



CONSERVATION ENHANCEMENT ACTIVITY

E484A

CONSERVATION STEWARDSHIP PROGRAM

Mulching to improve soil health

Conservation Practice 484: Mulching

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Implement a crop rotation which utilizes mulch and addresses all four principle components of soil health – increases diversity of the cropping system; maintains residue throughout the year; keeps a living root; and minimizes soil chemical, physical, and biological disturbance. Plant-based mulching materials will be applied at least once during the rotation. The rotation will include at least four different crops and/or cover crops grown in a sequence that will produce a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). The current NRCS wind and water erosion prediction technologies must be used to document the rotation and SCI calculations.

Criteria

- Use plant-based mulching materials of suitable quantity and quality to add organic matter, provide food and shelter for soil biota, and protect the soil surface from raindrop impact and crusting while allowing for adequate soil aeration.
- Apply plant-based mulching materials with a carbon to nitrogen ratio (C:N) less than 30 to 1 to reduce soil nitrogen immobilization by soil biota (typical ratio examples – hairy vetch cover crop 11:1, fresh grass clippings 17:1, mature alfalfa hay 25:1, corn stalks 60:1, wheat straw 80:1, and pine needles 80-110:1).
- Do not apply mulch with C:N less than 20:1 to an area of designed flow in watercourses.



CONSERVATION STEWARDSHIP PROGRAM

- The crop rotation includes at least four crops and/or cover crops grown in a sequence.
- An evaluation of the system using the current approved SCI procedure results in zero or higher.
- Use mulch of sufficient ground cover and suitable thickness and texture to provide habitat for ground beetles, spiders, and other predators of weed seeds and crop pests.
- Select crops to be mulched, mulching materials, and rates of application that do not contribute to pest problems.
- For all organic or transitioning-to-organic operations, follow all National Organic Program (NOP) rules.

North Dakota Sideboards:

Cropping system soil loss must be at or below "T".



Documentation and Implementation Requirements

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Participant will:

- ☐ Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop. The crop rotation must include at least four crops and/or cover crops grown in a sequence.

| Field | Acres | Planned Crops (in sequence) | Length of Crop Rotation (years) |
|-------|-------|-----------------------------|---------------------------------|
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| | | | |
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| Field | Crop | Field Operation | Timing of Field Operation (month/year) |
|-------|------|-----------------|--|
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- ☐ Prior to implementation, provide NRCS with the planned mulching information. Select crops to be mulched, mulching materials, and rates of application that do not contribute to pest problems.

| Field | Crop | Mulching Material | Planned Rate of application (pounds/acre) | Planned Application Date |
|-------|------|-------------------|---|--------------------------|
| | | | | |
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- ☐ During implementation, notify NRCS of any planned changes in the cropping system, crop management, or mulching to verify the planned system meets the enhancement criteria.
- ☐ During implementation, use mulch of sufficient ground cover and suitable thickness and texture to provide habitat for ground beetles, spiders, and other predators of weed seeds and crop pests.



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- ☐ After implementation, provide NRCS with the applied mulching information.

| Field | Crop | Mulching Material | Actual Rate of application (pounds/acre) | Actual Application Date |
|-------|------|-------------------|---|----------------------------|
| | | | | |
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- ☐ If changes were made to crop rotation or tillage operation(s) after implementation, complete the tables above to document the changes.

NRCS will:

- ☐ As needed, provide technical assistance to meet the criteria of the enhancement.
- ☐ Prior to implementation, verify that the crop rotation includes at least four crops and/or cover crops grown in a sequence.
- ☐ Prior to implementation, use information provided from the participant to calculate the Management SCI value using current NRCS wind and water erosion prediction technologies. **Management SCI Value = _____**
- ☐ During implementation, evaluate any planned changes in the cropping system, crop management, or mulching to verify the planned system meets the enhancement criteria.
- ☐ If changes were made from the planned system after implementation, use information provided from the participant to calculate Management SCI value to document that the applied system met the enhancement criteria. **Management SCI Value = _____**



United States Department of Agriculture

NRCS Documentation Review:

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

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Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date