



CONSERVATION ENHANCEMENT ACTIVITY

E329D

CONSERVATION STEWARDSHIP PROGRAM

No till system to increase soil health and soil organic matter content

Conservation Practice 329: Residue & Tillage Management, No Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Establish a no 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 20. The crop rotation must achieve a soil conditioning index (SCI) of zero or higher. 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

- All residues must be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- Residue must not be burned, grazed, or harvested.
- No full-width tillage is performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation regardless of the depth of the tillage operation. The Soil Tillage Intensity Rating (STIR) value shall include all field operations that are performed during the crop interval between harvest or termination of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods). The crop STIR value shall be no greater than 20.

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- Evaluation of the cropping system (management) 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.
- Residue and Tillage Management, No till (329) Implementation Requirements document must be completed per the plans and specifications for the purpose of increasing soil health and organic matter.

Considerations to increase soil health and organic matter content

Carbon loss is directly related to the volume of the soil disturbed, intensity of the disturbance and the soil temperature and moisture at the time the disturbance occurs. Consider the following best management practices to increase the SCI and subsequent OM subfactor value:

- When deep soil disturbance is performed, such as by subsoiling or fertilizer injection, make sure the vertical slot created by these implements is closed at the surface.
- Planting with a single disk or slot opener no-till drill will release less CO₂ and oxidize less organic matter than planting with a wide-point hoe/chisel opener seeder drill.
- Soil disturbance that occurs when soil temperatures are below 50° F will oxidize less organic matter and release less CO₂ than operations done when the soil is warmer.
- Maximizing year-round coverage of the soil with living vegetation (e.g., cover crops) and/or crop residues builds organic matter and reduces soil temperature, thereby slowing organic matter oxidation.
- Use a diverse crop rotation, incorporating multiple crop types (cool-season grass, cool-season legume/forb, warm-season grass, warm-season legume/forb) into the crop rotation.
- Plant a cover crop after every cash crop in the rotation. Multi species cover crop mixes provide greater benefits than single-species cover crops.

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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, grazed, or harvested.
- 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 full-width tillage may be performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation regardless of the depth of the tillage operation.
- After implementation, if changes to the rotation were made, complete the tables above to document the applied crop rotation for the contract period and provide to NRCS.



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NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement.
- Prior to implementation, use information provided from the participant to calculate the Soil Tillage Intensity Rating (STIR) values using NRCS wind and water erosion prediction technologies. Verify the enrolled field(s) will have a Soil Tillage Intensity Rating value of no greater than 20 for each crop in the planned rotation.
STIR values for each crop = _____
- 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 the Soil Tillage Intensity Rating values to document that the applied rotation met the enhancement criteria.
STIR values for each crop = _____
- 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

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