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ACHIEVING SUSTAINABLE RURAL DEVELOPMENT:

ATTRA GRAZING MANAGEMENT PROJECT - SUSTAINABLE GRAZING SYSTEMS

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Background

ATTRA is the national sustainable farming information center and is funded by the USDA Rural Business—Cooperative Service. The project is managed by the National Center for Appropriate Technology (NCAT) as part of the Sustainable Agriculture and Rural Development Program. ATTRA provides information free-of-charge to farmers, Extension agents, and other information providers with the goal of helping US farmers boost profits and become better stewards of farm resources. Since its inception in 1987, ATTRA's staff has prepared over 150,000 written responses to callers who access the service through a toll free phone number. ATTRA materials are available by calling 1-800-346-9140 or accessing the website (www.attra.org). ATTRA technical specialists prepare written responses to questions coming in from the individual phone calls. Through the years nearly 150 publications have been developed addressing topics related to sustainable agriculture. These are updated annually.

In the past three years, ATTRA has experienced a significant increase in questions about sustainable livestock production, and a strong interest by both producers and educators has been expressed in having access to materials and workshops beyond the resources of ATTRA's normal mail response service. Since the basis for sustainable livestock production is primarily pasture and range management for ruminants (Baker et al., 1990), we have substantially increased the emphasis on use of natural resources for grazing animals. Through ATTRA we have expanded the publications available with an emphasis on different levels of information, from the beginning farmer to persons needing advanced information to fine-tune their programs. Through funding for related projects we have been able to enhance our efforts by leveraging ATTRA's base program to include workshops, development of other materials, working directly with farmers and educators. This has helped us determine the training needs farmers and educators have to be more sustainable. We have defined the primary audience as farm families (and educators working with them) who are trying to generate one income on the farm. Additionally, we feel a systems approach is an important component of development of a grazing program. This approach integrates all aspects of livestock production and farm planning into the goals of the farm.

Livestock producers need to evaluate inputs and practices for their potential to optimize production and make the best use of natural resources. Better management of natural resources can lead to improved production efficiency through decreased inputs, i.e. fertilizer and herbicide use on pastures. In recent years detailed information has been made available on good grazing management of livestock, but not much information is available on integration of all components into a sustainable production system. Areas of weakness are

- production of forages with lower inputs,
- meeting nutritional requirements of animals with minimal supplementation and fewer harvested forages,
- options to decrease health costs through better nutritional and behavioral management of livestock,
- land use management
- marketing options, including direct marketing to consumers,

Integrating these components to improve farm sustainability necessitates a holistic approach to management by landowners planning their farming operations and by the educators who are partners with them in their efforts.

ATTRA materials on grazing management

The foundation of the ATTRA grazing management program is the series of publications listed below. A large percentage of them are on the website. These publications range from introductory to advanced, all containing information on the latest research on grazing as well as practices used by farmers around the world. A large amount of information from New Zealand is used in some of the advanced publications. Some of the advanced publications were developed through other projects. We use these publications as the basis of most of the workshops we teach.

Sustainable pasture management
Sustainable soil management
Rotational grazing
Sustainable beef management
Sustainable sheep management
Introduction to paddock design and fencing-water systems
Matching livestock and forage resources
Meeting the nutritional needs of ruminants on pasture
Assessing the pasture soil resource
Nutrient cycling in pastures
Beef farm sustainability checksheet
Alternative beef marketing
Controlled grazing of horses
Grass-based and seasonal dairy
Dairy farm sustainability checksheet
Integrated parasite management

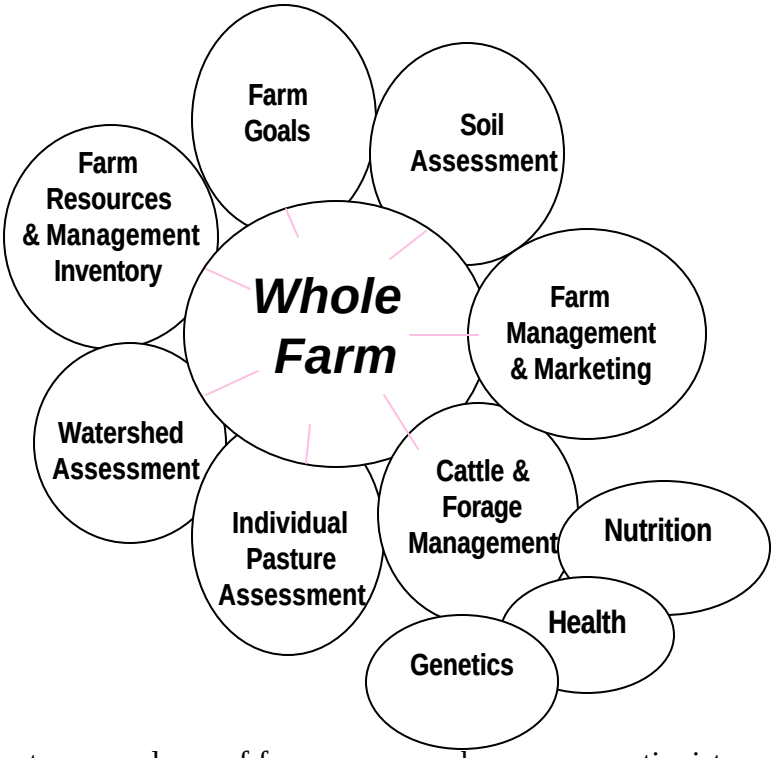
Sustainable beef management workshops

As a faculty member at the University of Missouri, I, along with Jim Gerrish, initiated grazing management workshops for farmers and educators (Morrow et al., 1993; Gerrish et al., 1995). We felt a key element in the training was that participants see the application of research in a farm setting rather than receiving fragmented information on research through the normal field days and/or extension meetings. Another unique aspect of the workshops was the opportunity for producers and educators to learn from each other during the sessions.

Therefore, a similar program was conducted when ATTRA and the University of Missouri Forage Systems Research Center collaborated on sustainable beef management workshops. The workshops were quite successful in stimulating critical thinking on how the whole farm plan interfaces with the grazing livestock operation. Results of a recent survey of participants indicate they have successfully integrated information from the workshops into their farm planning. Other workshops have been taught at various locations around the country (see section on beef sustainability checksheet).

Development of the beef sustainability checksheet

Based on the experiences of teaching grazing workshops and the sustainable beef management workshop we then applied for and received a Sustainable Agriculture Research and Education (SARE) grant from the Southern Region to develop a beef farm sustainability check sheet. The group that



developed the check sheet was made up of farmers, researchers, conservationists, extension agents and ATTRA technical specialists (Morrow et al., 1998; Wells et al., 1998).

The initial basis of the check sheet was work by Taylor et al. (1996). These faculty at South Dakota State University reported on development of a Producer Organic Index (POI)and a Producer Sustainability Index (PSI). The PSI reflected a broad range of concerns including long-term natural resource conservation and economic staying power of beef cattle producers. Their perspective was that the indices could provide insight to beef cattle extension specialists and individual producers on the strengths and weaknesses of management practices. J.C. Buys, working through the Centre for Agriculture and Environment in the Netherlands, has developed “yardsticks” for pesticides, nutrients, energy and biodiversity for farmers. Particularly appropriate to the check sheet was his yardstick on nutrient inputs. Farmers have an “accounting” system to register the nutrient inputs that come onto the farm (fertilizer and feedstuffs) and outputs, which go off the farm (milk, meat, etc.). The difference is the potential loss to the environment.

Our objective was to establish a check sheet of practices or technology that will be used by extension agents and conservationists in partnership with beef producers to assess the sustainability of their operations and to guide the decision-making process. The check sheet is not an index but serves as a focal point to suggest production and management alternatives that can increase sustainability. The check sheet is a 13-page document with over 200 questions and is available for producers and educators to use as a guide to stimulate awareness of the whole farm, not to rate management practices. Consideration must be given on how decisions made in one area impact the results in other areas of a farm. Many factors are considered "best management practices" designed to enhance profitability, sometimes through increasing production and other times by decreasing inputs.

The check sheet is a tool for educators to use a whole-farm approach to beef operations, to analyze the farm and identify “problem areas” and structure information geared to the producer’s goals through a better understanding of the educational needs of the farmer. We have learned from farm visits and workshops that the check sheet is very complete and does stimulate critical thinking. The check sheet is long and complex; therefore, an abbreviated version has been developed for educators to use with

persons who may not be as advanced in their production system as those who benefit from using the longer version.

An important contribution of the check sheet has been the benefits of bringing together a diverse group of individuals. Thought processes of individuals have been expanded, more collaborative programs developed, and other grant activities planned. A producer network has been established from the group developing the check sheet and producer grant activities are being discussed (see section on Grassroots Grazing Group). One producer, who was involved in the process, has been involved in several programs and workshops, illustrating that farmers can be used to "educate educators". Another producer involved in the process indicated that working on the check sheet was the start of a new phase of thinking about the cattle business. Still another producer indicated that she was of the opinion she was doing a good job but after going through the check sheet, she defined "twenty" things she needed to be working on. A great concern in the educational system is having personnel at a local level with the experience and enough understanding of agriculture to work with farmers. In one state the check sheet was used to train new extension agents on how to work with producers.

The workshops have provided training on how the check sheet can be used and start the process by which a producer or educator changes their way of viewing a farm as a system rather than individual pieces. It changed the thinking of those who helped create it; it changes the thinking of those who use it. It is not a one-time cookbook document; instead, it is an ongoing process, allowing the producer to think of and implement changes as he/she improves his/her operation.

Grassroots Grazing Group

Farmers change management practices more quickly when they see their neighbors adopting practices. Through the development of the beef checksheet and teaching the sustainable beef management workshops, we realized that we needed to go a step farther in reaching more farmers. We also realized that producers who are the leaders in their communities in adapting better management practices need support to fine-tune their management programs. This primarily is a need to interact with producers/educators who have similar goals. We have found a producer network is almost a necessity as questions arise for which few local resources of information have the answer.

In addition to the persons who had helped develop the beef checksheet, we identified individuals in the area who had been to a grazing workshop sponsored by the University of Missouri or University of Arkansas and invited them to a pasture walk. The pasture walk was hosted by the leading innovator in the area, who had developed his controlled grazing operation from seeing farms throughout the world while serving in the military. His need for information had surpassed the knowledge available in his community. Through an EPA Sustainable Development Challenge Grant we formed a producer-networking group, Grassroots Grazing Group. We now have over 100 farm families and educators involved. These families represent several states--Iowa, Missouri, Arkansas, Oklahoma, Colorado, Tennessee, Virginia, Florida. We developed a listserv for members to ask questions and discuss their management and have plans to offer the listserv to ATTRA users nationwide. In addition to the listserv the group hosts pasture walks, seminars (such as fencing and water systems workshops) and tours to research facilities. We have participants that will drive three hours one way to attend a pasture walk. We developed guidelines for pasture walks from similar groups in Minnesota, Wisconsin, Australia and New Zealand and are incorporating that information into an ATTRA publication.

Another important segment of the EPA grant was to offer training sessions on advanced grazing management to GGG members and educators in northern Arkansas and southern Missouri. A suggested requirement for participants was to have attended a grazing management workshop prior to being

involved in the training sessions. Farmer participants were required to sponsor pasture walks and work with persons in their community by demonstrating controlled grazing management on their farm. These training sessions were very well received, and the participants asked that they continue another year. One activity of special significance was a session where we had a faculty member with the University of Arkansas conduct a session on computer formulation of livestock rations for wintering livestock. We then had participants sign on to the listserv to ask questions and have rations formulated. Two persons on site were typing the information in and sending to the listserv and reading email messages with questions to the moderator of the session. Unfortunately, some members of the group signed on the next day to find 200 messages from the session! (These sessions have benefited us by helping us to ID areas we can work on to provide the better information to farmers and educators.)

Development of the dairy farm sustainability check sheet

After the development of the beef checksheet we had educators working with dairy farmers ask us to develop a dairy farm sustainability checksheet. We submitted and had approved another SARE PDP grant. That project will be finished this year. The dairy check sheet is 22-pages long. The checksheet is a diverse document in that it has sections for grass-based dairies, goat and sheep dairies, and dairies direct marketing organic milk. This project also has a component to evaluate distance learning over the internet rather than conducting workshops per se. We have found that many educators at the county level do not have dairy experience, and the use of the dairy farm sustainability checksheet gives them a tool to work with dairy farmers.

Whole farm planning for the production of grass-fed beef

The most recent project to continue our work in sustainable grazing systems is a SARE Research grant funded this last year to evaluate production of grass-fed beef for a growing specialty market. The intent is to integrate whole farm planning perspectives of managing the soil resources, forage base, and cattle program to develop a grazing system to produce a quality meat product for direct marketing. We are conducting case studies of farms interested in production of grass-fed beef and will monitor all inputs and outputs of the farms.

NRCS workshops on sustainable beef systems

We have an agreement to conduct training workshops for NRCS personnel regarding sustainable ruminant production systems. The basis of the workshops is the sustainable beef checksheet. Each participant will receive the sustainable beef management notebook we have developed. This notebook contains all of the appropriate ATTRA publications related to grazing management, soil management and livestock management referenced earlier. The first workshop is in Kingsport, Tennessee March 8-10. Others being planned include two workshops in Northwest Arkansas. One of these will feature management of cool season forages and the other one warm season grasses such as bermuda grass and crabgrass.

NCAT task forces in ruminant-forage management systems

ATTRA is a project within the NCAT Sustainable Agriculture and Rural Development Program. Our intent is to leverage ATTRA activities to broaden the scope of the SARD effort while also strengthening the ATTRA project through supporting projects. We have structured our technical service specialists into task forces to address key issues we feel need more in-depth information to assist farmers and educators over the next 3-5 years. Two of these of special interest to the sustainable grazing systems work are the Ruminant-Forages Task Force and the Organics Task Force. Sustainable grazing systems should be the foundation of organically produced livestock.

Summary
Sustainable grazing systems are a strong component of the ATTRA project. Building on the base of publications developed through the years to answer farmer/educator questions, we have strengthened the grazing systems effort through projects funded by other programs. Through our projects we have been able to work more directly with educators and farmers to initiate change. We feel key ingredients in the success of work have been the

- building of peer relationships between farmers and educators,
- establishing support for people who take risks on their farms and in their communities,
- illustrating the value of the group approach in multiplying learning, both among farmers and technical "experts",
- forming a renewed sense of community in the participants in the projects.

The results are

- community building
- real changes in how people farm
- leadership development
- shared learning
- renewed sense of excitement
- enjoyment in farming.

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ATTRA

Appropriate Technology Transfer for Rural Areas

Funded by USDA
Rural Business-Cooperatives

NCAT

Sustainable Agriculture and
Rural Development Program

ATTRA

mechanism for disseminating information

tremendous information resource base

national programming interest

complements all educational programs

SUSTAINABILITY

common sense management that ensures a profit,

maintains environmental integrity,

emphasizes quality of life for farm families

ATTRA's base is written materials

- individualized responses to specific questions
- over 150 publications available

Sustainable pasture management
Rotational grazing
Sustainable beef management
Introduction to paddock design and fencing-water systems
Matching livestock and forage resources
Meeting nutritional needs of ruminants on pasture
Assessing the pasture resource
Nutrient cycling in pastures
Beef farm sustainability check sheet
Integrated parasite management for livestock
Dairy farm sustainability check sheet

Controlled grazing illustrated

We wanted to:

expand the concept of grazing workshops

establish a systems approach to
beef farm planning

present the dynamic complexity of decisions

Beef Farm Sustainability Checksheet and Workshops

ATTRA

University of Tennessee

NRCS

University of Arkansas

We are working together to:

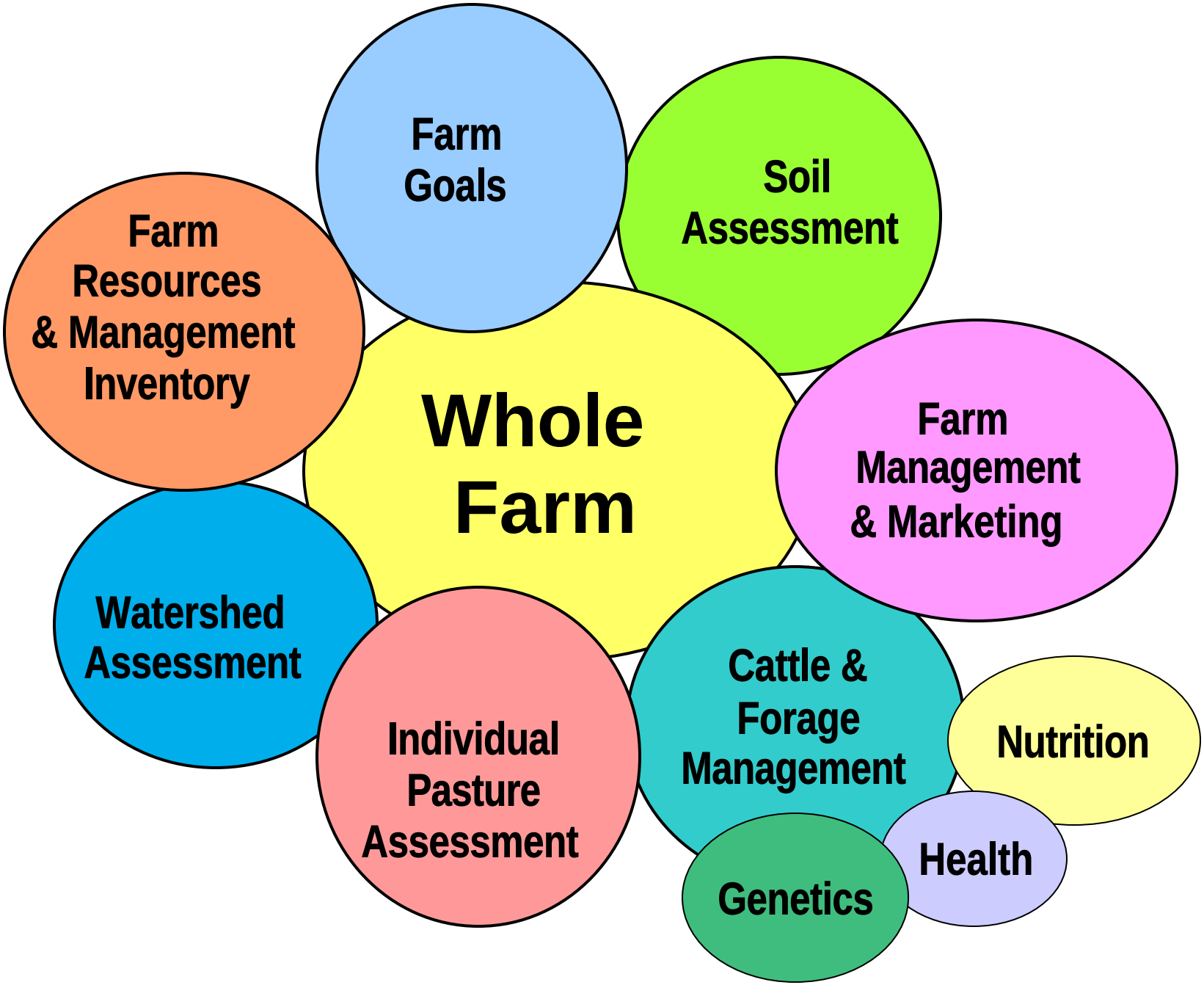
do more collaboration--less turf protection

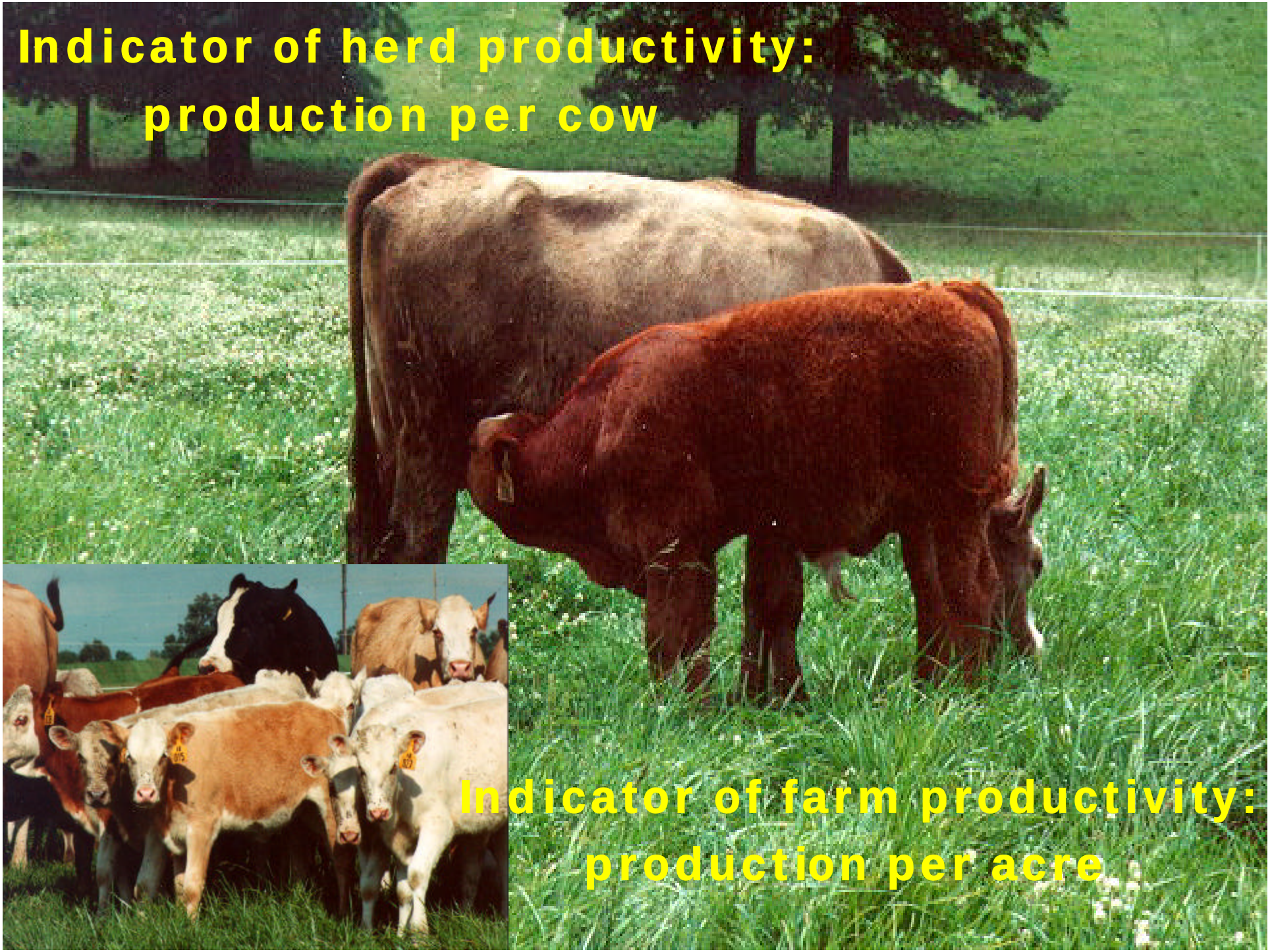
be more effective in educating producers

do more in-depth training of educators

a systems approach

to beef production


Farm Goals
Soil Assessment
Farm Resources & Management Inventory
Whole Farm
Farm Management & Marketing
Watershed Assessment
Individual Pasture Assessment
Cattle & Forage Management
Nutrition
Health
Genetics


Indicator of herd productivity:
production per cow
Indicator of farm productivity:
production per acre

I. CATTLE AND FORAGE PROGRAM

A. Herd health and reproductive management

Well-nourished , stress-free animals are the foundation of a sustainable beef cattle program. This means animals are healthy and perform better, are easier to manage and care for, and can more easily handle adverse conditions. While seemingly a simple question, this is intended to stimulate quick evaluation of any stress the animals may have. Simply walk into your herd and take a look at your animals.

___What is the overall appearance of your whole cattle herd?_

___Do your cattle appear to be thrifty, contented, and performing to your satisfaction?_____

___What vaccinations do you give?_____

What are your herd health goals?_____

Do you

_____ pregnancy-check cows?_____

_____ fertility-test bulls?_____

_____ have a defined breeding/calving season?____

_____ calve the majority of your cows the first 21 days of calving season?_____

_____ routinely condition score cows?_____

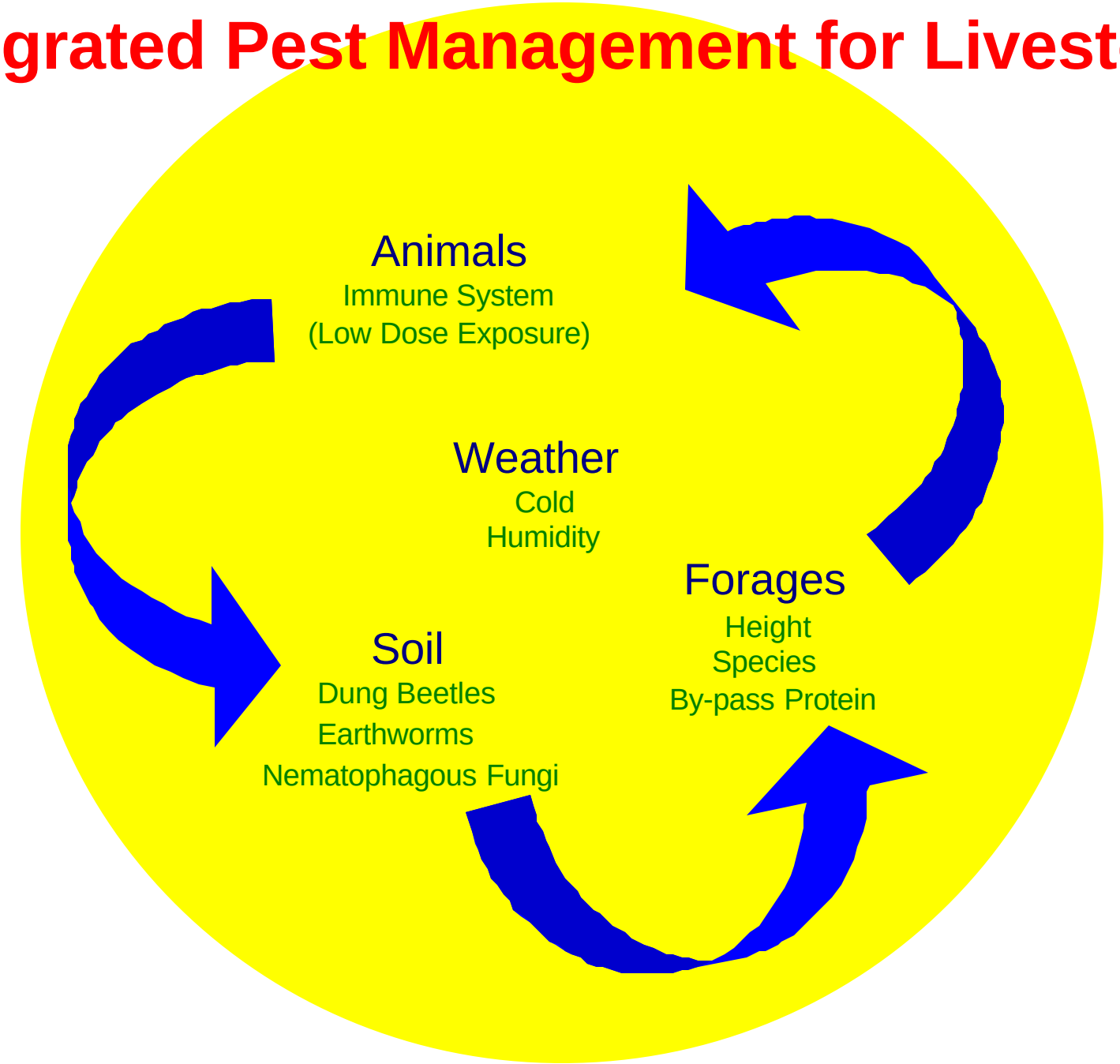
_____ have a clean area for calving?_____

_____ feed and water in clean areas?_____

_____ have handling facilities which minimize stress to livestock and handler?_____

Beef cattle nutrition
...as related to grazing

Integrated Pest Management for Livestock



The checksheet as a *tool* for educators

- A whole-farm approach to beef operations
- In-depth -- to identify “problem areas”
- Information geared toward producer’s goals
- Better understanding of educational needs

The workshops are planned for

Extension agents
NRCS personnel
Producers

Having all represented is best

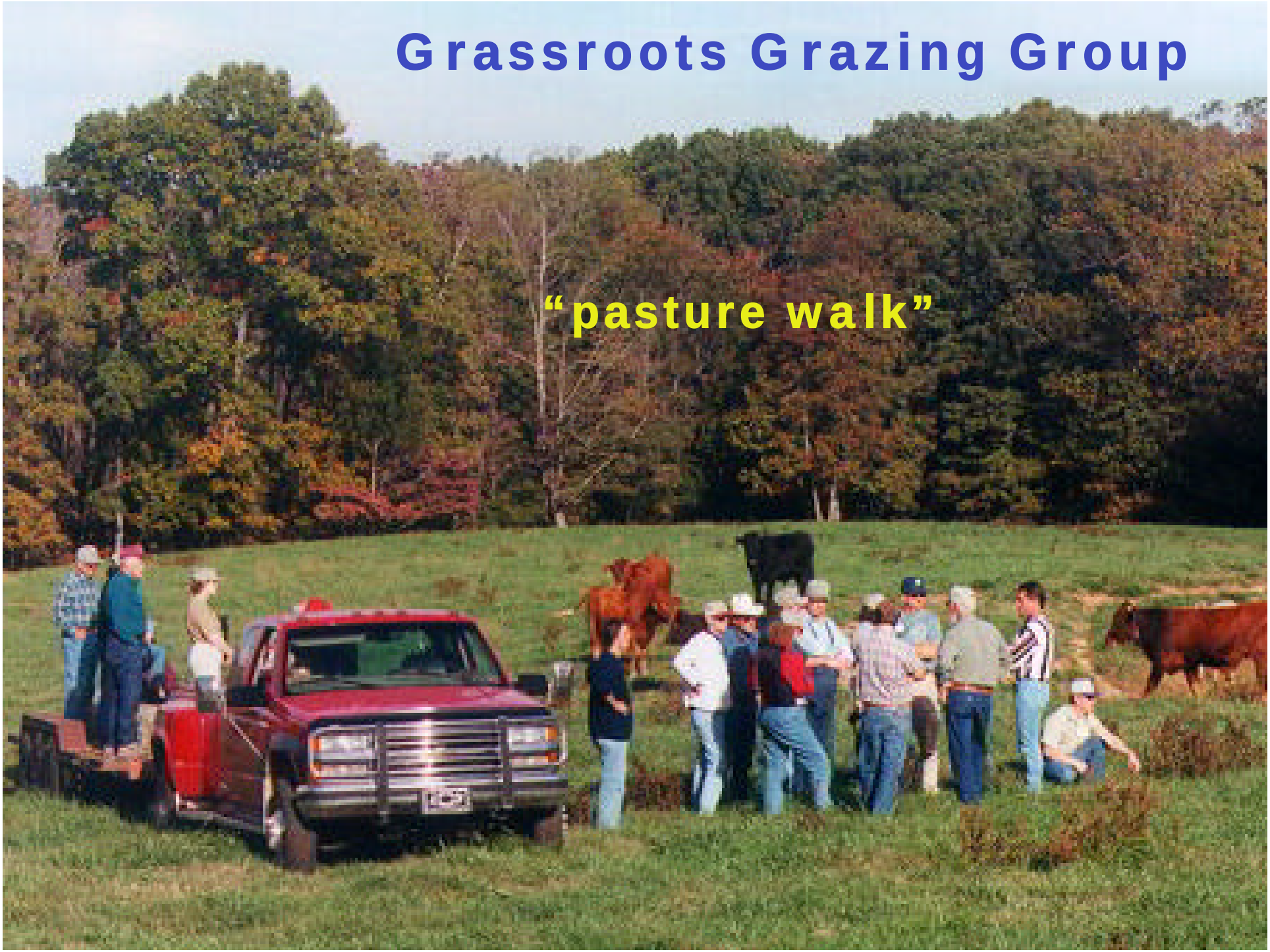
Grassroots Grazing Group (GGG)

workshops, listserv, pasture walks

funded through an

EPA Sustainable Development Challenge Grant

Grassroots Grazing Group



Grassroots Grazier's Training

Advanced grazing management

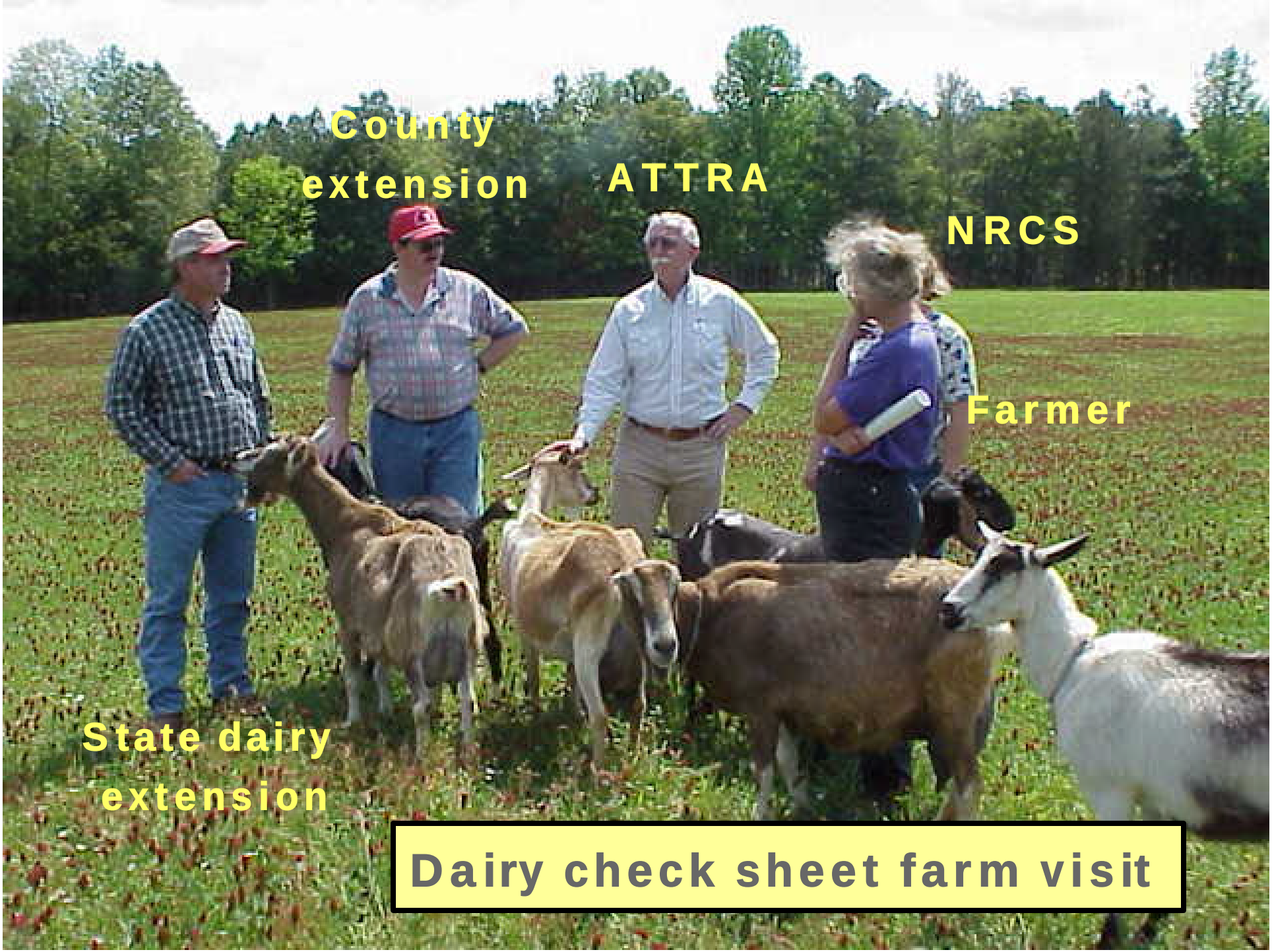
Participants volunteer hours to their community

Ten 2-hr classroom sessions
Two half-day field sessions
Taught in two locations

The Grassroots Graziers Training program provided us with the skills, knowledge and tools to more efficiently finish market lambs using a low-input forage based system. Using intensive controlled grazing of land with average fertility in the Southern Ozarks, we decreased the average market age of our meat lambs from 10 monhs to 6 months with minimal grain input." Jim Morgan, sheep producer.

Points to consider:

- "learns to know" client
- client needs to do self-assessment
- fewer extension agents know "dairying"



Dairy check sheet farm visit

Present projects:

Whole farm planning for production of grass-fed beef

- SARE funding
  - farm case studies
  - conferences
  - subcontracted research

Sustainable livestock production workshops

- NRCS funding
  - advanced grazing management training
  - multiple locations
  - customized to “local” need

Into the Future? :

- Adding livestock to small farms
- More training for educators
- Introductory AND advanced information
- More emphasis on economics of family farms
- Better understanding of
  "best management practices"
- Application of international information

We have learned:

- a common goal allows people with different backgrounds to contribute and feel part of process
- farmers and educators want better information
- producers need to see practices being applied
- producers and educators together in same setting allows for more complete learning by both

- ATTRA can and should do more than written materials
- the checksheet can be adopted to other areas
- county level personnel want to be more effective
- county level personnel are usually inexperienced and do not necessarily have ag background

Key ingredients

- building peer relationships between farmers and educators
- establishing support for people who take risks
- illustrating the value of group approach in multiplying learning
- forming a renewed sense of community

Results are

- community building
- real changes in how people farm
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