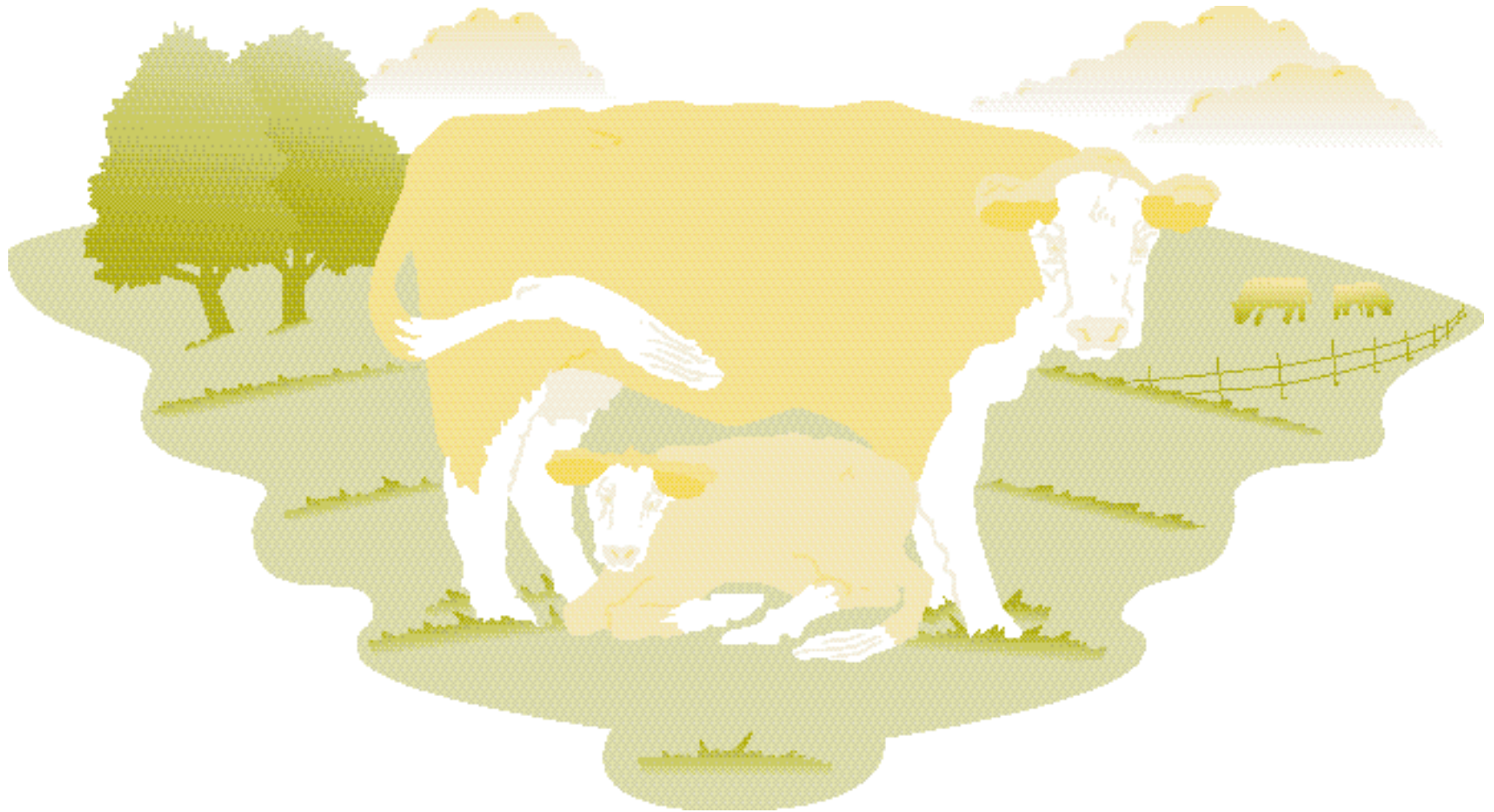




# Small Steps Make a Difference:

Improving Your Cow-Calf Business and  
the Environment in the Southeastern U.S.



# Save Money, Save the Environment With Your Cow-Calf Operation

Did you know that improving your livestock management practices is not only profitable, it can also decrease the threat of global climate change by reducing methane emissions? To promote this important link between profitable livestock production and a healthy environment, the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Agriculture (USDA) have joined together through the Ruminant Livestock Efficiency Program (RLEP) to encourage voluntary practices that benefit both producers and the global environment.

The RLEP's mission is to help producers voluntarily reduce methane emissions from ruminant livestock. Methane, a potent greenhouse gas, is a major contributor to global warming. In fact, globally, livestock are the largest source of methane from human-related activities and in the U.S., the second-largest source. Fortunately, we can reduce methane emissions from livestock through management strategies that improve production efficiency and result in lower methane emissions per pound of beef produced. These strategies include increasing forage production, quality, and harvest efficiency; improving calving percentage; and optimizing herd health.

Many of the suggestions in this booklet are most appropriate for cow-calf producers, such as those in the southeastern U.S., who graze their cattle in pastures instead of on the open range. Regardless of where you live, however, you may find that you can still save money and the environment by implementing some of the strategies in this booklet.



# Profitability and Stewardship for a Successful Future

As a cow-calf producer in today's competitive market, you're always looking for ways to get more for your money. To improve your bottom line, you need to produce heavy, healthy calves while keeping your costs down. At the same time, you want to protect—even improve—the condition of the soil, water, and air, so future generations can also enjoy its benefits.

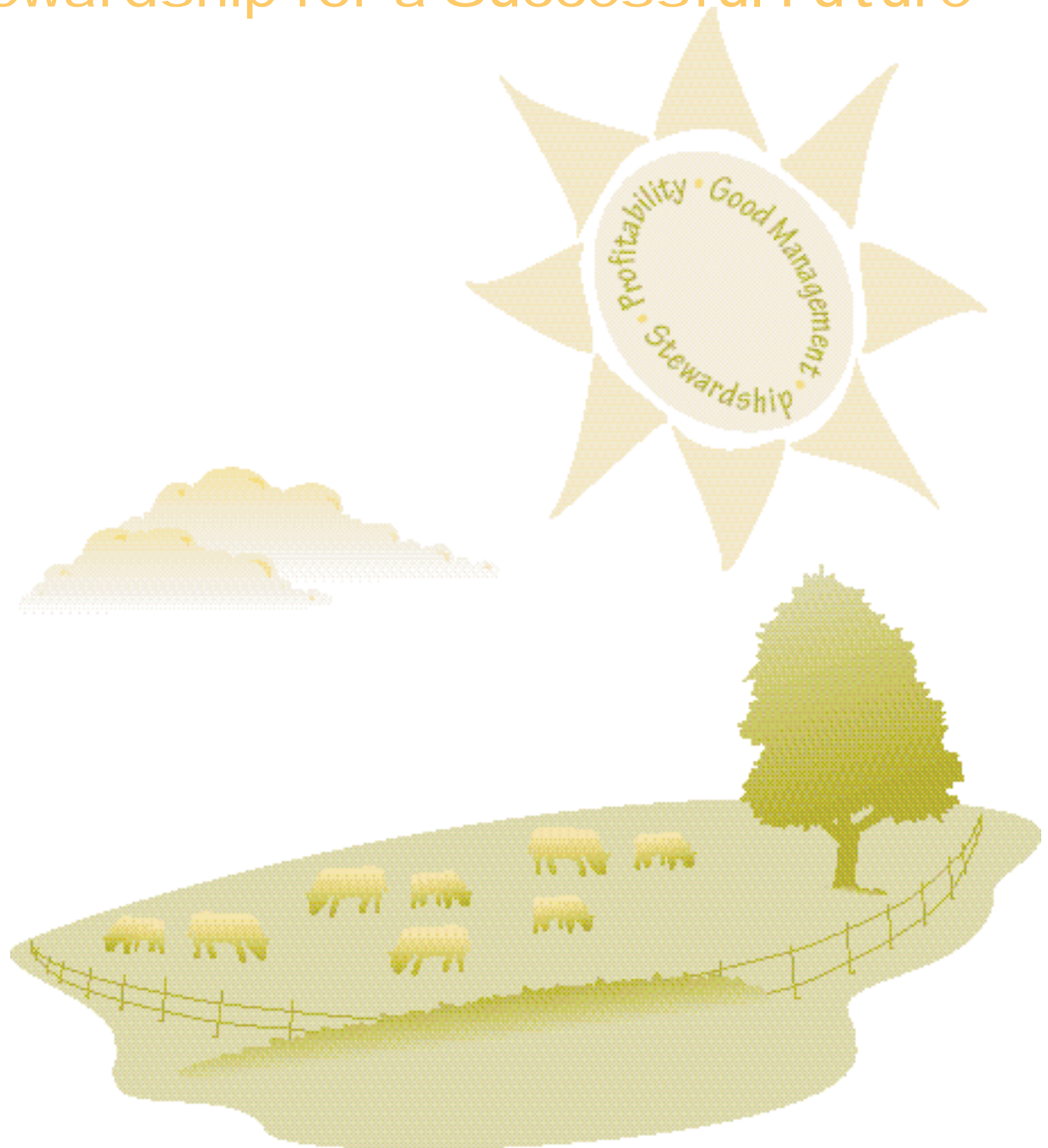
## How can you do it all?

The answer isn't to work harder—it's to work smarter. By using your resources efficiently, you can both increase your profits and protect the environment.

The simple strategies outlined in this booklet can help. To see how efficient your operation is now, start with the quick **self-evaluation** on page 2. What you find out might surprise you. Next, look through the suggestions for improving your cow-calf operation and see just how easy they can be. The last section of this booklet tells you where to find more information about these simple steps.

## Don't be left behind!

Find out where you stand and figure out how you can protect your investment and your natural resources for generations to come.



# How Am I Doing?



Complete the self-evaluation below to find out how your livestock management practices stack up:

**1** When was the last time you calculated your annual production costs?

- a Within the last year
- b Within the last 5 years
- c Never

**2** How would you rate your record keeping system?

- a I keep detailed financial and performance records
- b I keep track of basic expenses
- c I do not keep careful records

**3** How much do you know about your soils?

- a I have tested my soils' nutrient levels and pH
- b I have not tested my soils, but I have looked at soil type maps for my region
- c I'm not sure what my soil types or compositions are

**4** Do you have a resource management plan?

- a Yes, I've developed one within the last year
- b Yes, but it's over a year old
- c No

**5** How many grazed plant species do you have in each pasture?

- a 4 or more
- b 2-3
- c One

**6** How often do you rotate your cattle?

- a Once a week or more
- b Once every month or so
- c Less than once a year

**7** How do you balance your cattle's nutrient needs with your forage production?

- a I test the nutrient value of my growing forage and compare that to the cattle's requirements to determine what supplements are needed
- b I sometimes supplement where I think it is needed
- c I'm not sure what to supplement

**8** How do you ensure your cattle's health?

- a I've developed a preventive herd health program with my veterinarian
- b I carefully observe my animals for illness and treat as early as possible
- c I treat my cattle only when they are sick

**9** How do you prepare your calves before you market them?

- a I precondition 14-30 days prior to weaning and include vaccinations
- b I administer a set of vaccines at weaning
- c I don't do any special preparation of my calves

**10** How does the price you received for the last set of calves you sold compare to the price received by your neighbors?

- a Better than average for my area
- b About average for my area
- c Below average for my area

## Add It All Up

If you answered mostly **a**: You're a leader in the industry—a good environmental steward managing an efficient livestock operation. You keep your costs down and your profits high through smart management practices. Share your strategies with your neighbors and check out this booklet for ways to increase your profits and protect the environment even more.

If you answered mostly **b**: You're on the right track, but you could improve your bottom line. Steps you can take:

- ✓ keep better records of your operation
- ✓ upgrade forage quality and quantity
- ✓ extend forage availability throughout the year
- ✓ improve cow breeding success
- ✓ increase the value of your calves

These are all attainable goals—look through this booklet to learn basic ways to reach them.

If you answered mostly **C**: You are missing out on some easy ways to make more money from your operation and protect the environment. Even if your operation is not your primary source of income, a few easy changes can ensure that you pass productive land on to your children. By keeping careful records of your operation, you can balance your animals' needs with your resources. By improving forage production and species diversity, you can extend the grazing season and enhance cattle performance. Also, some simple preconditioning and marketing changes can increase the value of your animals.

No matter how you scored on the self-evaluation, some of the suggestions in this booklet are bound to help improve your business and preserve your natural resources.



## To Improve:

Record Keeping  
page 4

Forage  
Production  
page 5

Forage  
Utilization  
page 6

Breeding  
Performance  
page 8

Calf Value  
page 9

## To Find Out More:

Environmental  
Benefits  
page 10

The Next Step  
page 12

Additional  
Resources  
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cover



# Take Control—Improve Your Record Keeping

To make successful changes in your operations, you need to know where you are, where you want to be, and how to get there. To do this, you need to keep accurate records. Your first step should be to find out where you stand by completing a comprehensive inventory of your resources. Once you've done this, you can develop a goal and a plan. By improving your record keeping system, you can see where you are today, where your current practices will take you, and what choices are available.

## First, look at your resources.

Know your land, your forage, and your animals. By understanding your soils, you can make informed decisions about forage production. Test your forage nutrient value by taking samples of stored and pasture forage. Estimate how much forage you produce and how much your herd needs. This information can help you balance forage production with your animals' nutrient requirements. Use an aerial photograph of your property, a topographical map, and a soil map to plan fencing and pasture design.

Keep careful records of your cattle's health and production indicators, such as pregnancy percentages, calves weaned per cow exposed, and weaning weights. Track your expenses and revenues.

Keeping better records will reveal opportunities to reduce feed costs, improve animal health, and raise your profits. By knowing how your situation changes over time through careful record keeping, you'll be better prepared to plan for the future.

Many materials are available to help you organize and record information easily and inexpensively. Trade associations, private businesses, and public agencies offer useful record books and helpful computer programs. Talk with the Agricultural Extension Service or the Natural Resources Conservation Service (NRCS) or other professionals to find the best record keeping tools for you.

After you've completed a basic resource inventory and started keeping good records, clearly state your goals in terms that make sense to you.

Do you want to increase your profits? Do your goals include stewardship of the land or improved wildlife habitat? Use the information you have gathered to plan the best strategies for reaching your goals. Use production and financial records as decisionmaking tools as you make changes and as a measuring stick to evaluate progress.



# Give Your Cows the Best—Improve Your Forage Production

## How much do you spend on supplemental feed each year?

If you're like most cow-calf producers, feed costs make up 50 to 75 percent of your total production expenses. You can reduce your feed costs by growing more forage over a longer grazing season. With better forage management, you not only get healthier, heavier cattle and lower feed costs, you can also protect your land from erosion and improve wildlife habitat.

## Improve the fertility of your soils so you can grow more and better forage per acre.

First, test your soils to determine nutrient content and pH. If you find deficiencies, you may want to fertilize and apply lime to raise nutrient content and pH. Growing more legumes or simply ensuring that cows distribute manure and urine evenly throughout the pasture can also improve soil. The Agricultural Extension Service can provide a specialist trained in production agriculture to help you choose the best options. Rich soil and good grazing management mean vigorous, diverse forages, which in turn lead to greater animal production per acre, lower production costs, and higher profits.

## Grow the right forage for your needs.

Determine which combination of species will grow best. Lengthen your grazing season by using both cool and warm season grasses and legumes. By choosing complementary forage cultivars, you can have a more consistent forage supply to meet your animals' needs throughout the grazing season. Adopt forages that are appropriate for the soil types and drainage on your land. The right combination of pastures with different species extends your grazing season, lowers feed costs, and produces more pounds of product per acre. It can also reduce soil erosion and increase soil organic matter accumulation. Contact your local Agricultural Extension Service for recommendations on forage species adapted to your area.

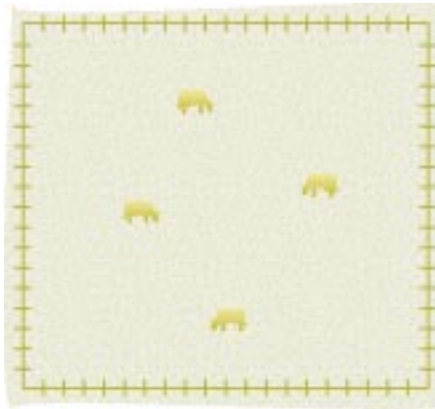
## Complementary Forages



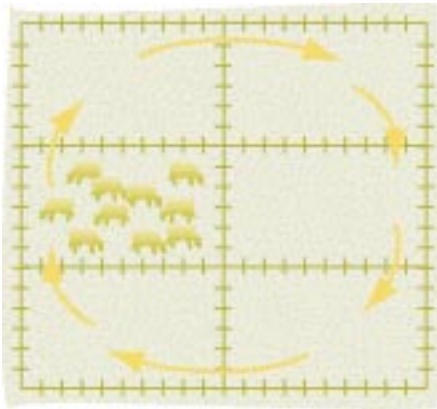
Using both cool and warm season grasses in pastures can provide a consistent supply of forage.

# Don't Let Food Go To Waste— Maximize Forage Utilization

## Continuous Grazing



## Controlled Grazing



Continuous grazing (upper right) can result in selective, incomplete grazing, which means wasted forage and lost potential liveweight gains. Controlled grazing (lower left) ensures cattle get the most nutritious and palatable forage while allowing regrowth in recently grazed pastures. It can increase forage yield, stocking rates, forage quality, and liveweight gain per acre.

If you still use traditional grazing methods, you may be wasting your resources.

With improved grazing management, you increase forage productivity and quality on your land. Standard, continuous stocking may fail to produce all the forage your land can give you and often results in selective and incomplete grazing. This can mean wasted forage and lower liveweight gains per acre of land.

To reduce this waste and increase forage production, consider controlled grazing.

Controlled grazing means letting cattle graze certain paddocks while allowing other paddocks time to regrow. With controlled grazing, you ensure that your cattle get the forage that is the most nutritious and palatable. You don't need a lot of land or expensive fencing. When livestock are trained, a single strand of electric fence provides sufficient control to implement a controlled grazing system. Start small and expand as you sharpen your management skills. As you move to a more intensive grazing system by adding more fencing, watering systems, and other features, you will reap additional benefits. Regardless of the grazing technique, your goal should be to provide the amount and quality of forage your animals need while maintaining the vigor of the plants.




If you decide to try controlled grazing, remember to keep it flexible.

Use flexible fencing options, shade structures, and efficient watering systems that allow you to respond to changing conditions. Innovations in electric fencing and improved watering systems make controlled grazing more convenient than ever.

You can further improve production efficiency if you put up, store, and distribute your silage and hay properly.

Cure and store baled hay properly to avoid leaf shatter, bleaching, and moisture intrusion. Adopt feeding methods that avoid trampling, fecal contamination, and over-consumption. Cut feeding losses even more by restricting animal access to feed pens use racks, panels, or temporary fence and adjust feeding intervals and amounts. Don't forget to test stored feed quality can vary greatly depending on cutting frequency, harvest season, soil fertility and type, and forage species.

The benefits of these simple strategies include increased stocking rates, higher forage yields, better forage quality, and more liveweight gain per acre. You can also save on fertilizer purchases because controlled grazing will more evenly distribute the manure and urine on your pasture and recycle the nutrients to the pasture plants. These benefits all mean more profits for your agri-business. Your land and the generations to follow are the real winners, because controlled grazing reduces soil erosion, improves air and water quality, and supports a greater variety of plant species.



// Controlled grazing is environmentally friendly, reduces erosion, makes my cattle easy to handle, and is more profitable. I can produce more beef per acre with less investment in equipment. //

Earl McKams  
Angus breeder

# Make Every Cow Count— Improve Breeding Performance

When a cow doesn't produce a calf, you're not getting a return on your investment.

Increasing your herd's weaning percentage will lower your costs per calf and increase your profits.

To improve your cows' breeding performance, take a look at the nutrient levels of their diet.

Nutrient deficiencies can cause low pregnancy rates, high calf mortality, and lower weaning weights. Your pasture forages or winter feed may not meet the nutrient requirements of your cow herd, so your animals may need supplements to thrive. Seek professional advice to analyze your forage and develop a nutrition program.

// Cows won't breed and produce calves without proper nutrition. You can't afford to provide the proper nutrition if you have to buy it from a feed dealer. Therefore, the key is to properly manage forages. //

Rob Rutherford  
Professor, Animal Sciences  
California Polytechnic State University

Develop and execute a herd health plan with the help of your veterinarian or the Extension Service.

A cost-effective plan will include:

- ✓ a vaccination program
- ✓ a quarantine area for new or sick animals
- ✓ pregnancy checking
- ✓ health and medication records

Finally, control your breeding season by separating your bulls from the cows according to a set schedule.

This quick and easy strategy lets you time calving and breeding seasons with your forage production, so you'll have a readily available feed supply during the most critical part of the cattle production cycle. By shortening the calving season, you'll reduce labor costs and be able to market calves in more uniform groups.

To enhance cattle performance even more, consider heat synchronization, heat detection, and artificial insemination along with improved genetics.

# Improve Your Bottom Line— Increase the Value of Your Calves

Some calves are worth more than others. Healthy, uniform groups of calves, with the traits and the proven performance buyers want, bring you higher prices.

## Conform to your customer's needs.

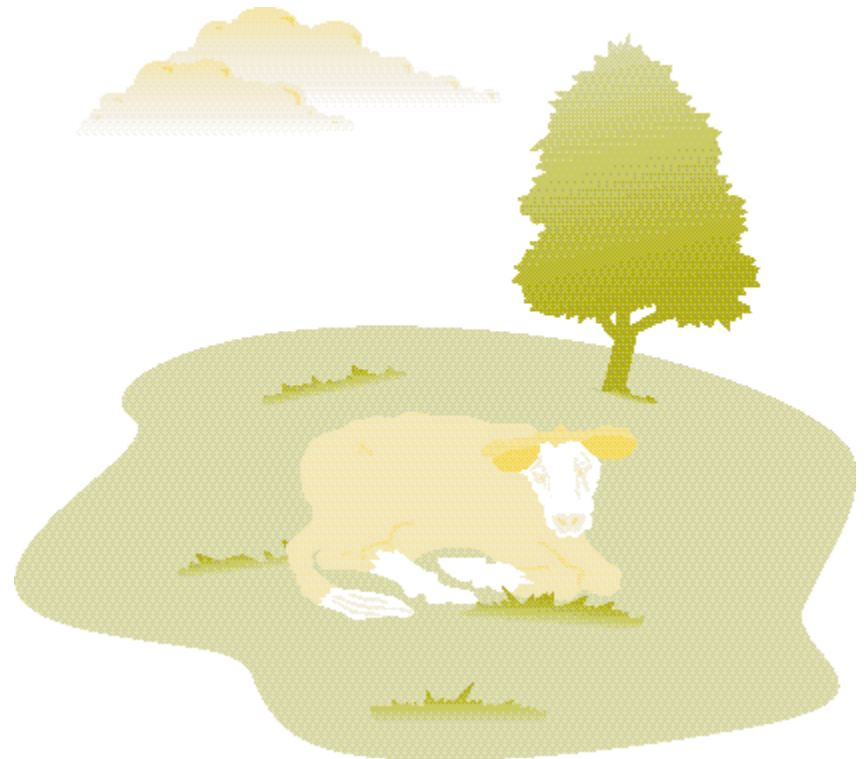
Consider your natural resources and management style and choose your market, whether it's lean beef, high-quality beef, or low-cost hamburger beef. Select the genetics and the management program that will achieve the highest returns for that market. Cattle producers must consistently provide consumers with what they want. Use local quality assurance programs to let your buyers know the full value of your calves.

## Produce uniform calves.

Uniform calves of a similar genetic make-up often sell for \$7-\$9 per hundred-weight more than calves with unknown genetics. You can promote uniformity by using bulls of similar genetic heritage, preferably half brothers, and using a short breeding season. If you plan to crossbreed, be sure to pick breeds that complement each other and can produce vigorous calves.

## Prepare your calves to succeed.

Preconditioning programs add value to your calves and don't have to cost a bundle. Include basic vaccinations, such as seven-way blackleg, Pasteurella, PI3 and IBR, and consider dewormers and growth implants. Wean calves and start them on feed prior to marketing. Be sure to keep records on any preconditioning program so you can get full value for your calves on the market.



# Ruminant Livestock and the Global Environment

Ruminant animals, such as cattle, sheep, buffalo, and goats, are unique.

Because of their special digestive systems, they can convert otherwise unusable plant materials into nutritious food and fiber. This same helpful digestive system, however, also produces methane, a potent greenhouse gas that can contribute to global climate change.

Global climate change could have serious consequences for U.S. agriculture. At the regional level, changes in precipitation and temperature patterns could jeopardize current agricultural practices. Additionally, the frequency of extreme weather events such as floods, droughts, and severe storms is expected to increase. Sea level could rise, threatening vulnerable coastlines around the world. Tropical diseases could spread northward. In recognition of the scientific consensus regarding the threats of human-induced climate change, 165 countries have signed the Framework Convention on Climate Change, which coordinates international efforts to cut emissions and enhance sinks of greenhouse gases.

Scientists estimate that global ruminant livestock industries produce about 20 percent of the world's methane emissions associated with human activity. Fortunately, reducing livestock methane emissions is not difficult and can even provide economic benefits. In most cases, producers can both increase their profits and reduce emissions by making simple management improvements. For example, increasing the number of

calves weaned for every 100 cows from 65 to 85 reduces methane emissions per pound of calf weaned by about 20 percent. As a result, the RLEP and similar programs in other countries focus on improving production efficiency as a way of reducing methane emissions.

The most promising approach for reducing methane emissions from U.S. livestock is to improve livestock productivity so that less methane is emitted per unit of product.

Cattle emit methane through their digestive processes. High emissions from cattle represent wasted feed energy that has been converted into methane instead of meat or milk. If fewer animals are required to produce the same amount of product, then the emissions per unit product go down and less total methane will be emitted by U.S. herds to produce the milk and meat the nation requires.

Improved livestock management can also reduce atmospheric concentrations of carbon dioxide, the chief greenhouse gas, through the mechanism of carbon sequestration. An important environmental benefit that accompanies improved grazing management is increased organic matter production, namely increased forage production. Even though a portion of the forage is removed by the grazing cattle, significantly increased residues remain that add to the organic content of the soil and thus increase the carbon held in the soil. Some of this

carbon will remain in the soil or plant root systems for long periods of time instead of being released into the atmosphere as carbon dioxide. Pastures could therefore act as carbon sinks, reducing concentrations of atmospheric carbon dioxide. Pastures that have been established on soil that was previously cultivated or overgrazed for a long period of time have a high potential to replenish the carbon stock.

### Other environmental benefits of improved livestock management include:

#### Soil

- ✓ More even distribution of manure means less need for fertilizer
- ✓ Healthy root systems make soil less vulnerable to erosion
- ✓ Surface drainage systems and grade stabilization reduce soil erosion
- ✓ More organic material encourages more vigorous and nutritious plant growth

#### Water

- ✓ Water quality is improved because healthy plant root systems and complete soil coverage reduce erosion and other runoff problems

#### Plants

- ✓ Greater density of high-quality grass and forage
- ✓ Increased species diversity
- ✓ Increased annual forage production

- ✓ Strong root systems

#### Animals

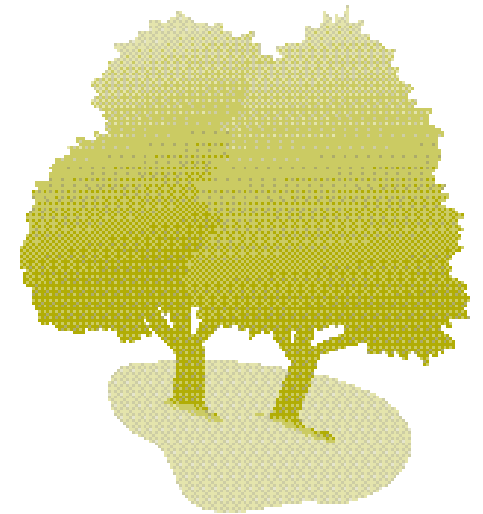
- ✓ Improved animal health
- ✓ Maximum liveweight gain per acre
- ✓ Efficient forage utilization
- ✓ Improved conditions for wildlife

#### Humans

- ✓ Increased farm income
- ✓ Good environmental stewardship
- ✓ Long-term sustainability of operations
- ✓ Greater production of meat and other products from the same land

Ruminants are large sources of both U.S. and world methane emissions, providing many opportunities to improve production efficiency.

As the most productive nation in terms of livestock output, the U.S. must lead the way in efforts to reduce emissions in order to demonstrate to other countries that we are responsible world citizens. By meeting the demand for meat with the most efficient national herd, we benefit both the global environment and our own livestock production.





# Take the Next Step—Find Out More



There are many resources available to help you evaluate your current situation, identify your goals, and develop a better management plan.

The Ruminant Livestock Efficiency Program (RLEP) can give you more information on any of the cow-calf management steps discussed in this booklet. In addition, the RLEP is establishing projects in several states to demonstrate how easy and worthwhile management changes can be.

If you would like more information about RLEP publications or services in your area, contact:

## Ruminant Livestock Efficiency Program

U.S. EPA (6202J)  
401 M Street, SW  
Washington, DC 20460

Telephone: 202-564-9043 or -9108  
Fax: 202-565-2077

E-mail: [Ruminant@epamail.epa.gov](mailto:Ruminant@epamail.epa.gov)

visit us on the web at  
<http://www.epa.gov/ruminant.html>

In addition to RLEP services, you can get information and technical assistance through the Agricultural Extension Service and the NRCS. The National Cattlemen's Beef Association and other industry organizations are also working to improve production efficiency and can provide you with many valuable tools. Regional workshops and management courses may also be available in your area.

**Don't delay!** Begin now and develop a management system that will give you the most for your time and money.

## What is the RLEP?

The RLEP is part of the President's Climate Change Action Plan (CCAP), which is designed to reduce the threat of global warming. It focuses on reducing methane emissions from U.S. livestock. Like other CCAP programs, the RLEP's goal is to help industry voluntarily cut greenhouse gas emissions, while improving the efficiency of industry production and U.S. competitiveness abroad.





## Ruminant Livestock Efficiency Program

U.S. EPA (6202J)  
401 M Street, SW  
Washington, DC 20460