

# PROFITABLE PASTURES

A guide to grass, grazing, and good management



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in cooperation with  
Conservation Districts of Iowa  
Iowa Forage and Grassland Council  
Iowa Grassland Alliance

# A COMMITMENT TO GRASSLAND

Pasture covers nearly 10 percent of Iowa's land, and provides forage that helps produce beef, milk, wool and leather. The impact of pastureland and livestock that graze those pastures is significant to Iowa's economy and to the livelihood of those who manage the land.

Many producers are interested in taking care of the pasture resources, but admit the bottom line is economics. Many say "the bottom line is—if it makes me money, I'll do it."

Good pasture management is key to higher profits. Producers across Iowa who have implemented some or all of the pasture management practices in this book have improved their bottom line.

Pastures are also good for the environment. They help reduce erosion, improve water quality and provide food and habitat for wildlife. In 1997 erosion on pastures was 1.1 tons/acre/year, compared to cropland erosion of 4.7 tons/acre/year.

The goal of USDA's Natural Resources Conservation Service (NRCS) and the cooperators of this publication is to improve the grassland resource while benefiting those who manage the land.

This booklet will show you options for pasture management, including different grazing systems. It will provide you with information to care for, and to get the most out of your pastures and grasslands.

Pasture 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 pastures and much more. This booklet discusses each of these subjects, and takes you through a step by step process to develop a grazing plan that works for you.

Pasture management is a process that can be completed in steps. As time and labor allow, you can add to your current system and make improvements.

There may be financial assistance available to help you improve and manage your pastures. The 2002 Farm Bill designated funds for livestock production as part of the Environmental Quality Incentives Program (EQIP). State funds are also available in some counties for pasture improvement through the local Soil and Water Conservation District. Check with your local conservation office to see if funds are available and if you are eligible.

NRCS will be here to help you along the road to improved pasture management. Iowa NRCS currently has three grassland conservationists who work with landowners across the state to improve this particular natural resource. Soil conservationists in local NRCS field offices can also provide assistance. NRCS can help design or adapt your pasture management system to meet your production and resource goals.

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*Leroy Brown*

*State Conservationist, Natural Resources Conservation Service, Iowa*

“Creating a 19-paddock intensive grazing system generated more return on my investment than any other medium or long term investment that I’ve made in farming.”

Russell Hughes  
Poweshiek County farmer



# 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:

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

### Disadvantages:

- 4 Lower stocking rate and less pounds produced per acre.
- 4 Lower forage quality and yields.
- 4 Uneven pasture use.
- 4 Weeds and brush may be a problem.
- 4 Both overgrazing and under grazing can occur in the same pasture more easily because of a lack of options to move livestock.
- 4 Animal manure is distributed unevenly.

## Rotational grazing

is a system with more than one pasture in which livestock are moved, usually on a calendar schedule.



### Advantages:

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

### Disadvantages:

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

## Multi-paddock intensive grazing

is a system with more than two pastures, sometimes referred to as paddocks. Livestock are moved often from paddock to paddock, according to forage use and allowing for rest periods.



### Advantages:

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

### Disadvantages:

- 4 Requires careful monitoring of forage.
- 4 Initial costs may be higher due to fencing materials and water.
- 4 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'll want forages that meet 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 key to producing healthy livestock. As you use more pastures for improved grazing and production, you may need to be creative in how you supply good water so livestock won't have to travel far. Look for underground, surface and human made sources such as rural water, and keep livestock out of the drinking water supply if you can.

## Fences

Fence plans should allow flexible rotational grazing, allow access to water and keep livestock in the pastures as intended. Options vary from permanent fences to temporary electric fences for small paddocks.

## Fertility

A good fertility program is just as important for pastures as it is for croplands. Soil testing to assess fertility needs is a key step.

## Weed and brush control

Keys to weed and brush control include establishing a vigorous stand of forage and a sound grazing plan, mowing and clipping as needed, and herbicide use as necessary. Early identification and action on weed problems can eliminate bigger problems later.

**"You get the biggest bang for your buck from your first split of pastures."**

**Mark Boswell**

**Adams County farmer**

*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 goals.*



# CHOOSING AND ESTABLISHING FORAGES

## Choosing forages

Keep your goals in mind as you consider forage options for a pasture system. Also consider how you plan to rotate and rest the pastures. Most productive grazing systems allow for resting of pastures for regrowth and include a mix of species that leave no gaps in production.

The production chart on the right shows that no single grass produces high all year round. The gap created in the hot summer months with cool season grasses can be filled with warm-season grasses or with a mixture of cool season grasses and legumes.

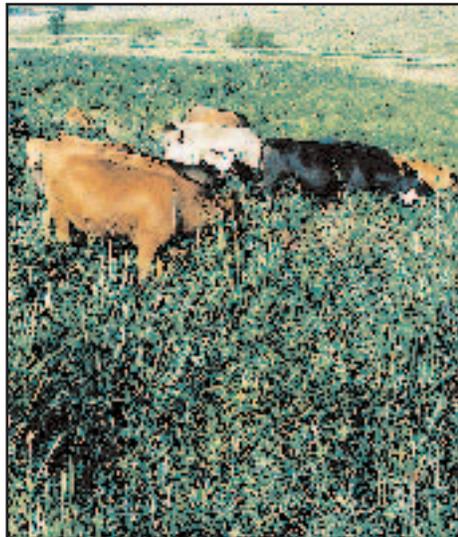
For ease of management and best use when starting a grazing program, mixtures should have no more than two grasses with similar growth habits. You can increase diversity of stands as you become more experienced in grazing management.

## Common mixtures

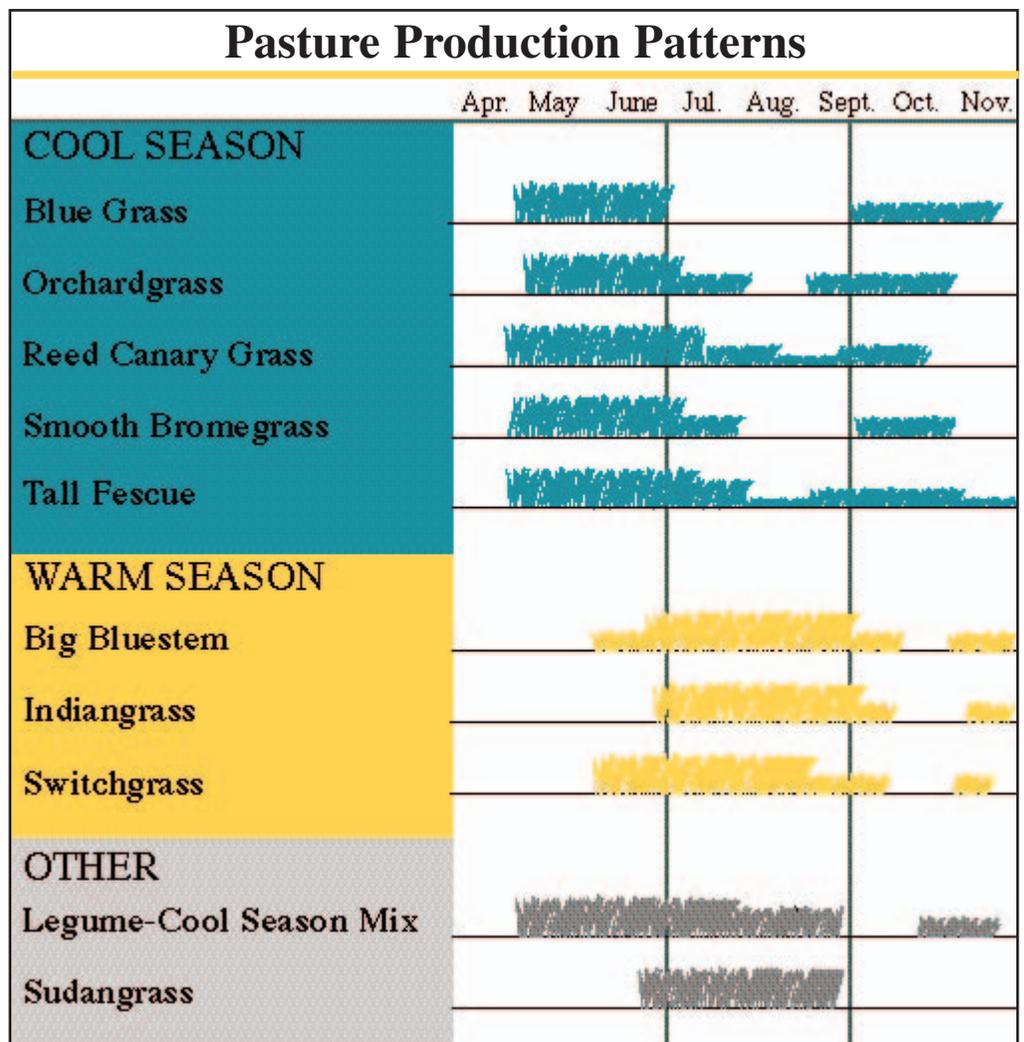
Common grass-legume mixtures in Iowa are alfalfa with bromegrass, orchardgrass or tall fescue; ladino clover with orchardgrass, timothy or smooth bromegrass; red clover with orchardgrass; and birds-foot trefoil with Kentucky bluegrass, smooth bromegrass or timothy.

“Maybe you don’t need to scatter seed right away. After rotational grazing it for a few years you may be surprised to see all the species you really have.”

Bob Eklund  
Union County farmer



Using a warm season grass (left) or a grass-legume mixture (below) helps give year-round, high quality pasture for livestock in a pasture rotation.



The chart above shows when each grass produces the highest yields. Taller grass indicates highest production, no grass indicates minimal production.

## Choosing forages for a year-long system

*These recommended guidelines are for beef cattle and may vary for different livestock.*

### Winter

January 1-March 20

The forage is likely to be hay crop residues or stockpiled forages. It should be good quality because the nutrient level requirements are high for beef cows during this period, just prior to spring calving.

### Stored pasture

March 20-April 20

A cool season pasture with forage from the previous year works well here. Kentucky bluegrass, bromegrass or tall fescue produce a heavy sod that would work well in the spring thaw. It may be necessary to supplement stored forage with good quality hay.

### Spring pasture

April 20-June 15

Cool season grasses begin their growth as temperatures rise in the spring. Reed canarygrass and Kentucky bluegrass are the two earliest producing grasses. Smooth bromegrass, 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

June 15-September 15

This period has traditionally produced the poorest pasture. One option is to use mixtures of cool-season grasses and legumes, such as smooth bromegrass/alfalfa; orchardgrass/birdsfoot trefoil; and tall fescue/red clover. Another option is to use warm season grasses. Switchgrass, which matures earliest of the three primary native grasses, can be used in June. Big bluestem and Indiangrass mature two to three weeks later.

### Fall pasture

September 15-November 10

Use cool season grasses again and stockpile some for early spring use. Rest grass-legume mixtures through the first half of this period to maintain a healthy legume stand.

### Early winter

November 10-January 1

Cornstalks and second growth cool season forage all work well here. Excess warm season grass forage may be another option, which is usually lower in quality but still suitable.

### 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 a bushel-plus an 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 seeding of some legumes, especially red clover and birdsfoot trefoil in late February or early March can help improve a pasture.
- Inoculate legume seeds by the wet method, with 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 adjusts the length of grazing and resting periods to balance the needs of livestock and the plants they eat, and usually includes rotational grazing of two or more pastures.

Rotational 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 promote optimum forage utilization, extend the growing season and increase carrying capacity and profit potential.

The length of rest period for a desired plant species varies throughout the season. When growing conditions are good, the rest period may be as little as 15 to 20 days. Later in the season, 45 to 50 days may be required to ensure adequate rest.

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 at least a 30 day 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. However, with more intensive systems, plan for rest and regrowth 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.

**“One of the most important things is to leave grass in the fall.”**

**Ralph Neill**  
Adams County farmer

## Forage Guidelines

Forage	Full Seeding Rate #/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	5-10	4-6"	2"	Not recommended	4"
Orchardgrass	8-12	6-10"	4"	Boot to early head	6"
Reed canarygrass	8-12	8-10"	4"	Early boot	6"
Smooth brome	10-16	6-12"	4"	Med. to full head	6"
Tall fescue	8-15	6-10"	4"	Boot to early head	6"
Timothy	4-8	6-10"	3"	Early head	5"
<u>Warm season**</u>					
Switchgrass	5-7	16-20"	6"	Early head	6"
Indiangrass	10-12	12-16"	6"	Boot	6"
Big bluestem	10-12	10-16"	6"	Boot	6"
<u>Legumes*</u>					
Birdsfoot trefoil	5-8	6-10"	4"	Early flower	6"
Red clover	8-12	1/4 bloom	2"	3/4 to full bloom	8"
Alfalfa	10-15	full bud	2"	Late bud	10"
Crownvetch	8-15	8-10"	3"	Use grass timing	6"

Notes: Seeding rates can generally be reduced by 25% when grasses are mixed with legumes.

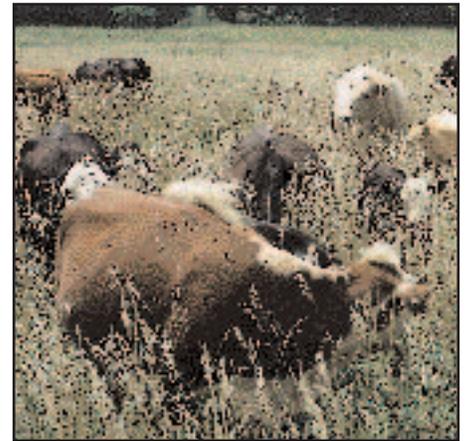
Hay height is for first cutting.

\*Bulk Rate/Acre \*\*Pure Live Seed/Acre

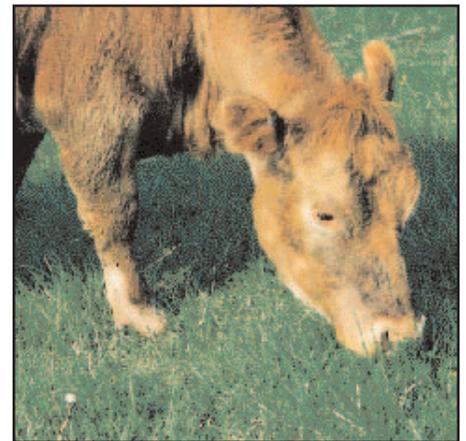


### Checklist for keeping a good grazing system

- 4 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).
- 4 Check forage and livestock at regular intervals and move livestock according to the forage.
- 4 Allow pasture to rest periodically. Don't leave livestock on pastures being rested.
- 4 Top-dress with fertilizer according to soil tests.
- 4 Maintain good fences.
- 4 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.
- 4 Remove above ground pasture water systems in the winter and reinstall in the spring.
- 4 Review and adapt rotation schedule when herd size, or paddock number or size change.



*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.*



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

### Estimated cattle stocking rates, Adams County

Grazing system	Acres needed per cow/calf pair		
	Bluegrass	Cool season grass	Cool season grass & legume
Continuous graze	3.25-4.5	3.0-4.25	2.5-3.0
Rotational graze (2 pastures)	2.75-4.0	2.5-3.75	2.0-2.75
Rotational graze (4 pastures)	2.5-3.5	2.25-3.25	1.75-2.5
Rotational graze (multi-paddock, 30 day rest)	2.25-3.10	1.75-2.75	1.75-2.25

*Note from this chart that 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.*

# DEVELOPING, STORING AND USING GOOD WATER

Access to clean, reliable water is a necessary part of any grazing system. 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, you'll need a source and a way to distribute it to pastures.

## 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 from entering your water source will maintain higher water quality which minimizes bacteria and disease.

### General Livestock Water Requirements Per Day

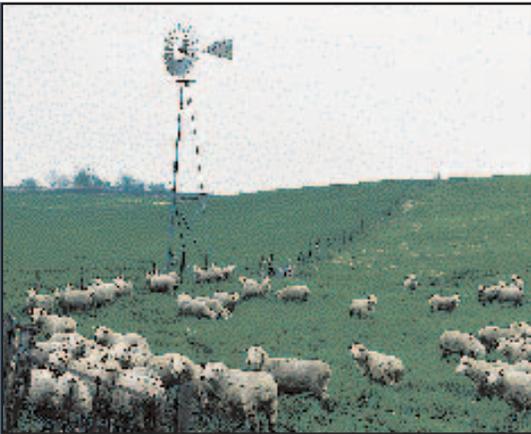
<u>Livestock</u>	<u>Gallons</u>
Dairy Cows	20-30
Cows	10-15
Sheep	1/2 - 1
Goats	1/2 - 1
Horses	10 - 12

*These general water requirement guidelines can be modified to fit local conditions.*

Ponds



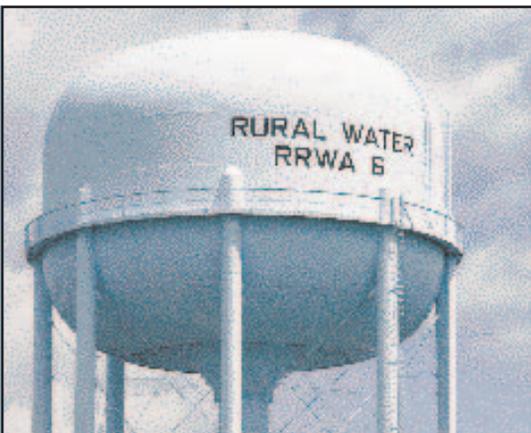
Wells



Springs



Rural water



Creeks



## Distributing Water

When paddock placement and rotations isolate livestock from traditional water sources listed on the previous page, there are several methods to distribute water to the paddocks. It is preferable to have water available in each paddock with walking distances no greater than 600 to 800 feet.

When choosing a distribution system, you should consider available water sources, herd size, time and costs.

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

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

Ram type pumps can be used to transfer water to higher elevations for distribution throughout the system. These pumps only require falling water to work.

Portable transfer pumps can be used to fill portable or stationary tanks with water from ponds, streams or wells. This may be a viable alternative if a pump and labor are readily available.

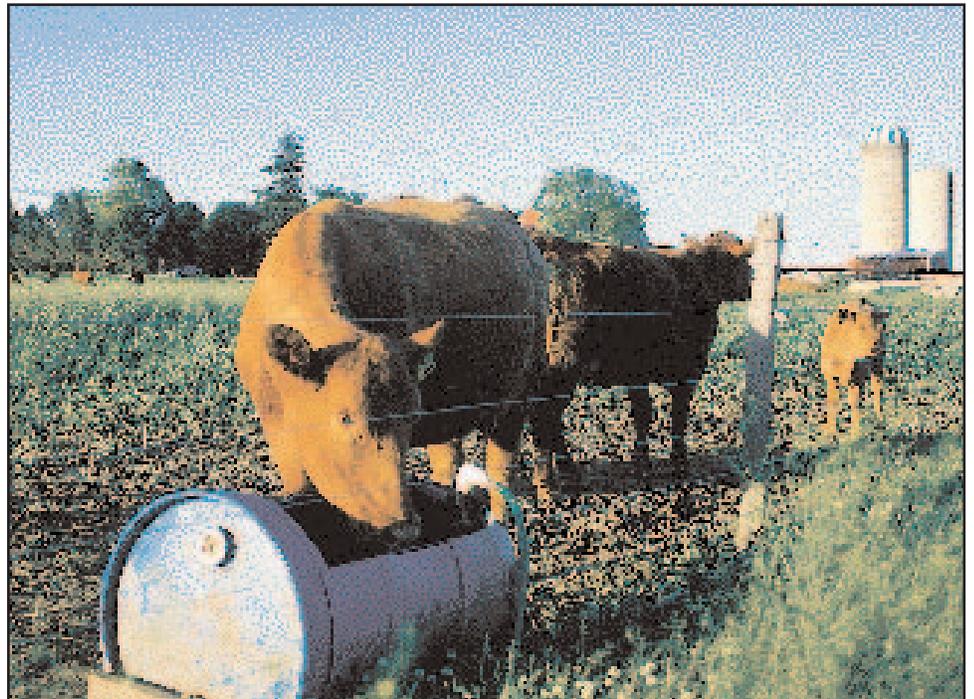
Through the use of a pressure system, water can be distributed to paddocks from a well, pond or rural water. Temporary systems, which use above ground plastic pipe and movable tanks, may help reduce costs and add flexibility. In large scale permanent grazing systems, underground piping may be more appropriate for distributing water to individual paddocks. Size and type of pipe will depend on distance, pressure in the system and number of livestock.

## 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 not be too wide, 16 to 24 feet is adequate, as they are not used for vehicle travel and can lead to erosion problems. 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.



*Options for water distribution include clockwise from upper left: portable animal powered nose pump, portable plastic barrel and stock tank that can supply water to numerous pastures.*

# FERTILITY—JUST AS IMPORTANT AS ON CROPLANDS

Soil fertilization can help you control forage quality, yield and diversity. Fertilizing and liming promote vigorous stands of forage by adding nutrients to the soil.

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 information on how to take a soil sample and where to send it for testing, contact your local NRCS 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 local NRCS 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 your pasture will increase forage production, carrying capacity and ultimately, your profits.

Weeds and brush compete for valuable nutrients and water. Every pound of weeds means less pounds of desirable forage.

Grass in weed-free pastures form thicker stands, which cattle and sheep graze more uniformly, thus wasting less forage.

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

## Prevention

Good land management will help keep desirable vegetation healthy and weeds under control.

## Seeding

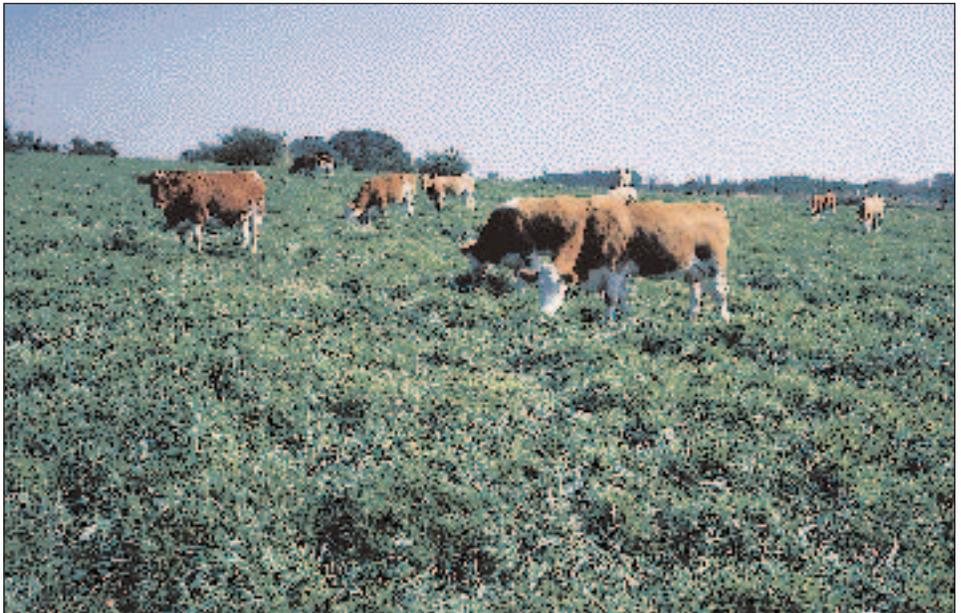
Most annual, biennial and perennial weed species are effectively controlled once a thick legume-grass or grass sod is established.

## Biological control

Sometimes nature finds a way to weaken or kill a weed species. For instance, certain fungi and insects attack seed heads and other plant parts.

## Livestock grazing

Graze weeds before they go to seed because livestock can easily carry and spread seeds on their coats or in their waste. Livestock will control most plants they can eat, and many weed species are palatable and nutritious to livestock if grazed before seed head formation.



*Weed free pastures are a result of good management.*

## Mechanical control

Mowing weeds or harvesting hay before weeds go to seed may help eliminate them in paddocks. 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 may be expensive, but are effective when applied in the proper amounts and at the proper time of year. Fall spraying with 2-4,D may be effective in many grass pastures. New weeds that started in late summer and weeds that regrow after clipping are especially vulnerable. Read label instructions carefully and follow directions.

Herbicides may also be used to manage unpalatable woody shrubs and brushes. However, when controlling brushes, trees and large shrubs, consider leav-

ing some for a field windbreak. Fencing livestock away from windbreaks encourages grazing in open pastures while providing excellent protection for livestock.

## Burning

Native or warm season grasses may benefit from periodic burning. Burning stimulates growth by reducing competition from weedy plants and removes excess plant residue.

All of these weed and brush control practices may influence livestock distribution. Think about the results of these practices before you apply them to ensure they will have a positive effect on grazing and will result in more plant and animal production.

**“The better job I do of grazing, the fewer weeds I have.”**

**Greg Koether**  
Clayton County  
farmer

# GOOD FENCES MAKE GOOD PASTURES

Fences are a key component of a 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:

- 4 Topography
- 4 Livestock
- 4 Cost
- 4 Availability of power
- 4 Maintenance
- 4 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. It may be nec-

essary to have a holding pen with electric fence to train livestock. In addition, special fencing considerations may be needed to prevent problems with predators in grazing systems for sheep.

## Portable electric

Portable electric fencing is lightweight, portable and easy to arrange. 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

Electrified single or double strand hi-tensile wire fencing is often used for interior boundaries. Multi-strand hi-tensile wire (5-11 wires) is used for boundaries. Hi-tensile wire fences are easy to install but require regular maintenance.

## 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.*



# 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 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?

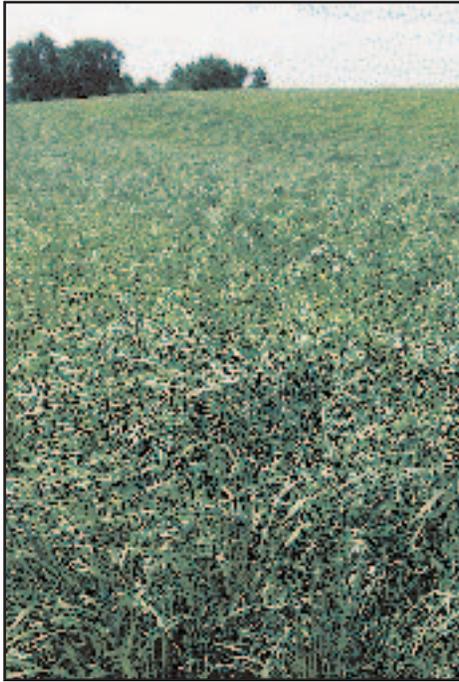
Is there a gap in pasture growth or production during the summer? Do you lack good water?

## 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 in using less land for grazing? Do you want or need a system that reduces the amount of time you spend managing the 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.

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 more 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 used in Iowa.

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:

- 4 Graze more cattle?
- 4 Get better gains?
- 4 Improve forage quality during lactation?
- 4 Leave livestock on grass longer—less feeding?
- 4 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.



*By fencing rivers, streams and ponds you can help to improve the quality of water for your livestock, your family and others downstream.*

## 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.

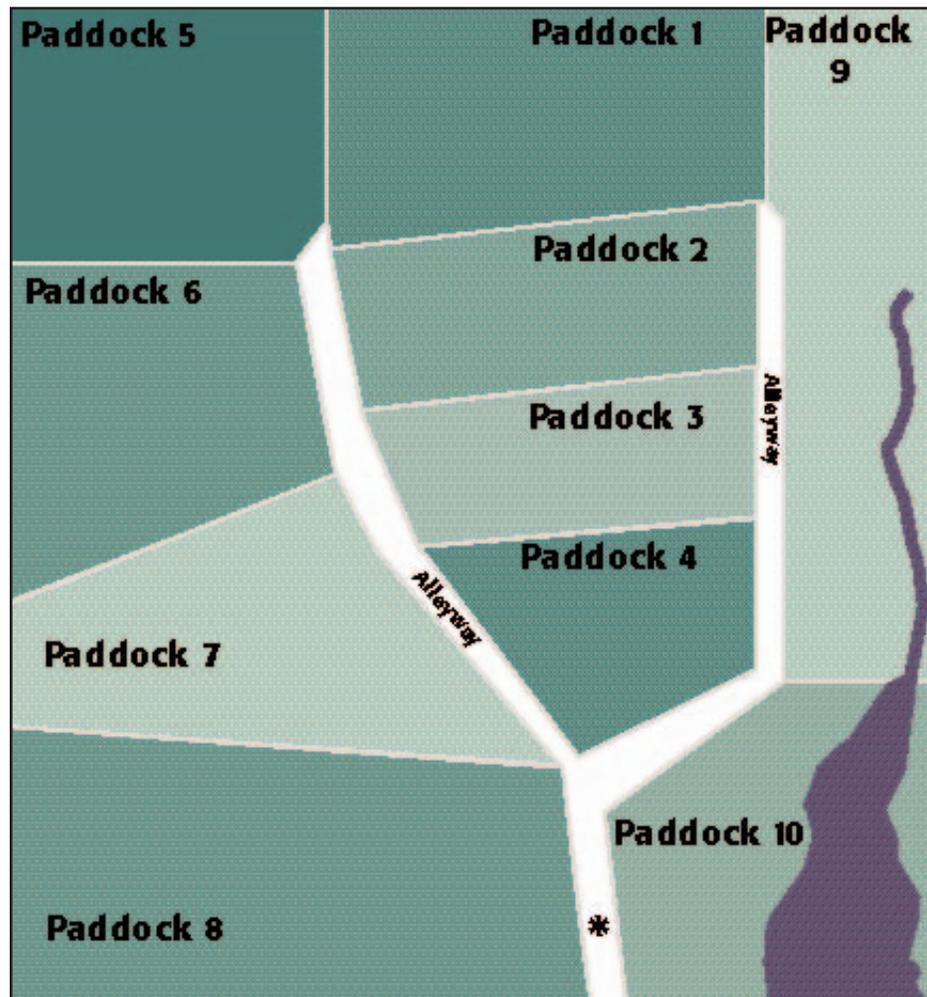
Consider your labor and management time available, because intensive grazing systems only work if they are managed properly. You're the only one who can really decide how much time you have to spend on your system.

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.

In addition to keeping good pasture records, it's 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	Brome	20	6.0					24	30	-	-	24	24	18		120
2	Alfalfa/Brome	15	6.6					12	15	15	12	8	8	8		78
3	BFT/Orchard	20	5.0					16	-	26	26	20	10	4		102
4	BFT/Fescue	20	5.0					10	20	-	-	30	20	20		100
5	Big Bluestem	15	6.6					-	-	36	36	30	-	-		102
Total Available								62	65	77	74	112	62	50		502

\*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)	Cutting Dates		
			Per/Acre	Total				
6	Alfalfa/Brome	15	6.0	90 Ton		5/25	7/1	8/10
7	Corn Residue**	200			100			
8	Alfalfa/Brome	8	4.8	38 Ton		5/25	7/1	8/10
Total Available (Hay)								

\*\*Assumed 2 acre/cow/month. Weather will affect availability of crop residues.

## Livestock needs-Table 3

Kind of Livestock	Number of Animals	Animal Unit (AU)*** Factor	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	63	63	63	77	77	77	77	77
Total Available from Tables 1 & 2								62	65	77	74	112	62	50	
Difference								-1	+2	+14	-3	+35	-15	-27	

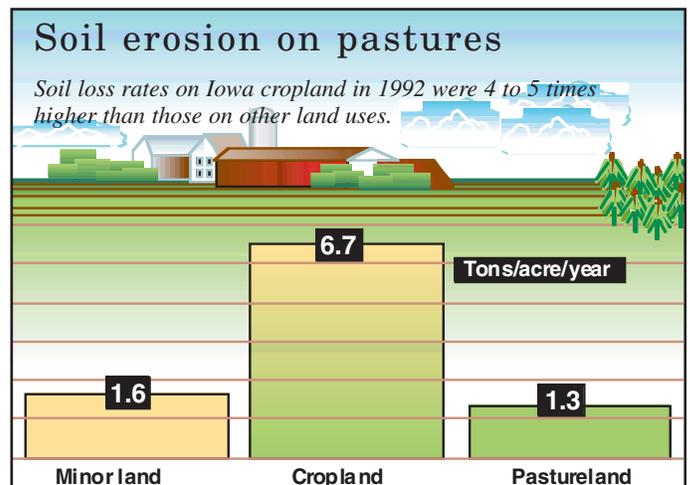
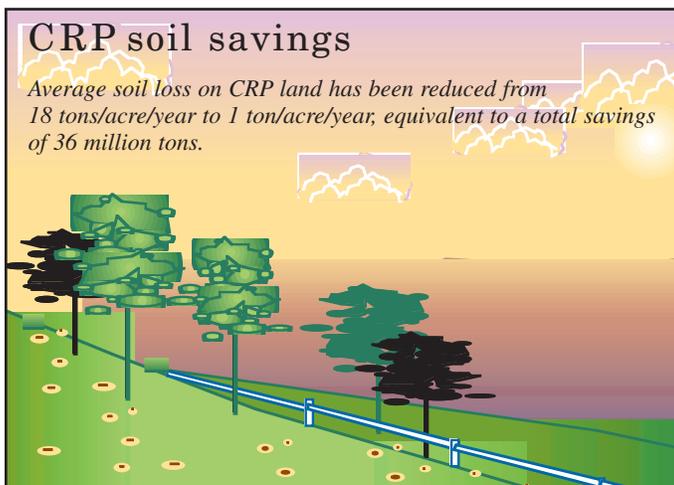
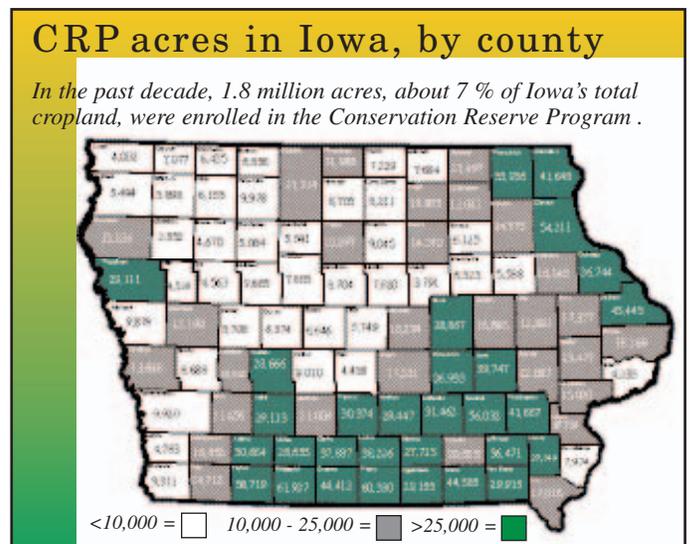
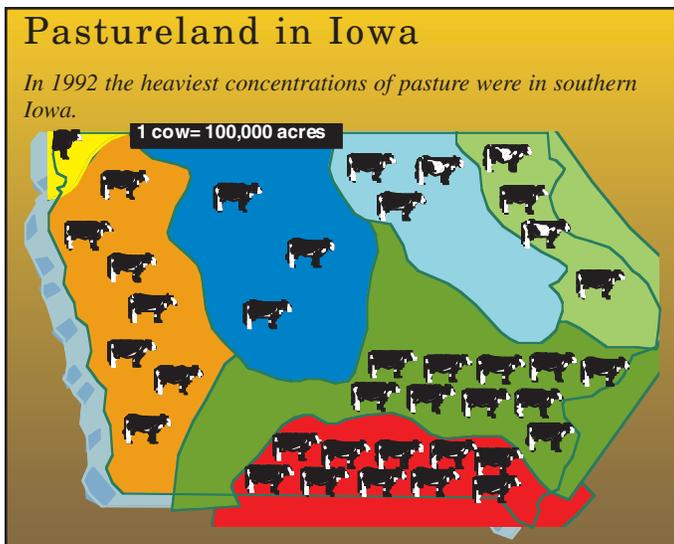
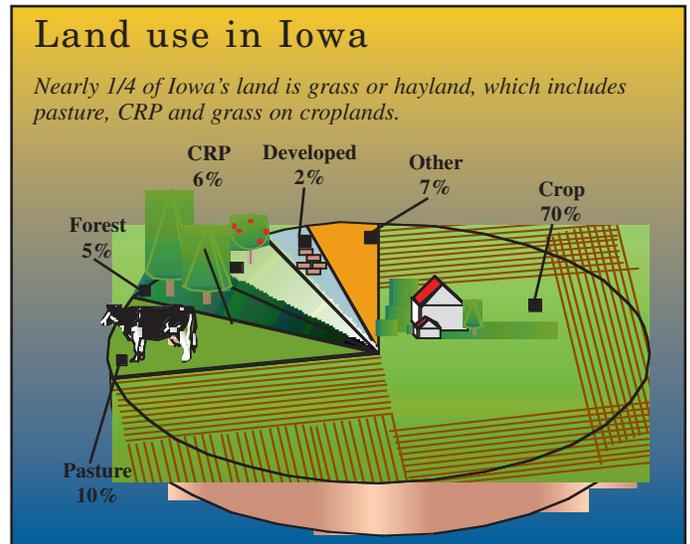
\*\*\*An Animal Unit (AU) or its equivalent is equal to one mature cow of approximately 1000 pounds and a calf as old as 3 months.

# GRASSLAND, LIVESTOCK RESOURCES IN IOWA

About 23 percent of Iowa's land is grass or hayland. Although hayland is often categorized as cropland, it is used primarily for livestock production and is managed differently than other crops. In Iowa, about 3.6 million acres of land are used for pasture.

In addition to pasture and hayland, in 1997, Iowa had about 1.7 million acres of land in the Conservation Reserve Program (CRP.) As CRP contracts expire, that land will be re-entered into CRP or converted to pasture, hay or cropland.

Using average grazing figures of \$15 per animal unit month (AUM), the value of the forage consumed by livestock in the state contributes \$111 million to the economy.



# PASTURELAND RESOURCES

## The Natural Resources

Conservation Service has information about grazing systems and forages, and can help you improve your grazing system to meet your resource and economic goals. NRCS will 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 located in the same office as the NRCS.

Extension Service has grassland and grazing specialists that will help you make a grazing system plan. Extension Service has several pamphlets on grazing and pasture management. Contact your local Extension Service office.

The Iowa Grassland Alliance is a voluntary effort to enhance private grasslands in Iowa. The informal group coordinates cooperation among organizations with interests in grasslands. NRCS currently facilitates the Alliance.

The Iowa Forage and Grassland Council is a nonprofit, educational organization of forage and livestock producers, and representatives from industry and public service sectors. Contact the Council at 900 Des Moines St., Des Moines, IA 50309.

The Southern Iowa Forage and Livestock Committee is a non-profit organization of local farmers, business people and USDA agencies. The Committee has demonstrated pasture and hayland as alternatives to row crop production on highly erodible land following CRP. Contact NRCS or Extension Service in Corning, Iowa.