

South Carolina Records: Monitoring and Record Keeping

Provide a brief description of all monitoring methods used to determine grazing effects and quantify objective achievement. (i.e., Grazing Record Book, Grazing Heights, Exclosure Cages, Photo Points, Clipping, Body Condition Score, etc.)

1. Exclosures and Photo Points:

Place grazing exclosures in pastures to compare ungrazed areas to grazed areas. If pastures are rotationally grazed use one exclosure for each pasture.

Exclosures are small wire cages in the pasture. You can build them with three T-posts placed in a triangle approximately three feet apart with a length of woven wire attached in a roughly circular shape.

2. Photo Points:

Photo points are permanent general view photographs which provide a qualitative record for documenting and evaluating vegetation changes in vegetation structure and for visually documenting measured changes. They are retaken from the same location and filling the same frame each time, allowing for a consistent comparison of changes between years.

3. Grazing Stick Stubble Heights:

Estimating forage production per acre-inch:

An excellent stand has more than 90% cover, a good stand has about 75-90% cover and a fair stand has less than 75% ground cover, or more than 25% bare ground. If ground cover is less than 60% forage yield cannot be accurately predicted from forage height.

Example: estimating forage production using the acre-inch method

Let's assume you have a 20-acre pasture of common bermudagrass. Using your grazing stick you estimate the bermudagrass is about 4-5 inches tall. The stand has about 80-85% vegetative cover so it is in a "low-good" condition. Based on these estimates this stand should be producing about 250-275 lbs/acre-inch of forage. With an average forage height of 4.5 inches and about 260 lbs of forage/acre-inch, there is approximately 1,170 lbs of forage/acre or 23,400 lbs. of forage in the entire 20 acre pasture.

Dry Matter Productivity, Proper Grazing Height and Estimated Recovery Period

Forage Species	Average Production ¹ (lb/A-in)	Production Range ² (lb/A-in)	Annual Production ³ (lb/A)	Plant/Stubble Height to End Grazing ⁴ (in)	Plant Height to Start Grazing (in)	Approximate Recovery or Rest Period (days)	Grazing Season
Grasses							
Bahiagrass	225	100-350	8000	1-2	5	20-28	Apr-Oct
Bermuda Grass, Common	260	150-500	8000	2-3	5	18-28	Apr-Oct
Bermudagrass, hybrid	260	150-500	12,000	3-5	6	18-28	Apr-Oct
Big Bluestem ⁵	100	50-250	9000	4	8	25-40	May-Sept
Crabgrass	140	75-200	6000	2-4	5	18-28	Apr-Oct
Dallisgrass	250	150-350	6000	2-4	5	21-30	Apr-Oct
Eastern Gamagrass ⁵	100	50-250	9000	8	12	28-45	May-Sept
Indiangrass ⁵	100	50-250	9000	5	10	28-40	May-Sept
Johnsongrass ⁵	150	100-250	7000	6	20	21-30	May-Sept
Millet	150	100-250	10,000	9	15	21-30	May-Sept
Orchardgrass	180	75-300	7000	3-5	6	20-30	Sept-May
Ryegrass (annual)	250	75-400	6000	2-3	5	14-25	Nov-May
Small Grains (oats, rye, wheat)	150	75-250	6000	3-4	8	14-25	Nov-May
Sorghum-sudan hybrids	150	100-250	8000	6-8	18	21-30	May-Sept
Switchgrass ⁵	100	50-250	9000	8	12	30-45	May-Sept
Tall Fescue ⁶	210	100-350	7000	3-4	8	21-30	Sept-May
Legumes							
Alfalfa ⁵	225	75-400	9000	3	8	20-25	May- Sept
Clover, arrowleaf or crimson	200	100-300	5000	2-4	6	14-25	Dec-May
Clover, red	220	100-300	7000	2-3	4	18-25	Nov-May
Clover, subterranean or white	200	75-300	5000	2-3	4	18-30	Nov-May
Lespedeza, annual	150	50-250	3000	2-3	4	20-30	June-Oct
Sericea Lespedeza	200	150-250	4000	4-6	8	18-25	Apr-Oct
Mixtures							
Bermudagrass/legumes	250	100-400	9000	2-3	6	14-30	
Tall Fescue/alfalfa	225	75-400	7000	3	7	20-30	
Tall Fescue/common bermudagrass	250	150-350	9000	3	6	18-30	
Tall Fescue/legumes	190	80-325	8000	3	6	18-30	

¹ The values should be used only as guides. They represent average values taken from many sources from across the region from thick, well fertilized, actively growing stands. Wherever possible use known production values.

² Range covers low management (thin, unfertilized, often unmanaged stands) to high management (thick, well fertilized stands with rapid growth and high yield).

³ Attainable annual production for medium to high level management.

⁴ Use higher value in range for continuous stocking and on sloping areas subject to runoff and erosion. Lower value in range can be used with intensive rotational stocking.

⁵ Rotational stocking is necessary to maintain the stand.

⁶ Rotational stocking favors persistence of endophyte-free varieties.

4. Clipping to determine forage production

The second method for determining forage production is clipping the vegetation within a known area (in this case a 1.92 ft² frame; 12" x 23"), measuring the weight of the vegetation that is clipped, applying a given air-dry percentage to the weight (Table 2), and calculating pounds of forage/acre using a set conversion factor. This size of plot is most commonly used because when measuring in grams a simple conversion factor of 50 will give you pounds of forage/acre.

Of the two methods, this one will be the most accurate estimate because it is based on actual samples taken on the pasture of interest. Sample 20-30 frames (a minimum of 10) and then average the results together. Samples should be taken across the entire pasture or in all the different ecological sites (i.e., low lying wet sites, upland dry sites, on the hill side, etc.).

Table 2. Percent of air-dry matter at different growth stages, according to three general forage types

Percent of air-dry matter in harvested forages at various growth stages					
Forage type	Pre-boot stage	Flowering	Ripe seed	Senescent	Dormant
Cool season grasses	25	40	60	85	95
Warm season grasses	30	45	60	85	95
Forbs/legumes	20	40	60	90	100

The following steps should be used for each sample. After selecting the sampling point:

- 1. Clip forage in a 23 x 12-inch sample area, or any dimension that is 1.92 ft² in size. Clip down to an inch or less.**
- 2. Weigh forage (in grams), and multiply by a dry matter percentage (ex. 75 grams x 0.4 = 30 grams of dry matter).**
 - Forage is comprised of both water and dry-matter, but forage yield is based only on dry-matter. So you have to account for the amount of water that is present in the forage. Do this by multiplying the wet forage weight by the appropriate correction factor in table 2. Also, be sure to take out the weight of the bag that the forage is being held in.
- 3. If you don't have a scale in grams: 1 pound = 454 grams; 1 ounce = 28.4 grams. Multiply grams of dry matter by the conversion factor of 50 (ex. 30 grams x 50 = 1,500 lbs. of forage/acre).**



5. Monitoring Body Condition Score:

(The LSU AgCenter Beef Cattle Production Handbook is the primary source of this information)

Variation in body condition of beef cows has several implications that can be used to make management decisions. Production characteristics that are influenced by body condition include: 1) postpartum period, 2) breeding cycle, 3) calf crop percentage, 4) calf weaning weights, 5) calf uniformity, and 6) supplemental feed requirements.

Body condition of beef cows is scored from 1 (thin) to 9 (fat). This system has been used by many cattlemen and researchers as a guideline in evaluating body condition. The system is based on a subjective evaluation of the degree of fatness an animal has. The areas of the body used to generate the Body Condition Score (BCS) include: ribs, backbone, pelvic area, tail head, brisket, and muscling on the hindquarters and shoulders (Table 1). BCS or change in BCS is a more reliable indicator in evaluating nutritional status than liveweight or change in liveweight. This is because most herds have a range in frame and muscling. For example, two cows may both weigh 1,100 pounds, but in average condition one is a 1,200 pound cow that is 100 pounds under weight and the other is a 1,000 pound cow carrying 100 pounds more than she needs. Another benefit of BCS is that it can be determined without handling the animal.

Table 1. Physical characteristics of different body conditions in cattle.

Body Condition Scores for Cattle		
1–3	Thin to Emaciated	<ul style="list-style-type: none"> - Backbone and foreribs are highly visible - Spaces between bones are very visible - Little to no fat cover - A strong “V” shape is noticeable between the hooks and pins
4	Borderline	<ul style="list-style-type: none"> - 12th and 13th ribs are visible, particularly in cattle with a big spring of rib and ribs wide apart - Foreribs are not visible - The backbone can be identified by palpitation using slight pressure only - Full but straight muscling in the hindquarters
5	Moderate	<ul style="list-style-type: none"> - 12th / 13th ribs not visible to the eye unless animal has been shrunk - The backbone can be identified by palpitation w/ firm pressure only, and feels rounded not sharp - Areas on each side of the tail head are fairly well filled but not mounded - Profile from the rear will show a slight bump across the tail head area - Little evidence of fat in the brisket

6	Good	<ul style="list-style-type: none"> - Ribs are fully covered and not visible - Noticeable fat on each side of the tail head - Noticeable sponginess to covering of foreribs and on each side of the tail head - Hindquarters are plump and full - Profile from the rear will be more or less flat across the tail head area - Some fat deposition in brisket
7	Very Good	<ul style="list-style-type: none"> - Abundant fat on each side of tail head - Ends of bones can only be felt with very firm pressure - Spaces between bones barely distinguishable - Brisket full and back appears square due to fat
8– 9	Fat to Very Fat	<ul style="list-style-type: none"> - Obese to very obese - Animal has smooth blocky appearance - Tail head is buried in fat - Mobility may be impaired.

A BCS of 5 should look average, neither thin nor fat. Once you have established what a BCS of 5 looks like it is easier to determine variations from this. The fill or shrink from digestive contents or pregnancy can change the appearance of moderately fleshed cattle, especially over the ribs and in front of the hooks. Long hair can also make it more difficult to evaluate body condition visually.

The practical range of values for most cattle is 4 – 6. From a management standpoint, a BCS below 5 is the score at which many of the production factors listed above begin to be affected. Cows with a BCS of 4 or lower at calving, during the breeding season, or at pregnancy testing had lower pregnancy rates than cows with a BCS of 5 or higher. Additionally, cows with a BCS of 5 or higher had calving intervals of 365 days or less while cows with a BCS of 4 or lower resulted in calving intervals of more than 370.

Good reproductive performance requires a BCS of 5 or higher at calving and through breeding. Separating cows by condition at pregnancy testing or 2-3 months before calving, and feeding both groups to calve at a BCS of 5 or above, will maintain high reproductive performance while holding supplemental feed costs to a minimum. The routine use of BCS will provide needed information to manage the cow herd for a high calf crop and profitability.

6. Grazing Records **Year** _____

Pasture ID _____ **Pasture Acres** _____ **Year or Season** _____
Forage Type _____

Soil Test Date _____ **Fertilizer: Date Applied** _____
Formulation _____

Livestock		Date In	Forage Height	Date Out	Forage Height	Notes
Type	Number					

Pasture ID _____ **Pasture Acres** _____ **Year or Season** _____
Forage Type _____

Soil Test Date _____ **Fertilizer: Date Applied** _____
Formulation _____

Livestock		Date In	Forage Height	Date Out	Forage Height	Notes
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Formulation _____

Livestock		Date In	Forage Height	Date Out	Forage Height	Notes
Type	Number					

South Carolina Records: Contingency Plan

Drought Management Plan

Year _____

Drought is a major factor in grazing land management. Drought causes long-term effects and recovery is a long-term progress. To manage successfully under the constant threat of drought, a good grazing management plan with a drought component should be developed.

There are numerous impacts to grazing lands associated with drought. They are:

- Loss of vegetative cover that results in increased runoff and erosion, reduction of average carrying capacity, potential reduction in water quality and reduced quality of wildlife habitat
- Increase in undesirable plants
- Increased potential of poisonous plant consumption by herd
- Economic loss (reduced income and increased costs)
- Loss of herd genetics through livestock sales

Factors to know before drought occurs:

- Knowledge of temperature, moisture, and growth relationships of plants
- Knowledge of normal climatic variations
- Knowledge of the relationship between maintaining livestock numbers with supplemental feed versus reducing livestock numbers
- Proper grazing management prior to drought improves plant vigor and moderates the effects of drought
- Stocking rate is the most important tool, especially under drought conditions

What will you do when planning for a drought:

- Plan for the production of emergency forage sources. Do you have additional fields you can move your animals to (leased, owned, etc) Yes or No ____ If yes, state when and where you will move your animals _____
- Will you dry lot livestock Yes or No ____ If yes, please note that this will require facilities and increases labor and manure.
- Will you early wean calves Yes or No ____ This reduces cows' demand for forage by 20%.
- Will you selectively market calves Yes or No ____ If yes, older, heavier calves that are carrying condition should be the first ones marketed. The younger, lighter-weight calves will consume less feed and be more efficient in feed utilization than the older ones.
- Will you sell cows Yes or No ____ If yes, cows that have lost a calf, cows that are open, cows with physical problems and old cows should be the ones to be considered for culling
- Will you designate a sacrifice pasture where supplements are fed Yes or No ____ This limits negative impacts to a confined area. Do not designate a sacrifice area near waterbodies.
- Will you store harvested hay to keep losses at a minimum Yes or No ____ Storage procedures that reduce losses are economically critical under normal conditions and are even more important during times of limited forage supply.

What to do after a drought:

- Resist temptation to increase livestock numbers immediately following drought
- Adjust length of recovery period depending upon drought severity and climatic conditions following the drought

OPERATION AND MAINTENANCE PLAN

FOR PRESCRIBED GRAZING

- 1. Prescribed Grazing will be applied on a continuing basis throughout the occupation period of all planned grazing units.**
- 2. Annual plan review or re-evaluation as necessary when changes occur regarding animal numbers, grazing land acreage or location changes, etc.**
- 3. Adjustments to the plan may include; changing length of grazing and rest periods, changing paddock sizes, moving watering facilities, and improving access or travel lanes.**
- 4. In-season evaluations of the current feed and forage supply should be made. Evaluations may include:**
 - Determining excess pasture growth and adjusting managed grazing plan accordingly or applying other harvest techniques,**
 - Determining if there is a shortage of pasture growth and adjust managed grazing plan accordingly or apply supplemental feeding techniques,**
 - Determining if quality of the pasture stand meets the production goals and adjusting the managed grazing plan accordingly or, and applying improvement methods such as inter-seeding.**
- 5. All grazing infrastructure, necessary to effect adequate grazing efficiency according to this plan will be maintained in good working order and will be operated as intended. These include:**
 - Fencing and Gates, Livestock Trails and Walkways, Stream Crossings,**
 - Watering Facilities and Pipelines,**
 - Heavy Use Protection Areas,**
 - Pasture and Hay Planting.**
- 6. Maintain records to document grazing plan implementation. As applicable, records will include:**
 - Livestock Type and Number**
 - Field or Paddock Number and Acres,**
 - Date when livestock were moved into and out of the paddock,**
 - Narrative description of the grazing season as it relates to forage density and height changes over the paddock rotations in that grazing system.**

Specific Additional Requirements for Your Practice:

Pasture Condition Score Sheet

Purposes

- Evaluate current pasture productivity and the stability of its plant community, soil, and water resources.
- Identify what treatment needs, if any, are required to improve a pasture's productivity and protect soil, water, and air quality.

Suggested uses

This score sheet may be used to rate different pastures in a single growing season or the same pasture over a period of years. Rating a pasture yearly can track trends, either improvement or decline, in its condition. Some indicators change slowly in response to stresses caused by management or climate. Also, some indicators may change as each season progresses. An indicator or causative factor may rank high at one time and low another. Uniformity of use, plant residue, percent legume, severity of use, weather, and insect or disease pressure can vary widely on the same pasture depending on when they are scored during the year and the degree of management the pasture receives. Therefore, it is often wise to score a pasture at different, key times during the year before deciding to make changes in management. Indicate on the form the date the scoring occurred.

Procedure

Step 1—Rate each pasture one by one that is occupied all at the same time by a herd or flock and separated from other pasture areas by portable or fixed fencing. Paddocks in rotational pastures may be rated separately or as a combined unit. It depends on how alike they are. If any indicator looks markedly different from paddock to paddock, it may pay to rate each one separately.

Step 2—Score all 10 indicators regardless of your feelings of their relative worth. To learn or recall how each indicator reflects on how well a pasture is being managed, see *Guide to Pasture Condition Scoring*.

Step 3—Using the attached score sheet and indicator criteria, read the scoring criteria for each of the 10 pasture condition indicators one at a time and rate before moving onto the next. Use the 1 to 5 scale provided. Estimate by eye or measure as precisely as you feel is needed to rate the indicator reliably.

Step 4—When scoring plant vigor, enter a score based on the general criteria given on page 2 using the most limiting trait listed. Use this number to determine the overall pasture score. If the plant vigor score is less than 4, refer to the plant vigor causative factors' criteria on page 6 to identify the plant stress(es) causing reduced vigor. Rate each causative factor independently on the score sheet provided on page 5. Do not average to adjust the original vigor score.

Step 5—When scoring erosion, rate sheet and rill erosion every time. Rate other types of erosion only if present. When present, indicate which one(s) by identifying the erosion type with a unique symbol next to its score. Divide the box as needed to score them separately. Erosion is rated by averaging the individual scores. A need remains to prioritize which erosion problem is controlled first and how.

Step 6—Total the score for each pasture and compare to the following chart. Also, focus on any low scoring individual indicators or causative factors.

Pasture condition score		Management change suggested
Overall	Individual	
45–50	5	No changes in management needed at this time.
35–45	4	Minor changes would enhance, do most beneficial first.
25–35	3	Improvements benefit productivity and/or environment.
15–25	2	Needs immediate management changes, high return likely.
10–15	1	Major effort required in time, management, and expense.

Step 7—When an individual indicator's score falls below a 5, determine its worth to your operation. Then, decide whether to correct the cause or causes for the low rating. If you choose to correct, apply the most suitable management options for your area and operation.

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Pasture Condition Score Sheet

Indicator	1	2	Score 3	4	5
Percent desirable plants	Desirable species < 20% of stand. Annual weeds and/or woody species dominant.	Desirable species 20–40% of stand. Mostly weedy annuals and/or woody species present and expanding. Shade a factor.	40–60% desirable forage species. Undesirable broad-leaf weeds and annual weedy grasses invading. Some woodies.	60–80% of plant community are desirable species. Remainder mostly intermediates and a few undesirables present.	Desirable species exceed 80% of plant community. Scattered intermediates.
Plant cover (Live stems and green leaf cover of all desirable and intermediate species.)	Canopy: < 50% Basal area: < 15% Photosynthetic area very low. Very little plant cover to slow or stop runoff.	Canopy: 50–70% Basal area: 15–25% Photosynthetic area low. Vegetal retardance to runoff low.	Canopy: 70–90% Basal area: 25–35% Most forages grazed close, little leaf area to intercept sunlight. Moderate vegetal retardance.	Canopy: 90–95% Basal area: 35–50% Spot grazed low and high so some loss of photosynthetic potential. Vegetal retardance still high.	Canopy: 95–100% Basal area: >50% Forages maintained in leafy condition for best photosynthetic activity. Very thick stand, slow or no runoff flows.
Plant diversity	One dominant (> 75% of DM wt.) forage species. Or, over 5 forage species (all <20%) from one dominant functional group, not evenly grazed - poorly distributed.	Two to five forage species from one dominant functional (>75% of DM wt.) group. At least one avoided by livestock permitting presence of mature seed stalks. Species in patches.	Three forage species (each ≥ 20% of DM wt.) from one functional group. None avoided. Or, one forage species each from two functional groups, both supply 25–50% of DM wt.	Three to four forage species (each ≥ 20% of DM wt.) with at least one being a legume. Well intermixed, compatible growth habit, and comparable palatability.	Four to five forage species representing three functional groups (each ≥ 20% of DM wt.) with at least one being a legume. Intermixed well, compatible growth habit, and comparable palatability.
Plant residue (Rate ground cover and standing dead forage separately and average score.)	Ground cover: No identifiable residue present on soil surface. Or, heavy thatch evident (> 1 inch). Standing dead forage: >25% of air dry weight.	Ground cover: 1–10% covered with dead leaves or stems. Or, thatch 0.5 inch to 1 inch thick. Standing dead forage: 15–25% of air dry weight.	Ground cover: 10–20% covered with dead residue. Or, slight thatch buildup but < 0.5 inch. Standing dead forage: 5–15% of air dry weight.	Ground cover: 20–30% covered with dead residue. No thatch present. Standing dead forage: some, but < 5% of air dry weight.	Ground cover: 30–70% covered with dead residue, but no thatch buildup. Standing dead forage: none available to grazing animal.
Plant vigor <i>If plant vigor rating is less than 4, determine cause by rating 6 possible causes listed on page 5.</i>	No recovery after grazing or pale yellow or brown, or permanent wilting, or plant loss due to insects or disease, exercise lot only. Or, lodged, dark green overly lush forage. Often avoided by grazers.	Recovery after grazing takes 2 or more weeks longer than normal, or yellowish green leaves, or major insect or disease yield loss, or plants wilted most of day. Productivity very low.	Recovery after grazing takes 1 week longer than normal, or urine/dung patches dark green in contrast to rest of plants, or minor insect or disease loss or mid-day plant wilting. Yields regularly below site potential.	Recovery after grazing takes 1 to 2 days longer than normal, or light green plants among greener urine and dung patches, or minor insect or disease damage. No plant wilting. Yields near site potential.	Rapid recovery after grazing. Healthy green color. No signs of insect or disease damage. No leaf wilting. Yields at site potential for the species adapted to the site's soil and climate.
Percent legume (Cool season stands. See footnote 3 of score sheet for warm season)	< 10% by wt. Or, greater than 60% of bloating legumes.	10–19% legumes. Or, losing grass, 40–60% spreading legume.	20–29% legumes.	30–39% legumes.	40–60% legumes. No grass loss; grass may be increasing.
Uniformity of use	Little-grazed patches cover over 50% of the pasture. Mosaic pattern throughout or identifiable areas of pasture avoided.	Little-grazed patches cover 25–50% of the pasture either in a mosaic pattern or obvious portion is not frequented.	Little-grazed patches cover 10–25% of the pasture either in a mosaic pattern or obvious portion is not frequented.	Little-grazed patches minor spots where isolated forage species is rejected. Urine and dung patches avoided.	Rejected areas only at urine and dung patches. No forage species rejection.

Pasture Condition Score Sheet

Indicator	1	2	Score 3	4	5
Livestock concentration areas	Cover >10% of the pasture; or all convey contaminated runoff directly into water channels.	Livestock conc. areas and trails cover 5–10% of pasture; most close to water channels and drain into them unbuffered.	Isolated livestock conc. areas and trails <5% of area; one close to water channel and drains into it unbuffered.	Some livestock trails and one or two small concentration areas. Buffer areas between them and water channels.	No presence of livestock concentration areas or heavy use areas sited or treated to minimize contaminated runoff.
Soil compaction	Infiltration capacity and surface runoff severely affected by heavy compaction. Excessive livestock traffic killing plants over wide areas. Very hard to push probe into soil without damaging the probe.	Infiltration capacity lowered and surface runoff increased due to large areas of bare ground and dense compaction layer at surface. Livestock trails common throughout. Off-trail hoof prints common. Hard to push probe past compacted layers.	Infiltration capacity lowered and surface runoff increased due to plant cover loss and soil compaction by livestock hooves. Soil resistant to soil probe entry at one or more depths within plow depth.	Infiltration capacity lowered and surface runoff increased due to reduced vegetal cover/retardance. Probe enters soil easily except at rocks. Scattered signs of livestock trails and hoof prints, confined to lanes or small, wet areas.	Infiltration capacity and surface runoff are equal to that expected for an ungrazed meadow; not affected by livestock traffic.
Erosion Sheet and rill	Sheet and rill erosion is active throughout pasture; rills 3–8 inches deep at close intervals and/or grazing terraces are close-spaced with some slope slippage.	Most sheet and rill erosion confined to steepest terrain of unit; well defined rills 0.5–3 inches deep at close intervals and/or grazing terraces present.	Most sheet and rill erosion confined to heavy use areas, especially in loafing areas and water sites; rills 0.5–3 inches deep. Debris fans at downslope edge.	No current formation of rills; some evidence of past rill formation, but are grassed. Scattered debris dams of litter present occasionally.	No evidence of current or past formation of sheet flow or rills.
Rate additional erosion categories below only if present					
Wind	Blowouts or dunes forming or present.	Soil swept from the established pasture being rated causing plant death by burial or abrasion.	Soil swept from adjacent fields or pasture during seedbed prep. and seedling growth to cause pasture plant death by burial or abrasion.	Some vegetative debris windrowed. Some dust deposition from offsite source. Minor wind damage to foliage.	No visible signs of windblown soil or trash. No wind related leaf damage.
Streambank or shoreline	Banks mostly bare and sloughing. No native streambank or shoreline vegetation remaining.	Banks are heavily grazed and trampled all over. Many are actively eroding laterally. Little native streambank or shoreline vegetation. Bank sloughing common.	Banks are close grazed, but few are unstable. Some native streambank or shoreline vegetation remaining. Livestock enter only at specific points, but use heavy. Remote alternative water site present.	Banks are grazed but stable. Mix of pasture plants and native water's edge species. Muddy livestock stream crossing(s) or pond entrance(s) not used heavily. Alternative water sites present.	Banks ungrazed or grazed infrequently. Abundant streambank or shore loving vegetation. Gravelly or constructed stable livestock stream crossing(s) or watering ramp(s). Or, alternative water sources present and close-by.
Gully	Mass movement of soil, rock, plants, and other debris; occurrence of landslides, debris avalanches, slumps and earthflow, creep and debris torrents. Found in mountainous or very hilly terrain.	Gully(s) advancing upslope cutting longer channel(s). Revegetation difficult without using constructed structures & livestock exclusion; continuous gully(s) with many finger-like extensions into the hillside.	Gully(s) present with scattered active erosion, vegetation missing at heavy use slopes and/or on bed below overfalls. New eroding channels present and new overfalls appearing along sides and bed of main channel.	One or more existing stable gullies present, vegetation covers gully bottom and slopes well; no visual signs of active cutting at gully head or sides. Some soil moved in channel bottom.	No gullies; natural drainageways are stable grassed channels. Spring or seep fed bare channels are small and stable, often covered with overhanging vegetation.

Plant Vigor Causative Factors

Factor	1	2	Score 3	4	5
Soil fertility (P & K status) ^{1/}	Very low P & K, or very high P & K.	Low P and K; or low P, very high K; low K, very high P; opt. P, very high K; very high P, opt. K.	Low P, optimum K; or low P, high K; or optimum P, low K; high P, low K; or high P, high K.	Optimum P, high K; or high P, optimum K.	Optimum P and K
(Nitrogen status) ^{2/}	N deficient or excessive.		N marginal or high.		Adequate N.
Upper 4-inch root zone pH ^{3/}	< 4.5 or > 9.0	4.5-5.0 or, 8.5-9.0	5.1-5.5 or, 7.9-8.4	5.6-6.0 or, 7.4-7.8	6.0 to 7.3
Severity of use	All desirable species grazed out. Or no grazing, resulting in thatch and/or standing dead accumulation and woody invasion.	All edible plants grazed to lowest level feasible by the livestock type (mown lawn look). Or, undergrazed - mostly stemmy overgrowth and much dead leaf .	Spot grazing common. Equal amount of close-grazed and little-grazed areas. Close grazed areas are grazed as low as livestock can graze (mown lawn look.)	Some spot grazing, avoided areas primarily at dung and urine spots. Closer grazed areas are not grazed below proper height needed for plant vigor.	Forage species grazed within height ranges that promote dense sward and near maximum production.
Site adaptation of desired species	Properly planted and established (desired) species are no longer present.	Properly planted and established (desired) species are nearly gone. Volunteer unwanted species dominate.	One or more properly planted and established, or recruited desired species are missing. Unwanted species invading.	Properly planted and established, or recruited desired species still represented, but not in the desired proportions.	Properly planted and established, or recruited desired species are present in the desired proportions.
Climatic stresses	Brownout from drought. Or, frost heaved plants, most with severed roots and dying. Or, major loss due to submergence or ice sheets.	Wilted plants, little recovery during night. Or, some frost heaved plants, recovery slow. Some spotty stand loss due to submergence or ice sheets.	Wilting during heat of the day. Or, weak plants from winter damage or short-term submergence. Or, freezing damage to foliage.	Dry conditions, but no wilting. Or, above or below normal temperatures slowing growth. Or, slight leaf yellowing due to cold, wet conditions.	No climatic stress.
Insect and/or disease pressure	Severe insect attack, mortality high. Or, disease caused mortality high.	Insect or disease outbreak at economic threshold, treat now.	Insect or disease outbreak near economic threshold, continue watch and weigh options for treatment.	Some insect and/or disease present, but little impact on forage quality or quantity.	No visible damage.

1/ Names used to describe P & K levels not consistent nationwide; Very high referred to as excessive, and optimum as moderate or medium. Determined by approved soil testing procedures and comparing soil test results for exchangeable P and K with this table.

2/ Determined using chlorophyll meter or plant tissue test and comparing those results with this table.

3/ pH ratings may need to be regionalized to account for soil chemistry differences that influence range of acceptability as soils become more highly weathered or excess salts, exchangeable aluminum, or sodium begin to interfere with forage production. Establish exchangeable aluminum, electrical conductivity, and sodium absorption ratio criteria where their levels in the soil interfere with forage production.

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Pasture Condition Score Sheet

Farm or ranch site: _____ Date _____

	Pasture Unit Description									
<p>Indicators</p>										
<p>Percent desirable plants^{1/} Percent plant cover by weight that is desirable forage:</p> <p style="text-align: center;"> 1 2 3 4 5 <20 20-40 40-60 60-80 >80 </p>										
<p>Plant cover^{1/ 2/} Percent live, leafy canopy cover of desirables and intermediates is:</p> <p style="text-align: center;"> 1 2 3 4 5 <50 50-70 70-90 90-95 95-100 </p> <p>Percent live basal area cover of desirables and intermediates is:</p> <p style="text-align: center;"> <15 15-25 25-35 35-50 >50 </p>										
<p>Plant diversity^{1/} The diversity of well-represented forage species is:</p> <p style="text-align: center;"> 1 2 3 4 5 </p> <p>(Read criteria and select appropriate number)</p>										
<p>Plant residue^{1/} Ground cover, standing dead forage, or thatch is:</p> <p style="text-align: center;"> 1 2 3 4 5 </p> <p>(Read criteria and select appropriate number)</p>										
<p>Plant vigor (Read criteria and select appropriate number) Degree of stress of plant community is:</p> <p style="text-align: center;"> 1 2 3 4 5 </p> <p>(If less than 4, see Causative factors table. Rate those factors)</p>										
<p>Percent legume^{1/ 3/} Percentage of legume present as total air dry weight:</p> <p style="text-align: center;"> 1 2 3 4 5 <10, or >60 10-19, or 40-60 20-29 30-39 40-60 </p> <p>bloating legume spreading legume no grass loss</p>										
<p>Uniformity of use Degree of spot grazing is:</p> <p style="text-align: center;"> 1 2 3 4 5 >50% 25-50% 10-25% Minor species Urine and dung ungrazed ungrazed ungrazed rejection spots ungrazed </p>										
<p>Livestock concentration areas Presence of livestock conc. areas and proximity to surface water:</p> <p style="text-align: center;"> 1 2 3 4 5 </p> <p>(Read criteria and select appropriate number)</p>										
<p>Soil compaction Degree of soil compaction is:</p> <p style="text-align: center;"> 1 2 3 4 5 </p> <p>(Read criteria and select appropriate number)</p>										
<p>Erosion (Always rate sheet and rill; others only if present) Sheet and rill, and gully, streambank, shoreline, or wind erosion is:</p> <p style="text-align: center;"> 1 2 3 4 5 Very severe Severe Moderate Slight No visible </p>										
<p>Pasture condition score</p>										

^{1/} Pastureland inventory worksheet helpful.
^{2/} Choose one proper, practical cover type estimation procedure to rate plant cover. The two procedures are not directly comparable.
^{3/} For warm season grass (C4)-legume stands, use the following criteria: 5, 30-40%; 4, 20-29%; 3, 10-19%; 2, 5-9%, and 1 <4%.

Pasture Condition Score Sheet

	Pasture Unit Description									
Causative Factors Affecting Plant Vigor										
Soil fertility (P & K status)* Phosphorus and potassium status of the soil are: 1 2 3 4 5 (Read criteria and select appropriate number)										
Soil fertility (N status)* Nitrogen status of the grasses is: 1 3 5 (Read criteria and select appropriate number)										
Soil pH* pH status of the soil for the upper 4-inch root zone best fits: 1 2 3 4 5 ≤ 4.5, or > 9.0 4.5-5.0, 5.1-5.5, 5.6-6.0, 6.0-7.3 or 8.5-9.0 or 7.9-8.4 or 7.4-7.8										
Severity of use Degree of forage removal is: 1 2 3 4 5 (Read criteria and select appropriate number)										
Site adaptation of desired species Presence of planted or desired forage species is: 1 2 3 4 5 (Read criteria and select appropriate number)										
Climatic stresses Degree of plant stress due to recent weather events is: 1 2 3 4 5 (Read criteria and select appropriate number)										
Insects and disease pressure Degree of plant stress due to insect or disease pressure is: 1 2 3 4 5 (Read criteria and select appropriate number)										

* Rate electrical conductivity and sodium adsorption ratios in regions where appropriate. Where excess salts, exchangeable sodium, or exchangeable aluminum hinder plant growth they are the controlling factor rather than soil pH conditions. Use appropriate criteria for them as found in the National Range and Pasture Handbook under Evaluating and rating pastures, Pasture Condition Scoring. See pH criteria below for highly weathered soils.

Soil pH Criteria for Major Landuse Resource Areas with Oxisols and Ultisols

pH status of the soil for the upper 4" rooting zone best fits:

1	2	3	4	5
< 4.0, or > 9.0	4.0-4.5	4.5-5.0	5.1-5.5	5.6-6.2
	or, 7.0-9.0	or, 6.5-7.0	or, 6.2-6.5	

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