



**CONSERVATION ENHANCEMENT ACTIVITY**

**E528A**

**CONSERVATION STEWARDSHIP PROGRAM**

**Maintaining quantity and quality of forage for animal health and productivity**

**Conservation Practice 528: Prescribed Grazing**

**APPLICABLE LAND USE: Pasture, Range, Associated Ag Land**

**RESOURCE CONCERN: Animals**

**ENHANCEMENT LIFE SPAN: 1 year**

**Enhancement Description**

Managing the harvest of vegetation with grazing and/or browsing animals for the purposes of maintaining desired pasture composition/plant vigor and improving/maintaining quantity and quality of forage for the animals' health and productivity following the recommendations of a qualifying professional, as detailed in the documentation and implementation requirements.

**Criteria**

- A written plan matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.
- Removal of herbage will be in accordance with site production limitations, rate of plant growth, the physiological needs of forage plants, and the nutritional needs of the animals.
- Deferments will be planned and implemented for critical periods of plant needs (such as post-planting or renovation, severe drought, etc.).
- Manage grazing and/or browsing animals to maintain adequate cover on sensitive areas (such as riparian areas, wetlands, habitats of concern, karst areas, etc.).

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- Manage livestock movements based on rate of plant growth, available forage, and allowable utilization target. Develop and follow contingency plans to deal with episodic disturbance events.
- Plan grazing and/or browsing to match forage quantity and quality goals of the producer within the capability of the resource to respond to management. Plan the intensity, frequency, timing, and/or browsing to reduce animal stress and mortality from toxic and poisonous plants.
- Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
- The Certified Consultant provided recommendations or qualified, non-affiliated consultant (see documentation requirements) will be based on the National Research Council's Nutrient Requirements of Domestic Animals.



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## Documentation and Implementation Requirements

### Participant will:

- Y Prior to implementation, make initial target livestock performance goals and mediation actions taken available to NRCS; including reasons for no action.
- Y Prior to implementation, obtain a written plan for collecting samples, sample analysis, and corresponding management recommendations as developed and provided by a Certified Range Management Consultant, Certified Professional in Range Management, Certified Forage and Grassland Professional, NRCS Technical Service Provider certified for CAP 110, or a non-affiliated consultant with a bachelor or higher level degree in forage agronomy, range science, animal science, animal nutrition or other closely-related plant science discipline or a minimum of five years' experience in grazing lands conservation planning and grazing animal nutrition.
- Y During implementation, keep records to annually document prescribed grazing requirements are met.
- Y After implementation, make available documentation of protein and energy of consumed forages/browse based on a land grant university laboratory analysis. The analysis may be based on collected sample of the forage available to the livestock or fecal samples analyzed with appropriate Near-infrared spectroscopy (NIRS). This analysis needs to illuminate shortfalls and/or excessive amounts of protein and energy. **Samples must be submitted in a timely manner to allow for appropriate adjustments in management and/or supplementation.**
- Y After implementation, make grazing and supplementation records available for review by NRCS.

### NRCS will:

- Y Prior to implementation, assist the participant with development of a grazing plan if requested to do so.
- Y During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.
- Y After implementation, review forage or fecal sampling schedule and corresponding management actions taken to determine if a supplementation plan was reasonably followed.

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Y After implementation, annually review documentation provided indicating that prescribed grazing specifications have been met and to verify the enhancement has been implemented.

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### **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



## SOUTH DAKOTA (SD) SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

## CONSERVATION STEWARDSHIP PROGRAM

### E528A

#### Maintaining quantity and quality of forage for animal health and productivity

##### Additional Criteria for SD:

In addition to the criteria specified in the national job sheet E528A, the following additional criteria apply in SD:

- Participants may choose to utilize fecal sampling or forage sampling to meet the criteria of this enhancement (**though forage sampling is highly recommended**).
- Fecal sampling information can be found at the GANLab website:  
[https://cnrit.tamu.edu/nutbal\\_online/pages/user/default.jsp](https://cnrit.tamu.edu/nutbal_online/pages/user/default.jsp)
- See *Recommendations from Adele Harty and Dr. Ken Olsen*, as listed below for additional information on how to successfully implement this enhancement.
- Participants will utilize resulting reports along with written recommendations from their chosen certified professional to determine what, if any, management changes are needed, and document supporting rationale.
- Recommend the participant to provide the name of certified professional they are working with to the field office. Certified professionals must have the following credentials:
  - Information on Certified professionals can be found at the Society for Range Management web site: <https://rangelands.org/committees/entry/52/> or at the American Forage and Grassland Council's web site: <https://www.afgc.org/i4a/pages/index.cfm?pageid=3328>.
  - Professionals may also be a consultant with a bachelor or higher-level degree in forage agronomy, range science animal science, animal nutrition, or other closely related plant science discipline or a minimum of five years' experience in grazing lands conservation planning and grazing animal nutrition.
- For additional help and guidance with this enhancement, contact an Area Range Management Specialist.



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### Requirements for Grazing Management:

- Maximum 50 percent (%) utilization. Ocular methods on key or representative areas are adequate, but utilization methods such as landscape appearance or key species should be used to calibrate field estimates. Exceptions include dormant season grazing (60% utilization) and grazing prescriptions on rangeland that are designed to alter the present plant community through intensive grazing by livestock (i.e., suppression of invasive species). In these cases, the desired degree of use of management species should be documented within the grazing plan and/or assistance notes.
- Adequate plant recovery periods must be provided. On rangelands provide a minimum of 45 days of growing season recovery between grazing events during the growing season. On pasture provide a minimum of 30 consecutive days of growing season recovery between grazing events. The growing season is approximately April 1 through October 1.
- Alter timing of grazing in each pasture by at least 2 weeks from year to year.
- For additional information see the SD Prescribed Grazing Standard (528) and the appropriate SD Range Technical Note.

### Additional Documentation Requirements for SD:

In addition to the documentation requirements specified in the National job sheet E528A, the following additional documentation requirements apply in SD.

- Provide sample reports as recommended by consultant, and record of management decisions made from consultant.
- Complete the SD Grazing Tool (SD-CPA-39 Forage/Animal Inventory, Grazing Schedule using the SD-CPA-15 or similar form, and SD-CPA-16).
- Complete a drought contingency plan using the SD Drought Tool or provide the participant with a copy of the example drought contingency plan located within the SD Prescribed Grazing Technical Note 9 (or available on the NRCS website <https://www.nrcs.usda.gov/wps/portal/nrcs/main/sd/technical/landuse/pasture/>).



*Recommendations for participants and consultants as written by Adele Harty and Dr. Ken Olsen (South Dakota State University (SDSU) Extension Specialists):*

**Setting livestock performance goals:**

Performance of grazing livestock is largely driven by nutrients harvested in grazed forage. Performance goals for grazing livestock need to be clearly defined so evaluation of nutrient content of grazed forage can be meaningfully used to monitor and manage livestock response to grazing and other management practices. A producer using this enhancement should set goals for the nutritional status of their livestock at critical times during the year (e.g. calving, breeding, weaning) to ensure they meet their performance goals. The forage sampling criteria of this enhancement should allow a producer to assess how management has affected the livestock’s ability to meet nutritional status and performance goals.

A good goal meets the SMART criteria. SMART stands for Specific, Measurable, Achievable, Relevant, and Time bound. Writing a goal that meets all 5 criteria ensures that it will provide a meaningful target. In brief, **Specific** means that the goal is clear and focused. **Measurable** means that one can evaluate whether progress has been made. **Achievable** means that it is possible to fulfill the goal in the time specified. **Relevant** means that it matters to the success of the grazing operation. **Time bound** means that a deadline is set for when the goal will be completed. An example of a SMART goal is:

*Sample forage at 3 or more critical times of the year when crude protein is likely to be deficient and provide protein supplement when needed to ensure cow body condition is at least 5 (on a 1 to 9 scale) at calving so she can conceive at initiation of breeding.*

This example meets all SMART criteria. However, because it is specific to the influence of crude protein on reproductive performance, other goals likely need to be set each year to fulfill other needs.

**Suggested Sampling Schedule (may be adjusted to fulfill goals):**

When practical, it is recommended that participants schedule 6 sample collection times that correspond to critical periods during the annual production cycle of the livestock. When the grazing animals being evaluated are grazing for longer time frames, and spanning several growing and non-growing periods, a 6 or more sample protocol may be appropriate. Sampling periods should focus on times that nutrient requirements may not be met, or nutrient imbalances may occur. For example, crude protein content declines as forage matures. Forage sampling from green-up until seed set will likely not be needed, but sampling should occur from seed set through dormancy to understand when a protein supplement may be needed. On the other hand, if sampling is being conducted to understand mineral status of livestock, then



sampling should occur throughout the grazing season. Again, choosing the collection times will need to be carefully scheduled to fulfill multiple goals such as these examples. Below is an example of a 6-sample collection strategy.

- May (early spring vegetative growth)
- June (rapid elongation phase)
- July (headed out cool-season grasses)
- August (headed out warm-season grasses)
- October-November (fall dormancy)
- January-February (winter)

### Suggested Sampling Protocol

Sampling pastures and other grazing resources requires appropriate sampling procedures. Grazing ruminants are highly selective and always consume a diet that is higher in nutritional value compared with a clipped sample used for estimating total forage production. Clipping to ground level in a plot frame will represent everything and therefore will always underestimate the nutritional value of the selected diet. Basing management recommendations on underestimated nutritional values could lead to unnecessary and expensive interventions such as supplementation when it is not needed.

Producers are encouraged to observe what forage plants and/or parts (leaves vs. stem) their livestock are grazing prior to sampling. After observing patterns of livestock use, they should hand-pluck samples from throughout a pasture. To sample throughout the pasture, a producer could walk a series of transects across the pasture to form a grid that covers the entire pasture and collect samples at fixed intervals. Alternatively, if there are major portions of the pasture that are ungrazed by the livestock, then it may be better to sample along a path that covers the area of livestock use. The samples should be hand harvested to imitate what livestock are consuming. For example, if a producer reaches a sampling point on his/her sampling path and sees a grazed western wheatgrass plant, he/she should find a nearby ungrazed western wheatgrass plant and remove a similar amount of material to that of the grazed plant. Being able to identify plant species can be helpful in this process. However, even though the name of the species of a grazed plant may not be known, recognizing and sampling from a similar plant should not be difficult. Do not focus on just grasses. Watch for utilization on forbs and shrubs so similar species can be sampled as well.

Producers should collect enough sample from different kinds of plants to adequately represent what the livestock are grazing at the time of collection from that pasture. A good amount would be enough to fill a brown paper lunch sack. Producers should use a paper bag and air dry the sample. Producers should make notes of what types of plants were sampled and record the date of the sample. Photos of grazed and ungrazed plants would also be helpful to record.





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Producers may have more than one herd that they want to collect samples from (e.g. cows, bred heifers, bulls may be in different pastures). It will be important to keep accurate notes and label the sample bags accordingly.

The following YouTube video produced by SDSU extension highlights forage sampling techniques that best replicate livestock forage selection: <https://youtu.be/O6MVUcKSeik>

Producers should send their dried samples to a feed testing laboratory of their choice. A listing of feed testing laboratories can be found at the end of this document. Samples should be sent after each collection period. At a minimum, producers should request crude protein analysis and calculated energy content (e.g., TDN, NEm, NEg). Most laboratories will provide the choice of wet chemistry or NIRS evaluation of protein and energy. While wet chemistry is more expensive than NIRS, it will provide more accurate results. This is especially true for range pasture samples that contain a diversity of plant species. Consider requesting other nutrients as well, particularly minerals. If requesting minerals, both macro and trace minerals are important and wet chemistry must be used.

### Evaluating report information

Reports from most laboratories will have common features. In general, results for each nutrient will be provided on an as-fed (or as-received) and a dry matter (DM) basis. As-fed means that the values include the moisture content of the sample as it was received at the laboratory. Because different feeds vary in moisture content (i.e., silage vs. hay), it is important to use DM results so that nutritional value is considered on an equal moisture basis.

Values from the report should be compared to nutrient requirements for the species and class of livestock that is grazing the pasture that was sampled. For beef cattle, nutrient requirements can be found at the following link <https://extension.okstate.edu/fact-sheets/print-publications/e/nutrient-requirements-of-beef-cattle-e-974.pdf>. For further information about managing mineral nutrition of beef cattle, the SDSU Cattle Mineral Nutrition program is recommended (for further information on the Mineral Nutrition program, contact Adele Harty ([adele.harty@sdstate.edu](mailto:adele.harty@sdstate.edu))). If nutrient results are less than requirements or are not balanced, work with your consultant to develop a management plan that overcomes the issue.

### Feed Testing Facilities in the South Dakota Region

Feed testing laboratories should be certified by an accreditation organization that verifies the accuracy and repeatability of their laboratory procedures. The National Forage Testing Association (NFTA) provides a rigorous laboratory certification program and all laboratories listed below have NFTA certification for analyses by NIRS, wet chemistry, or both, as indicated for each.

AgLab Express  
3600 S. Minnesota Ave, Suite #200



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507-766-

Sioux Falls, SD 57105  
Phone: 605-271-9237  
<http://www.aglabexpress.com/index.php>  
NFTA certified for NIRS analysis only

American Agricultural Laboratory, Inc  
700 West D Street  
McCook, NE 69001  
308-345-3670  
<https://www.amaglab.com/>  
NFTA certified for NIRS and wet chemistry analysis

Dairyland Laboratories  
PO Box 580  
919 Lincoln Ave  
St. Cloud, MN 56379  
320-240-1737  
<https://www.dairylandlabs.com/>  
NFTA certified for NIRS only

Dairyland Laboratories  
N29621 N Creek Rd  
Arcadia WI 54612  
608-323-2123  
<https://www.dairylandlabs.com/>

NFTA certified for NIRS and wet chemistry analysis  
Frontier Mills  
2002 SD Hwy 314  
Yankton, SD 57078  
605-665-2441  
<https://www.frontiermills.com/>  
NFTA certified for NIRS analysis only

New Ulm, MN  
56073  
Phone: 800-  
782-3557 or  
4705

<http://www.mvtl.com/>  
NFTA certified for wet chemistry analysis only

Servi-Tech Laboratories  
PO Box 169  
1602 Park West Dr.  
Hastings, NE 68901  
402-463-3522  
<https://servitechlabs.com/>  
NFTA certified for NIRS and wet chemistry analysis

Valley Hay Labs  
PO Box 221  
Gayville, SD 57031  
605-267-3100  
<https://www.valleyagsupply.com/>  
NFTA certified for NIRS analysis only

Ward Laboratories  
4007 Cherry Ave  
P.O. Box 483  
Kearney, NE 68848  
800-887-7645 or 308-234-2418  
[www.wardlab.com](http://www.wardlab.com)  
NFTA certified for NIRS analysis only

Minnesota Valley Testing Laboratory  
1126 North Front Street