

Natural Resources Conservation Service

CONSERVATION PRACTICE STANDARD

GRAZING MANAGEMENT

CODE 528

(ac)

DEFINITION

Managing vegetation with grazing and browsing animals to achieve specific ecological, economic, and management objectives.

PURPOSE

Use this practice to accomplish one or more of the following purposes:

- Improve or maintain desirable species composition, structure, productivity, health and/or vigor of plants and plant communities.
- Improve or maintain the quantity, quality, and/or balance of forages to meet the nutritional needs and ensure the health and performance of grazing and browsing animals.
- Reduce or eliminate the transportation of sediment, nutrients, pathogens, or chemicals to surface and groundwater.
- Improve or maintain upland hydrology, riparian dynamics, or watershed function to reduce surface or groundwater depletion and improve naturally available moisture.
- Reduce runoff and/or and compaction and/or and enhance or maintain key soil health components, such as soil organic matter, aggregate stability, habitat for soil organisms, water infiltration, and water holding capacity.
- Prevent or reduce sheet, rill, classic gully, ephemeral gully, bank, or wind erosion.
- Improve or maintain terrestrial or aquatic habitat for wildlife, fish, invertebrates, or other organisms.
- Manage biomass accumulation for the desired fuel load to reduce wildfire risk or to facilitate prescribed burning.
- Reduce plant pest pressure from invasive and/or undesirable plants and other pests as part of an integrated plan.

CONDITIONS WHERE PRACTICE APPLIES

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

CRITERIA

General Criteria Applicable to All Purposes

This practice is intended to manage vegetation using grazing and/or browsing animals (animals may also be referred to as livestock). This practice standard applies only to grazing and/or browsing animals that are ruminants or pseudoruminants.



Conform to all applicable Federal, State, Tribal and local laws.

Manage livestock numbers and grazing periods to adjust the intensity, frequency, timing, duration, and distribution of grazing and browsing animals to meet the planned objectives for plant communities, the animals, and the associated resources. This includes adjusting animal numbers, grazing periods, and movements based on the rate of plant growth, available forage, livestock forage demand, or other desired objectives (e.g., degree of forage utilization, targeted plant height or standing biomass, residual forage mass, or animal performance).

Manage forage harvest in accordance with site production capability, rate of plant growth, physiological development of plants, and nutritional needs of the animals.

Maintain appropriate residual vegetation throughout the year to meet management objectives, build ecosystem resistance and resilience to disturbances.

Provide desired plants sufficient recovery time from grazing and/or browsing to meet planned objectives. Deferment or rest should be planned for critical periods of plant or animal needs.

Manage grazing and/or browsing animals to protect or improve ecosystem function while maintaining vegetative cover on critical and/or sensitive areas. sites such as riparian areas, wetlands, habitats of concern, karst areas, etc.

Planned practices need to support grazing management; follow the corresponding practice standards.

When conditions are not appropriate for grazing, refer to the emergency management section of the grazing management plan.

Follow the vegetative monitoring strategy that is outlined in the grazing management plan.

Additional Criteria to Improve or Maintain the Desirable Species Composition, Structure, Productivity, Health, and/or Vigor of Plants and Plant Communities.

Use grazing timing and intensity to promote the health and vigor of desirable plant species, thus reducing competitiveness of undesirable plant species.

Monitor and manage invasive plant pressure, as described in the grazing management plan, to maintain the desirable species composition.

Ensure soil fertility and pH are adequate to support plant health to achieve desired forage production goals, and any fertilizer and/or soil amendments are applied at rates not exceeding University of Wisconsin Extension Recommendations. Refer to A2809 for fertility recommendations..

Additional Criteria to Improve or Maintain the Quantity, Quality, and/or Balance of Forages to Meet the Nutritional Needs and Ensure the Health and Performance of Grazing and Browsing Animals.

Plan grazing or browsing intensity, frequency, timing, duration, and distribution to balance forage quantity and/or quality goals of the producer with the capability of the resource to respond to management.



87
88 Manage grazing to improve plant and animal health for optimal plant diversity, diet
89 selection, delivery of nutrients, and to reduce detrimental effects or losses from toxic plant
90 and other hazards.

91
92 Provide supplemental feed or minerals to meet the nutritional requirements of the kind and
93 class of grazing and browsing livestock.

94
95 Use National Research Council, or similar scientific source recommendations for protein
96 and energy requirements for grazing and browsing livestock.

97
98 Manage livestock to minimize the spread of disease, parasites, and exposure to harmful
99 insects and plants.

100
101 **Additional Criteria to Reduce or Eliminate the Transportation of Sediment, Nutrients,**
102 **Pathogens, or Chemicals to Surface and/or Groundwater.**

103 Maintain or improve hydrologic function including infiltration, filtering capacity, and soil
104 surface stability to reduce runoff by providing adequate ground cover, plant spacing, and
105 plant density.

106
107 Minimize concentrated livestock areas to enhance nutrient distribution and improve or
108 maintain ground cover.

109
110 Locate watering facilities, feeding areas and other infrastructure to minimize deposition of
111 animal wastes into critical and/or sensitive areas.

112
113 Minimize animal impacts on stream bank or shoreline stability.

114
115 Ensure excess nutrients brought into the system with supplemental/substitutional feeding
116 are managed and/or applied in an environmentally appropriate manner.

117
118
119 **Additional Criteria to Improve or Maintain Upland Hydrology, Riparian Dynamics, or**
120 **Watershed Function to Reduce Surface or Groundwater Depletion and Improve**
121 **Naturally Available Moisture.**

122 Minimize concentrated livestock areas to improve or maintain riparian/floodplain
123 plant community structure and functions.

124
125 Locate watering facilities, feeding areas and other infrastructure to minimize
126 deposition of animal wastes into critical and/or sensitive areas.

127
128 Manage livestock impacts to uplands, riparian and watersheds or other critical or
129 sensitive areas to improve or maintain plant community structure, composition, and
130 function.

131
132 Manage intensity, frequency, timing, and duration of grazing/ browsing to:

- 133 • Provide adequate ground cover and plant density to maintain or improve
134 infiltration capacity and reduce runoff.
135 • Maintain plant structure and composition to improve filtering capacity of the



- vegetation.
- Manage grazing to minimize risk of compaction when soils are saturated.
 - Maintain desired riparian, wetland, floodplain, and stream species.

Additional Criteria to Reduce Runoff and Compaction and Enhance or Maintain Key Soil Health Components, Such as Soil Organic Matter, Aggregate Stability, Habitat for Soil Organisms, Water Infiltration, and Water Holding Capacity

Plan intensity, frequency, timing, and duration of grazing/browsing animals to positively impact soil health principles from benchmark conditions:

Soil health principles:

- Continuous cover – Plan stocking rate consistent with carrying capacity of the soil. Rest paddocks until regrowth is adequate to re-graze. Rotate sacrifice and/or overwintering areas to maximize the cover that is present year-round as site conditions allow.
- Minimize disturbance – Minimize soil disturbance by: allowing for adequate recovery periods, avoiding or minimizing grazing when soils are saturated and/or prone to compaction, moving livestock to designated areas in adverse conditions to protect the integrity of the soil.
- Enhance diversity – Increase plant species diversity compared to current benchmark conditions (some examples include: interseeding legumes, adding additional cool season species, overseeding overwintering areas with annual cover, adding a native warm season pasture)
- Maintain continuous living roots – Manage grazing/browsing animals to maintain adequate stand density and revegetate thin stands and/or disturbed areas.
- Livestock integration - Reintroduce livestock to accelerate nutrient cycling, increase microbial diversity, and/or improve water infiltration.

Additional Criteria to Prevent or Reduce Sheet, Rill, Classic Gully, Ephemeral Gully, Bank, and Wind Erosion.

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

- Manage plant canopy, litter, and trampled plant residue to protect the soil surface from hoof and raindrop impact and reduce detachment and transport of soil particles caused by water and wind action.
- Reduce or mitigate the effects of compaction, concentration areas, and trailing by livestock.
- Minimize grazing animal impact on areas that have high soil erosion potential.

In situations where grazing management alone is unable to prevent or reduce erosion, plan facilitating infrastructure with consideration to slope, topography, and critical and sensitive areas (refer to practice standards: Fence (382), Livestock Pipeline (516), Animal Trails and Walkways (575), Heavy Use Area Protection (561), etc..

Additional Criteria to Improve or Maintain Terrestrial Habitat for Wildlife and Invertebrates and/or Aquatic Habitat for Fish and Other Organisms.

Identify target species or guild using the Habitat Suitability Index where appropriate.



Plan the intensity, frequency, timing, and duration of grazing or browsing to develop and maintain plant structure, density, and diversity for the habitat requirements (i.e., connectivity of food, water, cover) of the target species or guilds.

Additional Criteria to Manage Biomass Accumulation for the Desired Fuel Load to Reduce Wildfire Risk or to Facilitate Prescribed Burning.

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

- Manage fuel load, continuity, and structure to control wildfire behavior and intensity.
- Facilitate desired conditions such as fine fuel management for prescribed burns.

In situations where a prescribed burn is planned, follow the Prescribed Burn practice standard (338).

Refer to CPS Fuel Break (Code 383) and CPS Firebreak (Code 394) for additional criteria and considerations for reducing fuel loads to minimize wildfire risk.

Additional Criteria to Reduce Plant Pest Pressure From Invasive and/or Undesirable Plants and Other Pests as Part of an Integrated Plan.

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

- Avoid introducing noxious, invasive, or undesirable species via supplemental or substitutional feeds.
- Maintain or improve desired species' competitive ability with grazing strategies such as adjusting the grazing rotation or residual height.
- Provide adequate rest to enhance regrowth of desirable species.
- Maximize grazing or browsing impact on target species when most palatable to the animal or most damaging to the target species.

In situations where grazing management alone is unable to control invasive and/or undesirable species, utilize NRCS Conservation Practice Standard (CPS) Brush Management (Code 314) or CPS Herbaceous Weed Treatment (Code 315) to protect desired plant communities, and promote desirable plant resilience.

To determine whether a plant species is desirable or undesirable for grazing and/or browsing, utilize the Wisconsin List of Desirable Plants.

CONSIDERATIONS

Where practical and beneficial, start the grazing sequence in a different management unit each growing season.

Match stocking rates with carrying capacity to minimize the need for cost (economic, energy) of purchasing, harvesting, storing, and delivering supplemental feed.

Use appropriate technologies or additional guardianship to prevent livestock interaction with toxic plants or predators.

Create additional grazing management flexibility by incorporating new grazing management technologies. Use drought and other weather forecasting tools to promote the accuracy of forage production projections, and subsequent management decisions.



- 232 Consider parasite life cycles, type(s) of livestock, residual grazing heights and
233 rest/deferment cycles to manage for livestock parasites.
- 234 Plan biosecurity measures to prevent the transfer of disease-causing organisms,
235 pests, or invasive species being introduced or spread.
- 236 Utilize livestock species best suited to graze or browse undesirable plants.
- 237 Consider innate animal behavior when planning livestock grazing management.
- 238 Design and install livestock feeding, handling, and watering facilities in a manner to
239 improve and/or maintain animal distribution and forage production. Design and
240 install facilities to minimize stress, the spread of disease, parasites, contact with
241 harmful organisms, and toxic plants.
- 242 Provide shelter in the form of windbreaks (see CPS 380), livestock shelter structure
243 (CPS 576) sheds, shade structures, or other protective features for protection of
244 grazing and/or browsing animals from severe weather, extreme conditions, and/or
245 predators.
- 246 Enhance pasture sustainability by including multiple functional groups (grasses,
247 legumes, and forbs) of forages.
- 248 Consider utilizing CPS 511 and 512 to plan mechanical practices such as
249 harvesting, clipping, and inter-seeding if pasture sward requires manipulation.
- 250 Design grazing infrastructure to minimize negative effects to fish and wildlife
251 species of concern.
- 252 Consider the needs of other uses on the same land, such as, but not limited to,
253 agricultural, wildlife and recreational uses.
- 254 Incorporate traditional ecological knowledge and indigenous cultural management
255 practices that align with ecological principles and other objectives.
- 256 Manage grazing and browsing as necessary to support the success of other
257 conservation practices.
- 258 Consider using NRCS CPS 590 if nutrients are being applied to the pasture.
- 259 Consider developing a Comprehensive Nutrient Management Plan or refer to CPS
260 Nutrient Management (Code 590), CPS Waste Storage (Code 313), CPS Heavy
261 Use Area Protection (Code 561), and/or CPS Waste Transfer (Code 634) if feed or
262 holding areas are expected to accumulate excess nutrients.
- 263 Consider collecting and spreading manure based on plant productivity goals if
264 feeding or holding areas cannot be rotated due to site conditions.
- 265 Refer to CPS Silvopasture (Code 381) when establishing or managing trees and/or
266 shrubs in conjunction with grazing and/or browsing animals.
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PLANS AND SPECIFICATIONS

Follow plans and specifications that describe the requirements for applying the practice according to the criteria of this standard. At a minimum, the plans and specifications will include:

- Client's goals and objectives for this practice.
- Map of planned grazing management units that includes identification of existing infrastructure supporting planned grazing e.g., livestock water, fence, gates, etc.
- Inventory of current and planned forage availability by management unit. Include forage attributes such as seasonal production, species, quality, and availability.
- Current and planned livestock and/or wildlife forage demand based on species requirements.
- Feed and forage balance by management unit that aligns animal demand with availability of forage produced or provided, with consideration for livestock distribution, wildlife use, quality, seasonal availability, and hay production.
- A grazing strategy that identifies how livestock will graze the management units and describe the intensity, timing, duration, and frequency of grazing.
- Contingency plan that serves as a guide for adaptive management decisions to minimize or mitigate resource or economic impacts from episodic events: (e.g., drought, soil saturation, flooding, fire, insects, etc.).
- Monitoring protocols and records that assess whether the grazing management is addressing the identified goals and objectives. Record keeping will be maintained and short and/or long-term monitoring conducted to support timely adaptive management decisions.

Provide clients with these plans and specifications through implementation requirements or other guidance documents used for applying the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

Operation

- Document adaptive management decisions to ensure the goals and objectives of the grazing strategy are met.
- Utilize short and long-term monitoring to achieve successful outcomes, goals, and objectives and support timely adaptive management decisions.
- Identify key areas, key plants, or other monitoring indicators to evaluate grazing management decisions.

Maintenance

- Use monitoring data and grazing records on a regular basis to make changes as necessary to ensure that objectives are being met.
- Ensure all existing conservation practices and infrastructure needed to facilitate adequate grazing and browsing distribution as planned by this practice standard are maintained in good working order and operate as intended.



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