between crop residues and soil fungi or organisms. Adequate residue will provide food and habitat to beneficial soil flora and fauna, which positively impacts: soil aggregate stability, moisture retention, infiltration, fertility, and breakdown of inorganic compounds.

Increased residue will affect water quality and quantity by increasing infiltration and decreasing runoff. Surface water quality will benefit from reduced runoff and reduced erosion. Greater infiltration provides more water in the soil profile for plant use.

No till planting annual spring small grains appropriate for the climatic zone in the fall, that winter-kill, will provide additional cover and/or feed for wildlife, grazing animals, soil erosion protection, and water retention without adding additional weed control measures.

PLANS AND SPECIFICATIONS

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.

Record specifications using approved job sheets, narrative statements in the conservation plan, or other acceptable methods.

Plans and specifications need to include at a minimum:

- Field number and acres
- Purpose(s) for this practice
- Crop Residue to be managed
- The method of how the residue will be managed (harvest, grazed, tilled)
- The time of the residue will be managed (harvest, grazed, tilled)
- The amount of residue removed by a harvest, grazing, or tillage
- The amount of residue to remain after a planned residue harvest, grazing, or tillage

OPERATION AND MAINTENANCE

Evaluate the effectiveness of the planned residue management to ensure the planned purpose(s) are being achieved. Adjust the management or choose an alternative technology if the management is not achieving the planned purpose(s).

REFERENCES

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- Shaffer, M.J., and W.E. Larson (ed.). 1987. NTRM, a soil-crop simulation model for nitrogen, tillage and crop residue management. USDA Conserv. Res. Rep. 34-1. USDA-ARS.
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