



CONSERVATION ENHANCEMENT ACTIVITY

E528P

CONSERVATION STEWARDSHIP PROGRAM

Implementing Bale or Swath Grazing to increase organic matter and reduce nutrients in surface water.

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture, Crop (Annual & Mixed), Crop (Perennial)

RESOURCE CONCERN: Soil, Water

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Improve organic matter, aggregate stability and soil organism habitat in the soil by leaving the biomass harvested from the field on site for animal use, or supplementing organic matter needs with off-field forages. Grazing harvested forages in this manner, will help to incorporate organic matter, feed and diversify the soil microbiome, build better aggregation and increase soil health and critical functions such as infiltration, nutrient cycling, and weather resilience. Forages should be placed evenly throughout the field, but can be concentrated in areas where particular concerns, such as bare ground, need to be remedied. Decisions of forage placement must take into account areas that would be sensitive to such activity such as protecting surface waters from nutrients or steep slopes from erosion.

Criteria

- A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.
- Graze harvested forages to help incorporate organic matter into the soil and to optimize delivery of nutrients to the animals by incorporating the intensity, frequency, timing and duration of grazing and/or browsing needed as determined by



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a planning process that includes: 1) Clear objectives, 2) A resource inventory including a forage inventory, structural improvements and existing resource conditions, 3) Grazing plan, and 4) All potential contingency plans.

- Supplemental feed and/or minerals will be provided as needed to meet the nutritional requirements of the kind and class of grazing and/or browsing livestock.
- Forage access should be designed to meet the objective of the identified resource concern(s) of the field and may be concentrated in areas where concerns, such as bare ground, need to be remedied. Decisions of forage placement must consider areas that would be sensitive to such activity such as protecting surface waters from nutrients or steep slopes from erosion. Bales may be unrolled if this design more effectively addresses the resource concern.
- Baling and swathing on fields where this enhancement is applied should meet stubble heights found in NRCS Conservation Practice Standard Forage Harvest Management (Code 511).
- Off-field forages used should not contain noxious or invasive weeds.
- **Test soil** annually to monitor build-up of excessive nutrient levels. Select sites with low to moderate soils test to supplement organic matter and provide nutrients. Avoid sites with already high nutrient levels. Consideration soil texture constraints for bale locations.
- All non-degradable bale material must be removed from the field when bales are gone.
- Use electric fencing or separate paddocks to control livestock access to bales or swaths to ensure forages are used efficiently.



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Considerations:

- Bales with plastic twine should be placed on their ends to facilitate removal of twine prior to feeding. Net wrap may be left on to assist with controlled feeding.
- Design the size of area or number of bales or swaths to provide enough feed for the livestock for the desired period. (usually 2-5 days). Example:

Average weight of round bale: 900 #

Dry Matter (% dry × bale weight): $85\% \times 900\# = 765\#$

Loss for storage and feeding waste ($765\# \times 75\%$) = 574# DM*/Bale

$574\# \text{ DM}^* \div 30\# \text{ DM/Cow/Day} = 19 \text{ cows would use one round bale per day}$

$100 \text{ cows} \div 19 \text{ cows/round bale/day} = 5.2 \text{ bales per day to feed the herd}$
 $5.2 \text{ bales per day} \times 90 \text{ days} = 468 \text{ bales}$

$468 \text{ bales} \div 25 \text{ bales per acre} = 19 \text{ acres needed to bale graze (designated feeding area).}$

Conversions

1 AUM = 913 lbs AD forage/AU/Mo

$913 \text{ AUM}/30.5\text{days} = 30\# \text{ DM/day}$

DM = dry matter

*Air dried



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Documentation and Implementation Requirements

Participant will:

- Y Prior to implementation, acquire a Grazing Management Plan on field(s) where swath or bale grazing is planned and provide to NRCS for review and approval. Plans must include all the following components:
 - Producer goals, objectives and resource concerns
 - Location and condition of structural improvements
 - Watering sites with availability, quantity and quality
 - Forage inventory
 - Forage-animal balance sheet
 - Grazing plan for livestock movement
 - Contingency plan
 - Monitoring plan
 - Calculations for determining number of bales or swath rows needed:
 1. Herd size: _____
 2. Average bale weight or swath production (pounds per acre): _____
 3. Average forage Dry Matter (DM)% _____
 4. Average DM # Intake/Cow/Day _____
 5. Number of bales or swath row area needed per day: _____
 6. Spacing of bales (if applicable) based on local criteria _____
 7. Duration of bale or swath grazing (days) _____
 8. Acres needed for bale or swath grazing period: _____
- Y Prior to implementation, identify location(s) where bale or swath grazing will occur and proximity to sensitive areas such as surface water and soil and drainage limitations.
- Y Prior to implementation, provide current soil test results (no older than 2 years) in identified areas for bales or swaths to NRCS.
- Y During implementation record location(s) of bale placement or swathing.
- Y During implementation, keep records of livestock movement through bale or swathing areas.
- Y During implementation, monitor livestock condition and feed quality.
- Y During implementation, record swathing or mowing heights.
- Y After implementation, provide the following items for review by NRCS:
 - A map showing bale or swath grazing areas.
 - Forage-animal balance sheet
 - Records of livestock movement through bale or swathing areas.



- Records of swathing or mowing heights.
- Written modifications to grazing management plan based on results of prior bale/swath grazing season and soil test results

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NRCS will:

- Y As needed, provide technical assistance to participant as requested
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (Code 528) and supporting documents that are needed to implement this enhancement, such as forage-animal balance forms
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage Harvest Management (Code 511) stubble height requirements
- Y Prior to implementation, provide assistance with bale spacing recommendations and calculations for determining number of bales or swath rows needed
- Y Prior to implementation, review soils test results for identified on bale/swath grazing areas
- Y After implementation, review map and locations of bale/swath grazing areas
- Y After implementation, review records of livestock movement through bale/swath grazing areas
- Y After implementation, review forage-animal balance sheet
- Y After implementation, review records of mowing/swathing heights
- Y After implementation, review modifications made to the grazing management plan

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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ND Sideboards:

- Rangeland land-use ineligible for this enhancement.
- Do not feed within 300 feet of perennial and intermittent streams, drainage ways, field ditches, or open water.
- Do not feed on slopes that drain directly into surface water.
- This enhancement is ineligible within existing feeding areas.
- This enhancement is meant to move the feeding event around the designated feeding area, feeding on one spot (without moving the feeding event around) will not meet the scope of this enhancement.
- Do not plan consecutive years on the same designated feeding area.
- Designated feeding areas that were bale or swath grazed during the prior year are ineligible.
- Do not feed pastures seeded to native species, as this will likely cause plant mortality and increase competition from exotic cool-season grasses.
- Calculations on page 3 must be completed to justify duration of feeding and to justify the size of the designated feeding area.
- For more information on planning this enhancement please see the following links:
 - <https://www.ag.ndsu.edu/publications/livestock/alternative-winter-feeding-strategies-for-beef-cattle-management>