



Natural Resources Conservation Service

CONSERVATION PRACTICE STANDARD

PRESCRIBED GRAZING

CODE 528

(ac)

DEFINITION

Managing the harvest of vegetation with grazing and/or browsing animals.

PURPOSE

This practice may be applied as a part of conservation management system to achieve one or more of the following:

- Improve or maintain desired species composition and vigor of plant communities.
- Improve or maintain quantity and quality of forage for grazing and browsing animals' health and productivity.
- Improve or maintain surface and/or subsurface water quality and quantity.
- Improve or maintain riparian and watershed function.
- Reduce accelerated soil erosion, and maintain or improve soil condition.
- Improve or maintain the quantity and quality of food and/or cover available for wildlife.
- Manage fine fuel loads to achieve desired conditions.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all lands where grazing and/or browsing animals are managed.

CRITERIA

General Criteria Applicable to All Purposes

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. Refer to Chapter 5 of the National Range and Pasture Handbook for additional guidance.

<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/crops/cid=stelprdb1043084>

Adequate quantity and quality drinking water will be supplied at all times during period of occupancy. Table 6-7 of the NRCS National Range and Pasture Handbook gives guidance on livestock daily water needs. Livestock drinking water should be located within 600-800 feet of the grazing animal and constructed to provide safe access to wildlife species, especially birds.

Intensity, frequency of defoliations, timing, season of grazing, and duration of grazing and/or browsing will be adjusted to meet the desired conservation objectives for the plant communities and the associated resources, including the grazing and/or browsing animal. Grazing system design incorporates the length of the grazing period that is based on the length of the rest period needed for recovery of the forage resource and eliminates or reduces regrazing a plant before adequate rest and regrowth occurs.

Browsing use, for sustainable management of browse (woody) species will not remove more than 50 percent of the current year's growth of the designated browse species.

Manage kind/class of animal, animal number, grazing distribution, length of grazing and/or browsing periods, and timing of use to provide grazed plants sufficient recovery/rest time to meet planned objectives.

Provide deferment or rest from grazing or browsing to ensure the success of prescribed fire, brush management, seeding or other conservation practices that cause stress or damage to key plants as needed.

Additional Criteria to Improve or Maintain the Health and Vigor of Desired Plant Communities

Generally increased stock densities with very short (5 days or less) graze periods and longer rest periods (45 to 365 days) improve the health and vigor of plant communities.

Duration and intensity of grazing and/or browsing will be based on desired plant health and expected productivity of key forage species to meet management objectives for Range or Prairies. Deferment of pastures along with intensity of grazing to encourage the productivity of the forage benefits the health and vigor of plant communities.

For pastures timing deferment so that each paddock has a chance for seed production and seedling establishment through succeeding grazing years is necessary for sustainability.

Plan periodic deferment from grazing and/or browsing to maintain or restore the desired plant community following episodic events, such as wildfire or severe drought.

Where appropriate, soil test periodically for nutrient status and soil reaction and interseed appropriate species, apply fertilizer and/or soil amendments according to soil test to improve or maintain plant vigor and the health of the plant community.

Plant growth (production), health, and vigor are influenced by a number of factors including: rainfall, soil fertility, temperature, species diversity and composition, plant efficiency, carbon dioxide, light intensity, and leaf surface area.

Refer to TABLE 1 for Minimum stubble heights and recommended max heights of forage.

Additional Criteria to Improve or Maintain Quantity and Quality of Forage for Animal Health and/or Productivity

Maintain adequate forage height for animals to get a full bite and reduce grazing or browsing time needed to get full. Grazing areas with less than 1600 lbs. per acre of forage will reduce animal intake. When grazing croplands ensure livestock have adequate intake to gain or maintain body condition without damage to soil health.

The grazing system should be designed and operated in a way that subjects livestock to the minimum amount of handling stress necessary.

Enhance diversity of pasture plants to optimize delivery of nutrients to the animals by planning the intensity, frequency, timing and duration of grazing and/or browsing. Timing grazing so that the forage is vegetative and before seed emergence will generally result in higher nutrition levels in the forage.

When plants with secondary chemicals such as tannins, alkaloids, and terpenes are present plan grazing so that these plants are ungrazed or that they are grazed along with other plants to dilute the effects of these chemicals.

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.

Balance supplemental feed with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock. Ensure mineral supplements are present and meet the needs of that kind/class of livestock.

Dietary needs of livestock are found in the National Research Council's Nutrient Requirements of Domestic Animals or similar scientific sources with appropriate adjustments made for increased energy demand required by browsing or grazing animals foraging for food including travel to and from the pasture site.

Agronomy Technical Note 30 *Livestock Forage Balance* or Agronomy Technical Note 32, *Graziers Arithmetic*, can be used to assist in determining the Carrying Capacity or Stock Density of a grazing system.

Producers will be made aware of the need for biosecurity safeguards to prevent the spread of disease between on-farm classes of livestock and between livestock farm units.

Shelter in the form of windbreaks, sheds, shade structures, and other protective features will be used where conditions warrant it to protect livestock from severe weather, intense heat/humidity, and predators. For more information see Conservation Practice Standard Windbreak/Shelterbelt Establishment (380).

Minimize concentrated livestock areas, trailing, and trampling to reduce soil compaction, excess run off and erosion. Placing watering facilities within 600-800 feet of any portion of the grazed area and within sight of the herd for large ruminants can reduce or eliminate trailing. Rapid rotations and ensuring that loafing areas are minimized will improve soil health and reduce opportunities for development of bare areas that can have accelerated erosion.

Additional Criteria to Improve or Maintain Surface and/or Subsurface Water Quality and Quantity

Minimize concentrated livestock areas to enhance nutrient distribution and improve or maintain ground cover. As needed, refer to Heavy Use Area Protection (561) in the Iowa eFOTG to provide protection to concentration areas.

Locate livestock watering and supplemental feeding areas as far from water bodies as possible to reduce the potential for adversely impacting water bodies with sediment and nutrients. Whenever possible move feeding and mineral locations at least every 30 days to prevent buildup of disease pathogens and excessive nutrients from manure, urine and unused feed.

Plan intensity, frequency, timing and duration of grazing and/or browsing to:

- Maximize infiltration of precipitation and reduce overland flow.
- Minimize deposition or flow of animal wastes into water bodies.
- Minimize animal impacts on stream bank or shoreline stability.
- Provide adequate ground cover and plant density to maintain or improve infiltration capacity and reduce runoff.
- Provide adequate ground cover and plant density to maintain or improve filtering capacity of the vegetation.
- Enhance nutrient cycling by causing more uniform manure distribution and increased rate of decomposition. Generally increased stock densities with frequent moves and longer rests will accomplish this.

Additional Criteria to Improve or Maintain Riparian and/or Watershed Function

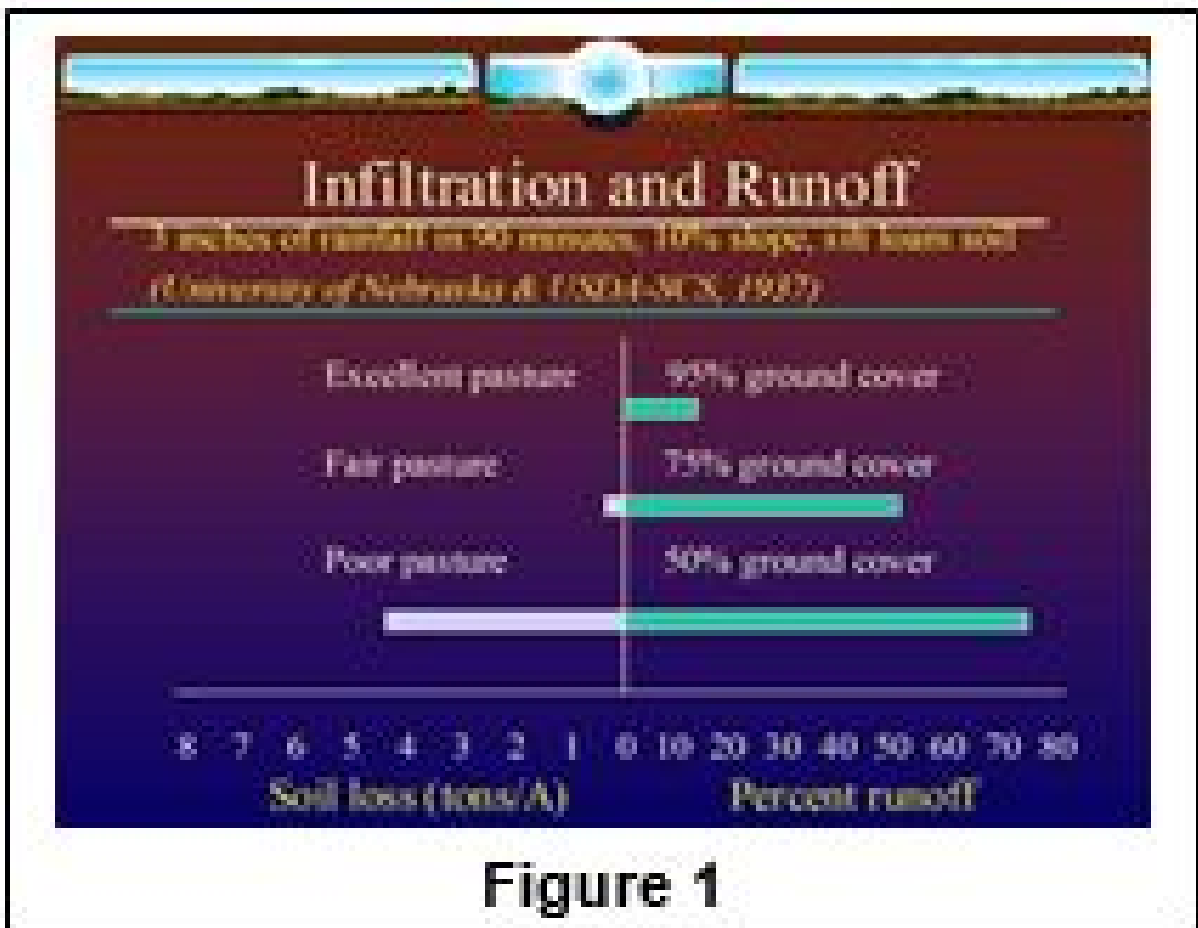
Minimize concentrated livestock areas to enhance nutrient distribution and improve or maintain ground cover and riparian/floodplain plant community structure and functions. As needed, refer to Heavy Use Area Protection (561) to provide protection to concentration areas.

Plan intensity, frequency, timing and duration of grazing and/or browsing to:

- Provide adequate ground cover and plant density to maintain or improve infiltration and filtering capacity of the vegetation and reduce runoff.
- Maintain adequate riparian community structure and function to sustain associated riparian, wetland, floodplain and stream species.
- Riparian zones may be grazed at an intensity and duration to keep desired vegetation healthy. Ensure that overuse does not occur and there is no damage to stream banks. Riparian areas may need to be fenced as separate paddocks or have grazing periods limited along any portion of the riparian area to prevent livestock from over-utilizing these areas.

Additional Criteria to Improve Soil Health and Reduce Soil Erosion

Plan intensity, frequency, timing and duration of grazing and/or browsing to provide adequate ground cover, litter and canopy to maintain or improve infiltration, organic matter, soil biotics and soil condition (See Figure 1).



Plan intensity, duration and timing of grazing to maximize stock densities to the point that manure piles are evenly distributed within a few feet of each other at the end of the grazing period. Give adequate rest to forage to stimulate root pulsing that will increase organic matter, soil biotic activity, promote nutrient cycling, and increase root mass.

Provide or encourage a high diversity of plant species including multiple functional groups to provide differing root types and depths of plants growing throughout as much of the year as possible. High plant diversity allows species to compete for niches and promotes above ground cover and maximizes below ground biomass.

Additional Criteria to Improve or Maintain Food and/or Cover for Fish and Wildlife Species of Concern

Identify wildlife species of concern in the objectives of the prescribed grazing plan.

Plan intensity, frequency, timing and duration of grazing and/or browsing and deferment to provide for the development and maintenance of the plant structure, density and diversity needed for the desired wildlife species of concern. In some instances resting a paddock or paddocks for the length of the nesting season of the species of concern is advisable, interseeding high quality food plants for both livestock and wildlife, deferring areas with high levels of pollinator species or leaving ungrazed screen areas to increase cover or screen areas may be useful.

Additional Criteria for Management of Fine Fuel Load

Manage deferment and grazing to allow fine fuel loads to build or utilize intensive grazing or browsing to reduce fuel loads to lower the risk of wildfires.

CONSIDERATIONS

A Prescribed Grazing System is being met if grazing is done at an intensity, duration, frequency and timing that does not degrade the forage or soil resource while meeting livestock needs. For this reason, continuous grazing is generally not considered to meet the requirements of Prescribed Grazing. However, continuous grazing can be used with low stocking rates and appropriate clipping or harvest of forage to keep forage plants actively growing. The harvest efficiency of continuous grazing or slow rotation is considerably lower than a more intensive rotational grazing system. Minimum stubble height levels located in the Iowa Agronomy Technical Note 31, Forage Management in a Pasture Grazing System (Table 1) must be used in conjunction with monitoring such as [pasture condition scores](#) and the [Midwest Region Score Sheet](#) or rangeland health indicators to help ensure that resource conservation and producer objectives are met.

Protect soil, water, air, plant and animal resources when locating livestock feeding, supplementation, handling and watering facilities.

Livestock feeding, supplementation, handling, and watering facilities will be designed and installed in a manner to improve and/or maintain animal distribution. These facilities will also be designed and installed to protect water quality, minimize stress, the spread of disease, parasites, contact with harmful organisms and toxic plants. When possible utilize low stress livestock handling options.

Where practical and beneficial, start the grazing sequence in a different management unit each growing season so each paddock has a chance for seed production and seedling establishment through succeeding grazing years as necessary for sustainability.

When weeds are a significant problem prescribed grazing and/or browsing should be implemented in conjunction with other pest management practices to promote plant community resistance to invasive species and protect desired plant communities.

Prescribed grazing should consider the needs of other enterprises utilizing the same land, such as wildlife and recreational uses.

Consider improving carbon sequestration in biomass and soils through management of grazing and/or browsing to produce the desired results.

PLANS AND SPECIFICATIONS

The prescribed grazing plan shall conform to all applicable federal, state and local laws. Seek measures to avoid adverse effects to endangered, threatened, and candidate species and their habitats.

Prepare a prescribed grazing plan for all planned management units where grazing and/or browsing will occur according to standards and specifications.

A Prescribed Grazing Plan includes:

- Producer's Goals and Objectives clearly stated.
- Resource Inventory that identifies:
 - existing resource conditions and concerns,
 - identifies opportunities to enhance resource conditions, and
 - a plan map that identifies paddocks, acres, and the location of structural improvements such as fences, water developments, etc.
 - ecological site(s) or forage suitability group(s)
- Forage Inventory of the expected forage quality, quantity and species in each management unit(s).
- Forage-Animal Balance (carrying capacity) developed for the grazing plan, which identifies forage surpluses and/or deficiencies for the kind and class of grazing livestock and/or browsing wildlife of concern. Alternatives will be provided to the producer to assist them in managing forage surpluses and/or deficiencies.
- Contingency plan developed that identifies potential problems (i.e., severe drought, flooding, insects) and serves as a guide for adjusting the grazing prescription to ensure resource management and economic feasibility without resource degradation.
- Monitoring plan developed with appropriate records to assess in determining whether the grazing strategy is resulting in a positive or upward trend and is meeting objectives. Iowa Prescribed Grazing Policy or USDA programs will guide when more intensive monitoring is needed to meet those requirements. See Iowa Agronomy Technical Note 31, Forage Management in a Pasture Grazing System, (Table 2).

The use of computer programs, such as Iowa Forage and Livestock Balance Worksheet (available with Agronomy Technical Note 30, *Iowa Forage and Livestock Balance* Worksheet or Agronomy Technical Note 32, *Graziers Arithmetic* and with Pasture Management Tools on the Iowa NRCS website:

<http://www.ia.nrcs.usda.gov/technical/pasture.html>, GSAT, or other developed and approved programs within the state, are also considered adequate documentation if they contain the information outlined under Plans and Specifications in this standard.

OPERATION AND MAINTENANCE

Operation

Prescribed Grazing will be applied on a continuing basis throughout the occupation period of all planned grazing units. Other practices, such as Forage Harvest Management (511), Forage and Biomass Planting (512), Nutrient Management (590), Pest Management (595), Heavy Use Area Protection (561), Fence (382), Watering Facility (614), Pond (378), Windbreak/Shelterbelt Establishment (380), Water Well (642), Prescribed Burning (338), and Brush Management (314) may be used to improve the effectiveness of the grazing plan and the overall management of the system.

Adjustments will be made as needed to ensure that the goals and objectives of the prescribed grazing strategy are met.

Maintenance

Monitoring data and grazing records will be used on a regular basis within the prescribed grazing plan to insure that objectives are being met, or to make necessary changes in the prescribed grazing plan to meet objectives. Appropriate records for one grazing season are shown in Iowa Agronomy Technical Note 31, Forage Management in a Pasture Grazing System, (Table 2), additionally (See USDA-NRCS Guide to Pasture Condition Scoring and the Pasture Condition Score Sheet from Iowa FOTG.) Refer to the following site: <ftp://ftp-fc.sc.egov.usda.gov/GLTI/technical/publications/pasture-score-guide.pdf>.

All facilitating and accelerating practices (e.g. Fence (382), Pest Management (595), Brush Management (314), Pasture and Hay Planting (512), Prescribed Burn (338), Watering Facility (614) (etc.) that are needed to effect adequate grazing and/or browsing distribution as planned by this practice standard will be maintained in good working order and are being operated as intended.

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[Brush Management:](#)

[Fence:](#)

[Fence Construction Specifications:Forage Harvest Management:Heavy Use Area Protection:](#)

[Geotextile Construction Specifications:Nutrient Management:](#)

[Forage and Biomass Planting:Pest Management:](#)

[Livestock water Pipeline:](#)

[Pond:](#)

[Prescribed Burning:](#)

[National Prescribed Grazing Standard:Spring Development:](#)