

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

**PRESCRIBED GRAZING**

(Acre)  
Code 528A

**DEFINITION**

The controlled harvest of vegetation with grazing or browsing animals, managed with the intent to achieve a specified objective.

**PURPOSES**

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

- Improve or maintain the health and vigor of selected plant(s) and to maintain a stable and desired plant community.
- Provide or maintain food, cover and shelter for animals of concern.
- Improve or maintain animal health and productivity.
- Maintain or improve water quality and quantity.
- Reduce accelerated soil erosion and maintain or improve soil condition for sustainability of the resource.
- Maintain soil moisture.

**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 limitation, plant tolerance and sensitivities and management goals using Sections I and II of the FOTG and other references as guidance.

Frequency of defoliation and season of grazing will be based on the rate and physiological conditions of targeted forage species.

Duration and intensity of grazing will be managed to promote plant health and vigor, for expected productivity of targeted forage species, and to meet management objectives.

The grazing plan must meet the needs of the client, vegetation and animals. Graze and rest periods, and stocking rate may be adjusted according to forage availability and rate of growth in each grazing unit. Flexibility must be used to account for fluctuations in forage quantity and quality to ensure success of the grazing system. Special considerations must be planned for extreme environmental conditions, riparian vegetation, reserve and surplus forage and other needs.

Application of this practice will prescribe the intensity, frequency, duration, and season of grazing to promote ecologically and economically stable plant communities that meet client and resource objectives.

For plant nutrient recommendations, including commercial fertilizer and animal wastes, see Nutrient Management (590). Fertilization or lack of may alter the diversity of the availability of nitrogen.

When weed, insect or disease outbreaks exceed economic thresholds and are not controllable by grazing management, pesticide applications may be necessary. See Pest Management (595).

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

Grazing management method may alter the plant community and contribution of forage species to the total forage production.

Maintain sufficient vegetative cover to prevent accelerated soil erosion due to wind or water.

**Additional Criteria for Improved Animal Health and Productivity.**

Manage and graze forage resources to meet intake and nutritional requirements of the kind and class of the animals managed.

Movement of livestock will be in a manner to improve and/or maintain animal health and performance, and to reduce or prevent spread of disease, parasites, and contact with harmful insects.

Stock water will be provided for each grazing unit based on the anticipated peak animal demands for the grazing period.

Grazing should be applied in accordance with the needs of wildlife population present within the grazing unit.

Wildlife habitat and the primary nesting season of resident wildlife shall be considered in the application of Prescribed Grazing.

**Additional Criteria for Improving or Maintaining Water Quality.**

Location, duration, intensity, frequency, and season of grazing in or near surface waters will be managed in such a manner that the impacts to vegetative and water quality will be positive.

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

Location, duration, intensity, frequency, and season of grazing will be managed to enhance nutrient cycling through improved manure distribution and increased rate of decomposition.

**Additional Criteria for Soil Erosion and Condition.**

Location, duration, intensity, frequency, and season of grazing shall be managed to minimize soil compaction, insure optimum water infiltration, and protect streambanks.

**PERFORMANCE REQUIREMENTS**

Criteria are met when grazing land is managed using approved technology to meet plant, animal, and client needs without adversely affecting other resources.

**CONSIDERATIONS**

Supplemental feed may be necessary to meet the forage intake and desired nutritional levels for animals of concern.

Forage quality varies based on species, maturity, season of production, fertilization and other management factors. Livestock nutritional requirement varies based on class, weight, and desired production differences.

Use Forage Harvest Management (511) for hay, green chop, and silage production.

Analyze harvested forages and by-product feeds to determine nutritional quality and supplemental feed requirements

Placement of supplemental feed should be considered to reduce negative impacts to soil, water, air, plant, and animal resources.

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

Animal husbandry requirements which may impact the design of the grazing system will be considered.

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

Forage consumption by grazing or browsing wildlife will be considered when developing the overall stocking rate.

Prescribed grazing systems should be designed to consider the objectives, desires, abilities, understanding, and time availability of the client.

Before subjecting establishing plants to grazing use, an adequate plant population with sufficient energy reserves for regrowth must exist. The plants must have a root system capable of anchoring the plant.

Animals are highly selective in grazing between plants of the same species, part of plants, and species of plants. Selection causes some plants to be severely overgrazed, lowering their vigor, reducing their production efficiency, and creating conditions for between encroachment. At the same time, neighboring plants are only lightly grazed, causing production loss and lowering forage quality.

Mixed pasture such as grass-legume mixtures should be grazed in a manner that reduces undesirable competition between species. Graze mixtures to prevent shading of legumes and to encourage desired seasonal production.

Fencing should be carefully considered and planned to meet the management needs of the livestock operation. When planning new fences, consideration should be given to balancing forage production between pastures. Fences should be located so as to separate land units with production capability differences. Consider the use of temporary fencing to determine the feasibility of a proposed fencing arrangement and to allow flexibility in pasture size and stocking rate.

A stock water plan should be developed to provide adequate water with reserve for emergencies for each grazing unit for the number of animals grazing. See Table 2 for guidelines.

### **PLANS AND SPECIFICATIONS**

This practice will be planned and applied by site specific recommendations. A prescribed grazing plan will be prepared for all fields and pastures and will incorporate any additional feed supplementation for the operating unit or portion of an operating unit being addressed. Grazing plans will be recorded in a manner that is readily understood and usable by the decision maker in

their daily operations. Individual specifications will be documented in narrative statements, conservation plans or similar documents and forms.

A prescribed grazing schedule will include the following information:

1. Documentation of the expected forage quantity and quality for each paddock during the grazing season.
2. Documentation of the number of domestic livestock by kind and class, and the number of grazing/browsing wildlife of concern associated with the management unit.
3. Documentation of nutritional surpluses and deficiencies, if known, from the forage resources for each kind and class of livestock and grazing/browsing wildlife of concern associated with the management unit.
4. Supplemental feed requirements needed to meet the nutritional level for the desired production of the livestock managed.
5. Development of prescribed grazing plan for livestock, which identifies periods of grazing, resting, and other treatment activities for each management unit. Use Table 1 to determine appropriate grazing heights and estimate days for growth cycle to regenerate forage.
6. A contingency plan that details potential problems and serves as a guide for adjusting the grazing plan to insure resource management and economic feasibility without resource degradation will be developed.
7. The forage needs of grazing/browsing animals and the estimated forage production will be kept in balance. The FOCS Grazing Lands Application (GLA) software program can be used to inventory forage and animal resources. The estimated forage needs can also be calculated manually using form GA-CONS-2, Crop, Livestock and Forage Production Worksheet.

See Appendix 1 for a description of grazing management methods, definition of grazing terms and grazing calculations of interest.

### **OPERATION AND MAINTENANCE**

The manager will apply Prescribed Grazing on a continuing basis, making adjustments as needed to ensure that the concept and objectives of its

application are met. The Prescribed Grazing plan will specify when evaluations of the current feed and forage supply should be made. If an imbalance is determined, the plan should be adjusted accordingly or other harvesting techniques applied.

**Table 1**

Minimum residual height and approximate recovering period of grazing plants.

Species	Min. Residual Height (Inches)	Approx. Residual Period (Days)
Buffelgrass	6	25-30
Congoglass	6	20-25
Guineagrass	8-10	25-30
Pangolagrass	6	21-25
Signalgrass	6	20-25
Stargrass (Estrella)	6	21
Pajón (Bluestem)	4	25-30

**Table 2 - Water Requirements**

Water consumption varies considerably depending on animal class, animal health, temperature, stage of lactation, and other environmental conditions. Several rules of thumb are utilized by cattlemen. They are:

- Cattle will drink 2 lbs. of water for every 1 lb. of feed they eat; one gallon of water equals 8.34 lbs.
- Cattle will drink 1 gallon of water per 100 lb. of body weight.
- Water consumption (gallons) =  $(0.39 \times \text{temperature}) - 8.87$

Water requirements for various animal groups

	Daily Needs, gal./head 90°F
<b>Beef</b>	
400 lb. calf	10
800 lb. feeder	15
1000 lb. feeder	17
cows and bulls	20
<b>Dairy</b>	
lactating cow	40
dry cow	23
calves	12
replacement heifers	15
bulls	20
Horses or mules	12

#### APPENDIX 1 - GRAZING MANAGEMENT METHODS AND CALCULATIONS

The efficient production of animal products through management of pasture, hay and feed input is the objective of a grazing method. Management of forage quality and quantity over the growing season can be achieved using a variety of grazing management methods. The quality and quantity of forage produced for livestock production is of greater importance than the type of grazing method use. However, grazing method, along with management practices, should be considered to protect the soil and water resources as well.

#### GRAZING SYSTEMS

**Continuous Stocking** - Under continuous stocking animals are maintained on a single pasture during the grazing season. The animals are given freedom of movement throughout the pasture which allows grazing selectivity. Given the opportunity through freedom of movement and moderate stocking rates (number of animals per land unit area, i.e. number of cows/acre) animals selectively graze palatable, nutritious forage. Adjustments in stocking rate may be required during the grazing season to prevent undergrazing or overgrazing depending on pasture conditions and environmental factors associated with growth. Animals may be set-stocked with a fixed number of animals, or animal number per land area may be adjusted to fit the feed supply over the grazing season. During periods of undergrazing, temporary fencing can be used to decrease the grazing

area and adjust stocking rate, while allowing the harvest of accumulated forage for stored feed.

The selectivity associated with continuous stocking, along with adequate forage availability to meet intake requirements, results in consumption of high quality forage. Continuous stocking often results in superior per animal performance (average daily gain - ADG) compared to rotational stocking. Continuous stocking may favor stocker operations where per animal performance is of particular importance due to high fixed input costs associated with the individual animal, such as implants, vaccinations, worming, and other animal health costs. Continuous stocking should not be confused with overgrazing. Depending on stocking rate, continuously stocked pasture can be over, under or properly grazed. Estimates of forage availability to meet the demands of the animals and protect the plant resource should be considered when determining the stocking rate that meets the desired grazing pressure.

To prevent detrimental environmental effects associated with freedom of animal movement supplemental feed, mineral blocks, water supply and shade structures should be portable to prevent build up of animal waste and deterioration of the plant and soil resource in these heavily used areas.

Rotational Stocking - Under rotational stocking, the pasture is subdivided into several paddocks or subpastures, and for a particular paddock a rest period for forage regrowth follows the grazing period. The number of paddocks varies from 2 to 12 more. A high stocking rate is imposed on a paddock for a short time to encourage uniform utilization of the available forage. Graze periods are typically 2 to 7 days. Rest periods are typically between 2 and 4 weeks, but will vary with species and environmental conditions. Flexibility is the key to effective rotational stocking. Rotations should be based on forage availability and rate of growth, not on a fixed time schedule.

Rotational stocking generally reduces the selectivity of the grazing animal. As a rule, the overall forage quality of the ingested material is reduced under rotational stocking. The reduced selectivity may result in decreased per animal performance (ADG), but the increased utilization and pasture productivity associated with rotational stocking typically favors per acre

production. Increased stocking rates and per acre performance favors cow-calf operations.

Benefits of rotational stocking include better control and opportunity for observation of livestock, improved persistence and productivity of highly palatable forage species sensitive to continuous stocking, improved utilization of more species in the pasture with less waste, improved pasture management through decision making, and better distribution of animal waste.

#### GRAZING TERMS

- Animal unit - according to the GLA glossary - the equivalent of the average amount of dry matter one mature cow (1000 lb.) and her calf will consume in a year, or 9490 lbs. This equivalent is based on an average daily forage consumption of 26 lbs. dry matter per day over 365 days.
- Animal unit month - according to the GLA glossary - the amount of feed or forage required by an animal unit for one month or the tenure of one animal unit for a period of one month. For an animal unit equivalent of 1 (cow with calf consuming 26 lbs. dry matter per day), an animal unit month is equal to 790 lbs. dry matter. Example: for an animal unit equivalent of 0.8 (yearling 12-18 months) as described in the Southern Forages table given below, the forages requirement for one month would be 632 lbs. dry matter.
- Animal unit year - according to the GLA glossary - the equivalent of an average annual consumption of 9490 lbs. of dry matter per year or an average annual daily consumption of 26 lbs. of dry matter per day over 365 days.
- Animal unit equivalent - according to the GLA glossary - can be estimated for classes or types of livestock/wildlife based on the weight of the class or type of animal of interest compared back to the 1000 lb. cow with calf pair consuming 26 lbs. dry matter on a daily basis. For example, a 1500 lb. bull would be an animal unit equivalent of 1.5 (1500 lbs./1000 lb. = 1.5) and would be expected to consume 39 lbs. ( $26 * 1.5 = 39$ ) dry matter per year. An 1100 lb. cow would be equivalent to 1.1 animal units, i.e. 1100 lbs./1000 lbs. = 1.1. The standard estimated dry matter amount of 26 lbs. per day, 790 lbs. per month and 9490 lbs. per year would be multiplied by 1.1 to determine the needs

of the 1100 lb. cow. Animals weighing less than 1000 would be calculated using the same method. For example, a 200 lb. non-lactating sheep would be an animal unit equivalent of 0.2.

**GRAZING CALCULATIONS**

To determine the number of paddocks needed

$$\text{Number of paddocks} = \frac{\text{Days of rest}}{\text{Days of grazing}} + 1$$

The 1 added to the equation represents one paddock in the rotation being grazed at any one time.

Example: graze 4 days, rest 28 days

$$\frac{28}{4} + 1 = 8 \text{ Paddocks needed}$$

To determine the days of grazing when the days of rest and the number of paddocks are known:

$$\text{Days graze} = \frac{\text{Days of rest}}{\text{No. of paddocks}} + 1$$

Example: rest 21 days, 8 paddocks

$$\frac{21}{8 - 1} = 3 \text{ day grazing period per paddock}$$

To determine the acres required per paddock, the following known values are required:

1. Average weight of animals to be grazed.
2. Dry matter (DM) consumed per animal as % of body weight.
3. Number of animals to be grazed.
4. Grazing days on the pasture or paddock.
5. Dry matter available in the area to be grazed.
6. Percent of the dry matter utilized by grazing.

ke varies with forage quality and quantity and animal class. Use the following general guidelines for dry matter consumed per day as percentage of body weight:

1. Growing animals consume 2-3% of body weight in dry feed.
2. Finishing animals consume 2-2.5% of body weight in dry feed.

3. Brood cows consume 2-2.5% of body weight in dry feed.

4. Herd bulls in excellent conditions will consume 1.2-2% of body weight in dry feed; young bulls and thin bulls may consume double this amount.

5. Lactating dairy cows consume 3% of body weight in dry feed.

Dry matter available depends on the forage species, growing conditions, and plant density. A range of 150-300 lbs. of dry matter available per inch of pasture growth per acre is commonly used to estimate dry matter availability. Considerable variation can occur.

Percent of dry matter utilized by grazing will vary according to stocking rate, grazing method and grazing time. Pasture utilization figures can represent either consumption based on proper grazing height. When considering ground-up production, continuous stocking under moderate stocking rates will result in consumption of approximately 25% of the available forage. Rotational stocking will increase the utilization to approximately 50% depending on the number of paddocks in the rotation. Increasing paddock number typically results in increased utilization.

Considering proper grazing height for the forage species, utilization rates of 40 to 70% are common. Utilization rates based on proper grazing height account for leaving substantial stubble height for forage regrowth and maintenance of stand vigor.

Dry matter available per inch and utilization rate should be determined using the same train of thought whether it is ground-up production with the resulting utilization; or production based on the proper grazing height for the forage species.

To calculate the total acres required:

Example: Forty 600 lb. steers are consuming 3% of their body weight in dry matter during a 4-day grazing period. There are 8 inches of usable forage growth (difference between average height and proper grazing height) at approximately 225 lb. dry matter per inch per acre which is being utilized at 60%.

$$\frac{600 \times .03 \times 40 \times 4}{(8 \times 225) \times .60} = \frac{2880}{1080} = 2.7 \text{ ac. req./paddock}$$