United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E345D

CONSERVATION STEWARDSHIP PROGRAM

Reduced tillage to increase soil health and soil organic matter content

Conservation Practice 345: Residue and Tillage Management, Reduced Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

Establish a reduced till system to increase soil health and soil organic matter content. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The crop rotation must achieve a soil conditioning index (SCI) of zero or higher and produce a positive trend in the Organic Matter (OM) subfactor over the life of the crop rotation. The current NRCS wind and water erosion prediction technologies must be used to document STIR and SCI calculations. Residue shall not be burned, grazed, or harvested.

Criteria:

- Uniformly distribute residues over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- Do not burn residues.
- Field must have an annual soil loss at or below the soil tolerance (T) level for the crop rotation.
- The Soil Tillage Intensity Rating (STIR) value shall include all field operations that are performed during the crop interval between harvest of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods). The crop

STIR value rating shall be no greater than 80, and no primary inversion tillage implements (e.g. moldboard plow) shall be used.

- Evaluation of the cropping system using the current approved soil conditioning index (SCI) procedure results in zero or higher and results in a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation (management SCI value).

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Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- ☐ During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- ☐ During implementation, no residue will be burned.
- ☐ During implementation, all residues will be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- ☐ During implementation, no primary inversion tillage implements (e.g. moldboard plow) will be used.
- ☐ After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- ☐ As needed, provide technical assistance to meet the criteria of the enhancement.

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- ☐ Prior to implementation, use information provided from the participant to calculate the soil loss and the Soil Tillage Intensity Rating values using current NRCS wind and water erosion prediction technologies. Verify the enrolled field(s) will have an annual soil loss at or below the soil tolerance (T) level for the crop rotation and a Soil Tillage Intensity Rating value of no greater than 80 for each crop in the planned rotation.
  "T" = _____t/ac/year Soil erosion = _____t/ac/year STIR values = _____
- ☐ Prior to implementation, use information provided from the participant and the approved soil conditioning index (SCI) procedure to verify the SCI is zero or higher and results in a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation. **SCI value = _____ and OM subfactor value = _____**
- ☐ During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- ☐ After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from the participant to calculate soil loss and the Soil Tillage Intensity Rating values to document that the applied rotation met the enhancement criteria.
  Soil erosion = _____t/ac/year and STIR values = _____
- ☐ After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from the participant to calculate soil conditioning index (SCI) and Organic Matter (OM) subfactor values to document that the applied rotation met the enhancement criteria. **SCI value = _____ and OM subfactor value = _____**

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

345 - Residue and Tillage Management, Reduced Till
Implementation Requirements

Producer: ______________________________ **Project or Contract:** ____________________

Location: ______________________________ **County:** ____________________

Farm Name: ______________________________ **Tract Number:** ____________________

Practice Location Map

(showing detailed aerial view of where practice is to be installed on farm/site, showing all major components, stationing, relative location to any landmarks, and survey benchmarks)

Index

____ Cover Sheet

Specifications
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____ Operation & Maintenance

Utility Safety / One-Call System Information

Description of work:

NRCS Review Only

Designed By: ______________________________ **Date:** ____________________

Checked By: ______________________________ **Date:** ____________________

Approved By: ______________________________ **Date:** ____________________

345 - Residue and Tillage Management, Reduced Till
Implementation Requirements

The Practice Purpose(s): (check all that apply)

__ Reduce sheet, rill, and wind erosion.

__ Reduce tillage-induced particulate emissions.

__ Maintain or increase soil quality and organic matter.

__ Reduce energy use.

__ Increase plant-available moisture.

Attach a RUSLE2 Profile printout or a WEPS printout that displays:

1. Planned crop(s).
2. Specific equipment operations for each crop.
3. The planned residue amounts: (1) after harvest of the prior crop and (2) for planned residue cover after seeding the planned crop.
4. The Soil Tillage Intensity Rating (STIR) and Soil Condition Index (SCI).

Additional Specifications to Increase Plant-Available Moisture (check all that are appropriate)

___ **Reducing Evaporation from the Soil Surface.** Maintain a minimum 60 percent surface residue cover throughout the year.

___ **Trapping Snow.** Fall tillage operation shall leave the crop stubble in an upright position. Maintain a crop stubble height during the time significant snowfall is expected to occur to:

__ At least 10 inches for crops with a row spacing of less than 15 inches;

__ At least 15 inches for crops with a row spacing of 15 inches or greater.

Maintain these heights over at least 50% of the field.

___ Conduct fall tillage operations as close as possible to perpendicular to the direction of prevailing winds during the time that significant snowfall is expected to occur.

Operation and Maintenance:

Evaluate/measure the crop residues cover and orientation for each crop to ensure the planned amounts and orientation are being achieved. Adjust management as needed to either plan a new residue amount or orientation; or adjust the planting, tillage, or harvesting equipment.

ATTACHMENTS:

___ **RUSLE2 and/or** ___ **WEPS Printouts**