NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

PRESCRIBED GRAZING
(acre)
Code 528

DEFINITION

The controlled harvest of vegetation with grazing or browsing animals.

PURPOSE

This practice may be applied as part of a conservation management system to accomplish one or more of the following purposes. If multiple purposes are desired, apply the strictest criteria outlined for the desired purposes.

- Maintain a stable and desired plant community, or improve or maintain the health and vigor of selected plant(s).
- Improve or maintain quantity and quality of forage for livestock health and productivity.
- Maintain or improve water quality and/or quantity.
- Reduce accelerated soil erosion and maintain or improve soil condition for resource sustainability.
- Improve or maintain the quantity and quality of food and/or cover/structure needed by wildlife.

CONDITIONS WHERE PRACTICE APPLIES

This practice may be applied on all lands where grazing and/or browsing animals are managed.

CRITERIA

General Criteria Applicable for All the Purposes Stated Above.

Removal of plant material will be in accordance with production potential, rate of plant growth, management goals, and the physiological needs of forage plants. Refer to tables 1, 2, and 3 of this standard, and chapter 6 of the National Range and Pasture Handbook for guidance and determinations.

Manage kind of animal, animal number, grazing distribution, length of grazing periods, and timing of use to provide sufficient deferment from grazing during the growing period. Refer to Kentucky NRCS “graze.xls” spreadsheet for detailed guidance.

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

Manage grazing animals to maintain adequate vegetative cover on environmentally sensitive areas such as riparian areas, wetlands, habitats of concern, and karst areas. Move livestock before the most sensitive resource is impacted.

Prescribed grazing schedules will be developed to serve as initial guides.

Grazing cycles should be adjusted so as to ensure that enough pastures are available in grazing system to allow for adequate forage regrowth periods. The regrowth period is usually 15-21 days in early summer and 30-42 days in the late summer and fall.

TABLE 1: DRY MATTER (Pounds per acre inch) Based on Levels of Management

Key Species	Avg Mgt Level [1/] (Avg Lbs)	Low to High Mgt Level (Range) [2/] (Avg Lbs)
Alfalfa/Alfalfa & Grass	200	75-300
Bermudagrass	250	100-300
Kentucky Bluegrass	160	100-275
Native Warm Season Grasses	100	50-250
Orchardgrass	180	75-300
Orchardgrass/certified Red Clover	225	100-400
Orchardgrass/legumes	200	100-325
Red Clover	220	100-300
Tall Fescue	210	100-350
Tall Fescue/certified Red Clover	210	100-375
Tall Fescue/legumes	200	80-325
Tall Fescue + 90 N (split)	210	100-350
T Fescue/Orchardgrass/Bluegrass/legume	200	100-400
Small Grain	150	75-250
Ryegrass	250	75-400

[1/]The values should only be used as guides. They represent estimated average values taken from many sources across the region from thick, well fertilized, actively growing plant stands that typically result from an average level of management.
[2/]These values should only be used as guides. They represent an estimated average range of values taken from many sources across the region. The range (spectrum) begins with plant stands resulting from low management levels which are typically characterized by thin, not fertilized, often overgrazed stands to the highly intensive management level which represents thick stands with rapid growth and high yield.

TABLE 2: Harvest Efficiency of Pastures with Different Grazing Strategies

Method	% Utilization [1/]
Strip grazing	75-80
Rotation two times/day	72-76
Daily rotation	65-75
Rotation every two days	60-70
Rotation every three days	55-60
3 to 7 day rotation	50-55
3 to 5 week rotation	30-50
Continuous grazing	20-40

[1/] These values should be used only as a guide. Considerable variation can exist within and among categories. The terms "harvest efficiency" and "utilization rate" are often used interchangeably.

TABLE 3: Forage Crops and Prescribed Grazing Heights

Forage Crop	Height to Begin Grazing (inches)	Height to End Grazing (inches)
COOL SEASON GRASSES		
Annual Ryegrass	6 to 8	3 to 4
Bluegrass	4 to 6	2 to 3
Oats	6 to 8	3 to 4
Orchardgrass	6 to 8	3 to 4
Pearl Milet	8 to 10	4 to 6
Reed Canarygrass	6 to 8	3 to 4
Tall Fescue	6 to 8	3 to 4
Timothy	6 to 8	3 to 4
WARM SEASON GRASSES		
Bermudagrass	6 to 8	2 to 4
Big Bluestem	8 to 24	4 to 6
Caucasion Bluestem	8 to 24	2 to 4
Indiangrass	8 to 24	4 to 6
Johnsongrass	8 to 12	4 to 6
Sudangrass	8 to 18	4 to 6
Eastern gamagrass	14 to 20	8 to10
Switchgrass	8 to 24	4 to 6
LEGUMES		
Alfalfa	6 to 8	3 to 4
Alsike Clover	6 to 8	3 to 4
Annual Lespedeza	6 to 8	3 to 4
Birdsfoot Trefoil	6 to 8	3 to 4
Crimson Clover	6 to 8	3 to 4
Hairy Vetch	6 to 8	3 to 4
Ladino Clover	6 to 8	3 to 4
Kobe Lespedeza	6 to 8	3 to 4
Korean Lespedeza	6 to 8	3 to 4
Sericea Lespedeza	6 to 8	3 to 4
Red Clover	6 to 8	3 to 4
Sweet Clover	6 to 8	3 to 4

Note: Grass/Legume mixes will be grazed according to the height prescribed for the dominant species.

Note: Information for tables 1, 2, and 3 was compiled from Kentucky GLA software, Southern Forages Handbook, and University of Kentucky College of Agriculture sources and publications.

Additional Criteria to maintain a stable and desired plant community, or improve or maintain the health and vigor of selected plants.

Grazing periods and stocking rates will be adjusted to meet the desired objectives for the plant community and associated resources. Livestock will be rotated among pastures based on rate of plant growth, available forage, and minimum proper grazing height for the forage species, and not on a fixed time schedule or by calendar dates.

Fragile or sensitive plant communities or soils will receive particular attention in order to avoid overgrazing, soil compaction, or animal traffic induced erosion (for example, a new or renovated pasture planting on a steep slope will require shorter grazing periods and longer recovery periods).

Non-scheduled rest from grazing may be needed to restore the desired plant community following episodic events such as severe drought.

Additional Criteria to improve or maintain quantity and quality of forage for livestock health and productivity.

Grazing management should be applied in accordance with forage quality criteria that best meets the production requirement of the kind and/or class of animal. Refer to USDA Natural Resources Conservation Service computer program "NUTBAL" and the GANLAB for more detailed information. Refer to U.K.Extension Publication ASC-162 "Managing Body Condition to Improve Reproductive Efficiency in Beef Cows" for evaluation.

Plan grazing to match forage quantity with goals of the livestock producer. Use Kentucky Graze (graze.xls spreadsheet) to achieve forage production and livestock demand balance.

Additional Criteria to maintain or improve water quality and/or quantity.

Maintain adequate ground cover and plant density to maintain or improve filtering capacity of the vegetation.

Minimize concentrated livestock areas to enhance nutrient distribution and improve or maintain ground cover. Locate loafing areas, feeding locations, and sacrifice areas away from watercourses, and maintain adequate, vegetated buffers between these concentration locations and water courses. (See NRCS practice standard #393-Filter Strip)

Minimize shade around limited access points. Do not graze riparian areas when soils are saturated. Graze only in times when vegetation will recover. Using riparian vegetation for creep grazing of lighter weight calves causes the least impact on vegetation.

Exclude livestock or practice short duration grazing of paddocks adjacent to or including streams. Rotate livestock before significant paths develop. Maintain introduced forages between a height of three and eight inches.

Manage livestock for uniform deposition of urine and fecal material in areas away from sensitive water areas. Place other facilities away from sensitive areas.

Ensure optimum water infiltration by preventing compaction and reduce evaporation by maintaining plant cover.

Additional Criteria to reduce accelerated soil erosion and maintain or improve soil condition for resource sustainability.

Maintain adequate ground cover, litter, and canopy to maintain or improve infiltration and soil condition.

Minimize concentrated livestock areas, trailing, and trampling to reduce soil compaction, excess runoff, and erosion.

If crop residue is to be grazed, highest quality and lowest toxicity (e.g., aflatoxin) will be encountered right after harvest of grain. Grazing crop residue removes nutrients for next year's crop and leaves the soil more vulnerable to soil erosion. Leave adequate residue on the surface for soil protection. Typically, 50 percent or more of the soil surface should be covered with residue after grazing.

Locate fences to discourage erosion on slopes. Manage cattle to prevent paths through rotational grazing, vegetation management, and

proper location of fences, gates, and facilities (hay feeding, mineral, water points, etc.).

When needed, install dips or diversions to decrease concentrated flow on erosion-prone areas. Protect streambanks from erosion.

Additional Criteria to improve or maintain the quantity and quality of food and/or structure needed by wildlife.

Manage for diverse plant communities and/or a diversity of pasture "functional groups." A diverse forage management operation with cool season grasses, native warm season grasses, legumes and forbs will help in providing needed habitat types throughout the year. Manage grazing heights, structure, and plant density for the desired wildlife habitat type.

Deferment of grazing in bunch-type and tall grasses (big bluestem, johnsongrass, etc) during the critical nesting period (generally falls between May 15 and August 1) can provide excellent nesting habitat for turkey, quail, and other ground nesting birds, as well as cover for eastern cottontail rabbits. Maintaining a winter stubble height of 3-5 inches on cool season pastures can be valuable for ground dwelling songbirds and small mammals.

Maintaining or establishing critical cover and wildlife food source vegetation in pastures will require a deferment period or temporary fencing to exclude grazing from these locations. Distances between wildlife escape cover <600 feet encourage wildlife use of the pastures.

Guidance on the habitat requirement of wildlife may be referenced in NRCS Technical Standard No. 645 "Wildlife Upland Habitat Management." Additional guidance can be obtained from the local Agricultural Extension Agent, and the Kentucky Department of Fish and Wildlife Resources.

CONSIDERATIONS

When needed, rest areas for a period of time to ensure the success of seeding, brush management, prescribed fire, or other conservation practices.

Resting overgrazed forages and using them for hay will expedite their recovery. Clipping rested fields for hay can aid in reducing expense of mowing. Typically, a 30 day rest is needed to produce enough forage to justify the cost of harvesting hay. Where practical, start the grazing sequence in a different management unit each growing season.

When weeds are a significant problem, prescribed grazing should be implemented in conjunction with pest management to protect desired plant communities. Control weeds before harvesting fields for hay or feed hay in the same fields the hay was harvested from.

Livestock feeding, handling, and watering facilities should be designed and installed in a manner to improve and/or maintain animal distribution. These facilities should also be designed and installed to minimize stress, the spread of disease, parasites, and toxic plants.

Supplemental feed and/or mineral requirements should be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing livestock.

Single trees for shade can be lightning attractants that can be hazardous to livestock.

Use of natural or artificial shelter will be included as part of this practice when conditions demand.

Animal husbandry requirements which may affect the design of the grazing prescription will be considered.

Prescribed grazing schedules should be designed to account for variations in the growth and amount of forage available due to variations in temperatures, precipitation, land resources, and stocking rate.

PLANS AND SPECIFICATIONS

Prepare a prescribed grazing plan for all management units where grazing will occur. This practice can be applied on the whole operating unit or a portion of it. The plan will incorporate any additional feed supplementation for the operating unit or portion of the operating unit being addressed. Grazing schedules will be recorded in a manner that is readily understood and useable by the decision maker in their daily operations.

Guidelines for developing a prescribed grazing plan include:

1. **Resource Inventory** Condition of pastures, existing structures, facilities, and soil mapping unit/forage suitability group.

2. **Forage Inventory** The expected forage species/plant community, and the quantity of forage expected in each pasture during the grazing period (Kentucky graze excel spreadsheet).

3. **Forage-Animal Balance** This ensures that the available forage meets the forage demand for livestock and/or wildlife of concern. Balance the monthly livestock demand with the cumulative quantity of forage produced or acquired (Kentucky graze excel spreadsheet).

4. **Grazing Plan** Identifies the number of days grazing and rest for all of the pastures or paddocks (Kentucky graze excel spreadsheet).

5. **Contingency Narrative** Detail potential problems (severe drought, flooding, wet and warm winters, etc) that serves as a guide for adjusting the grazing prescription to avoid resource degradation and economic collapse. See Operation and Maintenance section of this standard for additional information addressing contingencies.

6. **Record Keeping / Monitoring Narrative** Statements of how to record prescribed grazing data, and assessments as to whether the grazing strategy is meeting the producer's goals. Identify the key areas that the manager should evaluate in making grazing management decisions. An example of key areas would be riparian areas, or livestock concentration areas that the manager should evaluate in making management decisions.

7. **Wildlife Habitat Narrative** Outlines the considerations made for wildlife species of concern.

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

OPERATION AND MAINTENANCE

Operation: Prescribed grazing will be applied on a continuing basis throughout the occupation period of all grazing units.

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

A producer may need to graze one pasture close (sacrifice one paddock) to protect other pastures from being overgrazed, to aid in maintenance of legumes, to control weeds, or provide high quality forage at a later date.

At any one time, no more than 20 percent of the total grazing acreage should be grazed lower than the heights listed to end grazing (table 3).

Options to protect forage heights include, but are not limited to:

A) Feeding hay or other supplemental feed.
B) Reducing the number of animals.
C) Leasing additional pasture
D) Fertilizing when moisture is available or seeding annuals, etc.
E) Strategic confinement

Maintenance: All facilitating practices (fence, water facilities, pest management, etc) needed to affect adequate grazing distribution as planned by this practice standard will be maintained in good working order.

Conservation practice standards are reviewed periodically and updated, if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.