



CONSERVATION ENHANCEMENT ACTIVITY
New Mexico Supplement

CONSERVATION
STEWARDSHIP
PROGRAM

E528P

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 (Perennial), Range,

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 a planning process that includes

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- 1) Clear objectives,
- 2) A resource inventory including 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.
- 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 (baling twine, etc.).
- Use electric fencing or separate paddocks to control livestock access to bales or swaths to ensure forages are used efficiently.

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:

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Average weight of round bale: 900 #

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

Loss for storage and feeding waste (765# × 75%) = 574#

DM/Bale

574# DM ÷ 30# DM/Cow/Day = 19 cows would use one round bale per day 100 cows

÷ 19 cows/round bale/day = 5.2 bales per day to feed the herd

5.2 bales per day × 90 days= 468 bales

468 bales ÷ 25 bales per acre = 19 acres needed to bale graze.

New Mexico Requirements:

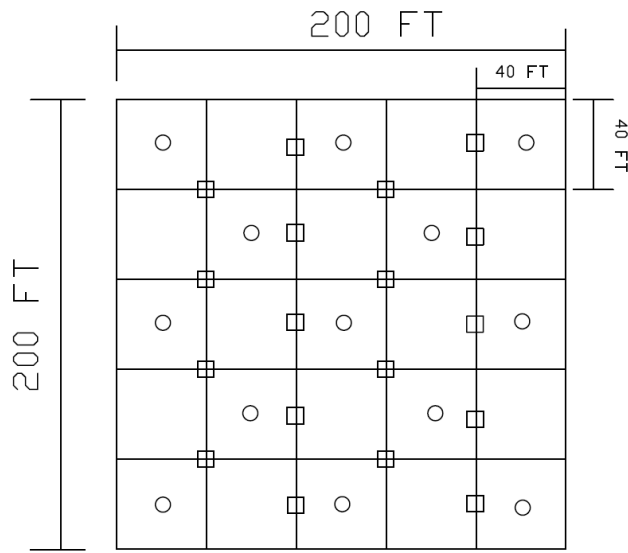
- A minimum of 25% of the bale weight must be left as residue. For areas with extensive bare ground (i.e cropland), 50% is recommended. The example calculation above uses 75% of hay left after losses so it meets the minimum of 25% left as residue.
- The area to be used for bale/swath grazing must be excluded from grazing post treatment. Temporary fencing may be necessary.

Considerations

- Recommended bale spacing is a checkerboard fashion at 30-40 feet. This will allow for 13-20 bales, depending on checkerboard pattern (see visual aid on next page). Lower bale number for larger bales, increased bale numbers for smaller bales.
- Another way of doing the calculation is to set a goal of residue (1,000- 3,000 pounds per acre). The example above leaves 3,325 pounds of residue per acre: 468 bales each leaving 135 pounds, on 19 acres. When working on lower functioning soils (i.e. rangeland, continually tilled cropland) a lower residue goal should be considered.
- Planners/Participants must calculate feed/forage balance to determine length of grazing period per acre, based upon the weight of bales being used. See example below for a 1000 lbs. residue.
 - Producer’s bales weigh 1500 lbs
 - 13 bales will be used = 19500 lbs; less the 1000 lbs residue = 18,500 lbs
 - 18,500 lbs / 30lbsAU/day = 616 AU days per acre (6.1 days of grazing on 1 acre for 100 AU



***Major Consideration for producers to utilize, if possible, the mid-sized bales, weighing closer to 1000 pounds. This will reduce stock density (lbs of beef per acre) minimizing compaction.



**Visual aid -- 200' x 200' is approximately a square acre. Circles represent checkerboard pattern for larger bales (13) and smaller squares represent the checkerboard pattern for mid-sized bales.

Documentation and Implementation Requirements

Participant will:

- 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. Producer goals, objectives and resource concerns
 - Location and condition of structural improvements
 - Watering sites with availability, quantity and quantity
 - 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: _____



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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: _____

- 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.
- Prior to implementation, provide current soil test results (no older than 2 years) in identified areas for bales or swaths to NRCS.
- During implementation record location(s) of bale placement or swathing.
- During implementation, keep records of livestock movement through bale or swathing areas.
- During implementation, monitor livestock condition and feed quality.
- During implementation, record swathing or mowing heights.
- 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

NM Requirements:

- The NM Supplement for Prescribed Grazing (528) must be followed.
- All changes to the calculations for determining the number of bales or swath row needed must be approved by NRCS district conservationist (DC) prior to implementing the change.
- During implementation, participant must take photos of residue after bale/swath grazing has occurred. Photos should have a ruler, frame or other item for scale reference.
- After implementation, participant must provide to NRCS photos of residue after bale/swath grazing has occurred.



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NRCS will:

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

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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