

NATURAL RESOURCES CONSERVATION SERVICE
PRESCRIBED GRAZING PRACTICE GUIDE
CODE 528



A prescribed grazing system consists of properly managed stands of forage crops that are managed in such a way as to protect the natural resources. Stocking rates and grazing management are linked together to accomplish the objectives.

DEFINITION

Prescribed grazing is managing the harvest of vegetation with grazing and/or browsing animals.

PURPOSES

This practice may be applied as part of a 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.

OPERATION AND MAINTENANCE

Prescribed Grazing will be applied on a continuing basis throughout the occupation period of all planned grazing units. Adjustments will be made as needed to ensure that the goals and objectives of the prescribed grazing strategy are met. Close grazing during the growing season reduces total forage production. It is important to follow the attached Contingency Statement to minimize problems attributed to overgrazing, excess nutrient application, overuse, and animal access during drought or inclement weather. In times of prolonged drought or excessive moisture, livestock shall be moved to an area for confinement and feeding until weather conditions allow for proper grazing.

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. All facilitating practices (e.g. Fence (328), Brush Management (314), Pasture Planting (512, etc.) needed to effect adequate grazing and/or browsing distribution as planned by this practice standard will be maintained in good working order and will be operated as needed.

PURPOSE (SELECT ALL THAT APPLY)

- 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.

SPECIFICATIONS FOR GRAZING SYSTEM

Information that is needed to successfully plan and manage a grazing operation is included on this practice guide. Specifications are prepared in accordance with the NRCS Field Office Technical Guide. See Practice Standard Prescribed Grazing (Code 528).

1. Landowner Objectives for Pasture/Grazing System:

2. How many groups of grazing animals/livestock? _____

Animal Group #1 – Animal Information (complete this section for each animal group)

Group #1 Species / Type -

$$\text{Number of Animals} \times \text{Average Animal Weight (lbs)} = \text{Total Live Weight (lbs)}$$

Animal Group #1 – Feed Supplement (lbs of dry matter/animal/day)* _____

*Refer to Table 7 for % Dry Matter (DM) of common feed supplements if supplement weights were given in terms of "as fed" amounts. "As fed" refers to actual pounds of feed provided, without accounting for moisture content of feedstuff.

Animal Group #2 – Animal Information

Group #2 Species / Type -

$$\text{Number of Animals} \times \text{Average Animal Weight (lbs)} = \text{Total Live Weight (lbs)}$$

Animal Group #2 – Feed Supplement (lbs of dry matter/animal/day)* _____

3. Stocking Rate Calculation (Whole Farm) –

$$\frac{\text{Group 1 Live Weight (lbs)} + \text{Group 2 Live Weight (lbs)} + \text{etc.}}{1000 \text{ lbs per Animal Unit}} = \text{Animal Unit (AU)}$$



$$\text{Animal Units (AU)} / \text{Acres Grazed} = \text{Animal Units per Acre (AU/Ac.)}^*$$

*If stocking rate is greater than 2AU/Ac with soil tests **OR** 1 AU/Ac without soil tests, the nutrient management calculator must be run to determine nutrient loading to pasture.

4. Grazing Information – by Animal Group (complete this section for each animal group)

☆ Group 1 - Length of Grazing Season (days):

Start Date –

Stop Date –

☆☆ Occupation Period per Paddock (days):

☆☆ Group 2 - Length of Grazing Season (days):

Start Date –

Stop Date –

☆☆ Occupation Period per Paddock (days):

5. Forage Information - Refer to Table 1 for Species and Dry Matter Yields

Pasture Fields:

#1 Forage Species/Mix –

$$\text{Acres of Pasture} \times \text{lbs DM/ac/yr}^* = \text{lbs Forage / Year}$$

#2 Forage Species/Mix –

$$\text{Acres of Pasture} \times \text{lbs DM/ac/yr} = \text{lbs Forage / Year}$$

#3 Forage Species/Mix –

$$\text{Acres of Pasture} \times \text{lbs DM/ac/yr} = \text{lbs Forage / Year}$$

*Note – Forage yields (lbs DM / ac / yr) are based on grazing management and soil type. For continuously overgrazed pastures select the lowest forage production (see Table 1.).

Grazed Hay Fields:

#4 Forage Species/Mix –

$$\text{Acres of Pasture} \times (\text{lbs DM/ac/yr} - \text{lbs of hay removed}) = \text{lbs Forage / Year}$$

Field Residue Grazed:

#5 Forage Species/Mix –

$$\text{Acres of Residue} \times \text{lbs DM/ac/yr} = \text{lbs Forage / Year}$$

Annual Crops Grazed:

#6 Forage Species/Mix –

$$\text{Acres of Annual Crop} \times \text{lbs DM/ac/yr} = \text{lbs Forage / Year}$$

Total Forage* Production:

Total of all Forage Production, in all Fields -

$$\#1 + \#2 + \#3 + \#4 + \#5 + \#6 = \text{Total lbs of Forage Produced / Year}$$

*Note - this total does not show seasonal variation in forage production. Production typically decreases during hot dry periods and increases during moist or cooler periods.

Grazing Height - Refer to Table 1 for Turn In and Removal Height for each species/mix.



Forage Species/Mix	Turn in Height (inches)	Removal Height (inches)

6. Forage-Animal Balance

At this point in the calculations it is assumed that 100% of dry matter needs are provided by pasture. Approaching the calculations this way identifies the limitations of the forage base before feed supplement is provided. If there is not enough forage available for meet 100% of the dry matter needs, supplemental feed will be considered in Section 8.

When selecting the % Utilization Rate (see Table 5), consider rotation length and, if continuously overgrazed, stocking density.

Animal Group #1 (complete this section for each animal group)

Total Live Weight X % Body Weight DM Needs per Day = Total lbs DM Forage needed per day

Total lbs DM Forage needed per day X Total Days in Grazing Season = Total lbs DM Forage needed per season

Total lbs DM Forage produced X % Utilization* = Total lbs DM Available Forage per season

Total lbs DM Available Forage / season - Total lbs DM Forage needed per season = Forage Balance (lbs DM)

***Note** – If you are continuously overgrazing, pasture utilization is fixed at the highest rate (and production at the lowest) due to mismanagement. In order to decrease the forage deficit, grazing management must be improved allowing an increase in overall forage production.

If you are **NOT** continuously overgrazing and the forage balance is negative but increasing acreage or reducing animal numbers is not an option, the main variable in the equation is the % Utilization. The % Utilization increases as the length of the pasture rotation (time in paddock) decreases. This ultimately means that as animals are moved more quickly through a section of pasture, there is less waste making more of the forage base available to the animals.

7. If Forage Balance is negative (deficit), show how much stored feed is used to offset deficit

$$\text{Negative Forage Balance in lbs DM} / \text{Total Days in Grazing Season} = \text{lbs DM supplement / group / day}$$

If supplement was identified in Section 2, the amount being fed should be close to the amount of supplement identified as needed in this section. If the amount of supplement being provided in Section 2 is greater than the supplement needed in Section 7, Feed Management should be considered.

If supplement is provided, the feeding location must be identified and potential problems mitigated.

Reminder - If stocking rate is greater than 2AU/Ac with soil tests **OR** 1 AU/Ac without soil tests, the area must be evaluated for nutrient management concerns for surface and groundwater. It is likely that the management of the area must change or livestock access to the area needs to be restricted and the exercise area will be managed for grass cover and nutrient balance.

At this point in the calculations, you can allow for supplementation by using the following equation. This equation will allow you to determine the % Body Weight Dry Matter Needs **from Pasture**.

$$\text{Total lbs of DM Needed from Pasture / Day} = \text{Total lbs DM needed per day} - (\text{lbs Supplement per animal} \times \text{Number of Animals})$$

$$\text{\% Body Weight DM Needed from Pasture} = \text{Total lbs of DM needed from Pasture per day} / \text{Total Live Weight}$$

8. If you cannot achieve a balanced forage-animal balance by changing the utilization rate, and it is not possible to increase pasture acreage or decrease animal numbers, you must determine how the existing pasture will be managed so that the soil, water, and vegetative resource bases are maintained.

Refer to the Conservation Planning and Regulatory Compliance Handbook, Concentrated Livestock Area section for management of overgrazed pastures and/or brown areas.

A. Rotational Grazing

If a section of pasture will be divided into paddocks use the following equations. (See Table 8 for estimated lbs DM yield per inch)

One of the ways to manage pasture so that the resource base is maintained or improved is to manage the area as a paddock, or systems of paddocks. This management approach is most suitable for larger areas of pasture. (See Section 8B for calculations for limited acreage, continuously overgrazed.)

★ **How to size paddocks**

$$\text{Acres Per Paddock*} = \frac{\text{Paddock Occupancy in Days X Total Live Weight X \% Body Weight DM Need per Day from Pasture}}{\text{lbs DM of Forage per Inch X Inches of Available Forage X \% Utilization}}$$

★ **Number of paddocks needed**

$$\text{Number of Paddocks Needed} = \frac{\text{Rest Period}}{\text{Days in Rotation}} + 1$$

★ **Total Acres Needed (Based on Rest Period)**

$$\text{Total Acres Needed} = \text{Acres/Paddock} \times \text{Number of Paddocks Needed}$$

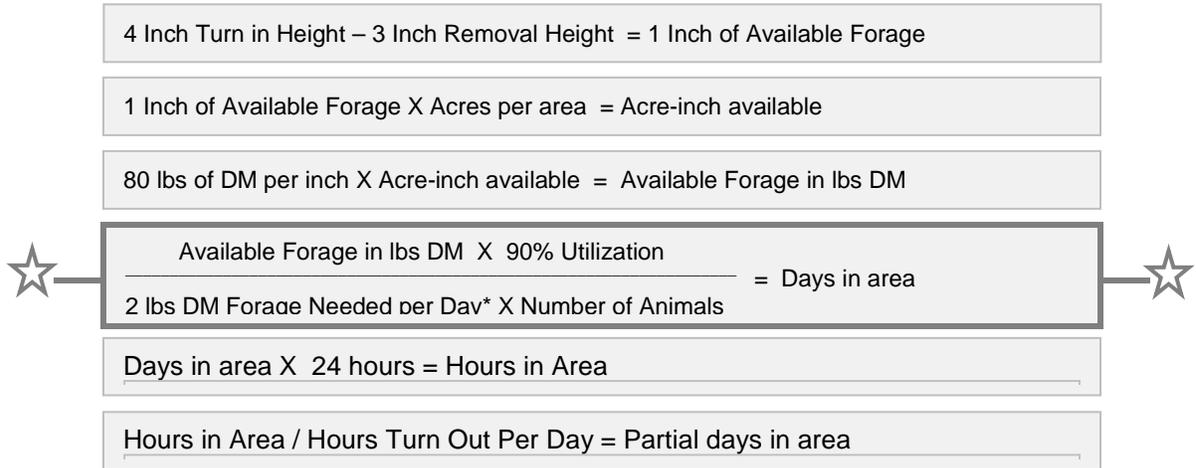
B. Vegetation Management/Continuous Grazing

If there is only a small amount of pasture available, determine how long the animals can be in the area before the available forage is consumed. Once it is consumed, the animals must be removed from the area until the forage has regrown (see Table 6 for Rest Periods).

Length of Occupancy – Baseline, Minimum to Meet 528 Standard (Vegetation Management)

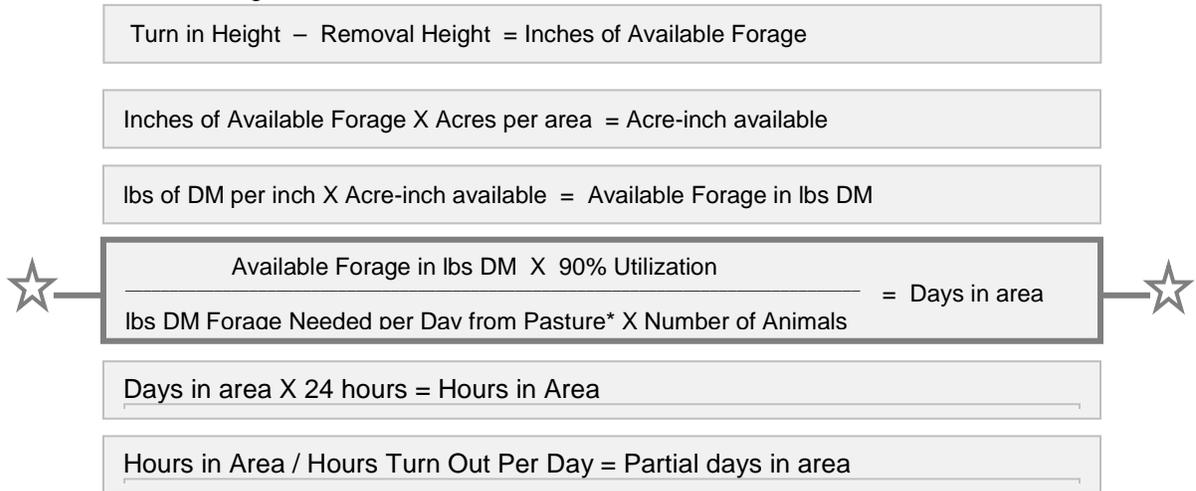
Due to continuously overgrazing the area, the forage production is fixed at 80 lbs of DM/inch with only one inch of available forage per acre as a baseline. These numbers can only be changed if management improves, removing animals from the area to allow for adequate regrowth to occur.

In this situation, it is common to feed 100% of DM needs in the barn and it is assumed that each animal will consume 2 lbs of forage while turned out.



Length of Occupancy – Alternative, Based on Improved Management (Continuous Grazing)

In order to change from baseline numbers, the forage must be managed according to recommended Turn In and Removal Heights as identified in Table 1.



Additional Calculations:

This section can be completed for each individual animal group (refer to Section 2) or for the total number of grazing animals on the farm (refer to Section 3).

The number of acres* needed to support existing animals

$$\text{Numbers of Acre Needed*} = \frac{\text{Days in Grazing Season} \times \text{Total Live Weight} \times \% \text{ Body Weight DM Needs (from Pasture)}}{\text{Average Yield per Acre in lbs DM} \times \% \text{ Utilization}}$$

OR

The number of animals* the existing acreage can support

$$\text{Numbers of Animals} = \frac{\text{Total lbs DM of Forage Produced} \times \text{Pasture Acreage} \times \% \text{ Utilization}}{\text{Total lbs DM Forage Needed per Day from Pasture} \times \text{Days in Grazing Season}}$$

*Note – this section identifies the carrying capacity of the available forage base and is can be used to help the producer understand the limitations of the grazing system.

If you double check your calculations with the following equation:

$$\text{Acres/Paddock} \times \text{Number of Paddocks Needed} = \text{Number of Acres Needed}$$

Make sure your Average Yield/Acre is consistent by using the following equation:

$$\frac{\text{lbs DM Produced / Acre / Season}}{\text{Rest Period} + \text{Days in Rotation}} = \frac{\text{Days in Grazing Season}}{\text{Rest Period} + \text{Days in Rotation}} \times \text{Inches of Available Forage} \times \text{lbs DM of Forage per Inch}$$