One of the goals of grazing management is to meet the nutritional needs of the grazing animal. Another is to optimize pasture yield, quality, utilization and persistence. In order to meet the other goal of making a profit, as much of the nutritional requirements as possible must be met by pasture. To determine pasture quality, some mechanism of forage testing must be employed. One of the problems in the past has been adequately determining the quality of the forage actually consumed by the grazing animal. Whole plant clipped samples definitely did not reflect the quality of the grazing animals diet. Selective grab samples did a better job but may not always reflect what the animal selected. Texas A&M University, Grazingland Animal Nutrition Lab developed a process of analyzing fecal samples to determine the quality of the forages actually consumed by the animal.

As a supplement to the original demonstration project, additional funding was received to conduct monthly forage analyses on each demonstration farm for an eighteen month period. Fecal samples were collected on the demonstration farms in addition to some on some less intensive grazing systems for a comparison. The samples were sent to the Texas A&M GAN Lab and analyzed for crude protein, digestible organic matter, fecal phosphorous and fecal nitrogen. The comparisons did show that by more intensive pasture management, forage quality could be maintained at a higher level due to the plants being in a more leafy, vegetative stage when consumed. Usually, in the less intensive systems, rotations are slower and forage plants have the opportunity to become more mature before being grazed, thus lowering quality.

The following data does not represent the highs and lows in forage quality seen, but are averages based on stage of growth, fertility level and time of year. These values should only be used as a guide and not as absolute values. For more accurate information, some type of forage analysis would need to be taken on your individual pasture system.
### Fescue Pasture

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### Mixed Native Warm Season Grass Pasture

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DM = Dry Matter  
CP = Crude Protein  
TDN = Total Digestible Nutrient  
DOM = Digestible Organic Matter

To convert DOM to TDN, multiply DOM x 1.05

Data From:  
1. Fecal samples from grazing demonstration farms in Southwest Missouri RC&D Project - Mark Kennedy, Houston, MO  
2. Clipped samples from University of Missouri Extension Service data - John Jennings, West Plains, MO

April 22, 1996
The primary purpose of this project as stated earlier in this publication was to demonstrate economically and environmentally sustainable grassland management systems that farmers could adopt. In sustainable systems economic and environmental benefits cannot be separated, for without one you cannot have the other. Environmental practices that are not economical will either not be adopted or sustained due to economic constraints. On the other hand practices that are geared solely towards profitability without any regards to the environment or condition of the resource base will not be sustainable over the long term. One of the best ways to get long term conservation on the ground is to find cost effective ways it can be done. Management intensive grazing, applied properly, is one tool that can be used to achieve both long term environmental and economic sustainability.

The following is a listing of benefits observed by the participants of this project.

**Environmental and Economic Benefits:**

- **Improved vegetative cover** - reduced runoff potential; reduced soil erosion
- **More vigorous root system** - increased water infiltration; improved response to rainfall; reduced soil erosion potential
- **Improved nutrient distribution** - reduced nutrient runoff; reduced fertilizer application; reduced pollutants in watershed
- **Healthy, vegetative sward** - reduced herbicide usage; reduced potential chemical runoff; improved soil carbon and nitrogen cycling; less outside inputs entering the system
- **Increased plant diversity** - improved wildlife habitat; climatic persistence; improved use of available nutrients; longer season for active cycling of nutrients
- **Improved soil health/condition** - increased earthworm populations; improved infiltration; improved fertility
- **Reduced time and/or access to streams** - reduced streambank erosion; improved streambank cover/shade; improved wildlife/aquatic habitat; reduced pollutants reaching stream

All of these environmental benefits and improvements led to

- **Increased production** - increased carrying capacity; increased per acre gains; maintained/improved individual average daily gains; maintained/increased milk production; improved animal health; decreased culling rate
- **Decreased Costs** - feed; fertilizer; weed control; fuel/machinery; labor; animal waste storage and handling
What is Your Manure Worth?

1000 Lb. Beef Cow Produces 63 Lbs. / Day
Contains: 0.3 Lbs. N @ $0.28/Lb. *
0.12 Lbs. P @ $0.14/Lb.
0.26 Lbs. K @ $0.14/Lb.
1 Cow = $0.10 Fertilizer / Day
$0.10 X 365 Days = $36.5 / Cow / Year
100 Cow Herd = $3650 / Year

* Assumes A 50% Loss In Nitrogen

In a well managed grazing system, very few nutrients leave the farm.

If manure is evenly distributed throughout the paddocks, then fertility can be maintained through natural nutrient recycling.
Summary

There are many forms, variations and names of rotational grazing concepts. Among them are controlled grazing, time-controlled grazing, cell grazing, Voisin grazing, Savory grazing, short duration grazing, high intensity-low frequency grazing, and intensive grazing. Jim Gerrish, Forage Systems Research Center, Linneus, Missouri coined the new name for this approach to grassland management: "Management Intensive Grazing" with the emphasis being that it is the management that is intensive. This puts the focus of the system on the manager and not on the components of the system. Management Intensive Grazing then is a thought process, a planning process and a management system, not just a fencing system.

To manage grasslands effectively we need to understand the plant-soil-water-animal interrelationships. We can manage this complex ecosystem for profitability and environmental sustainability only if we understand the interactions of all the variables. In other words what effect each component has on the other and the whole and what reaction each action will produce.

In today's society we have to realize that farming is not only a way of life but it is a business, big business. If we are to stay competitive in the business world we have to plan for our success. No one plans to fail, they just fail to plan. If we are to be economically and environmentally sustainable, we can't leave it to chance, we must plan for it. A simple 5 step planning process was used to develop these demonstration farms that can be used by anyone.

The Planning Process

1. STATE YOUR GOALS - economic, production, environmental, landscape and social - write them down, be realistic
2. INVENTORY YOUR RESOURCES - personnel, land, water, fencing, facilities, equipment, forages, animals - what is needed and what is best suited
3. DEVELOP A PLAN - using resources efficiently to meet goals
4. IMPLEMENT PLAN - make things happen, get started
5. MONITOR, RECORD DATA AND MAKE NECESSARY CHANGES - be observant of what is going on, write it down, use records and projections to make adjustments

Stay Flexible

As you read through the information on the individual demonstration farms you realized they were varied in size and type of operation. Some were small, some were rather large. Some were full-time farmers, others were part-time. Some were cow/calf producers, some were dairy producers, some were stocker graziers and one was even a sheep producer. It was our intent to try to get a cross section of the types and sizes of operations found in the Ozarks. All different soil types and topography were included also. From this demonstration we can ascertain that management intensive grazing is a management tool that can be used to achieve economic and environmental goals. Management intensive grazing will work on any size and type of operation. As with most tools it requires some knowledge and skill to apply.
Management intensive grazing may not work for every type of operator. As varied as they were, the demonstration farmers did have some things in common that made them successful. I have identified 5 different factors that I feel led to success:

1. Being open minded - receptive to new ideas, new ways to do things
2. Having a positive attitude - you have to believe it will work first
3. Being observant - knowing what was happening
4. Managing by a plan - you have to know where you are going and how to get there or you’ll never know if you make it
5. Staying flexible - knowing when changes are needed and making them

Success comes with experience. Experience comes by doing. Don’t let being afraid of making mistakes keep you from trying management intensive grazing. You will make mistakes. Everyone does. Turn those mistakes into learning experiences and profit from them. Get started!
Practical Tips for Management Intensive Grazing

The Art of Making it Work for You

Why Practice Management Intensive Grazing?

Ruminant animals have been grazing since the beginning of time. It's natural instinct. It is also natural for the grazing animal to select the most desirable plants and avoid others. By doing this the composition of the diet they consume is higher than the composition of the total forage available. Selective grazing is essential to free roaming animals. It allows them to balance their diet to stay healthy and reproduce. With free roaming animals, once the desirable forage growth had been removed the animals moved on to another area and gave this area a period of rest. This period of non-use or rest was essential to the long term health and survival of the grazinglands.

As populations on earth increased, and man took control of more of the surface of earth, nature's grazing system was interrupted. Man built fences to keep animals in and invaders out. Once the fences went up, animals were no longer free to roam but were confined to a specific area for whatever time period the owner or manager decided. Any type of grazing management must focus on animal requirements, forage available, area and time. How managers decide to use the variable will affect the efficiency of the whole forage system.

There are several types of grazing management available: continuous, switchback, rotational, deferred rotational, short duration, high intensity-low frequency, controlled rotational and what we call management intensive grazing. Continuous grazing is the most widely practiced form by far. It's easy and requires very little thought or management. With continuous grazing one pasture is used throughout the year by a herd of animals. The area is stocked at level to consume the forage produced in that growing season. The pasture may be over or under stocked from year to year due to variations in growth and availability of forage. In continuous grazing, animals can selectively graze the more desirable plants and leave others to mature. As these other plants mature they become less desirable and are repeatedly skipped in preference to new growth coming on plants that have been heavily grazed. As this process continues, the grazed plants become overgrazed and the other areas are undergrazed. The overgrazed areas become weakened and begin to thin and die. Forage plants are replaced by lower quality less desirable species, weeds.

The alternative to continuous grazing is some form of managed grazing.
whereby animals are moved from one pasture to another allowing each pasture to rest before being regrazed. This type of system tries to mimic nature's system. The main reason for implementing any type of grazing management system is to give plants a chance to rest and regrow so that the pasture stays healthy and productive. Management of a grazing system revolves around the rest period. The length of the rest period depends on how fast the plants are recovering and producing new growth and how hard or low the pasture was grazed earlier. If sufficient residual is left, the pasture will recover faster and produce more growth. However, if the pastures are allowed to rest too long, forages will become more mature, less desirable and less nutritious for the grazing animal.

Management intensive grazing is becoming increasingly popular because of the need for graziers to become more competitive in the cost of production. To stay in business, producers must find ways to increase production efficiency to cover the rising costs of land, labor and operating expenses. One way to increase production efficiency is to manage grazing in such a way as to increase the harvesting efficiency of the forages produced. With continuous grazing harvesting efficiency is somewhere between 25 and 35%. This means that 65 to 75% of our production is lost. With management intensive grazing harvesting efficiencies will run from 60 to 75% due to higher stock densities and more even utilization of pastures. The quicker a group of animals can evenly graze an area down to the desired level the higher the harvesting efficiency will be. Conversely, the longer animals stay in a particular are the lower the harvesting efficiency will be. This is due to losses from fouling by manure and urine, trampling and refusal due to lower quality. Again the time factor enters in. While controlling the time of the rest period is crucial for the long term health and survival of the pasture, controlling the time of the grazing period is crucial to efficiency and economic sustainability. Management intensive grazing places emphasis on controlling both time periods with the need of the grazing animal in mind in order to reach an optimum level of economic efficiency and environmental sustainability.

The greater control we have of rest periods, grazing periods and stock density, the more efficient we become. To gain control means reducing the size and time of the grazing period by fencing into several paddocks. The number of paddocks you use will be determined by the level of efficiency you want to achieve, and the time, labor and capital resources you have available to build and manage the system. If time and money are a limiting factor, then start small and build up, increasing the intensity of the system over time. Where to start? To take advantage of grazing management, a minimum of 6 to 8 pastures are needed to gain control over the time factor. The higher number of paddocks you have, if they are stocked properly, the more efficient you will be and the higher the returns to management.

The next few pages are some management tips gained from experience working with several producers over a long period of time. These tips may or may not be research based or proven, but are what producers find works for them. This project was not a research project, but a demonstration and information sharing project centered around producers. We hope you find the following information useful.
**Principles**

1. Animal type (size, age, production potential, stage of growth/lactation) influences the nutrient requirements of the livestock.

2. Animal performance on pasture will be affected by the type of livestock and the quality of pasture.

3. The higher the quality and management of pastures - the higher the nutrient requirement/production potential livestock should be used as harvesters.

4. Performance is 75% intake & 25% quality - maximize intake.

5. Time grazing per paddock affects: intake, quality, animal performance, utilization, regrowth, and manure distribution.

6. Balance yield and quality based on livestock needs.

7. Livestock (harvesters) may be the easiest component to change in the system.


10. Stock density affects: size of paddock, length of grazing period, utilization, and manure distribution.
Rules of Thumb

Rest Periods

Cool Season Grasses:
- 14-16 DAYS during fast growth (April-Jun. 15)
- 30-40 DAYS during slow growth (summer)
- 20-30 DAYS during fall (Sept.-Dec.)

Legumes:
- 24-32 DAYS throughout the season

Warm Season Grasses:
- 14-21 DAYS during early fast growth
- 21-28 DAYS during normal growing conditions
- 35-45 DAYS during slower growth (cool, cloudy, or dry)
- 45-60 DAYS during adverse weather (drought)

Native Warm Season Grasses:
- 30-45 DAYS during normal growth
- 45-60 DAYS during adverse weather
  (probably should not have rest periods shorter than 30 days to maintain stand)

Grazing Periods

The faster the growth the shorter the graze period
- 3-5 days maximum spring
- 5-9 days maximum early summer
- 9-12 days late summer
- 5-9 days fall
  (based on initiation of new growth)

For optimizing animal performance:
- Dairy cattle- move 1-2 times per day
- Stocker cattle- move every 1-2 days
- Cow/Calf- move every 2-5 days
Livestock Considerations

Cow Calf:
- Should be able to minimize outside inputs
- Should match calving/breeding period with quality forage period
- Should have the longest grazing season
- Has more fluctuations in nutrient requirements
- Should be able to increase carrying capacity, increase beef production per acre, and/or decrease costs
- Need functionally efficient cows

Stockers:
- Potential for higher returns from good forage management
- More consistent nutrient requirements
- May require more outside inputs
- May require more/better facilities
- Steers vs heifers?
- Fall vs spring purchase?
- Purchase size?
- Should be able to get 1.5-2.0 lbs. ADG and 500-800 lbs. beef/ac

Sheep:
- Potentially the most efficient grazing animal
- Good conversion of forage to meat and wool
- Complement rather than compete with other livestock
- Provide good biological weed control
- Help diversify farm income
- Help maintain plant diversity in pastures
- Require more fencing
- Should manage to lamb on pasture to cut expenses

Replacement Heifers:
- Can have higher returns per acre
- Higher nutrient requirements
- Need to gain 1.75 lbs. per day from weaning to calving at 2 years
- May need more supplementation
- Longer growing cycle than stockers
- Usually have a higher average intake than stockers
- With MIG can achieve target weight at a lower cost
Dairy:

Potential for the highest return from grass management
Has highest nutrient requirement
Requires more time and management
Requires more overhead
Requires more outside inputs
Shade and water are more critical
MIG can reduce feed costs and other outside inputs
MIG may reduce animal waste handling costs
MIG may reduce some overhead costs
MIG may improve health/life of herd
Milk production can be maintained with MIG
MIG may reduce equipment cost and maintenance
Most profitable system will be seasonal, grass based with cows that are adapted and efficient grazers
Seasonal Grazing Management Strategies

Spring Green Up

Delay fertilization until late spring if needed to extend the growth curve.

Begin grazing the first paddock at 3-4" and move rapidly until you get to a paddock that has reached the desired turn in height of 6-10".

Normally, the first 3 months of the grazing season you will only need to graze about 50% of your paddocks.

Options:
- Cut hay on remaining 50% once then put back in rotation
- Graze another group of animals on the other 50%
- Use a leader/follower grazing plan letting high producing animals top graze and lower producers clean up
- Increase acreage of warm season grasses to delay green-up and lengthen productive period
- Strip-grazing stockpiled fescue in the winter on some of the paddocks will delay and slowdown spring regrowth
- Setting aside the areas that were strip-grazed in winter for hay, then grazing through summer, and setting aside for stockpiling in fall has worked pretty good most years

Don't tighten up grazing too soon- keep paddocks larger and move through quicker allowing animals to top graze and build some reserve.

Don't worry about grazing utilization (harvest efficiency) at this time - we can make up for that when growth slows.

Mid/Late Summer

Start intensifying grazing management.

Recovery is slower, rest periods need to be longer.

Shoot for higher utilization of grass

Management Options:
- Stay longer in each paddock
- Move when grazed down to desired height
- Subdivide or strip graze within each paddock to achieve higher utilization and extend rest period

Need to be able to graze paddock to desired level before regrowth starts.

If paddocks are too large, may have to use a forward wire and a back wire to prevent grazing new growth - water becomes a more critical factor.
**Late Summer • Drought**

Make maximum use of plants such as lespedeza, bermudagrass, caucasian bluestem

Get really intensive- stripgraze each paddock taking grass to minimum grazing height

Calculate reserve herd days or cow days grazing left

Start culling - beat the rush to the sale barn!

Wean early- run weaned calves ahead of dry cows and supplement them

Let dry cows have lowest quality forage and clean up pastures

As conditions worsen, feed hay on paddocks to supplement pasture- resist the temptation to buy feed

When you are out of grass and hay sell all of your livestock

Then it will rain tomorrow!!

**Fall•Winter**

Apply 40-60 lbs. N to cool season grasses

Defer grazing(stockpile) 1 acre of fescue per animal unit

Rotationally graze through the rest of the cool season pastures

Surplus warm season forage may be grazed after a hard freeze if needed- will need a protein supplement

Once grass growth has quit and rotational pastures are fully utilized start strip-grazing stockpiled fescue

Calculate forage available per acre, figure daily forage required for the herd, use a 70% utilization rate if moving every 2 days, figure the size strip required for the time period

Example:  
3000 lbs. forage/acre  
60 cows @ 30 lbs./cow/day = 1800 lb required/day  
70% utilization = 1800/.70 = 2571 lbs on offer  
2571/3000 = .86 acre per day required  
2 day graze period = 1.72 acre
40 acre field 1320x1320
43560x1.72/1320=56.76 or 57' per strip for 2 days

Start with the first strip closest to the water point, pull a single portable wire across the area to give the calculated area needed, after this is grazed down move the wire forward the required distance, there is no need for a backfence as there is no regrowth occurring

The Real Cost Saver
Stockpiling and Stripgrazing Tall Fescue

1 AC Fertilized Fall Grown Tall Fescue Will Meet the Nutrient Requirements of a 1000 lb. Cow for 75 Days

60 lb N Applied To 3” Fescue Aug. 15 Produced 3000 lbs/AC x 75% Utilization = 2250 lbs. Available/30 lb/Cow/Day = 75 @ $0.28/lb N Cost = $0.22/Cow/Day Cost
10 Reasons to Add Legumes to Your Pastures

Lower Nitrogen Fertilizer Costs

Legumes have the ability to obtain nitrogen from the atmosphere and fix it in nodules on the roots. The amount of nitrogen fixed varies depending on species, stand density, soil fertility, weather and the amount of leaf surface left on the legumes. Numerous studies have shown that legumes can fix from 60 to 200 pounds of nitrogen per acre per year. This represents a fertilizer value of from $18 to over $60 per acre per year.

Improved Forage Quality

Forage quality of legumes is generally higher than that of most grasses at the same stage of maturity. Legumes are generally higher in crude protein, digestibility and mineral content and are digested quicker than most grasses. The result is higher quality and the potential for better animal performance.

Better Growth Distribution

The addition of legumes to grass pastures often extends the grazing season and fills voids in grass monocultures. Use of proper legume species can provide additional spring and fall grazing to warm season grass pastures. Other legumes can furnish quality grazing during the summer months when cool season pastures are less productive.

Increased Forage Yield

Contrary to what some believe, the total yield from grass/legume mixtures is usually increased over straight grass pastures. Studies conducted at the University of Kentucky over several years have shown that red clover grown with tall fescue pastures produces more total yield than straight tall fescue fertilized with 180 lb N/acre.

Reduced Risk

Having a mixed sward of grasses and legumes constitutes a lower risk factor than having a pure stand of either one alone. Mixed swards are less susceptible to devastation from disease, insects and adverse weather conditions.

Added Benefits in Crop Rotations

In addition to adding nitrogen to succeeding crops, legumes can improve soil tilth by creating deep root channels which benefit subsequent crops.

Reduced Animal Toxicities

Growing legumes with tall fescue is the number one strategy used to combat endophyte problems associated with tall fescue. Grass tetany problems can also be reduced or eliminated by the presence of legumes in the animal's diets.
Environmental Acceptance

Because of legume plants' ability to 'fix' nitrogen through Rhizobium bacteria, legumes provide a natural slow release nitrogen, which is more environmentally than commercial nitrogen. Legumes, because of their flowering habit, furnish pollen and nectar for honeybees and tend to increase populations of beneficial insects. Legumes in the sward also provide food for many species of wildlife.

Aesthetic Value

Legumes provide color and diversity to grass sward when flowering. A mixed sward is generally more eye appealing than a monoculture.

Increased Profit Potential

The use of legumes can have an enormous impact on the economics of pasture based agriculture. Due to the potential for higher nutrition levels with the addition of legumes, animal performance on pasture should be better. Several studies have shown more milk production, higher weaning weights, higher average daily gains and higher reproductive efficiency when legumes make up a significant portion of the pasture sward. Legumes also reduce expenses by lowering nitrogen fertilizer expense and supplemental feed costs.

Legumes in forage programs give dual benefits: 1) increased production and performance and 2) decreased costs. Legumes truly are sustainable forage plants and fit well into a sustainable forage/livestock program. Legumes are agronomically sound, environmentally friendly and economically advantageous.

*Parts of this text was taken from a pamphlet prepared by Dr. Don Ball, Extension Agronomist/Professor, Auburn University and Dr. Garry Lacefield, Extension Agronomist/Professor, University of Kentucky.*
**Keys to Successful Grazing**

Keep your system simple and flexible

Water is the key to flexibility

Water should be within 800 feet of the livestock

Preferably within the paddock

Follow topography/key landscape lines to make

Major paddock subdivisions

Make paddocks as nearly square as possible

Combinations of permanent and temporary fencing give the most flexibility

Keep plant growth vegetative

Strive for a balance between per acre gains and individual animal performance

A combination of two classes/species of livestock will utilize forage more efficiently

Forage test

Soil test

Use legumes

Graze off as quickly and uniformly as possible then give adequate rest

Leave enough leaf area to capture solar energy for quick regrowth

Have a plan

Keep records, monitor and make adjustments
Many times grazing management decisions are often made on the "seat of the pants" day to day basis. With 'Management Intensive Grazing' the emphasis is placed on the increased management of the system. One aspect of management that is often overlooked is a systematic approach to monitoring the system. There are some simple objective indicators that can be easily determined and used to help make grazing management decisions. The indicators listed below give a good framework for a monitoring system that can be used to determine how well the system is working and when adjustments need to be made. The forms on the following 2 pages may be used as an example to record monitoring information or you can make your own, just do it!

Visual Forage Indicators:
- Color- degree of greenness
- Forage density- how thick is desirable vegetation
- Uniformity of grazing
- General paddock rating- vigor, health - poor-excellent

Measured/Calculated Forage Indicators:
- Length of grazing period
- Length of rest period
- Residue height at end of grazing period
- Inches of grazeable forage in paddock and next paddock
- Pounds per acre of available grazing ahead of you
- Reserve herd days - the number of days grazing left if no more growth occurred - forage available in all paddocks

Stock Indicators:
- Manure- consistency- loose or stacked
  stacked indicates mature, fiberous, low quality
  loose/sheet cake indicate leafy, vegetative, high quality
- Manure - distribution - well distributed or concentrated
- Body condition scores
- Measured performance- adg., milk prod., breeding
- Stocking rates and stock density - may change throughout the year
- Health - general health of the livestock

Environmental Indicators:
- Erosion problems
- Trails or paths developing
- Streambank erosion and cover
- Plant diversity
- Manure distribution
- Earthworm populations
- Wildlife presence or use
Management Intensive Grazing
Words of Wisdom and Other Ruminations

Management Intensive Grazing is a management tool, and as with most tools requires work.

Any increases in production or decreases in inputs must be offset by an increase in management. Replace horsepower with brainpower.

Management Intensive Grazing will work on any type of operation but will not work for all types of operators.

Don't be afraid to make mistakes. MIG is a learning process. Knowledge comes with experience, experience comes with practice, practice comes with mistakes.

The grass is always greener on the other side of the fence. The paddocks ahead of you should always be of higher quality than the one you are leaving.

Fast growth, fast moves; slow growth, slow moves.

The higher level of performance you want the faster you will need to move.

Quality of pasture is not all that influences animal performance; Quantity of available pasture is just as important. Remember bite size affects intake.

To manage grasslands effectively we need to understand the soil-water-air-plant-animal interrelationships. We can manage this complex ecosystem for profitability and environmental sustainability only if we understand the reaction the manipulation of one will have on the whole ecosystem.

The most profitable forage management system will match livestock nutritional needs to forage availability and harvest for optimum quality and maximum utilization.
## DETERMINING GRASSLAND CONDITION / TREND

### Owner/Operator: ____________________________ Date: ____________

### Field Office: ____________________________ Technician: ____________________________

<table>
<thead>
<tr>
<th>1/4 Sec.</th>
<th>Tn.</th>
<th>Rg.</th>
<th>Field#</th>
<th>Pasture Suitability Group:</th>
<th>Acres:</th>
<th>Month and Year:</th>
<th>M</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

### CATEGORY PARAMETER - VALUE

1) **Plant Population**
   - The estimated % by intermediate weight is mostly:
   - Desirable 4
   - Intermediate 3
   - Undesirable 1

2) **Plant Diversity**
   - The diversity of plant species is:
   - Broad > 7
   - Medium 4-5
   - Narrow < 2

3) **Plant Density**
   - Desirables and intermediates are:
   - Dense >95%
   - Medium 75-85%
   - Sparse < 65%

4) **Plant Vigor**
   - Desirables and intermediates are:
   - Strong
   - Medium
   - Weak

5) **Legumes in Stand**
   - Percent of legumes by weight make up:
   - >40%
   - 20-29%
   - 10-19%
   - <10%

6) **Severity of Use**
   - The degree and frequency is:
   - Light
   - Moderate
   - Heavy

7) **Uniformity of Use**
   - The uniformity of grazing use is:
   - Uniform
   - Intermediate
   - Spotty

8) **Soil Erosion**
   - Sheet, rill, gully and stream bank is:
   - Slight
   - Moderate
   - Severe

9) **Woody Canopy**
   - The canopy over 6 ft. makes up:
   - <11%
   - 11-20%
   - 21-30%
   - 31-40%
   - >40%

10) **Plant Residue**
    - Dead and decaying plant material is:
    - Excessive
    - Appropriate
    - Deficient

### TOTALS

<table>
<thead>
<tr>
<th>PASTURE CONDITION / TREND</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10 = VERY POOR</td>
</tr>
<tr>
<td>11-20 = POOR</td>
</tr>
<tr>
<td>21-30 = GOOD</td>
</tr>
<tr>
<td>31-40 = VERY GOOD</td>
</tr>
</tbody>
</table>

USDA/SCS/MO  
JS-AGRON-24  
6/93
CRITERIA

GENERAL:
This Job Sheet was designed for use by persons with different levels of technical ability. It can be used quickly and without tools, to visually estimate the condition and trend on grassland. For example, when it asks for a % the user should make their best visual estimate. It reminds the user to evaluate 10 items important to grassland condition/trend. With experience, condition/trend surveys will be quite consistent between users.

Use this form to inventory up to 5 different fields or sites, or to record change on the same field or site for 5 years. Enter the Grassland Group for the site being evaluated. Acres can be the total acres in the field or the acres represented by the evaluation. The month and year should be recorded at M__ and Y__.

CATEGORY:
1) Plant Population - Visually estimate the % composition by weight of each plant grouping and assign a weighted value. Desirable, intermediate and undesirable will vary with site, kind of grazing animal and intended use.

2) Plant Diversity - Is the number of different kinds of plants that are well represented on the site. If only one kind of plant occurs, diversity is narrow; if eight or more kinds are present, diversity is broad.

3) Plant Density - Ignore undesirables and visually estimate density of living desirable and intermediate species that would be present at a two inch stubble. Is there room for more desirable and intermediate plants?

4) Plant Vigor - Are the desirable and intermediate species healthy and growing at their potential? Some things to look for are; color, leaf area index, reproduction, presence of weeds, rate of growth and regrowth, etc.

5) Legumes in Stand - Visually estimate the % composition by weight, of the legumes present in the stand, for the area being evaluated.

6) Severity of Use - Close and frequent use causes loss of vigor, reduces desirable species, promotes erosion and runoff. Light use allows excessive residue buildup, blocks sunlight, reduced palatability, and production.

7) Uniformity of Use - Uniform grazing has all plants grazed to a moderate, uniform height throughout the field. Spotty grazing appears uneven, with some plants or parts of the field grazed heavily and others lightly.

8) Soil Erosion - Visually observe and collectively evaluate all types of erosion and determine the severity for the area being surveyed.

9) Woody Canopy - Estimate the percent canopy (shaded area at noon) of woody cover over six feet tall.

10) Plant Residue - Appropriate residue provides adequate ground cover to retard runoff, improve water intake, return nutrients to the soil surface and provide a favorable microclimate for biological activity.

VALUE:
Where needed, use weighted values and interpolate. For example; if you can’t decide between a value of 2 or 3 use a value of 2.5.

SOIL LOSS:
USLE: A=RKLS CP R  \* K____ \* LS____ \* C. \* P. = A \ Tons/Acre
<table>
<thead>
<tr>
<th>Padd. No.</th>
<th>Date &amp; Time</th>
<th># of Days</th>
<th># of Head</th>
<th>Precip.</th>
<th>Temp.</th>
<th>Wind</th>
<th>G. Rate</th>
<th>L. Cond.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>In</td>
<td>Out</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**NOTES:**

**VISUAL OBSERVATION SYSTEM:**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Precip.</th>
<th>Temp.</th>
<th>Wind</th>
<th>Growth Rate</th>
<th>Livestock Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wet</td>
<td>Hot</td>
<td>Windy</td>
<td>Rapid</td>
<td>Excellent</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Normal</td>
<td>Moderate</td>
<td>Normal</td>
<td>Moderate</td>
<td>Average</td>
</tr>
<tr>
<td>4</td>
<td>Dry</td>
<td>Cool</td>
<td>Calm</td>
<td>Slow</td>
<td>Poor</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>