

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

Prescribed Grazing

(Acre)

Code 528

DEFINITION

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.

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



Follow all federal, state and local laws and regulations.

Removal of herbage will be in accordance with production limitations, rate of plant growth, the physiological needs of the forage plants and the nutritional needs of the animal using Table 1 and 2 of this standard as a guide. Minimum grazing heights will be the decisive evaluation for compliance of this standard and shall be

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service State Office, or download it from the electronic Field Office Technical Guide for your State.

maintained on a minimum of 80% of the grazing system.

Table 1. Rest periods for cool-season pastures

Season	Weather Conditions	Growth Rate	Rest Period
Spring	Cool, moist	Fast	10-14 days
Spring	Warm, dry	Medium	14-20 days
Summer	Hot, moist	Slow	30-35 days
Summer	Hot, dry	Very slow	40-60 days
Fall	Cool	Medium	14-20 days

Duration, time (season), required rest periods, and optimal starting and ending grazing heights will be based on desired plant community goals, expected productivity of key species, and management unit objectives. Tables 1 and 2 of this standard shall be used as guides.

Adjust intensity, frequency, timing and duration of grazing and/or browsing to meet the desired objectives for the plant communities and the associated resources, including the grazing and/or browsing animal.

Manage the kind of animal, animal number, grazing distribution, length of grazing and/or browsing periods and timing of use to provide

grazed plants sufficient recovery time to meet planned objectives. The recovery period of non-grazing can be provided for the entire year or during the growing season of key plants. Deferment (non-grazing period less than one year) and/or rest (non-grazing period equal or greater than one year) will be planned for critical periods of plant needs.

Grazing duration shall provide for management system and production objectives. The length of the grazing period shall be determined by the length of the rest period needed for recovery of the forage resource.

Number of paddocks in a grazing system shall be determined by the following formula:

$$(\text{Average Rest Period}/\text{Grazing Days}) + 1$$

$$\text{Example: } (30 \text{ rest days} / 3 \text{ grazing days}) + 1 = 11 \text{ paddocks needed.}$$

Appropriate stocking density will be calculated and used as a guide to optimize utilization of the forage resource.

Adjust livestock numbers and/or grazing time to match forage demand to forage yield as indicated in Exhibit A below.

Exhibit A. General formulas to estimate animal numbers or grazing days:

$$\text{AN} = \frac{\text{TFP}/\text{Ac.} \times \text{Ac.} \times \% \text{ HE}}{\text{AW} \times \text{IR} \times \text{Days}}$$

$$\text{Days} = \frac{\text{TFP}/\text{Ac.} \times \text{Ac.} \times \% \text{ HE}}{\text{AW} \times \text{IR} \times \text{AN}}$$

AN = Animal Number

TFP = Total Forage Production (Total above ground biomass in lbs/acre dry weight)

Ac. = Acres

% HE = Percent Harvest Efficiency (same as % grazing efficiency)

Guide: Continuous grazing = 25%-50%

3-7 days grazing (8-12 paddocks) = 50%-60%

0.5-3 days grazing (24+ paddocks) = 60%-75%

AW = Animal weight (pounds)

IR = Intake Rate in % body weight

Guide: 2.0% for maintenance

2.6% for annual average production

3.0% for lactating and fast growing animals

4.0% for high production

Days = Days of grazing planned (160-210 days within growing season in Indiana which may be extended with additional management options such as stockpiling)

Table 2. Species Harvest/Rest Information

Species	Start Grazing	Start Grazing Regrowth	Remove Livestock Height	Rest Period	When to Cut for Hay, Silage or Balage	Over-Wintering Height	Approximate Date to begin Rest for Winter Protection ³	
	(inches)	(inches)	(inches)	(days)		(inches)	(North)	(South)
Kentucky Bluegrass, Perennial Ryegrass	4-6	4-5	2-3	14-30	Boot	2-3	N/A	N/A
Orchardgrass, and other non-jointed grasses	6-8	6-8	3-4	14 spring 30--45 summer	Boot & Peak re-growth	3-4	4	4
Tall Fescue (See restrictions in General and Fish & Wildlife Criteria before using)								
Smooth brome, Timothy, and other jointed grass	8	8	4	14 spring 30--45 summer	Boot & Peak re-growth	5-6	9/1-10/1	9/20-10/20
Reed Canarygrass (See restrictions in General and Fish & Wildlife Criteria before using)								
Alfalfa	12	8-10	3-4	24-32	Late bud to early bloom	6	9/1-10/1	9/20-10/20
Birdsfoot Trefoil	10-12	10-12	5-6	24--45	¼ bloom to full bloom	5	9/1-10/1	9/20-10/20
White Clover	6-10	8-10	2	24-32	Early to ½ bloom	4	9/1-10/1	9/20-10/20
Red & Alsike Clover	10-12	8-10	3-4	24-45	Early to ½ bloom	5	9/1-10/1	9/20-10/20
Sudangrass	18-20	18	8-10	14-30	Boot	N/A	N/A	N/A
Sorghum-Sudangrass Hybrid	24-30	24	8-10	14-30	Boot	N/A	N/A	N/A
Pearl Millet	8-10	8-10	4-6	14-30	Boot	N/A	N/A	N/A
Japanese Millet	12-18	12-18	4-6	14-30	Boot	N/A	N/A	N/A
Small Grains	8-10	8	2-3		Early head	4-6	10/15-11/1	11/1-11/15
Switchgrass, Big Bluestem and Indiangrass	12-18	12-18	8 ¹	21--45	Boot to early head	8-12	9/1-10/1	9/20-10/20
Little Bluestem & Sideoats Grama	12-14	12-14	6-8 ^{1,5}	21--45	Boot to early head	6-10	9/1-10/1	9/20-10/20
Brassicac	12-14	12	4-6	14--45	N/A	N/A		
Annual Lespedeza	6-8	6-8	3-4	14-30	Early bloom	²	9/1-10/1	9/20-10/20
N/A – Not Applicable								
¹ Leave an 8-10 inch stubble at end of season until after killing frost.								
² Allow to set seed during season.								
³ Protection from fall grazing is recommended. WSG's can have limited grazing after killing frost when applicable.								
⁴ No restrictions with fescue and orchardgrass.								
⁵ 4 inches above lowest node best indicator.								

Boot: Most heads in upper leaf sheath, but prior to emergence.

Early Head: Tips emerging on not more than 10% of stems.

Medium Head: About 50% of the heads emerged or emerging.

Full Head: Most of heads fully emerged but prior to flowering.

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.

Manage grazing and/or browsing animals to maintain adequate vegetative cover on sensitive areas (i.e. riparian, wetland, habitats of concern, karst areas).

Manage livestock movements based on rate of plant growth, available forage, and allowable utilization target.

Develop contingency plans to deal with expected episodic disturbance events (i.e. insect infestation, drought, wildfire, etc). Periodic rest from grazing will be needed to maintain or restore the desired plant community following episodic events, such as severe drought.

Adequate quantity and quality drinking water will be supplied at all times during period of occupancy. The water requirements for all grazing livestock shall be a minimum 30 gallons per animal unit (1000 pound live weight) per day.

Pasture layout and distance to water for all grazing livestock shall provide for the even distribution of grazing pressure. The closer and more accessible water is to the animals the more even the demand.

Walking distance to water shall be minimized in all systems with a maximum walking distance goal of 1200 feet unless restricted by unalterable site conditions. Minimizing the walking distance to water reduces trailing, increases efficiency of the pasture, can allow for smaller sized tanks and can increase animal performance.

Due to potential environmental hazards, reed canarygrass will not be recommended except where no other species will meet the intended purpose. Low-alkaloid varieties shall be seeded/utilized when reed canarygrass is the desired forage species. Regardless of site, reed canarygrass shall be harvested or grazed prior to seed formation.

Low-endophyte or endophyte friendly fescues will be recommended when tall fescue is the desired cool-season grass species to be seeded.

Additional Criteria to Improve or Maintain 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.

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.

Non-scheduled rest from grazing and/or browsing will be needed to restore the desired plant community following episodic events such as severe drought.

Soil test periodically for nutrient status and soil reaction and apply fertilizer and/or soil amendments according to soil test to improve or maintain plant vigor.

Stockpiled forages will be deferred from grazing until the desired stockpiled forage is dormant to reduce stress on carbohydrate reserves of those species to ensure long term productivity of the pasture.

Rest periods in Table 1 will only be used as a guide. Livestock will be rotated into paddocks based on the vegetative condition and re-growth of the forages. Forages will be allowed to re-grow to reach a height that allows the replenishment of carbohydrate reserves.

Grazing management shall be accomplished according to forage growth. Animals should be introduced to a paddock when the forages reach the planned height and remove them from that same paddock when the planned residual stubble

height is attained. Table 2 contains a list of suggested forage heights for management of livestock turn-in and removal.

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

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.

Enhance diversity of pasture plants to optimize delivery of nutrients to the animals by planning intensity, frequency, timing and duration of grazing and/or browsing.

Plan the intensity, frequency, timing and duration of grazing and/or browsing to reduce animal stress and mortality from toxic and poisonous plants.

Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.

Dietary needs of livestock will be based on 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 pasture site.

Bio-security safeguards will be in place to prevent the spread of disease between on-farm classes of livestock and between other livestock farm units.

Shelter in the form of windbreaks, sheds, shade structures, and other protective features will be used where conditions warrant to protect livestock from severe weather, intense heat/humidity, and predators.

Systems shall be developed that subject animals to a minimum amount of handling stress.

Interior fences shall give control required to ration forage as planned according to Indiana (IN) Natural Resources Conservation Service (NRCS) Electronic Field Office Technical Guide (eFOTG) Standard (382) Fence.

All livestock on pasture shall have free choice access to water within water requirements listed in Table 3. Testing of water supplies should be advised when there are any problems or if the source is questionable.

Table 3. Water quality restrictions for water provided to livestock

Contaminant	Concentration
Nitrate	<100 ppm
Sulfate	<350 ppm
Total Dissolved Solids	<3000 ppm
Blue-green algae	Very low presence
Coliform bacteria	For Grade A dairy, meet milk inspection standards.

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.

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

1. Minimize deposition or flow of animal wastes into water bodies.
2. Minimize animal impacts on stream bank or shoreline stability.
3. Provide adequate ground cover and plant density to maintain or improve infiltration capacity and/or filtering capacity of the vegetation.

Livestock shall be excluded from flowing streams, spring seep areas and from ponds and lakes except when designated in the prescribed grazing plan when limited access or flash grazing (very short duration, i.e., 1/2-2 days) is permitted.

Grazing shall be limited to the planned time periods.

Do not graze riparian areas when soils are saturated.

Watering and feeding facilities and shade areas shall be sited or constructed so as to prevent or discourage livestock from creating high use loafing areas adjacent to surface water bodies.

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, vegetative buffers between these concentration areas and water courses.

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

Woodlands with greater than 30% canopy shall be excluded from livestock to maintain the natural vegetative cover, under-story and humus. Woodlands with less than 30% canopy that are grazed shall be managed to maintain adequate vegetative cover.

Additional criteria to Improve or Maintain Riparian and Watershed Function

Minimize concentrated livestock areas to enhance nutrient distribution and improve or maintain ground cover and riparian/floodplain plant community structure and functions.

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

1. Provide adequate ground cover and plant density to maintain or improve infiltration capacity and reduce runoff.
2. Provide adequate ground cover and plant density to maintain or improve filtering capacity of the vegetation.
3. Maintain adequate riparian community structure and function to sustain associated

riparian, wetland, floodplain and stream species.

Additional Criteria to Reduce Soil Erosion and Maintain Soil Condition.

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

Plan the intensity, frequency, timing and duration of grazing and/or browsing to provide adequate ground cover, litter and canopy to maintain or improve infiltration and soil condition.

Ground cover provided by grasses and legumes shall be maintained above 80 percent surface cover at all times during the grazing season on permanent vegetation.

When crop residues are grazed, the percent ground cover shall be monitored during the grazing period and livestock removed when ground cover and residue mass approach the specified minimum amount needed to keep soil loss and soil organic matter to the specified level using current approved erosion prediction and soil conditioning index procedures.

Pasture fencing layouts shall provide laneways that are least prone to livestock trail erosion.

If hayland is available and needed for grazing, it will be utilized for grazing when minimum forage heights on regular pastures are present. This may include grazing initial spring growth and aftermath growth after last mechanical forage harvest. This will be employed yearly as part of a grazing management plan or as needed in event of emergency shortages of grazable forage.

Grazing shall be deferred on all somewhat poorly, poorly, and very poorly drained soils, unless artificially drained, during the time of high water table occurrence. Refer to Section II of the FOTG for additional drainage information.

Woodlands with greater than 30% canopy shall be excluded from livestock to maintain the

natural vegetative cover, under-story and humus. Woodlands with less than 30% canopy that are grazed shall be managed to maintain adequate vegetative cover.

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

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

Endophyte-infected tall fescue and reed canarygrass will not be planted when wildlife use is the primary purpose. Refer to IN NRCS eFOTG Standard (645) Upland Wildlife Habitat Management for appropriate seeding recommendations.

Plan intensity, frequency, timing and duration of grazing and/or browsing to provide for the development and maintenance of the plant structure, density and diversity needed for the desired fish and wildlife species of concern.

A portion of the grazing system during the critical nesting period (April 1st – August 1st) will be utilized to provide essential nesting habitat for the applicable targeted species. Blocks of undisturbed nesting habitat are preferred over linear strips.

Develop grazing plans that will provide adequate food, water and cover for the target wildlife species.

CONSIDERATIONS

Native grasses, legumes and forbs will be considered in the planning process as applicable to enhance the wildlife value of the plant community.

Supplemental feed may be necessary to meet the nutritional requirements of grazing livestock or to meet the producer's performance goals.

Feed rations should be balanced with pasture forage to provide the energy, protein, and minerals necessary to meet the production objectives of the producer and the nutritional requirements of the livestock type and class.

When pasture forage is supplemented with other feed sources, the general equation shall be modified to decrease pasture forage demand by the amount of supplemental feed consumed. Early in the growing season when crude protein and digestible organic matter are excessively high, the addition of fiber source may be needed to better utilize and absorb nutrients and balance the rumen.

Shade should be considered on days where relative humidity levels exceed 75 percent and air temperatures exceed 85°F of ambient air temperature. Livestock may need to have access to shade, natural or artificial, during these periods where sufficient cooling is not occurring at night (generally when there is less than 10 degrees difference between night and daytime temperatures).

Endophyte-infected tall fescue and high alkaloid reed canarygrass pastures should not be prescribed for grazing brood mares, especially the last 60 days before foaling. Test all tall fescue-dominated pastures for level of infection as warranted. Diversity of forages and addition of legumes will reduce severity. Fescue alkaloids have been implicated in decreasing palatability and intake. Low endophyte and endophyte friendly varieties are available and should be considered over endophyte-infected varieties to help improve animal performance and production. Anti-quality factors associated with alkaloids can also be found associated with some perennial ryegrass and reed canarygrass.

Many old reed canarygrass stands have high concentrations of indole alkaloids, (above 0.2% by dry weight) and should not be prescribed for sheep grazing. All livestock should be conditioned to graze it.

Evaluate any hay that might have mature reed canarygrass as a component and avoid feeding this hay within close proximity of any water bodies, wetlands, or floodplains.

Alsike clover should not be used for horses because of increased photosensitivity.

Ruminants grazing “bloat-causing legumes” should do so only under one or more of the following conditions:

1. Pure Legume Stands or Grass Legume stands with > 40% bloating legumes.

Provide poloxalene free choice prior to first time on pasture each season.

Feed livestock dry hay prior to first time on pasture each season.

Allow livestock to graze only when water from dew, rain, or irrigation has evaporated from foliage and dry hay is available free choice.

2. Grass-Legume Stands - The legume makes up no more than 40 percent of the available pasture forage.

Poisonous plants should be scouted for and removed if found at levels that would cause illness or death. Consult with your local extension educator with assistance in identification and control.

Grass tetany is a serious problem and in most cases indicates an insufficiency of magnesium. Where grass tetany is a problem, pastures should be fertilized to produce forage with at least 0.2 percent magnesium, or ruminants should be fed a magnesium supplement.

Cyanogenic forages (sorghum, sudangrass, sorghum-sudangrass, volunteer johnsongrass, and white clover) should not be grazed when hydrogen cyanide content of the forage dry matter exceeds 200 ppm (drought or frosted or stressed plants). For sudangrass or sudangrass-sorghum hybrids, defer grazing until plants are 18 inches tall.

When grazing periods per livestock class are less than 2 days and percent utilization of available forage is less than 50 percent by the first grazers, directly follow high performance livestock (first grazers), such as lactating dairy and meat production livestock, with maintenance livestock (second grazers), such as non-lactating females, on the same paddock to utilize remaining forage.

Time on the paddock should be equal for both groups.

The following are suggested ranges for optimal grazing periods. These systems are based on average forage production.

Cow/calf operation	3-7 days
Stocker operation	1-3 days
Dairy operation	0.5-1 day
Ewe/lamb operation	2-5 days
Feeder lambs	1-3 days
Horses	5-7 days

When soil-borne parasite cycles need to be broken, defer grazing long enough to break cycle or defer grazing for one or more grazing seasons when practical or treat livestock. Sheep especially need to “top graze” as much as possible to lessen the impact of parasites residing on lower plant parts.

It is a good practice to graze only half of the designated paddocks in the spring during rapid growth to keep the forage under control. Clip or hay the other half to keep in a vegetative form. Start grazing all paddocks when hayed or clipped paddocks have regrowth ready to graze. Reduce number of paddocks again in early fall to set aside paddocks for stockpiling if desired.

Many soils in Indiana are selenium deficient and supplementation may be needed for grazing livestock.

Begin grazing sequence each year in a different paddock as practical to help reduce parasite load, maintain a dense forage stand and to help nutrient distribution.

Grazing programs should be tailored to meet the cooperators’ goals and resources. Animal husbandry requirements, such as handling, feeding and breeding programs, may affect the design of the grazing prescription and must be resolved during the planning process.

When suppression or elimination of weeds and sapling woody species by grazing is feasible and desired, select livestock species that will utilize

those woody species. Stocking density, timing, and duration shall achieve desired level of control and prevent seed production, or be supplemented with other control methods.

When the suppression of forage plant re-growth is desired on individual pastures to be over-seeded or completely renovated, then graze to the minimum stubble height possible and document in assistance notes and/or grazing plan. This will normally be shorter than prescribed in Table 2. Utilize livestock that can tolerate reduced intake during this time period, for example, dry cows.

Prescribed grazing should consider the needs of other activities that may utilize the same land base, such as wildlife and recreational uses.

When available and applicable, crop aftermath can be included in the grazing system to allow time for forage re-growth before a killing frost to increase the forage supply to extend the grazing season. Crop residues are best used for non-lactating or mature animals which can do better on lower energy feeds.

Consider improving carbon sequestration in biomass and soils through grazing management.

Consider the following when developing a prescribed grazing plan:

- Landowner's Objectives – In order for any prescribed grazing plan to work, this primary objective must be considered.
- Livestock Producer's Time – Consider available time when developing a grazing system.
- Livestock Producer's Management Skills – Consider the management skills of the landowner/operator when developing a grazing system because a prescribed grazing plan requires good management skills.
- Soils – Where possible, avoid placing fields/paddocks across different soil types to reduce differential grazing.

- Topography – Strive for topographical uniformity in field/paddock layout to promote uniform grazing. Consider aspect when planning early spring grazing.
- Special Features – Consider roads, streams, ponds, and wooded areas.
- Source and Location of Water – Strive to reduce the distance animals travel to water. Locate water to reduce negative impacts. Desired walking distances to water should be 800 feet or less for most grazing livestock.
- Location of Supplemental Feeding Areas – Consider effects on resource base and grazing distribution when locating feeding areas. Also consider storage requirements, labor, access and use of heavy use area protection.
- Fencing – Consider the location, condition, and type of existing fences.
- Working Facilities – Consider location of working facilities when laying out a prescribed grazing system.
- Weather Conditions – Consider the use of shade when designing a grazing system. Shelter may be needed for livestock in inclement weather.
- Impact on wildlife that may utilize the grazing areas.

A prescribed grazing plan may include one or all of the following types of grazing methods. Each plan should contain the method(s) needed to meet the goals of the livestock producer and general criteria of this standard:

Continuous Grazing – A method where livestock are grazed on a specific unit on land with unrestricted access through out the time period when grazing is allowed.

Rotational Grazing – A method that utilizes recurring periods of grazing and rest among two

or more paddocks in a grazing management unit throughout the period when grazing is allowed.

Rotation of animals is through two or more pastures. A rest period follows each grazing period. Refer to Table 1 for suggested rest periods.

Management-Intensive Grazing – Allocates a small amount of forage in a short time (several hours to one or two days). May involve large pastures offered to animals in strips with the use of temporary fencing.

Follower-Leader – Involves two livestock groups. First grazers utilize one half or less or available forage and then rotate to another paddock followed by the last grazers who graze the remaining forage to a desired residual height.

Co-grazing- Two or more species of livestock grazing the same unit of land at the same time.

Stockpiling or deferred grazing – Grazing is delayed during part of the grazing season to provide later grazing. Tall fescue is very well suited for this type of grazing. The grazing season can be extended by stockpiling, planting summer or winter annual grasses and legumes for grazing, and planting brassicas either for summer, fall, or early winter grazing as the forage species allow and need dictates.

Creep Grazing – Allows passage by smaller animals to higher quality forage.

There are many modifications and variations of the grazing methods and all are important in the development of the prescribed grazing plan. All of the methods must have enough grazing units and acreage to allow for appropriate rest periods. The fewer the paddocks available, the more difficult it is to manage for proper rest resulting in a lower harvest efficiency. If the number of grazing units is not sufficient for proper rest periods, then the animals must be totally or partially removed at necessary intervals to insure adequate forage and ground cover.

PLANS AND SPECIFICATIONS

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

Grazing plans will be organized in a manner that is readily understood and useable by the producer in their daily operations. The manner of documentation will depend on the size and complexity of the grazing management unit. Included in the documentation will be the elements needed for achieving the production and environmental goals of the grazing management unit. The plan will be revised, as necessary, to meet management needs.

The grazing plan/folder shall include the following information:

- Goals and objectives of producer. (Can be achieved by filling out Pasture/Livestock Inventory Worksheet)
- Inventory of livestock, forages and resources (Can be achieved by filling out Pasture/Livestock Inventory Worksheet) including existing resource conditions and concerns, forage suitability groups if available, opportunities to enhance resource conditions and location and condition of structural improvements such as fences, water developments, etc. including seasonal availability and quality of watering sites.
- Forage inventory of the expected forage quality, quantity and species in each management unit(s).
- Forage-Animal balance development for the grazing plan, which ensures forage produced or available meets the forage demand of livestock and/or wildlife.
- Grazing plan developed for livestock that identifies periods of grazing and/or browsing, deferment, rest, and other treatment activities for each management unit.

- Contingency plan developed that details 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 whether the grazing strategy is resulting in a positive or upward trend and is meeting objectives. Identify the key areas and key plants that the manager should evaluate in making grazing management decisions.
- Plan map or maps with the following information:
 1. Property description.
 2. Land available for grazing.
 3. Field/paddock boundaries.
 4. Primary land use identification.
 5. Vegetation.
 6. Soils.
 7. Environmentally sensitive areas.
 8. Fences, lanes, watering systems, and sacrifice areas, if used.
- Strategies for harvesting or controlling forage during periods of excess growth, such as mechanical harvest or clipping.
- When one of the purposes of the grazing plan is to improve or maintain the quantity and quality of food and/or cover available for wildlife, the following will be included in the plan:
 - Primary species of concern
 - How the plant height, structure and density will be managed for the targeted wildlife species
 - What portion of the grazing system will be utilized during the critical nesting period for the targeted species
 - All seeding recommendations

OPERATION AND MAINTENANCE

Operation – 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.

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.

All facilitating and accelerating practices (e.g. fence, pasture planting, 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 operated as intended.

Stocking rates are based on targeted forage yield goals. When soil tests indicate soil pH and nutrient levels are lower than needed to meet the targeted forage yield goal, apply lime and fertilizer according to University recommendations or the Indiana NRCS 528 Excel Pasture Fertility Program.

Clip pastures as needed to promote vegetative re-growth and/or control certain weed invasions. Refer to IN NRCS eFOTG Standard (595) Pest Management for more information.

Renovate or overseed pasture to reintroduce desired forage species into the pasture according to IN NRCS eFOTG Standard (512) Pasture and Hayland Planting. Check compatibility with any existing species being retained.

Remove or eliminate any hazard from a pasture that may injure livestock, such as loose wire, other hardware, holes in the ground, and downed trees or heavy limbs.

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