

MANAGING GRASSLANDS FOR PROFIT

A guide to grazing management in the Southeast



Produced by
USDA Natural Resources
Conservation Service

in cooperation with

American Farm Bureau Federation
American Farmland Trust
National Association of Conservation Districts
National Association of State Conservation Agencies
National Cattlemen's Beef Association
Southeast Conservation Buffer Campaign
Mississippi Chemical Corporation
Tennessee Valley Authority

WELL MANAGED GRASSLANDS = \$\$\$\$

Grazing lands are a very important resource in the eastern part of the United States. Thousands of farming operations in the Southeast depend on grasslands for their livelihood.

Grazing lands cover more than 34 million acres or 10 percent of the land in nine southeast states. The value of the forage alone adds \$4.4 billion to the economy of these states. Grazing lands provide the forage that is the heart of the area's beef, sheep, goat, dairy and horse operations.

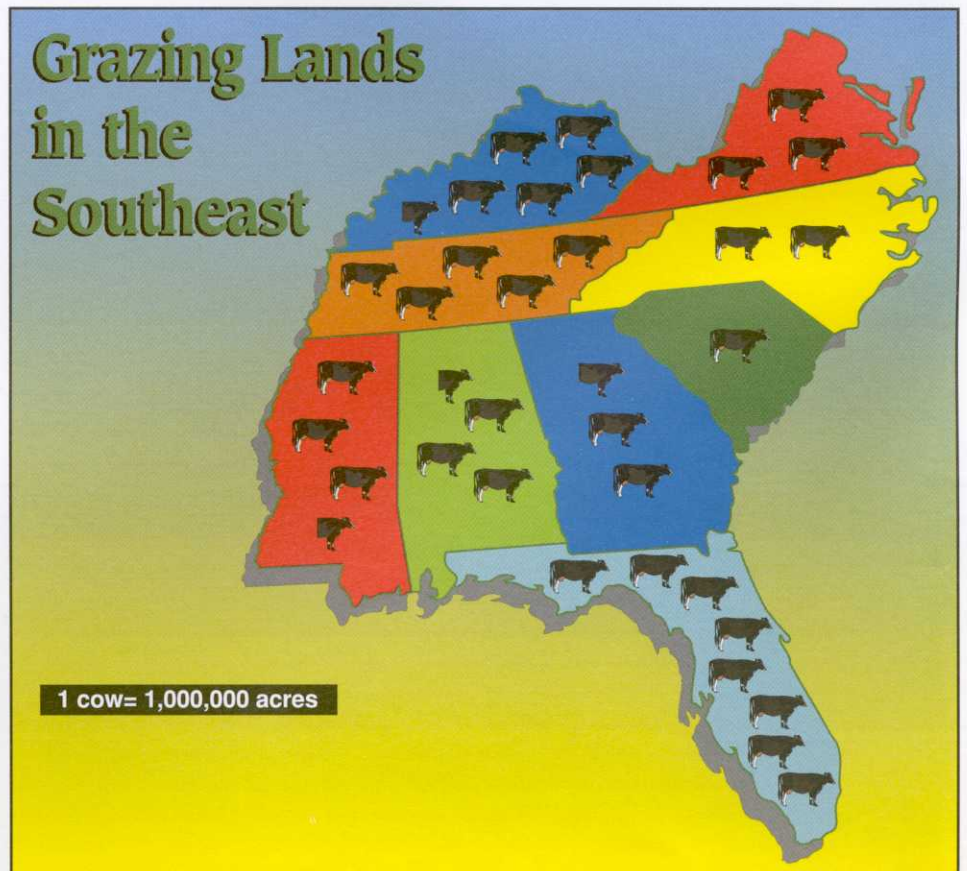
Whether you farm full-time or part-time, have numerous livestock or few, good grazing management can improve your bottom line. It also helps protect natural resources, improves water quality, benefits tourism and enhances the environment.

Grassland management is more than just moving livestock from one pasture to another. It involves choosing and managing forages, soil fertility, fencing, water development and distribution, harvesting, resting grasslands and much more.

This booklet discusses each of these subjects and takes you through a step by step process to develop a successful grazing plan that will work for you. It shows you options for grassland management, including different grazing systems.

Many producers are interested in taking care of grassland resources, but admit the bottom line is economics. Producers who have implemented some or all of the grassland management practices in this book have increased their profits.

Grazing Lands in the Southeast



To help producers improve grazing management, a national effort was started called the Grazing Lands Conservation Initiative (GLCI).

This initiative was started by a group of producers representing the following agricultural and conservation organizations:

American Farm Bureau Federation

American Sheep Industry

American Forage and Grassland Council

National Association of Conservation Districts

National Cattlemen's Beef Association

Soil and Water Conservation Society

The goal and purpose of this initiative is to ensure that technical assistance in proper grassland management is continued and enhanced.

For more information about grazing management, contact your state's Grazing Lands Coalition or local USDA Service Center.

“Developing an intensive grazing management program allowed me to sell two tractors and all my corn planting and harvesting equipment. That’s money back in my pocket and more time for other activities.”

*Charlie Clark
Rich Valley, Virginia*



USE A SYSTEMS APPROACH

Grazing systems range from continuous use of one pasture over a long period of time, to intense grazing of small areas for short periods of time. There are trade-offs for every system, and you'll have to decide which system works best for your operation. You may want to combine concepts and develop a system that works into your time schedule, livestock operation and available pasture.

Continuous grazing

is a one pasture system where livestock are left to graze in a large area for the entire season.



Advantages:

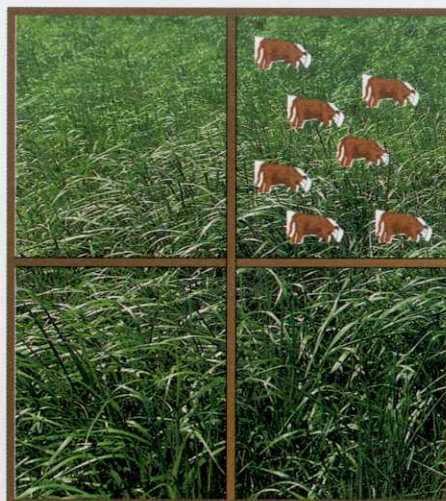
- ✓ Requires least labor and time.
- ✓ Capital costs are minimal.
- ✓ Animals can eat the best plants if not overstocked.

Disadvantages:

- ✓ Lower stocking rate and less pounds produced per acre.
- ✓ Lower forage quality and yields.
- ✓ Uneven pasture use.
- ✓ Weeds and brush may be a problem.
- ✓ Both over-grazing and under-grazing can occur in the same pasture.
- ✓ Animal manure is distributed unevenly.

Rotational grazing

is a system that uses more than one pasture. Livestock are moved from pasture to pasture according to forage growth and feed requirements.



Advantages:

- ✓ Can increase forage production and condition of pasture over a continuous system.
- ✓ Allows pastures to rest and allows for regrowth.
- ✓ Can provide for longer grazing season, reducing winter feed.
- ✓ More even distribution of manure throughout the paddocks.

Disadvantages:

- ✓ Fencing costs and water supply establishment can be higher than in continuous systems.
- ✓ Although forage production is increased over continuous grazing, it is not as high as intensive grazing systems.

Management intensive grazing (MIG)

is a system that breaks larger fields into smaller units called paddocks. Animals are moved frequently at high stocking rates. Each paddock is grazed, then rested before animals are allowed to graze again.



Advantages:

- ✓ Highest forage production and use per acre.
- ✓ Weeds and brush are usually controlled naturally.
- ✓ More even distribution of manure throughout the paddocks.
- ✓ Usually increases stocking rates and livestock seem more content.
- ✓ Gives more forage options. Pastures can be rested and grazed more efficiently.

Disadvantages:

- ✓ Requires careful monitoring of forage.
- ✓ Initial costs may be higher due to fencing materials and water.
- ✓ Water distribution systems may be more complicated due to the increased number of paddocks.

YOUR SYSTEM'S PARTS

A system is made up of different parts, and your system is customized depending on how you put the parts together. This publication will cover five components of a grazing system.

Forages

Choosing and managing forages for your operation is key. You will want forages that meet the nutritional needs of your livestock and that are suited for your soils.

Consider a mix of cool-season and warm-season grass pastures, as well as grass-legume mixtures. Plan for year-around forage needs to ensure high quality forage when livestock nutritional requirements are high.

Water

Good water is essential for producing healthy livestock. As you begin to use more land for grazing, how you supply water to livestock in the field will become more of a challenge. Both natural (underground springs) and man-made (rural water, wells) water sources can be used effectively in grazing systems. Always strive to keep livestock out of drinking water supplies.

Fences

Fencing allows you to control movement of your animals. Fence plans should be flexible and not limit your grazing options. Although establishing permanent fencing should be a goal, temporary fencing is often a good way to get started.

Fertility

Like cropland, pasture also needs the right mix of nutrients to be productive. Soil testing to assess fertility levels and fertilizer needs should be done every 3-5 years.

Weed and brush control

Weed and brush control requires sound grazing management, occasional mowing and clipping, and herbicide use as needed. Early weed identification and control keeps small weed problems from becoming big weed problems.

"A single strand of electrified fence worked best for us -- it's easier to replace after a flood."

Charles Bryson

Brevard, North Carolina

Grazing systems have several components in common, including forages, water, fences, soil fertility, and weed and brush control. What will make your system unique is how you integrate these pieces to fit your resource and operation needs.



CHOOSING AND ESTABLISHING FORAGES

Choosing forages

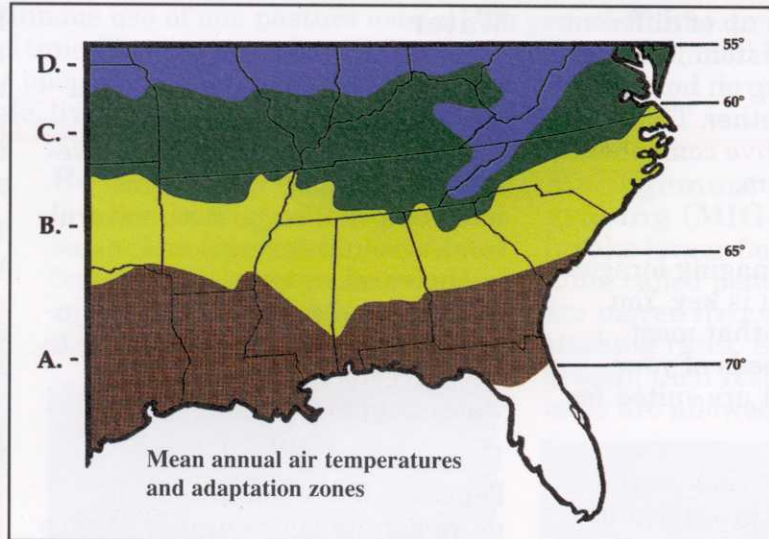
Choosing the right forage species is an important part of pasture establishment and management. Select forages best suited to the temperature and growing season in your area. The chart on the upper right shows the different climatic zones of the southeastern states. Forages appropriate for each zone are identified in the chart below.

No single forage species sustains high production all year long. Consider mixing grass species to stabilize grass productivity throughout the growing season. The summer slump of cool-season grasses can be supplemented with warm-season grasses, or an even mixture of cool-season grasses and legumes.

Different forage species can be planted together or established in separate fields. For ease of management, new plantings should contain no more than two grass species. You can increase the diversity of the stand later by interseeding new species as you become more experienced in pasture management.

Common mixtures

Common grass-legume mixtures for the cooler regions of the Southeast are ladino clover and timothy, orchardgrass and tall fescue, and ladino clover with Kentucky bluegrass or timothy. In the warmer area (Zone A), fescue and white clover, bahiagrass and crimson clover are common.



Pasture Production Patterns													
Forage	Zone	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
COOL SEASON													
Kentucky Bluegrass	C												
Orchardgrass	C,D												
Tall Fescue	B,C,D												
Ryegrass	B,C,D												
WARM SEASON													
Bermudagrass	A,B,C												
Switchgrass	A,B,C,D												
Big Bluestem	B,C,D												
Sudangrass	A,B,C,D												
Bahiagrass	A												
Eastern Gamagrass	A,B												
OTHER													
Ladino Clover	B,C,D												

The chart above shows seasonal production for different forage species. It should not be used for comparative yields which will vary according to zone.

Choosing forages for a year-long system

These recommended guidelines are for beef cattle and may vary for different livestock. They apply to the Mid-Atlantic Region and may vary south of Georgia.

Winter

January 15-April 15

Graze hay crop residues or stockpiled grass/legume pastures. Try to provide better quality forages to animals that have higher nutrient requirements during this time of year.

Spring pasture

April 15- June 30

Cool season grasses begin their growth as temperatures rise in the spring. Kentucky bluegrass is one of the earliest producing grasses. Orchardgrass and tall fescue can also be used. Consider mixing legumes with these grasses to improve forage quality and supply nitrogen for the grasses.

Summer pasture

July 1 - September 15

This period has traditionally produced the poorest pasture. One option is to use mixtures of cool season grasses and legumes, such as orchard

grass/alfalfa; orchardgrass/ladino clover; and tall fescue/red or ladino clover.

Another option is to use warm season grasses. Switchgrass, is early maturing and can be grazed as early as June. Big bluestem, little bluestem, and indiagrass mature two to three weeks later. Eastern gamagrass, bahiagrass, and bermudagrass produce well in the southern part of the region.

Fall pasture

September 16 - November 30

Use cool season grasses as the heat subsides and begin stockpiling pastures for early spring. Rest grass-legume pastures in early fall to ensure a healthy stand the next year.

Early winter

December 1-January 15

Second growth and stockpiled cool season forages work well here. Excess warm season grasses, while usually lower in quality may be another option.

Use these guidelines to establish pastures

- Lime and fertilize according to soil tests.
- For conventional seeding, work a seedbed on the contour to a depth of 3 inches.
- If erosion or weeds are a problem, seed a companion crop of oats at 1+ bushels per acre.
- Drill seed at a depth of 1/4 to 1/2 inch deep.
- Consider no-till seeding on steep slopes.
- To interseed grasses or legumes into low producing pastures, graze or clip closely. You may need to apply a burndown herbicide to suppress existing growth.
- Interseed at only half the rate of full seeding.
- Optimum seeding times for cool-season grasses are March 1-May 15 and Aug. 1-Sept. 15. For warm season grasses, seed from April 1-June 1. Dormant seeding dates for both are from Nov. 1 to freeze-up.
- Frost seed small-seeded legumes in late February or early March to increase species diversity.
- Inoculate legume seed by the wet method. Use an inoculant specific to the legume seeded.



No-till interseeding may help revive low-producing pasture on severe slopes.

MANAGING FORAGES

Grazing properly

A sound grazing plan controls the movement of animals through a number of managed pastures. It adjusts the length of grazing and rest periods to balance the needs of both plants and animals.

Controlled grazing systems promote plant and root growth, reduce soil erosion, provide wildlife habitat and protect water quality.

In addition, rotational grazing systems are designed to optimize forage utilization. They extend the grazing season and increase carrying capacity of the land. They also increase profits.

The length of rest period for desired plant species varies throughout the season. When growing conditions are good, the rest period may be as little as 10-20 days. Later in the season, 30-50 days depending on temperature and moisture availability.

Rest periods speed plant growth and can be used to help establish and maintain legumes in the forage stand. During periods of fast growth, rests should be shorter to keep plants from going to seed. Longer rests periods are needed when pasture growth slows.

Legumes need sufficient rest during the growing season to

allow for regrowth and reseeding.

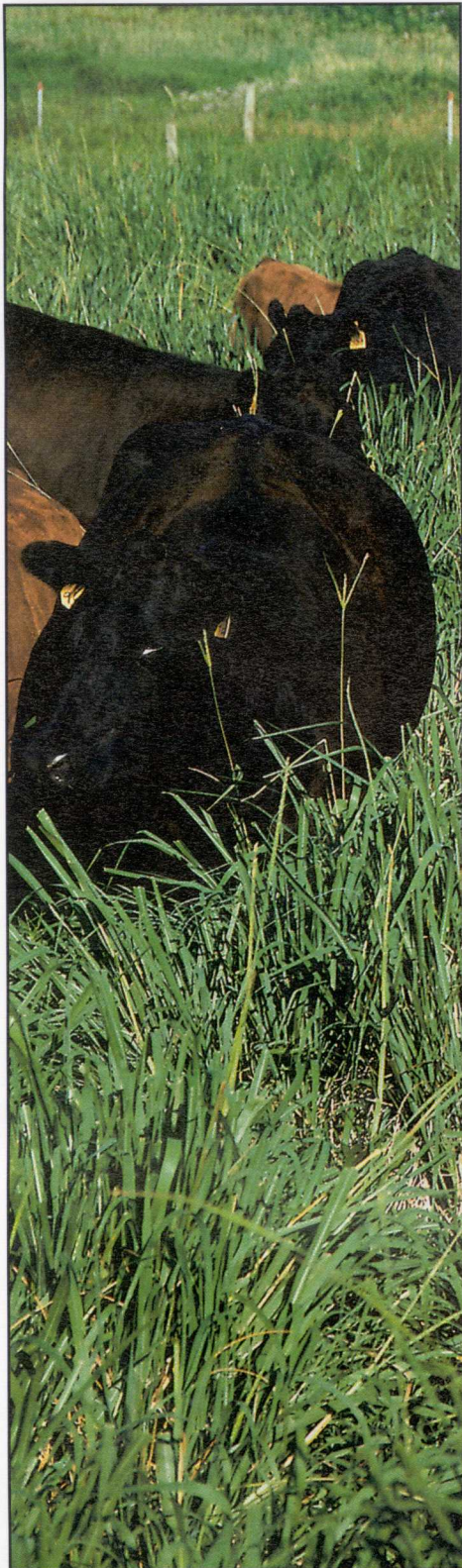
In a 2 to 4 paddock system, livestock could be moved every 7 to 14 days. With more intensive systems, plan for rest periods of 25 to 35 days. This would require 5 to 12 paddocks and moving livestock every 2 to 8 days, depending on stocking density and plant growth.

Try to move livestock according to plant growth and not just calendar days. If sufficient, plant cover is left, pastures will recover faster and produce more usable forage. If pastures are allowed to rest too long, forages become more mature and less palatable for grazing animals.

Forage Guidelines

Forage	Full Seeding Rate # PLS/acre:	Begin grazing at	Graze no closer than: than:	Cut for hay at:	Allow regrowth to this height before killing frost:
<u>Cool season</u>					
Kentucky bluegrass	15	4-5"	2"	Not recommended	4"
Orchardgrass	5	6-8"	4"	Boot to early head	6"
Tall fescue	10	6-10"	4"	Boot to early head	6"
Timothy	3	6-10"	3"	Early head	7"
<u>Warm Season</u>					
Common bermudagrass	5-10 hulled	5"	2"	3-4 week intervals	NA
Hybrid bermudagrass	15 bu/ac in rows	6"	3"	3-4 week intervals	NA
Bahiagrass	15	6"	2"	Boot to bloom	NA
<u>Native Grasses</u>					
Switchgrass	5	16-20"	6"	Early head	6"
Big bluestem	7	10-16"	3"	Boot	6"
Eastern gamagrass	10	18"	6"	Boot to early head	8"
<u>Legumes</u>					
Ladino clover	8	1/4 bloom	2"	3/4 to full bloom	8"
Alfalfa	10	Full bud	2"	Late bud	9"

Notes: Seeding rates can generally be reduced by 25% when grasses are mixed with legumes.
Hay height is for first cutting.



Review and adapt your rotation schedule regularly to balance the needs of livestock and forages.

Checklist for keeping a good grazing system

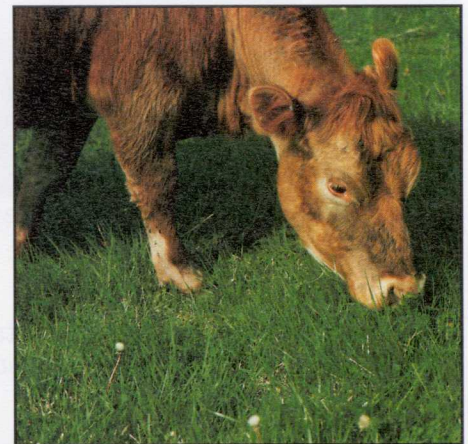
- ✓ Graze to proper height at the right time. Use a “take half, leave half” guide to grazing, or consult the forage guidelines chart (page 8).
- ✓ Check forage and livestock at regular intervals and move livestock according to the forage.
- ✓ Allow pasture to rest periodically. Don't leave livestock on pastures being rested.
- ✓ Top-dress with fertilizer according to soil tests.
- ✓ Maintain good fences.
- ✓ Mow or hay paddocks before grass has set seed heads. Weeds or weedy grasses should be mowed when they reach a height of 6 inches, before they begin to compete for moisture and seeds mature.
- ✓ Remove or drain above ground pasture water systems in the winter and restore in the spring.
- ✓ Review and change your rotation schedule to match changes in herd size, feed quality, and number of available grazing acres.

You have two ways to carry more livestock on fewer acres - by improving forages or rotating pastures. The best carrying capacity comes from doing both.

Actual stocking rates may vary according to soil type, weather, soil fertility, type of cattle and management. Different variables will yield different carrying capacities.



Grazing rule of thumb for cattle: If you can't see the cow's eyes (above), the grass is too tall. If you can see her nose (below), it's too short.



“Developing a grazing system allowed me to save one year in hard labor, increased the profitability of my operation and provided a more desirable lifestyle.”

*Justice West
Halifax, North Carolina*

DEVELOPING, STORING AND USING GOOD WATER

General Livestock Water Requirements Per Day

Livestock	Gallons
Dairy Cows	20-30
Cows	10-15
Sheep	1/2-1
Goats	1/2-1
Horses	10-12

These guidelines can be modified to fit local conditions.

Key considerations when developing a livestock watering system include meeting livestock needs, protecting water quality, minimizing lanes and livestock movement, and cost-effectiveness. When providing water to livestock in the field, you'll need a good water supply and reliable distribution system.

Water sources

Water sources may include ponds, streams, rivers, wells, rural water, tile lines, springs and seeps. High quality water is critical for a successful grazing system. Keeping animals out of water sources will protect water quality and prevent contamination.

Distributing Water

When paddock placement and rotations isolate livestock from traditional water sources, there are

several methods to distribute water to paddocks. It is preferable to have water available in each paddock with walking distances no greater than 600 to 800 feet. A distribution system should address available water sources, herd size, time and costs.

By running a **gravity fed line** from the source, water can be distributed to a series of tanks throughout the grazing system.

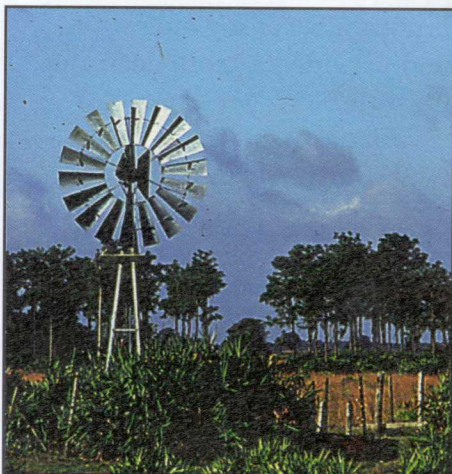
With a **pressure system**, water can be distributed to paddocks from a well, pond or rural water. In temporary systems, above ground plastic pipe and movable tanks may help reduce costs and add flexibility. For large scale systems, permanent underground piping may be more appropriate. Size and type of pipe will depend on the distance water is moved, system pressure and the number of animals served.

Animal powered nose pumps may be used to draw water from ponds, streams, or shallow wells.

Solar energy allows for the development of low-demand water systems where it is not possible to run electric service.

Ram type pumps transfer water from moving streams to livestock watering tanks. These pumps only require falling water to work.

Options for water distribution include clockwise: windmill and storage tank, quick coupler and portable watering trough, heavy equipment tire trough, frost-free nose pump waterer.



Moving livestock to water

If it is not possible to install water in each paddock, it will be necessary to bring livestock to the watering site. Water is usually accessed through lanes which connect paddocks to the water source.

Lanes should be 16 to 24 feet wide. Frequently used lanes should be installed on the contour as much as possible.

Gateways into lanes should be placed in the corner of the paddock to which livestock would naturally flow. Setting up paddocks and lanes to fit normal animal movement reduces fence maintenance and enhances system performance.

Cattle use stream crossing to move from paddock to paddock and through a riparian buffer.



Buffers protect water quality



Installing buffers along streams, can help improve water quality for your livestock, your family and others downstream.

Livestock are attracted to areas along streams because they provide water, shade and succulent forage during dry periods. But, uncontrolled access can cause water fouling, streambank erosion and lower vegetation quality.

A healthy riparian area helps prevent streambank erosion and water quality problems. Designating a special area along the stream as a buffer will improve and enhance any grazing system.

Livestock should be restricted from riparian areas. This will allow trees and low growing vegetation to thrive. Cost sharing is available to establish buffers and fencing through several USDA conservation programs. Contact your local USDA Service Center for more information.

In addition to cleaner water, other benefits of buffers include:

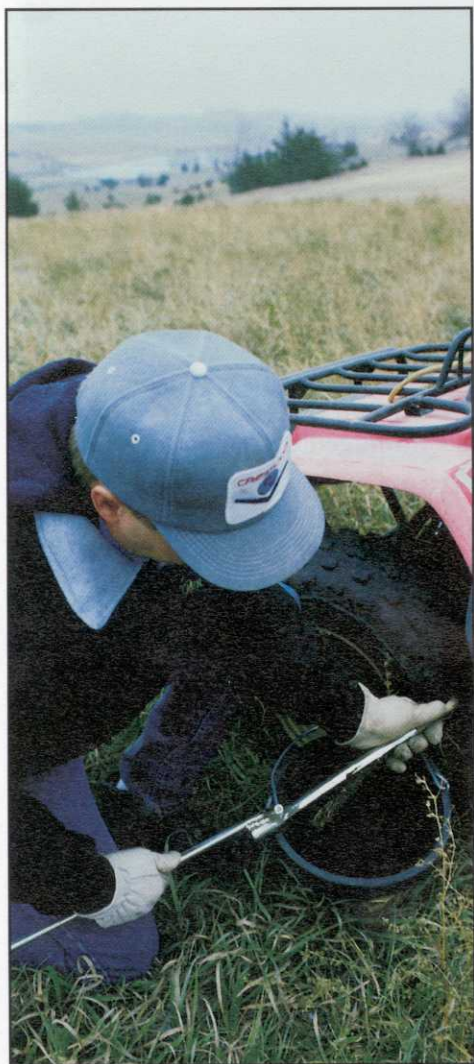
- Fences located away from the stream are less likely to be damaged by flooding.
- Weight gains are maintained by keeping livestock grazing instead of congregating in streams.
- Manure is deposited on the land where nutrients can be utilized, instead of in streams where it becomes a pollutant.
- Health hazards are reduced for livestock, saving money on veterinary bills.
- Improved food and cover is available for wildlife like quail and other game animals.
- Animal waste and bacteria in streams is reduced, protecting human health.

FERTILITY IS IMPORTANT TOO

Soil fertilization can help you improve forage quality, yield and diversity. Fertilizing and liming promote a vigorous, healthy stand.

Soil sampling and testing are critical to effective pasture fertility management. Soil testing will help you assess available nutrients for the forage crop and determine how much fertilizer and lime to apply to each pasture to meet your yield goals.

For more information on how to take a soil test, contact your local USDA Service Center or Extension office.



Nitrogen

The most commonly applied fertilizer in a non-legume pasture is nitrogen (N), some of which is applied naturally through animal manure. If you begin to see “cow spots” or much taller, greener grass around “cow pies,” it may mean the pasture is nitrogen deficient.

Nitrogen applied in late summer can help provide more forage and extend grazing into December. For the best results, apply nitrogen in August and rest pastures until late September or early October. A wet fall will enhance forage growth if fertility is adequate and in a dry fall the nitrogen will carry over to the spring.

Phosphorus and Potassium

Late summer and early fall is also a good time to apply phosphorus (P) and potassium (K) to grass or grass legume pastures. Soil tests are your best guide in determining what is needed.

Liming

Lime is often needed in pastures to neutralize acidic soil and improve pasture productivity. Plants, especially legumes, are unable to use nutrients in soil that is too acidic. Micronutrients, which are obtained through liming, are essential for normal growth of pasture plants to meet livestock needs. Lime according to soil test recommendations when pH is below 6.0, or consult your USDA Service Center or Extension office for a general rate of application.



Applying fertilizer (left) and lime (below) are steps often needed to improve pasture productivity.



Taking a soil sample is a critical step in developing a sound fertility management program on your pasture.

CONTROLLING WEEDS AND BRUSH

Controlling weeds and brush in pasture will increase forage production, carrying capacity and profits.

Weeds and brush compete for valuable nutrients and water. Every pound of weeds means fewer pounds of forage. Grass in weed-free pastures form thicker stands, that cattle and sheep tend to graze more uniformly.

Effective management of weeds starts with the identification of undesirable plants. Paddocks should be scouted regularly during the growing season and treated with appropriate weed control practices.

Prevention

Good land management will help keep desirable vegetation healthy and weeds under control. Dense forage stands can prevent desirable species from becoming established. It is important to provide the proper soil pH and fertility levels for desired forage species both during establishment and later maintenance. Properly timed grazing also helps control weeds.

Livestock grazing

Graze weeds before they can go to seed. Livestock can spread weed seeds from their hair coats or their wastes. Allowing livestock to graze undesirable species while they are still palatable will weaken weeds to a point where they are overcome and eliminated by more desirable species.

Mechanical control

Mowing weeds or harvesting hay before weeds go to seed may help eliminate them in paddocks.



Weed free pastures are a result of good management.

Clipping in the fall can help control tree seedlings such as buckbrush, hazelbrush and others. Some regrowth may occur, but clipping can reduce the chances of brush taking over the pasture.

Clipping also weakens weeds as they go into winter, making control easier the next year.

Chemical herbicides

Herbicides are safe and effective when applied according to label rates at the right stage of plant growth. Fall spraying with 2-4,D may be effective in many grass pastures. Read label instructions carefully and follow directions.

Herbicides may also be used to manage unpalatable woody shrubs and brushes.



Controlled grazing increases forage production and forage diversity.

“Rotational grazing increased our weaning weights from about 550–600 pounds up to 750–800 pounds as a herd average.”

*Sean Parker
Monroe County, Georgia*

GOOD FENCES MAKE GOOD PASTURES

Fences are a key component of any pasture management system. Planning and controlling livestock movement allows you to ensure adequate resting and grazing of pastures. Establishing fencing that meets your operation's needs can help you more effectively manage your system.

There are many types of fences available, varying from permanent to temporary, and a wide range of costs. When selecting a fence for your system consider:

- ✓ Topography
- ✓ Livestock
- ✓ Cost
- ✓ Availability of power
- ✓ Maintenance
- ✓ Flexibility

Other considerations include: establishing a manageable number of paddocks to evenly distribute forage supply; placing gates to make moving livestock easy; and fencing ditches and gullies separately to minimize potential erosion problems. A holding pen

with electric fence may be needed to train livestock. Special fencing considerations may be needed to prevent problems with predators in grazing systems for sheep.

Portable electric

Portable electric fencing is lightweight, and easy to move and set-up. It is reasonably priced, although you must also consider costs of electric or solar power. Temporary electric fences weather poorly and require regular maintenance.

Hi-tensile wire

High tensile wire is suitable for permanent fence on property boundaries or internal paddocks. 3-5 wire fences are commonly used with electric fence chargers. 7 or more wires may be needed if fences are not electrified. Installation costs more, but long term maintenance costs less.

Barbed wire

Barbed wire fencing controls cattle and sheep very well, but may cause injuries to horses. Labor and material costs are high, and periodic maintenance is required.



When using electric fencing, it's important to select an energizer large enough to meet your system's needs.

RELATIVE COST* OF VARIOUS FENCES

Cost range per 1/4 mile (1,320 feet)

cost range: \$1,500-\$2,000	cost range: \$700-\$1000	cost range: \$100-\$1000	cost range: \$100 - 115
47" woven wire + barb, 4 steel:1 wood linepost, 12' 47" woven wire + 1 barb, all wood line posts, 12'	4 - barb, 15 ga, 4 steel: 1 wood linepost, 20' w/stay 4 - barb, 12.5 ga, 4 steel: 1 wood, 15' w/stay 5 - barb, 15 ga, 4 steel: 1 wood, 20' w/stay 5 - barb, 12.5 ga, 4 steel: 1 wood, 15' w/stay	8 - strand 12.5 ga, hi-tensile,+ 1 wood linepost:1 fiberg., 20' 5 - strand 12.5 ga hi-tensile, 1 wood: 3 fiber., 30' 4 - strand 12.5 ga hi-tensile, 1 wood:9 fiberg., 30' 3 - strand 12.5 ga hi-tensile, 1 wood: 9 fiberg., 40' 1 - strand 12.5 ga hi-tensile, 1 wood: 9 fiberg., 50'	1 - strand 16 ga cable, all 3/8" fiberg., 50', w/reel 1 - strand polytape w/step-in posts 1 - strand polywire w/ step-in posts

*Cost estimates include labor and materials.

THINK THROUGH YOUR GRAZING SYSTEM

It may seem like extra bother or an unnecessary exercise, but sitting down to plan out what you want from a pasture program and what you'll do to get there may be time well spent.

The USDA Natural Resources Conservation Service (NRCS) offers technical assistance for pasture improvements. NRCS can also help you through the following planning process that serves as a roadmap for achieving pasture and livestock goals.

1 Identify your problems.

Are your pastures overgrazed or is there too much pasture for the livestock you have? Should you be getting more production from the acres you have? Do you need better quality in your forages?

Is erosion a problem? Are weeds, brush or thistles a problem? Is your ratio of pasture to hay in balance? Are pastures too big?

Is there a gap in pasture growth or production during the summer? Do you lack good water?

2 Set your goals.

Do you want to have more livestock on the same amount of land? Are you planning to raise primarily beef cows, dairy cows, sheep, graze yearlings, or have a mixed livestock operation?

Are you interested in keeping your herd size constant, but want to use less land for grazing? Do you need a system that reduces the amount of time you spend managing pastures and livestock?

Do you have cropland that would be better suited to pasture? Are you interested in reducing off farm purchase of hay to maintain your existing herd?



Several simple planning steps can help you achieve productive pastures.

3 Inventory the resources.

A resource inventory covers everything from water sources to fences to livestock type and numbers, but it starts with soil types.

Soil survey information indicates suitability for pastures, as well as general fertility and adaptability for different forages.

You'll want to write down the number of acres, the type and condition of forages, soil types, fertility levels and water sources for each pasture. You'll also want to note fence conditions.

4 Study your choices.

After you've taken inventory and know what you want to accomplish with the resources you have available, you're ready to look at options. The NRCS, Extension and other producers are all good sources of help here.

Using forages with shorter rotations to allow more rest after grazing is something to consider. Another option is to get more grass-legume combinations in your rotational mix. NRCS and Extension have information on expected yields, forage quality and recommended grazing patterns for forages.

There are various new options for fencing and watering to think about. Fertility and weed/brush control are also areas to consider.

5 Choose a course of action.

It's a good idea to decide on a course of action, even if you know it will change. Deciding on a plan will help you move closer to making needed changes in your pasture management system.

6 Make your plan.

The NRCS will help you get the plan down on paper in an organized fashion, and can also make recommendations, consult on cost-share and supply resource information.

Your plan should include soil survey information, proposed pasture boundaries, water sources, type of forages in each pasture, and other information that went into your decision-making process.

7 Continually evaluate, adapt when necessary.

Your plan is very likely to change. As you see the need to add forages or livestock, or adapt to new technology, it will be a good idea to look at the plan to see how those changes fit into the big picture.

PUT YOUR GRAZING SYSTEM ON PAPER

As you can see from previous pages in this publication, grazing systems are made up of several components. To maximize the use of land and the management of grass and livestock, you'll want to have a written blueprint of your system—a plan. This plan can be in a number of forms, but should include certain items.

Inventory

Write down the number of acres, types of grass, soil types, health of the grass (excellent, fair, poor), sources of water and number of livestock in each pasture. This information gives a good picture of where you are.

Your goals

Think about what you want to accomplish. Do you want to:


- ✓ Graze more animals?
- ✓ Get better gains?
- ✓ Improve forage quality during lactation?
- ✓ Leave livestock on grass longer—less feeding?
- ✓ Have more pasture options—separate herds?

Livestock needs

This section may take some time, but it is like a “feeding budget.” You should include the amount of feed you’ll need for each month. Remember to consider an increase in feed needed during lactation. You can use Animal Unit Months (AUMs) or pounds of forage needed, whichever is easier for you.

Refer to Table 3 in the record keeping section on page 18 for samples to follow when calculating your livestock needs. Other samples will help you figure your pasture forage availability and hay or supplemental forage availability.

Pastureland



This problem...

- ✓ Weed infestations—musk thistle, milkweeds, etc.
- ✓ Poor fences
- ✓ Low pH levels in soil
- ✓ Eroded cattle paths
- ✓ Poor water supply or distribution system
- ✓ Uneven grazing

could lead to...

- Reduced forage production
- Frequent livestock escapes; more time, labor costs
- Poor stands, reduced production
- Reduced water quality, reduced production, gullies
- Reduced production
- Reduced production, more labor

Consider these solutions...

- X Planned grazing system
- X Pasture management plan
- X Fencing, refencing pastures or paddocks
- X Pasture plantings
- X Pest management
- X Nutrient management
- X Livestock watering system
- X Establishing desirable forage species
- X Brush and weed management
- X Fertilizer and lime application

Pasture management is a long-term process that can be completed in steps. There are many practices which can help you manage your pasture effectively and efficiently, while taking care of the natural resources and increasing your productivity.

The NRCS can help design or change your pasture management system to meet your production and resource goals. NRCS' goal is to improve the grassland resource while benefiting those who manage the land.



Limiting access to streams reduces health hazards for livestock and protects stream-banks from erosion.

Matching needs to your goals

The next step is to decide how to meet your livestock needs and start reaching your goals. If you aren't comfortable doing this step yourself, local NRCS, Extension or other pasture management professionals can help.

Remodeling your pasture

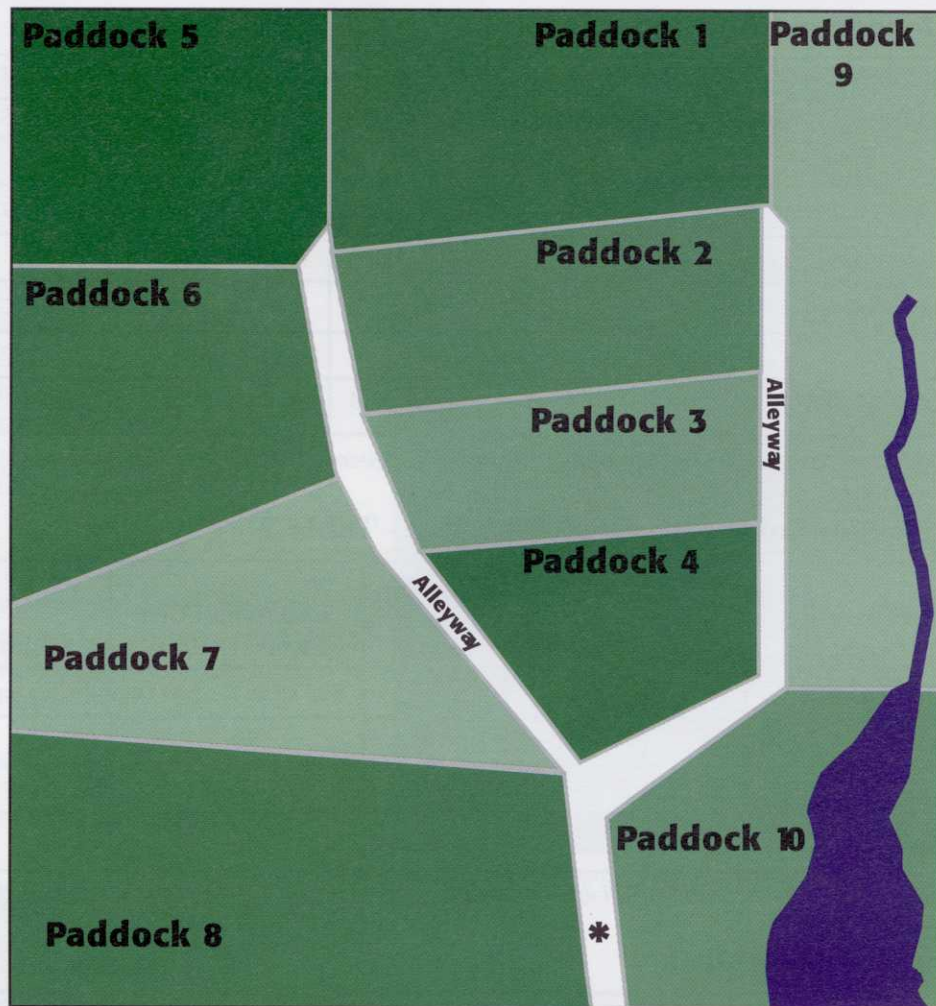
Consider the pasture plan to be a remodeling plan for your land. You may complete it all in one year, or take several years to build the system you want.

Consider your labor and management time available, because intensive grazing systems only work if they are managed properly. You're the only one who can really decide how much time you have to spend on your system.

Producers experienced in intensive grazing say livestock catch on quickly and once they are trained it doesn't take long to move them from paddock to paddock. If you are accustomed to regularly checking your livestock now, you may find that intensive grazing may not take a whole lot more time. Most people who have experience with pasture management systems advise others to start slow and build on their systems. This allows you to make adjustments and work into the management process.

Record Keeping

Keeping accurate records is a continual process in effective pasture management. The example on the following page (18) is a good place to start. You may also want to keep informal records of livestock type and number, forage height on the dates in and out of each paddock, and any other comments that may help trigger your memory in the future. This will help you track conditions of pastures and effectively manage each paddock over the long term. It is also important to accurately track livestock performance. Local Extension Service offices, veterinarians and others can assist you to develop and use a livestock record keeping system.



*Nose pump waterer, piped from a large pond.

MAKING A PLAN AND KEEPING RECORDS

Pasture forage availability - Table 1

Field Number	Kind of Forage	Acres	Yield AUMs*/Acre	Animal Unit Months (AUMs)												
				Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1	Fescue	25	5.8			6	19	35	25	14-	8-	16	14	8		145
2	Bluegrass/Clover	18	6.5			5	14	35	26	15	7	10	5			117
3	Orchardgrass/Clover	16	6.5				16	32	22-	14	7	9	4			104
4	Fescue/Clover	12	6.0			2	9	20	16	9-	4-	6	3	3		72
5	Big Bluestem	15	6.6					-	-	35	35	29	-	-		99
Total Available						13	58	122	89	87	61	70	26	11		537

*An Animal Unit Month (AUM) is the amount of forage required by an Animal Unit (AU) for one month.

Hay or supplemental forage availability - Table 2

Field Number	Kind of Forage	Acres	Estimated Yield (Tons)		Total Animal Unit Months (AUMs)	Growth & Stage for Harvest
			Per/Acre	Total		
6	Alfalfa	15	5.0	75		Bud stage for first cutting; One tenth bloom for late cutting
7	Orchardgrass/Clover	25	3.5	87.5	290	Boot to early head
8	Orchardgrass/Clover	8	3.5	28	93	Boot to early head
Total Available (Hay)				190.5	383	

Note: Assumed 2 acre/cow/month. Weather will affect availability of crop residues. Forage production from these fields to be used as cash crop or winter feed.

Livestock needs-Table 3

Kind of Livestock	Number of Animals	Animal Unit (AU)***	Animal Units (AUs)	Animal Units Needed Per Month											
				Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1500 lb. bull	2	1.5	3.0	3	3	3	3	3	3	3	3	3	3	3	3
1200 lb. cow	50	1.2	60	60	60	60	60	60	60	60	60	60	60	60	60
1000 lb. horse		1.0													
Calves (over 3 mo.)	45	.3	14								14	14	14	14	14
Yearlings		.7													
Ewes		.2													
Total Needs				63	63	63	63	77	77	77	77	77	63	63	63
Total Available from Tables 1 & 2						13	58	122	89	87	61	70	26		
Difference						-50	-5	+45	+12	+10	-16	-7	-37		

***An Animal Unit (AU) or its equivalent is equal to one mature cow of approximately 1000 pounds and a calf as old as 3 months.

GETTING STARTED WITH YOUR GRAZING SYSTEM

Often the hardest part of making changes in an operation is deciding where to start. For many producers, talking with neighbors who are using different grazing systems is a good way to find out what works, what costs are involved, and where to get assistance.

Field Days/Demonstrations

Check with seed suppliers, fencing representatives and farm supply dealers to find out what grassland management information they have. Field days, pasture walks, and farm tours provide an opportunity for you to compare different systems. Check with your Extension Agent for a schedule of upcoming events.

Local Grazing Clubs

In some areas producers have formed local grazing clubs. Members meet regularly at a farm or other location to share information, solve problems, and see new technologies first-hand.

Federal, State, Local Agencies

There may be financial and technical assistance available to help you improve and manage your grasslands.

The 1996 Farm Bill designated funds for livestock production as part of the Environmental Quality Incentives Program (EQIP). Check with your local USDA Service Center on available cost sharing. Your local NRCS conservationist can help design or adapt your grassland system to meet your production and resource goals.

Rental payments and cost sharing on fencing to establish buffers are available through the Conservation Reserve Program (CRP) Continuous Signup. Some states also offer rental payments and cost sharing for installing buffers through the Conservation Reserve Enhancement Program (CREP). Contact your local USDA Service Center to find out if this program is offered in your area.

State funds are also available in some areas for grassland management through the local Soil and Water Conservation District. Check with your local conservation office to see if funds are available and you are eligible.



Pasture walks and field days provide practical tips for managing grazing lands.

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PASTURELAND RESOURCES

The Natural Resources

Conservation Service has specialists who can help you plan and carry out your grazing management plan to meet your resource and economic goals.

NRCS can also help you determine if your operation is eligible for cost-share. Contact your local USDA Service Center.

Your local Soil and Water

Conservation District can help provide technical help through state programs. Some counties have cost share available for pasture systems. The Soil and Water Conservation District is usually located in the same office as the NRCS.

Extension Service can help you evaluate the condition of your forage and livestock. The Service has education and information material pertaining to livestock and pasture management.

They can also provide information about scheduled field days, workshops, and other events in your local area. Contact your local Extension Service office.

The **Forage and Grassland Council** located in each state is a nonprofit, educational organization of forage and livestock producers, and includes representatives from industry and public service sectors. Check with your NRCS office for the address of the Council in your state.

Resource Conservation & Development Councils apply for grants to carry out grazing lands educational projects and demonstrations. Some Councils also have grazing lands specialists who provide technical assistance. Check with your local NRCS office for information on contacting RC& D Councils.

- This brochure funded by:**
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 - **National Cattlemen's Beef Association**
 - **Southeast Conservation Buffer Campaign**
 - **Mississippi Chemical Corporation**
 - **Tennessee Valley Authority**
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