



SMALL RUMINANT SUSTAINABILITY CHECKSHEET

LIVESTOCK PRODUCTION GUIDE



Abstract: *This checksheet is designed to stimulate critical thinking when evaluating a farm that produces sheep or goats. The sustainability of a farm depends on many factors involving farm management, use of resources, and quality of life. The questions in this checksheet are intended to stimulate awareness rather than to rate management practices. Use this guide to define areas in your farm management that might be improved, as well as to identify areas of strength.*

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Suggestions on how to use the checksheet

This checksheet is designed to help educators assist producers in whole-farm planning. For a producer, working with an educator (Cooperative Extension agent, Young Farmer advisor, or NRCS specialist) to complete this checksheet will be beneficial, but is not essential. The checksheet is quite lengthy, and it can be challenging to both educators and producers. Having evaluated the use of the checksheet on several farms, the authors make the following suggestions.

- Send the checksheet to the producer before your first meeting. Allow one to two weeks for the producer to work through it.
- Review the questions beforehand and be flexible. The producer and educator should be comfortable working through the process. Remember that the checksheet is simply a guide to planning new enterprises or to assess an existing operation's strengths and weaknesses.
- The questions have been worded so that "yes" answers indicate a strength or good understanding of management or marketing techniques, while "no" answers show areas where improvements or more information may be needed. The number of "yes" and "no" answers for each section should be entered into the Farm Action Plan, which serves as a summary of the checksheet and will help the farmer prioritize areas to improve.
- The Quick Start option is intended for producers who may not need to work through the entire checksheet. The Quick Start provides an easy assessment tool to show quickly what areas need attention. Producers can then focus on the sections of the checksheet that address the weaker areas of their operation.
- Enterprise and financial records will be essential to the completion of this checksheet. Having aerial photos, soil maps, and topographic maps on hand during the assessment is also useful.
- Since the time needed to completely work through the checksheet (about 2 ½ hours) may be longer than available for a single farm visit, two or more visits may be in order. The checksheet is useful in making the producer aware of management alternatives. Therefore, defining the items for which he or she needs more information is most important.
- Support materials to refer to during the assessment are available from ATTRA.
- Ideally, producers will use the checksheet each year to track their progress and to continually refine their farm plans.

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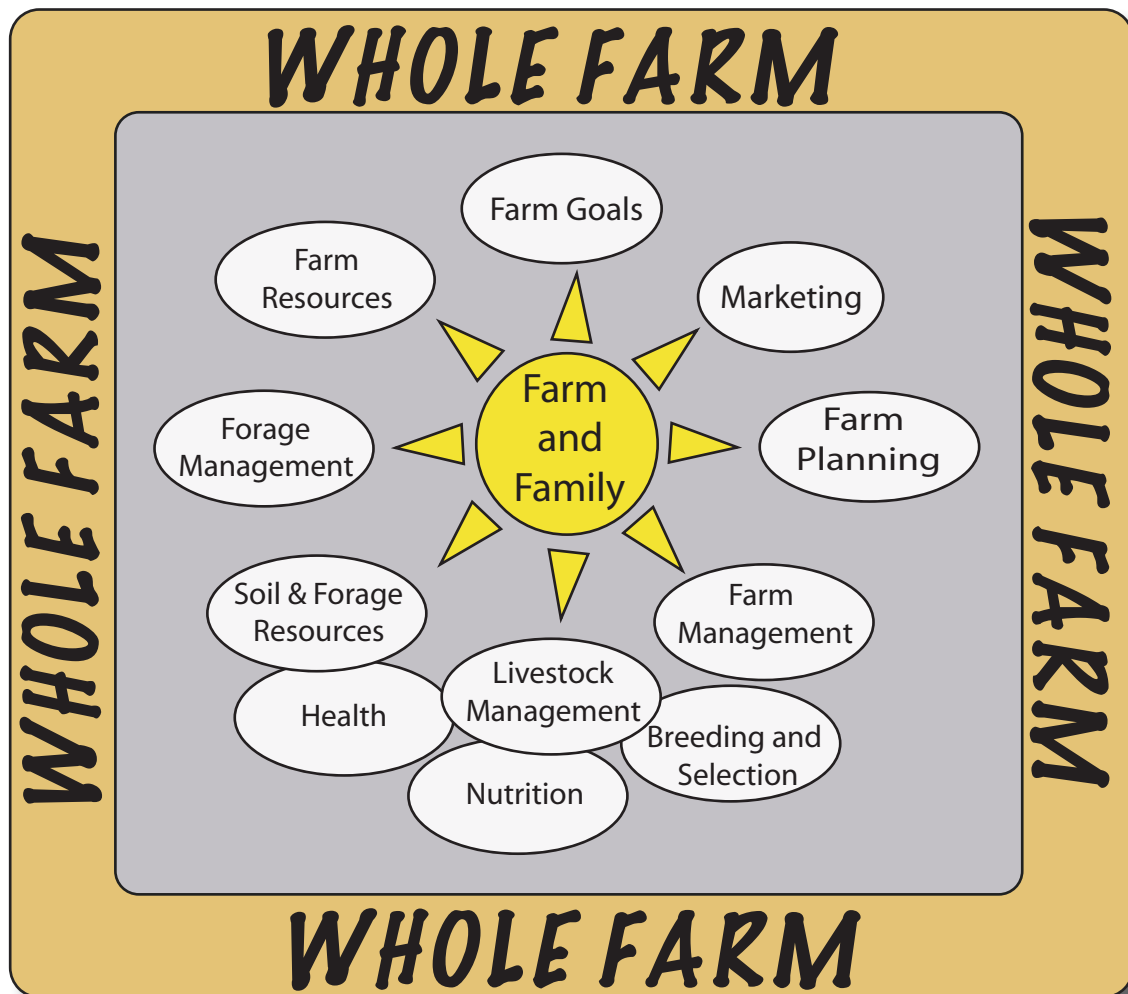


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Quick Start

These questions are bottom-line questions about components of your farm. If your answer to a question is “yes,” proceed to the following question. If an answer is “no,” mark the question and investigate options for strengthening that component by turning to the relevant section of the Small Ruminant Sustainability Checklist, which is found on the page listed in parentheses.

YES NO

Forages

1. Inventory (page 8)

- ▶ Do you have a grazing system plan that ensures you are grazing in the most efficient manner possible?

2. Utilization (page 8)

- ▶ Do you have the right number of animals on your farm?
- ▶ Do you have adequate forage year round?
- ▶ Are you making full use of your available forage?

Livestock

1. Nutrition (page 10)

- ▶ Do your animals appear to be lively, healthy, and vigorous?
- ▶ Do your animals have appropriate condition (fat cover) for the stage of production they are in?

2. Observation (page 13)

- ▶ Do you check your animals daily?
- ▶ Do you know the look and behavior of a healthy animal?
- ▶ Do you act promptly when you observe an animal that is not acting “right”?

3. Parasites (page 13)

- ▶ Are parasites kept at a level that does not affect animal performance?
- ▶ Do you use a variety of practices to reduce and/or avoid resistant parasites?

4. Sanitation (page 14)

- ▶ Is sanitation generally good?
- ▶ Do you use preventative measures toward all disease on your farm?

5. Predator Control (page 15)

- ▶ Are your animals safe from predators?

6. Reproduction (page 16)

- ▶ Are you satisfied with your lambing or kidding percentage?
- ▶ Does your farm depend on a high level of reproduction?

7. Breeding and Selection (page 17)

- ▶ Are you satisfied with the performance of your current breeding animals?
- ▶ Do your animals fit your management and your market?

YES NO

Marketing (page 19)

- ▶ Are you selling your products for the best possible price?
- ▶ Could changing the timing of your breeding season increase the profitability of your herd?
- ▶ Are you selling all the products from your farm?

Records (page 20)

- ▶ Do you use records for management decisions and future planning?

Economics (page 21)

- ▶ Can you make a good profit after feed and other costs are paid?
- ▶ If you are selling a processed product, are you being compensated for the extra time you have invested?

Quality of Life (page 22)

- ▶ Is there enough labor available at all times of the year?
- ▶ Do the people involved in the care of the animals like to work with sheep or goats?

Systems Management

1. Timing (page 24)

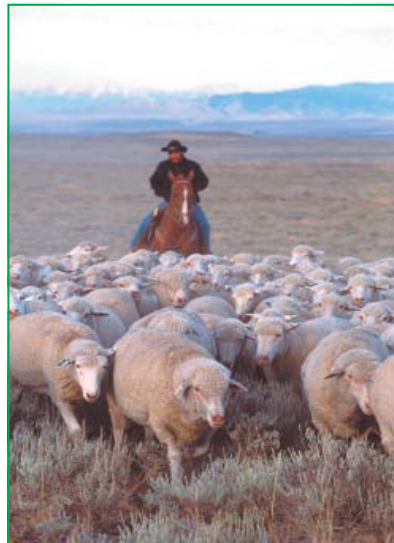
- ▶ Are you timing lambing or kidding in order to make the best use of your resources and maximize profit?

2. Coordinating Enterprises (page 26)

- ▶ Do each of your enterprises bring benefits to your farm as a whole?
- ▶ Do your enterprises complement one another?

Conclusion (page 27)

- ▶ Have you identified the weak links of your whole farm?



I. Introduction

This checksheet is designed to help farmers think about individual aspects of their farms, as if each aspect were part of a puzzle, and then to consider how the pieces best fit together to form a whole farm. Other ATTRA checksheets have focused on beef, dairy cattle, and organic livestock production. This one looks at small ruminants: sheep and goats.

Sustainability in agriculture means being economically viable, maintaining or improving the environment (land, air, water), and offering an enjoyable life for the farming family. Each of these is essential to the long-term ability to continue (sustainability), and management decisions will have an impact on at least one of these components, and frequently all three. For example, choosing to increase the size of a flock will change how much money flows in and out, place greater demands on the land and water, and can require more time and labor from the family.

Small ruminants fit into a sustainable farm in a variety of ways. First of all, their grazing preferences make them ideal animals to feed on weeds, brush, and other plants that cattle often won't eat (multiflora rose and pigweed are two notorious examples). Because of their smaller body size compared with cattle, sheep and goats are less likely to cause pugging on wet soils, are easier to work with, cheaper to buy and maintain, and need less equipment. They are prolific and do well on forages. Their products are easy to market, once a market is found, and current (2004) prices for goats and lamb are very good. Also, because goats and sheep mature quickly and have a short gestation, farmers can have products to sell very quickly, improving their cash flow. And, herd and flock sizes can be rapidly increased. Return on investment is usually better for small ruminant enterprises than for cattle. However, profitability depends on how a farm is managed.

In the rush of daily life, we often fail to take the time to look critically at our farms, at the decisions we've made or the many options available. By using this checksheet to examine your farm in detail, you and your family will be better equipped to evaluate and improve the sustainability of your farm. To meet that goal, it is best that you work through this checksheet together, marking questions that need to be explored further and making notes about ideas that occur as you talk about your farm. Further information is available from your local Cooperative Extension agent, Natural Resources Conservation Service (NRCS) agent, the ATTRA National Sustainable Agriculture Information Service, and many other sources. Some of those are referred to throughout the text, and more are included in the Resources at the end of the checksheet.

Keeping in mind the three components of sustainability—economic, environmental, and quality of life—look at each aspect of your farm and evaluate how well it is currently working. If you need to make changes, plan carefully, implement, observe, and evaluate the results and their impact on sustainability. Careful attention to these concepts can result in a farm that is more profitable, has healthier soil, water, animals, and air, and is enjoyable for the farm family.

.....



II. Farm Resources Inventory

Your farm is unique, and the soils, topography, water, forages, climate, and location will enter into your decisions about what crops and livestock to raise. This section is meant to give a “snapshot” of your farm as it is now.

YES NO

1. Describe your farm; how many acres? _____
2. How many acres are productive or currently being used? _____
3. What are the soils like? (deep loams, rocky, sandy, clay) _____
4. Have you visited with your NRCS and/or local Extension agent about a soil survey or farm plan?
5. Have you conducted soil tests in the past three years?
6. Do you know how to read a soil test and use the results?
7. What are the nutrient levels in the soils?
Organic matter _____ pH _____ P _____ K _____
8. How and when do you fertilize your fields? _____
9. What is the topography of your farm? (flat, sloped, steep slopes, rugged, etc.) _____
10. Do you have a plan to minimize erosion and maintain vegetation on your land?
11. What water sources are currently available? _____
12. What other water sources are potentially feasible? _____
13. How much land is dedicated to production for market? _____
14. What crops are grown on your farm? _____
15. What forages are grown on your farm? _____
16. Do you practice rotational grazing?
17. If so, how many pastures are used in rotation? _____
18. Does your farm include any brushy areas?
19. How many and what types of livestock do you currently raise? _____
20. What other species would you like to raise? (crops or livestock) _____
21. When are young stock born on your farm? (kids, lambs, or other animals) _____
22. How, where, and when do you market your crops or other farm products? _____
23. Write down any other pertinent information about your farm, its land, water, soil, climate, and crops or products. _____

Total yes answers _____ Total no answers _____

Enter these numbers on the Farm Action Plan, pg. 28

III. Farm Planning

Whole Farm Planning is the important process of evaluating your farm, examining your goals, thinking about all your available resources, and then determining how best to use those resources to meet your goals. The enterprises chosen for the farm must be compatible with the resources available.

Having thought about the individual features of your farm, you are now in position to assess how well the different areas are working together. Answering the following questions will help as you develop a plan for the future.

1. What are the top five strengths of your operation? _____

2. What are the top five problems of your operation? _____

3. What are the **top three goals** for your operation? _____

.....

IV. Farm Management

In this section, you are asked to look more closely at each component of your farm— livestock, forages, marketing, records, economics, and quality of life— and to look for areas to improve. Give special attention throughout to ways to improve sustainability.

Sustainability as applied to a sheep or goat farm might incorporate healthy, properly fed animals that breed easily, milk well, have a good rate of growth and a hardy constitution. They should be well suited to the climate and to the feed available. Productive, nutritious pastures with good forage cover and, therefore, minimal erosion, healthy soil with good organic matter and fertility, and fences and facilities that function well are all further indicators of a sustainable farm. This farm should be attractive, and managed by farmers who are in general happy, healthy, and in agreement with family members. Products sold from a sustainable farm should be in high demand, sell for a consistently profitable price (including labor cost), and be of consistently high quality to ensure continued demand. Debt should not be crushing, costs must be kept in line, and new ideas to increase profitability should be explored. Marketing must be a constant activity, and someone reliable must be in charge of this crucial area. The farm must be in compliance with laws and regulations, and the whole operation should work harmoniously.

For sheep and goat production to be sustainable:

- Pastures must be managed to optimize nutritious, low-cost feed for the animals.
- Animals must be managed to leave adequate residue (2 to 4") of stubble, so that soils are protected and plants do not die out.
- If brush is a feed source, it must be rested just as grassy pastures are rested to avoid eradicating the brush. It may need to be rested a full year. If the objective is to kill the brush so that more grass can be grown, then the brush could be grazed more frequently.
- Animals must be kept healthy. Prevention is much cheaper and more effective than treatment; good management and good nutrition will do far more than drugs and be more economical and satisfying.
- Animals must be protected from predators.
- Animals must be productive in their environment. Selecting for twinning, milking, and mothering ability, fiber production, rate of gain, parasite resistance, good disposition, longevity—or whatever meets your goals—will lead to better and better animals in your flock or herd over time.
- All possible products should be sold at a fair price; meat, fiber, milk, hides, manure, and grazing services are all potential products. More than one option should be available. Greater diversity of products can help reduce economic risk, but may also reduce critical time for marketing and require greater diversity of equipment.

- If time and markets permit, value-added products may be a way to increase income. For example, direct-marketing meat may return more profit than selling live animals at the sale barn; selling cheese may be more profitable than selling fluid milk. Careful research and budgeting are necessary before undertaking a new enterprise, and you must comply with federal, state, and local regulations.

A problem in any of these areas (animals, forages, marketing, economics) will have a negative impact on the enterprise. The following questions are to help you explore the specific areas of your farm that might be improved to increase your farm profitability.

A. Forages

YES NO

1. Inventory

- What types of forages are available on your farm? _____
- Do you have a lot of different types of forages available?
- How many acres of the following types of forage do you have on your farm? (See your NRCS agent for help with this—aerial photos can help you quantify.)
 - Predominately cool season forages _____
 - Predominately warm season forages _____
 - Mixture of warm and cool season forages _____
- Do you have pastures with:
 - _____ Legumes _____ Cool season annuals _____ Warm season annuals
 - _____ Brush and weeds _____ Crop residue
 - _____ Pastures that can be stockpiled for late fall/winter grazing
- Do you use a rotational grazing system? If so, how intensively do you manage the grazing? _____
- Do you use cross fences to improve pasture use?
- How many days do your animals obtain most of their nutrition from grazing? _____
 Can you increase that? _____
- When do you typically start grazing in the spring? _____
- When do you usually stop grazing in the fall/winter? _____
- When would you like to begin and end your grazing season? _____
- Are you grazing enough to minimize feed costs?
- Could you use crop residue?
- When do you have the most forage available? _____
- Does that coincide with lambing or kidding?
- When is your best quality forage ready to graze? _____
- Could you graze a neighbor's land?
- What do you consider to be a weed on your farm? _____
 Could it be a resource for you? _____

Total yes answers _____ Total no answers _____
 Enter these numbers on the Farm Action Plan, pg. 28

2. Utilization

- List the numbers and kinds of animals you usually graze.

_____ animal number _____ animal number _____ animal number

- What is your stocking rate? Looking at the year, are you under-stocked, over-stocked, or close to right? _____
- What are the limiting factors in your grazing season/ system? _____

YES NO

- Drought
- Rainfall distribution
- Soil fertility or type
- Availability of drinking water
- Poor stands of forage or low productivity of forage
- Lack of proper fencing
- Other(s) _____

21. Do you know how to recognize characteristics of an over-grazed pasture?

- Forages grazed shorter than 2 inches
- Very slow regrowth of forages
- Animals do not stay in their pasture
- Animals appear hungry
- Bare patches or areas that do not recover from grazing
- Weed invasion where grasses have been suppressed
- Reduced longevity of pasture stands
- Increased erosion due to more exposed soil

22. Do you have a strategy for dealing with a shortage of forage?

- Access to other pastures
- Reduce animal numbers by marketing
- Offer supplemental feed
- Other _____

23. Do you know how to recognize characteristics of under-utilized pastures?

- Patches of over-mature forage and seed heads
- Forage wasted due to trampling
- Loss of low-growing plants due to shading
- Spot-grazing
- Increase in less palatable forages due to over-selection of preferred forages
- Reduction in quality of forage due to maturation
- Excessive dead material, which suppresses new growth

24. Do you have a strategy for dealing with excess forage?

- Harvest hay
- Increase animal numbers
- Lease extra pastures to other livestock producers
- Mow to keep pastures vegetative

25. How many days do you have to supply supplemental feed? _____

26. What is your winter feeding program? _____

27. Are you grazing year round?

28. What can you do to extend your grazing season? _____

**** Review the above section and make any notes about potential improvements, problems to solve, limitations to overcome.** _____

Total yes answers _____ Total no answers _____
 Enter these numbers on the Farm Action Plan pg. 28

B. Livestock

1. Nutrition

Proper nutrition is crucial to the health and productivity of your animals. Attention to their body condition and behavior while grazing helps assess the condition of the pasture. Remember that for sheep and goats, having enough quality forage is important. Over-grazing an area forces animals to consume more parasite larvae. Goats will do well on browse, whereas sheep are better at using grasses, clovers, and weeds. The feed resources available on your farm will help determine which animal you can raise most profitably, because an ample supply of forage will greatly reduce the cost of raising ruminant livestock. Sheep and goats can be raised entirely on forage in many areas, though their performance will be improved by offering some supplemental feed at certain times of the year—just before and during breeding season (flushing), during the last month of pregnancy, and during the first weeks of lactation for sheep or meat goats. Dairy goats require more supplemental feed to sustain a long, high-yielding lactation. The need will be greatly reduced if excellent pasture and browse are available. Supplemental mineral needs will vary by location.

To be sustainable, nutrition programs must not only meet the animal's needs but do so economically. Generally speaking, commercial rations will be expensive, and generous feeding of concentrates (grain) and of top-quality hay may lead to animals that are too fat, unproductive, and unprofitable. Taking advantage of sheep and goats' natural ability to graze and browse will be better for the land, as manure will enrich the soil and help build organic matter; better for the animals, as they will get plenty of exercise and lots of forage, which is what they are designed to eat; and better for the bank account, as letting the animals graze and browse is the cheapest way to feed them.

Besides providing plenty of growing or stock-piled forages, a good stockman will be sure to offer lots of clean water and free-choice mineral mix. Sheep and goats differ in their tolerance to copper, with goats needing more and sheep suffering toxicity if dietary levels are more than 25 parts per million. Because copper is present in forage, and is higher in forage that has been fertilized with poultry litter, it is important to test forage mineral levels and choose a mineral supplement accordingly. Goat and cattle minerals contain varying levels of copper, whereas sheep mineral supplements usually do not contain copper. Be sure to check labels. It is also important to know the relative availability of mineral sources—that is, how much of the mineral an animal can metabolize and use. Some forms are more available than others. For example, the copper in copper oxide is only about 10% available (or less), whereas copper sulfate is highly available.

YES NO

- | | | |
|--------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Do your animals appear to be lively, healthy, and vigorous? |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Is the manure a proper consistency? |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Do your animals reach market weight or breeding weight at appropriate ages? |
| | | 4. If some animals are not growing well, is it due to a health problem? Lack of quantity or quality of feed?
Poor milking mothers? _____ |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Do you know how to check your animals' body condition score? (1-5) (Refer to < http://bedford.extension.psu.edu/agriculture/goat/Body%20Condition%20Scoring.htm >.) |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Do you routinely check your animals' body condition (thin, average, fat)? |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Do your animals have appropriate condition (fat cover) for the stage of production they are in? |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Do you know how to bring your animals into proper condition for their stage of growth, pregnancy, or lactation? |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. If they are too fat, can you adjust their condition by putting them in an area of lower quality forage? |

**** Review the questions above and note any adjustments that can be made or information needed.**

YES NO

10. Do you balance rations for your livestock?

11. Are you feeding an appropriate amount of concentrates? Record here your usual feeding plan; what do your sheep or goats eat year-round? _____

12. What type(s) of supplemental feed do you use, and when do you feed it? _____

13. What is your cost per head for supplemental feed? _____

14. Are you aware of mineral deficiencies or excesses in your area?

15. Does your mineral supplementation program adequately address these excesses or deficiencies?

16. Do you offer creep feed to nursing animals?

17. If so, is it profitable to creep feed your animals?

18. When do you feed hay? _____

19. What type of hay do you feed? _____

20. Have you forage tested your hay?

21. Is hay good enough to meet protein, energy, and mineral requirements?

22. Do you use forage analysis results in balancing rations?

23. Is your hay of sufficient quality for the stage and level of production of your animals?

- Is the color of the hay good?
- Is the hay leafy?
- Is the hay free of mold?
- Was the hay harvested before maturity?
- Was the hay baled in ideal conditions? (not rained on)
- Was the hay properly handled and stored?
- Is the hay digestible? (Refer to your forage test.)
- Is the hay palatable?
- Do the animals readily eat the hay?

Stocking rate has an impact on nutrition (availability of quantity and quality of forage), sanitation, and parasite load of animals.

YES NO

Based on the evaluation of your forages:

24. Is your farm carrying the right number of animals?

25. Do you have a plan to use surplus forage?

- Harvest hay
- Increase animal numbers
- Lease extra pastures to other livestock producers
- Mow to keep pastures vegetative

26. Do you have a plan to cope with a shortage of forage?

- Access to other pastures
- Reduce animal numbers by marketing
- Offer supplemental feed

Total yes answers _____ Total no answers _____
 Enter these numbers on the Farm Action Plan pg. 28

2. Health

Under good management (with good nutrition, careful handling, and attention to necessary duties and vaccinations, in a low-stress environment) and with good genetic makeup of the animals, sheep and goats are remarkably trouble-free, healthy, and hardy animals.

However, sheep and goats do not generally live in perfect conditions. Over-crowding, mixing stock from multiple locations, unbalanced rations, poor sanitation, etc. may cause disease, and then small ruminants are unfairly judged with such comments as “a sick sheep is a dead sheep.”

Producers of small ruminants generally agree that one of their major challenges is to minimize the negative effects of internal parasites. Because of their ability to graze close to the ground, sheep and goats may easily consume the worm larvae that are deposited (as eggs) in the manure and then picked up by other grazing animals. Some animals have a natural resistance to parasites, and can inhibit parasite growth and reproduction. Other animals manage to carry heavy parasite loads and yet appear healthy. Still others, particularly young or stressed animals or those with little previous exposure, are highly susceptible to parasite infection and may become so damaged that they will never recover.

Very few anthelmintics are approved for goats, and many parasites have developed resistance to anthelmintics. It is important to minimize the use of anthelmintics in order to delay the development of anthelmintic-resistant parasites. In some cases, drugs will need to be administered in ways that are not FDA approved (extra-label use) in order to manage a parasite problem. This requires a producer to have a working relationship with a veterinarian, preferably one with small ruminant experience.

In many areas, however, there are few veterinarians who are experienced with small ruminants. It is important to find a veterinarian who is compatible with you and with your management style, and who is willing to learn about small ruminants. With time and patience, your veterinarian can become competent in the diagnosis and treatment of small ruminants. You may locate a veterinarian who wants to practice on small ruminants by contacting the Association of Small Ruminant Practitioners at <http://www.aasrp.org/> or by calling 270-793-0781.

Your veterinarian can assist you with setting up a vaccination program that will protect your flock or herd from some diseases that are problems in your area. Animals are usually vaccinated at least against enterotoxemia and tetanus.

Purchasing new animals or exhibiting at a fair are two ways of introducing disease into your flock or herd. Isolation of new animals or of those that have been exposed to animals from other farms is a good way to lessen the risk. While they are isolated, pay special attention to the animals and to their behavior. They should be kept separate from the rest for two to three weeks, ideally, and only released when you are confident they are in good health. There are two crucial questions to address before turning them out: have they been effectively dewormed, and are their feet in good shape? Fecal egg counts before and after treatment will help verify that you are not releasing a new population of parasites onto your pastures. Your veterinarian can conduct fecal egg counts, and there are courses that provide instruction on conducting these tests. Limping may indicate foot rot, which you certainly do not want to spread to your other animals. Examine a limping animal carefully. If it has foot rot, you can try to treat it by trimming, disinfecting, and using copper sulphate or zinc sulphate footbaths. Some individuals will be very difficult to cure, and it would be better to cull them rather than risk spreading the problem.

See Appendix B for a list of other diseases to be aware of, and check with your veterinarian to learn which are likely to be a problem in your area. To learn more about diseases that affect small ruminants, you may want to explore some of the resources listed at the end of this document and contact your veterinarian.

Selecting animals that have proven to be healthy, hardy, resistant to parasites, docile, and good mothers is a sustainable way of building a herd or flock that does not require much veterinary attention. Some breeds are thought to be more resistant to disease, and some individuals within a breed, herd, or flock will show greater resistance. Encourage this hardiness in your flock or herd by culling the problem animals.

a. Observation of Animals

The first skill that needs to be developed by a producer is that of careful observation.

YES NO

1. Do you check your animals every day?
2. Do you know the look and behavior of a healthy animal?
3. How do you recognize an animal that is not healthy? _____
4. Have you developed a relationship with a veterinarian who has small ruminant experience? _____
5. Do you know what the reportable diseases are for your state? (contact your state veterinarian)
6. If animals are overly thin, is it due to:
- Lack of forage
 - Lack of quality forage
 - A health problem, such as internal parasites or pneumonia
 - Heavy milk production for an extended period of time
 - Poor teeth
7. Do you know how to bring your animals into proper condition for the stage of growth, pregnancy, or lactation?
8. Do you routinely check your animals' body condition score?
9. Are most of your animals in proper condition for their stage of production?
10. What is the percentage of death loss in your herd/flock?
- Young animals _____
 - Older animals _____
11. Is your death loss acceptable?
12. Do you know the causes of death for most of your losses?
13. If the death loss was preventable, have you corrected the situation or management that contributed to the loss?
14. Are you in compliance with state laws regarding disposal of dead animals?

Total yes answers _____ Total no answers _____

Enter these numbers on the Farm Action Plan pg. 28

b. Parasites

YES NO

1. Are parasites kept at a level that does not affect animal performance?
How do you know? _____
How do you monitor the parasite load in your animals? _____
2. What practices do you use to reduce parasite problems and avoid the use of anthelmintics?
- Cull animals with low resistance or persistent problems
 - Use cleaner pastures (rest pastures 12 months, cut for hay, graze cattle)
 - Graze diverse pastures
 - Reduce stocking rate
 - Avoid grazing pastures shorter than 2 or 3 inches
 - Use browse
 - Graze cattle or horses with goats or sheep
 - Separate classes of susceptible animals

3. What parasite control program do you use to reduce the use of anthelmintics and manage parasite loads?
- Visual observation to detect animals with parasite problems
 - Use FAMACHA© (<www.vet.utk.edu/departments/LACS/pdf/FAMACHA.pdf>)
 - Check fecal egg counts prior to and following treatment to monitor loads and check effectiveness of anthelmintics
 - Change class of anthelmintic once resistance is noticed
 - Use herbal dewormers
 - Strategic deworming
 - Deworm all new animals and check to be sure treatment was effective
 - Other: list here _____

Total yes answers _____ Total no answers _____
 Enter these numbers on the Farm Action Plan, pg. 28

c. Sanitation

Good sanitation is another crucial element of good management. This is of particular importance if your business is producing milk; sanitation as part of the milking routine will result in better, cleaner milk and healthier udders. Animals that are on pasture will usually be clean, but animals that are kept in confinement will need extra care and attention to keep their environment healthful.

During kidding or lambing season, if you use small pens (sometimes called “jugs”) to hold the new mother and her babies for a day or two, it is important to disinfect the newborns’ navels with iodine and keep the pen as clean and well-bedded as possible. If animals are lying in manure or urine-soaked bedding, the chances of mastitis greatly increase. Plenty of bedding can help keep the animals more comfortable and clean.

Good manure-handling practices will also allow for composting of manure, which will be a valuable addition to your fields or garden or may be sold for added income. Information on composting is available from your Cooperative Extension Service.

.....

YES NO

General

- 1. Do you have a manure management plan? (If not, contact your NRCS agent to develop a plan.)
- 2. How do you deal with muddy areas? _____
- 3. Do you have fly control measures in place, if necessary?
- 4. Are your young animals free of coccidiosis?
- 5. Is sanitation generally good?

Dairy Farmers

- 6. Describe the milking routine, including teat washing and dipping. _____

- 7. What is the average bacteria count in your milk for the past six months?
 Total plate count _____
 Coliform count _____
- 8. Is this bacteria count acceptable for your market?
- 9. Is your herd or flock free of mastitis? If not, how do you treat mastitis? _____

YES NO

10. What measures do you take to prevent mastitis in your herd or flock?
- Dry treat
 - Teat dip
 - Reduce mud
 - Improve sanitation
 - Other

11. If you raise dairy goats, do you use CAE-prevention strategies?

In addition to lessening risk of disease in your animals, good sanitation practices are necessary to protect the health of the farmer. Hand washing will help; using rubber gloves or an A.I. sleeve when helping with birthing is also wise. Some diseases carried by sheep or goats will also affect humans, and as always, prevention is better than treatment.

YES NO

12. Do you and all your farm workers make a habit of washing hands and arms after handling sheep and goats?
13. Do you use disposable gloves when handling infectious material, such as an aborted fetus or placenta, drainage from abscesses, or soremouth lesions?
14. Do you have a plan to deal with animal mortalities?
15. Do you know about the law in your state regarding proper disposal of dead animals?

Total yes answers _____ Total no answers _____
Enter these numbers on the Farm Action Plan, pg .28

d. Predator Control

Although not strictly a “health” problem, one of the causes of loss in a sheep or goat operation may be predation. Coyotes or domestic dogs can devastate a herd or flock if no measures are taken; fencing, penning at night near the house, and guarding the flock or herd using guardian dogs, donkeys, or llamas are all strategies that have proven effective in protecting a flock or herd. (Resources about predator control are listed in the Small Ruminant Resource list.)

YES NO

1. Do you have a predator control program in place?
2. How many animals have you lost to predators in a year? _____
3. What measures do you take to protect your animals? (It is best to have more than one.)
- Fence
 - Guardian animals
 - Penning at night
 - Other
4. What type of predators are causing livestock losses in your area? _____

Total yes answers _____ Total no answers _____
Enter these numbers on the Farm Action Plan pg. 28

e. Reproduction

Regular reproduction is one of the keys to profitability, and is therefore a main goal of a livestock enterprise. It's obvious that reproductive failure will put a dent in the profits. Reproductive inefficiencies will also decrease profits, but they are more difficult to quantify. Getting all of your ewes or does bred and being prepared for lambing or kidding have to be important parts of your enterprise.

Understanding the seasonal mating patterns of sheep and goats will help you manage reproduction and your marketing plans. The gestation length is 145 to 151 days, with sheep averaging close to 148 days and goats near 150 days. Breeding season for most sheep will run from September to early December. Breeding season for goats will run from September to January, with October to December being the peak time for breeding. Some breeds of sheep and goats will be less seasonal and hold the possibility of mating them during other seasons of the year.

Multiple births (twins and triplets) are common in sheep and goats, and are a function of both management and genetics. A minimum of 150% lamb/kid crop weaned is a reasonable goal and will enhance your potential profitability. Do your homework to find the breeds and types that fit best with your management and marketing goals.

YES NO

1. What is your lambing or kidding percentage? (Total number of lambs or kids/ total of exposed ewes or does x 100) = _____%
2. Does your herd or flock have minimal or no fertility problems?
3. What do you do to determine whether or not your animals are fertile? _____
4. Have you done a breeding soundness exam on your ram or buck?
5. Do you know what the body condition of ewes and does should be before breeding?
6. Do you flush your females? (That is, do you provide a higher plane of nutrition for two weeks prior to breeding season, continuing for two weeks after breeding, to improve ovulation and conception rates?)
7. Do you isolate your ram or buck from females for a period of time before the breeding season?
8. Do you provide shade during breeding season?
9. Do you use a defined breeding season?
10. When do you begin your breeding season? _____
11. How long does breeding season last? _____
12. Do you record breeding dates?
13. Do you use a marking system on your ram or buck to monitor activity? (more commonly used with sheep)
14. Do most of your ewes or does settle (conceive) during the first three weeks of your breeding season?
15. Are you satisfied with your lambing or kidding percentage?

Total yes answers _____ Total no answers _____

Enter these numbers on the Farm Action Plan, pg. 28

The timing of breeding (and therefore kidding or lambing), type of management, and growth rate of animals all factor into the end product and when you will have products ready to market.



Summary

Look back over the year and record the number of losses of baby animals, weaned animals, and adults, and the amount spent on treatment. Aim to have those numbers decrease each year by improving your management, culling animals that do not fit your environment and management, and preventing rather than treating illness. Losses in the past year and reasons: _____

See Appendix B for a chart to summarize the health problems in your herd or flock.

.....

3. Breeding and Selection

If you own a stocker enterprise, you may skip this section; otherwise, breeding and selection is a critical part of your farm and has a very large impact on the sustainability of your farm. To evaluate your breeding and selection program, you must first consider the goals of your livestock enterprise and whether you are currently able to meet those goals.

.....

YES NO

1. What type of enterprise is your focus?
 - Meat
 - Show
 - Breeding stock
 - Commercial dairy
 - Fiber
 - Land management (brush and weed control)
 - Hobby
2. Who or what are your intended markets? _____

3. Considering your enterprise, what are the market requirements for your product? (For example, a meat producer might need to produce 60-pound animals for a specialty market.) _____

4. Considering your enterprise and market requirements, what are your goals for your animals? (Produce animals that weigh 60 pounds at 90 days of age, etc.) _____

5. Are you currently able to meet your production and economic goals?
6. If not, do you need to change your management or your genetics or both? _____
7. Do your animals fit your goals? (For example, are your animals capable of rapid growth? Do the does and ewes milk well? Does your flock provide wool that is consistent in color, length, and quality?)
8. If you are able to meet your current production goals, is it profitable to do so?
9. Consider the over-all appearance of your herd or flock and note your impressions here. _____

10. Do your animals prosper in your current system?

YES NO

11. Looking at your whole herd or flock, do you see individuals that are very different from the rest? (Is your herd/flock uniform, or do you have animals that are superior or inferior to the rest of your animals? Which animals should be retained for breeding?) _____

12. What are your criteria for selection (or retention) of breeding animals? (Check the appropriate categories, and list your specific standards for each category.)

- Productivity _____
- Fertility _____
- Hardiness _____
- Milk production _____
- Disposition _____
- Mothering ability _____
- Body type _____
- Growth rate _____
- Ability to thrive on forage alone _____
- Internal parasite resistance _____
- Fiber quality _____
- Other: _____

13. Do you have objective ways to evaluate the quality of your livestock and their products?

- Milk quality testing
- Milk production testing
- Meat tests—grades, yield, tenderness
- Weight records
- Fiber testing—fineness, strength, yield
- Fiber grading

14. Are you satisfied with the performance of your current breeding animals?

15. List here any areas that need particular improvement. Ranking the concerns in order may help as you decide which traits are most important. _____

16. Do you keep and review adequate records so that you can decide which animals to keep and which to cull?

Areas to Improve

17. List here any ideas regarding your livestock that you would like to improve or upgrade. _____

Total yes answers _____ Total no answers _____

Enter these numbers on the Farm Action Plan pg. 28

C. Marketing

Making a living on the farm depends on three essentials:

- 1) producing something of value
- 2) selling it for a profit
- 3) selling enough of it.

The preceding sections focused more on the first part of the equation, production. This section is meant to trigger thinking about selling what your farm produces. For example, a sheep farmer produces lamb meat, skins, wool, manure or compost, and perhaps provides weed control. The meat could be sold as live lambs at weaning, fat lambs, or as freezer lambs. If USDA inspected, it could be sold as cuts. Wool could be processed into yarn, roving, batts, or further processed into woven, knitted, felted, or crocheted items. Farmers may choose to sell what they are raising for “commodity” prices, seek out a niche market, or use a combination of strategies. For example, sheep farmers can sell freezer lambs directly to customers and sell extra lambs at a sale barn. They may choose to hold back a few fleeces for hand spinners, a few more for further processing into yarn or woven blankets, sell some wool to a wool cooperative, and use the dirty parts of all fleeces as mulch in a garden or orchard.

The possibilities are limited only by the imagination and by time and energy. Time and energy spent in marketing tends to have a large return, financially speaking. For example, selling two of the best fleeces to handspinners may net more income than selling 20 fleeces to the wool cooperative, and with very little effort.

Having multiple items to sell and multiple outlets for marketing those items can strengthen the economic health of the farm. However, each additional item and market will require additional time and effort.

.....
YES NO

1. What is it that you produce? List all of the products that you could produce, even if you are not currently selling them (Don't forget the wool.). _____

2. What product(s) do you sell? _____

3. How do you sell your product(s)?

- Direct market
- On-farm sales
- Contract
- Wool pool
- Spinners guild
- Niche users—craftspeople
- Sale barn
- Web site
- Other

4. Is the market increasing?

5. Do you have a processor for your raw products? (Milk, meat, fiber)

6. What other possibilities can you think of for selling your product(s)? _____

7. How much time is currently spent on marketing activities, such as advertising, contacting buyers, checking prices, hauling products to market, or other related activities? _____

8. Are the markets for your products stable throughout the year?

9. Are you selling your products for the best possible price?

YES NO

- 10. Are you timing production to obtain the best price?
 - Freshening does or ewes to accommodate your milk market
 - Kidding or lambing to accommodate your meat market
 - Shearing at optimal time to obtain best quality fleece

- 11. Are you able to produce at the right time for your customers?
- 12. Are your products of consistently high quality?
 - Uncontaminated milk with consistently good flavor
 - High yielding carcasses, tender meat
 - Clean, strong fleeces, free of vegetable matter and properly skirted

- 13. Are you in compliance with all regulations?
- 14. Is there one person on your farm who takes responsibility for the marketing?

Total yes answers _____ Total no answers _____
 Enter these numbers on the Farm Action Plan pg. 28

D. Records

- 1. What type of records do you currently keep? (Check all that apply)
 - Premises ID
 - Permanent Individual Identification (other than premises ID)
 - Health
 - Breeding
 - Production (milk, offspring born and raised)
 - Financial
 - Growth rates
 - Sale records of your main products
 - Cull or death records
 - Pasture or forage records—rotational grazing
 - Other _____

- 2. Are records recorded and updated frequently?
- 3. Are your record systems adequate? (paper or software)
- 4. Do you use records for management decisions and future planning?
- 5. Do your records show that you have improved your farm over time?
- 6. When was the last time you reviewed your records? Write the approximate date beside the type of record reviewed in question #1 above.

Total yes answers _____ Total no answers _____
 Enter these numbers on the Farm Action Plan pg. 28



E. Economics

How do you measure the economic health of your enterprise, farm, and household? Do you know what it costs you to raise a lamb/kid to market weight? Maintain a ewe/doe over the winter? Produce milk, meat, or fiber? By careful cost accounting, you can determine the break-even price of producing your product.

Besides “out of pocket” costs, you need to account for family labor. There is an “opportunity cost” associated with any use of your time—that is, taking advantage of one opportunity prevents you from taking advantage of another — and to decide whether an enterprise is truly profitable, you must be honest about the time spent producing your product. On the other hand, a sustainable sheep or goat farm may make excellent use of labor that would not otherwise be employed—children, retired persons, or farmers who keep their regular job and raise sheep or goats in their “off” hours. A few things to consider are profitability, cash flow, debt load, risk, financing expansion, taxes, reducing cost of production, and increasing return by some processing.

YES NO

- | | | | |
|--------------------------|--------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. | Is your sheep or goat operation currently profitable? If yes, what is the annual net return per ewe or doe? \$ _____ |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. | What does it cost per animal to feed your breeding sheep or goats for a year? \$ _____ |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. | Are you feeding your animals economically? |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. | If not, have you tried alternatives? |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. | Can you make a good profit after feed and other costs are paid? |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. | Are your ewes or does productive enough that you can sell their progeny for a profit after all costs are paid? |
| | | 7. | If your main product is meat, how many kids or lambs do you need to sell annually per doe or ewe to cover expenses? _____ |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. | What was the direct cost of vet care/ deworming last year? \$ _____ |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. | Do you know what it costs to raise a lamb or kid to market weight? \$ _____ |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. | Do you know what it costs to put on a pound of gain or to produce a pound of milk? \$ _____ |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. | What is your biggest expense? _____ |
| <input type="checkbox"/> | <input type="checkbox"/> | 12. | Can you identify ways to reduce your biggest expense? _____ |
| | | 13. | Could you increase profitability by: (check all that are possible) |
| | | | <input type="checkbox"/> Changing the way that you market |
| | | | <input type="checkbox"/> Adding value to products through increased processing (wool to yarn, lamb to packages of chops, milk to cheese) |
| | | | <input type="checkbox"/> Reducing production costs by grazing more and/or by cutting back on inputs (such as grain) |
| | | | <input type="checkbox"/> Diversifying enterprises |
| | | | <input type="checkbox"/> Selling all the products possible |
| | | | <input type="checkbox"/> Reducing wastes (grain, hay, etc.) |
| | | | <input type="checkbox"/> Reducing labor costs |
| | | | <input type="checkbox"/> Increasing production through improved genetics or management |
| | | | <input type="checkbox"/> Raising prices (if you sell direct) or selling at favorable times |
| | | | <input type="checkbox"/> Changing the time of year (or month) of lambing or kidding |
| | | | <input type="checkbox"/> Improving pasture management by using more crossfencing |
| | | | <input type="checkbox"/> Taking advantage of cost-share and other government programs? (See your NRCS agent.) |
| | | | <input type="checkbox"/> Other _____ |

Labor is a cost, although when you use family labor, it is less apparent.

- | | | | |
|--------------------------|--------------------------|-----|---------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | 14. | Do you know how much time is invested in your product? |
| <input type="checkbox"/> | <input type="checkbox"/> | 15. | If you are selling a processed product, are you being compensated for the extra time you have invested? |

YES NO

- 16. Does the daily routine run smoothly and easily? If not, what can be changed to streamline the work?

- 17. Think of the yearly cycle of tasks. Are these tasks accomplished as efficiently as possible? If not, what should be changed? _____
- 18. If you hired outside labor in the past year, how much did it cost? \$ _____
- 19. Was the expense a justified cost?

Taxes

- 20. Are you keeping thorough records of all expenses, including mileage for farm vehicles?
- 21. Do you have a good tax accountant?

Equipment

- 22. Are all your equipment expenses justifiable?
- 23. Do you do regular maintenance to keep equipment in good repair?

Total yes answers _____ Total no answers _____
Enter these numbers on the Farm Action Plan pg. 28

Farm Financial Analysis

Debt is a tool that can be helpful or harmful, depending on how you manage it. With wise use of debt, you can expand a profitable enterprise and make purchases when the time is right. However, excessive debt can cripple a business. It is important to understand finances, beyond what may be required for the Schedule F on your 1040 every year. With a small investment of time, you can generate meaningful financial information, can improve your management skills, and provide more detail about the status of your farm. Improved financial information may not be meaningful that first year, but the power of financial information comes over time. Developing a history to refer to gives you crucial information to guide future decisions.

Understanding the 16 standard farm financial ratios and measurements for farms can help you see opportunities for improvements in your business. For detailed, technical information about farm financial indicators and ratios, see the Farm Financial Standards Council Guidelines at <www.ffsc.org/html/guidlin.htm>. Another useful site for farm financial information and analysis is <www.agecon.purdue.edu/extension/programs/fbm21/Ec712entry.htm>. This information from Purdue Extension offers worksheets and concise, user-friendly instructions and explanations. Using these and similar tools to understand the financial workings of your farm is crucial to sustainability.

Debt Load

- 24. How much was spent on interest payments for the farm last year? \$ _____

F. Quality of life

No farm is sustainable if the farmers are not enjoying their work. Sometimes rearranging the workload can improve the satisfaction of everyone concerned, as well as improving the productivity of the farm. This is because those who are well suited to a task will pay more attention to it, be more efficient, and take more pride and care in their work. Forming relationships with your local 4-H clubs and FFA chapters may be beneficial. It is a way to introduce young people to small ruminant production, and you can make contacts with youths who may be willing to help on your farm. The following questions are to help determine the best division of work for your farm.

YES NO

1. Who does most of the management of the sheep or goat enterprise? _____
2. What other responsibilities does this person have? _____
3. What times of the year are most demanding from a labor standpoint? _____

4. Is there enough labor available at all times of the year? If not, can you think of a way to relieve the pressure? _____

5. What would make the enterprise or the whole farm more efficient regarding labor? _____

6. Do the persons involved in the care of the animals like to work with sheep or goats?
7. List the strengths of each person involved in the farm work. _____

8. Are there tasks assigned to the person best suited for the job?
9. Can all tasks be performed safely?
10. Have each person involved in the farm write down his or her favorite tasks or season (for example, lambing season) and also their least favorite (perhaps cleaning out the barn). In some cases, a shift in responsibilities may be called for so that everyone can work in areas they enjoy. Fitting the person to the work is one way to improve morale and efficiency, and may ensure better work and, therefore, a better-kept farm.
Favorite Job: _____

Most Disliked Job: _____

Notes on possible adjustments to job assignments: _____

11. If your minor children are part of your labor force, consider whether their responsibilities should be increased or decreased. How could this influence your operation in the next five or ten years? _____

12. Do you know the farm labor laws in your state?
13. Do you have a farm liability policy? (Talk with your agent to be sure.)
14. What arrangements can you make for care of the farm when you are absent? _____

15. List at least one teenager or college student who could be hired to help with physically demanding work, such as foot trimming, manure handling, or shearing. _____

16. List at least one teenager or college student who could be hired to help at peak labor times, such as lambing or kidding. _____

Total yes answers _____ Total no answers _____
Enter these numbers on the Farm Action Plan, pg. 28

G. Areas to improve

List here any aspects of livestock, forages, marketing, records, or enjoyment of life that need to be improved. Which of these are most important in increasing the sustainability of your farm? What additional information do you need to achieve these improvements? _____

See the Farm Action Plan, page 28, for help in prioritizing and in finding resources.

V. Systems Management

A. Timing

By changing the time of lambing or kidding, you change the demands on the system. Moving the lambing or kidding date one month later (say, from February to March) will reduce the amount of purchased feed needed and change the stocking rate for the whole summer, but it may also result in a lower price received for market stock. All these factors, and more, must be weighed in order to make a decision about the best time to have animals born.
.....

1. How do you decide when to begin lambing or kidding? (check all that apply)

- Weather at time of lambing or kidding
- Pasture availability
- Time of specialty markets
- Expected price at marketing time
- Cost and/or availability of hay and grain
- Animal growth needed for target market-weight
- Buck or ram decides

2. List the approximate dates when you typically:

- a) Increase nutrition prior to breeding; flushing _____
- b) Begin breeding _____
- c) Increase nutrition prior to lambing or kidding _____
- d) Begin lambing or kidding _____
- e) Wean stock _____
- f) Sell young stock _____
- g) Reseed pastures _____
- h) Fertilize _____
- i) Lime pastures _____



Using the previous information, you may work out a rough calendar showing the times of greatest feed requirements. This calendar can then be used in conjunction with forage availability data to work out changes to improve the “match” between forage availability and animal needs.

Current Plan

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
FN												
FA												
\$ In												
\$ Out												

KEY: FN= forage needed (consider number of mature animals, number of young, stage of production)
 FA= forage availability (high, medium, low)
 \$ In= months when animals are sold; may estimate receipts
 \$ Out= months when feed must be purchased; may estimate cost

A quick way to get a picture of this is to use colors and shade the FN boxes during the months when you NEED the most forage; then shade the FA boxes during the months when you HAVE the most forage. Then think through how this works out. Do you make hay during months of high forage availability? Is that enough to feed your animals all winter? How much money do you need to spend on supplemental feed with your current system? How much money do you make on products sold with your current system? Do you consider when to reseed and fertilize in order to get timely forage production?

Now, imagine changing your lambing or kidding season by moving it six or eight weeks later (or earlier), and do the same exercise. Which season fits your forage resources better? Which one results in the best expected profitability?

Potential Plan

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
FN												
FA												
\$ In												
\$ Out												

Figure the approximate cost of supplemental feed, and note which months you’ll need to purchase feed. Then figure the price you expect to get per pound of milk or meat, multiplied by the number of pounds you expect to sell, and write in those figures for the months when you plan to sell products. Time spent in thinking through various scenarios of timing and marketing may be the most profitable time you spend in managing your sheep or goat farm.

B. Coordinating enterprises

What other enterprises do you run on your farm? Sheep and goats can fit well with many other enterprises, including beef cattle, field crops, and vegetables. Diverse enterprises can improve cash flow and stability, make better use of land and labor, and increase profitability. The trick is to keep the farm manageable, and to keep labor use in line with how much each enterprise contributes to farm income. That is, more profitable enterprises should get more of the manager's attention and time. Allowing a minor enterprise to detract from a major one can reduce farm sustainability, unless the minor one has the potential to return enough profit to pay for the labor. Even if sheep or goats are the sole enterprise, you may diversify your farm by selling more products (especially value-added items) from the sheep or goats. Use these questions to explore your whole farm operation while planning the future use of your resources.

.....

YES NO

1. Do your enterprises and management style match your stated goals? (see pg. 7)
2. What enterprises are you currently managing? _____
3. What products are sold from your farm? _____
4. Checking your financial records, which enterprise or which products have proved most profitable in the past? _____
5. Which have the most potential for growth? _____
6. Which are most demanding in terms of labor? _____
7. Which require the most capital throughout the year? _____
8. Which require the most land? _____
9. Considering all the above, which enterprise do you feel should get the most management attention? _____
10. Which enterprises are most enjoyable? _____

What benefits does each of your enterprises bring to the farm as a whole? (Think about forage use, one enterprise using waste from another, better use of labor, marketing advantages, cash flow, balancing risks, and any other ways in which each enterprise complements the farm.) _____

** Note here any ideas about improvements to the whole farm, particularly about ways to make better use of the farm resources. _____

VI. Conclusion

After answering the preceding questions, you should have a good idea of improvements that you need to make to be more sustainable. Use the Farm Action Plan on the following page to tabulate the number of “yes” and “no” answers in each section and then to rank the categories by priority. Which area needs attention first? Another way to think of this is to ask, “what is the ‘weak link’ in our farm?” A large number of “no” answers in a particular section should point to the weak link for you.

However, the questions are not weighted; some “no” answers are of relatively minor importance. Therefore, the Action Ranking column is for prioritizing. You may want to highlight several lines with a large proportion of “no” answers, then decide which is the weakest link, and number it “1.” The Action Plan column in the table provides a small space for notes or to write the first step in improving a troublesome area.

Finally, the Information Resources column will list a few numbers corresponding to resources listed in Appendix C. These resources may be helpful as you take steps toward improving the sustainability of your farm.



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Edited by Paul Williams
Formatted by Ashley Rieske

Farm Action Plan

- 1.) Count and record the number of “yes” and “no” answers in each category.
- 2.) Rank the areas that need improvement in the order of importance (1 being most important)
- 3.) See numbered references in the Resources section for information. A–ATTRA Publication, B–Book, W–Website

Subject Area	Totals		Action Ranking	Action Plan	Information Resources
	Yes	No			
A. Forages					A9-A15, B15, B16, W4, W6, W39
1. Inventory					A9, W2, W6
2. Utilization					A10-A15, W12
B. Livestock					A1-A6, B1-B24, W1-W40
1. Nutrition					A10, A11, B16, B17, W4, W12
2. Health					A7, A8, B2-B4, B17, B19-B22, W29, W30, W41
a. observation					A3, B4, W29
b. parasites					A7, B1, B2, W12, W40
c. sanitation					A4, B17, B23, W2, W23
d. predator control					A8, B21, W3, W4
e. reproduction					B1, B3, B13, B17, W4, W13, W26
3. Breeding & Selection					A1-A6, B1-B16, W5
C. Marketing					A16-A23, B13, B14, B18, W18, W19
D. Records					B18, W7-W9
E. Economics					B15, B18, W7-W9
F. Quality of Life					A19, B16, B18, W9

Appendix A

RESOURCE ASSESSMENTS

I. ASSESSMENT OF INDIVIDUAL PASTURES

Routine pasture assessment can be used effectively as a feed budgeting process as well as an evaluation of how well your grazing program is working and how individual pastures (paddocks) should be managed. Individual pastures should be regularly evaluated to determine short-term management decisions, such as grazing pressure, fertility needs, forage availability within a short time span, potential for hay production, etc. Pasture assessment can be as important to your operation as animal evaluation (and economically, may be more important). Each pasture should be assessed at various times of the year. Additionally, when assessing a pasture, evaluate how previous management and use over time has influenced the pasture.

What are your pasture management goals? _____

Do you need to make better-quality forage available, which might be accomplished with haying earlier or using better grazing practices? _____

Do you know how individual pastures rank in productivity? _____

Are there spots of bare ground within pastures? _____

Do you have any erosion problems? _____

What changes in plant species are occurring? _____

Are these changes desirable or undesirable? _____

Is the pasture grazed fairly uniformly or are there areas of spot grazing? _____

Is there adequate but not excessive residue in the pasture? _____

Is the residue decomposing properly or is it thick enough to contribute to lack of seedling development of other species, such as clover? _____

Are the animals doing a good job of controlling the edible weeds, such as ragweed, when vegetative? _____

Which weeds or brush are not being controlled by grazing? _____

Are there compaction or pugging problems? _____

Could a change in water/mineral feeder location or the shape of pasture impact the grazing pattern? _____

Is wildlife habitat appropriate? _____

Is water runoff excessive, especially on slopes? _____

Do you need more forage, which might be gained through an application of fertilizer or a longer rest period? _____

Are pastures resting long enough to allow proper plant regrowth and replenishment of root reserves? _____

Are there areas of pastures which need fertilizer and other areas which don't? _____

Which field areas dry out first, second, and last under drought conditions? _____

Do you have a plan for which pastures are used at various times of the year? _____

Do you drive on pastures, which may retard pasture growth and create compaction problems? _____

II. ASSESSMENT OF SOILS

Soil is the natural resource foundation of any farm. Proper management of the soil is the basis for managing the plant-animal interface necessary for a sustainable livestock farm. Whole farm planning includes assessment of soil characteristics. First, study how everyday management influences nutrients, moisture levels, and tilth. This is the basis for decisions on fertility and grazing, which will affect species diversity and erosion problems. It is important to understand where your quality soil is as well as how to improve the quality of all your soil. A nutrient management plan can be used to determine sources of nutrients that can improve the farm's productivity at minimum costs.

- _____ Do you have soil maps of your farm and understand the productivity index of each soil type?
_____ Do you have specific problems to address, such as fragipans, poor drainage, compaction?
_____ What is the microbial activity in your soil? _____ What does the soil smell like? _____
_____ What is the tilth? _____ What does a handful feel like? _____
_____ Do you have a nutrient management plan for each pasture? _____
_____ When was your last soil test? _____
_____ What is soil pH, salinity and sodium (Na) saturation? _____
_____ Do you routinely use lime? _____
_____ What is the organic matter level in your pastures/fields? _____
_____ How deep is the dark surface layer? _____
_____ Is it less than the natural undisturbed soils in your area? _____
_____ How many days does it take grass or crops to exhibit drought stress? _____
_____ How hard are earthworms to find? _____
_____ Is there evidence of earthworm activity such as castings on the surface? _____
_____ How fast do manure piles and forage thatch degrade? _____
_____ Are any plants yellow, spotty or purple-colored? _____
_____ Do you have any soil nutrient deficiencies or imbalances that impair forage and animal production?

_____ Do you have considerable variation of productivity level and nutrient level within pastures? _____

_____ Are soil fertility levels adequate to meet forage production targets? _____
_____ Are forage production targets too high, leaving inputs that are undesirable for environmental or economic reasons? _____
_____ Would a change in fencing allow better use of pastures based on productivity of soil? _____
_____ Are any erosion problems due to a lack of water flow control, lack of adequate cover or lack of infiltration? _____
_____ Do you have soil compaction problems in any fields? _____
_____ How long does it take for standing water to seep in? _____
_____ Do you regularly sample soil of individual fields or soil types? _____



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III. ASSESSMENT OF WATERSHED

Every farm is part of a watershed. Water flows onto the farm and leaves the farm. What happens in the process is the responsibility of the farm owner and can have an impact on the water quality downstream as well as influencing the soil erosion problems on the farm. An understanding of the geological formations of the farm may assist in evaluating water flow and managing the water quality.

- _____ What are the water drainage patterns into and from your farm? _____
- _____ Are there litter banks (debris piles, usually wood) present anywhere on your land? _____
- _____ How efficient are you in retaining water on your farm and in your soils? _____

Riparian areas are the edges of streams, wet weather creeks, ditches, or area where water flows through at various times of the year. Management of these areas can have an impact on erosion and water quality.

- _____ Do you have major riparian areas, with flowing water in them most of the time? _____
- _____ Do you have riparian areas with large amounts of water at limited times during the year? _____
- _____ Do you have a management plan for your riparian areas? _____
- _____ Does your plan allow livestock frequent, limited access to help manage the vegetation of riparian areas? _____
- _____ Are riparian areas managed for wildlife habitat? _____
- _____ Do you have buffer zones adjacent to the riparian areas? _____
- _____ Are farm ponds full of algae? _____
- _____ Considering your whole farm as a watershed, do nutrients that contribute to poor water quality leave your farm? _____
- _____ Do you time your fertilizing or spreading of litter/manure to prevent runoff of nutrients? _____
- _____ Do aquatic organisms downstream indicate good water quality? ____ Has this changed? _____
- _____ Do you use pesticides/herbicides tactically for localized infestation? _____
- _____ If using poultry litter or other manures, do you test soil to monitor nutrient management of individual pastures? _____
- _____ Does your soil absorb and retain rainfall? _____
- _____ Is the vegetation adequate to allow water penetration into the soil and prevent excessive water flow? _____
- _____ Are some areas overgrazed to the extent that water flow is excessive? _____
- _____ Do you have an understanding of the nutrient flow on your farm (inputs and outputs) and know what percentage retained on the farm? _____



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Appendix B

DISEASES IN FLOCK OR HERD

What are the main health problems and diseases in your herd or flock? Get help from your veterinarian in learning to prevent them as much as possible. See Appendix C for resources to help you learn more about nutrition and about how to improve the health of your flock or herd.

Nutritional

- Acidosis
- Bloat
- Ketosis
- Milk fever
- Listeriosis
- Polio
- Enterotoxemia Type C
- Enterotoxemia Type D (over-eating disease) Mineral Imbalance
- Copper (Cu)—Copper Toxicity (sheep)
- Selenium (Se)—White Muscle Disease
- Zinc (Zn)
- Magnesium (Mg)—Grass Tetany
- Potassium (K)
- Calcium: Phosphorus (Ca:P) — Milk fever, urinary calculi

Parasites

- External
- Mange
- Keds
- Ticks
- Lice
- Wool Fungus
- Internal Parasites
- Coccidia
- Nematodes

Respiratory

- Pneumonia

Genetic

- Spider Syndrome (sheep)
- Over- or under-shot jaw
- Extra teats
- Deformities

Bacterial

- Footrot
- Enterotoxemia—Type C or D
- Pinkeye
- Tetanus
- CL—Caseous Lymphadenitis
- Johne's

Viruses/Other

- OPP—Ovine Progressive Pneumonia (sheep)
- CAE—Caprine Arthritis Encephalitis (goats)
- CE—Contagious ecthyma (soremouth)
- Scrapie

Abortions

- Toxoplasma
- Campylobacter
- Chlamydia
- Leptospirosis
- Stress
- Physical or Mechanical Trauma
- Unknown

Reproductive

- Brucellosis
- Dystocia
- Prolapse (vaginal, uterine, rectal)
- Epididymitis

Other

- _____
- _____
- _____
- _____

Appendix C

SMALL RUMINANT RESOURCES

Following are many sources of information helpful to producers of small ruminants. Further resources may be available at your county extension office, through your state land grant university, or through your local library.

ATTRA PUBLICATIONS

The following publications are available from ATTRA. These publications are free of cost. Copies can be requested by calling 800-346-9140 or at our website: <http://www.attra.ncat.org>

I. Livestock

A1) Dairy Sheep

This publication offers additional information resources and includes a quick overview of production considerations.

A2) Sustainable Goat Production: Meat Goats

Offers information specific to meat goat production, and should be read after the companion publication, Goats: Sustainable Production Overview. This document discusses selection, breeds, marketing, feeding, profitability, and other topics. It includes sample budgets, case studies of farms in Montana and Missouri, and many further resources.

A3) Goats: Sustainable Production Overview

Discusses considerations of raising goats on pasture, including grazing, supplemental feeding, health concerns, reproduction, and management, as well as marketing and profitability.

A4) Dairy Goats: Sustainable Production

This publication is intended for those interested in starting a commercial goat dairy. It discusses the five major considerations to be addressed in planning for dairy goat production: labor, sales and marketing, processing, regulations, and budgeting and economics. It includes production information specific to dairy goats, including choosing breeds and selecting stock.

A5) Sustainable Sheep Production

This publication takes a look at breed selection, controlled grazing, pasture lambing, alternative health management, and innovative marketing of meat and wool products.

A6) Small Ruminant Sustainability Checksheet

This checksheet is designed to stimulate critical thinking when evaluating a farm that produces sheep or goats. The sustainability of a farm depends on many factors involving farm management, use of resources, and quality of life. The questions in the checksheet are intended to stimulate awareness rather than to rate management practices. Use this guide to define areas in your farm management that might be improved, as well as to identify areas of strength.

II. Health

A7) Integrated Parasite Management for Livestock

With parasites developing resistance to all dewormers and more farmers producing livestock by "natural" methods, there is interest in looking for alternative ways to managing parasite problems. This publication offers a systems approach to assess and manage the soil, forages, and animals to decrease internal parasites and their effects.

A8) Predator Control for Sustainable & Organic Livestock Production

This publication focuses primarily on the control of coyotes and dogs, which are the main causes of livestock lost to predation, through management practices, such as fencing and secure areas, and the use of guard animals.

III. Forages

A9) **Assessing the Pasture Soil Resources**

How to take a soil sample and an easy way to assess soil biological activity and water infiltration. Assessment sheet included.

A10) **Matching Livestock and Forage Resources**

How to manage pastures and grazing animals to make more profitable use of the farm's resources.

A11) **Meeting the Nutritional Needs of Ruminants on Pasture**

Impact of grazing management on nutrition, supplemental feeding on high quality pasture, feed profiling, feed budgeting, matching livestock and forage resources for efficient pasture use.

A12) **Multispecies Grazing**

Brief overview of why multispecies grazing is beneficial, as well as considerations for management.

A13) **Paddock Design**

Basics of paddock design, considerations in fencing and water technology, enclosures.

A14) **Rotational Grazing**

How to manage pastures and grazing animals to make more profitable use of the farm's resources.

A15) **Sustainable Pasture Management**

Managing fertility and pests, grazing systems, conserved forages, maintaining productivity, additional resources.

Marketing

A16) **Alternative Meat Marketing**

Comprehensive introduction to producer marketing of meat products. Pitfalls, producing and packaging for quality and consistency, direct marketing options, value-added products, food safety and labeling, niche markets, resources.

A17) **Direct Marketing**

This publication on direct marketing alternatives—with emphasis on niche, specialty and value-added crops—features many farm case studies, as well as information on enterprise budgets and promotion/publicity. A new section discusses implications of Internet marketing and e-commerce for agriculture.

A18) **Evaluating a Rural Enterprise**

This publication is for people who already live in rural areas and want to add new enterprises to their operations. Its sections guide the reader in evaluating resources, assessing finances, gathering information, and marketing. It also discusses choosing an "alternative" enterprise and offers further resources.

A19) **Holistic Management**

Introduction to holistic management. Holistic management is a decision-making framework that assists farmers and others in establishing a long-term goal, a detailed financial plan, a biological plan for the landscape, and a monitoring program to assess progress toward the goal. Holistic Management helps managers ask the right questions and guides them in setting priorities.

A20) **Keys to Success in Value-Added Agriculture**

This publication presents, largely in the words of fourteen farmers, important lessons they learned in adding value to farm products and marketing directly to consumers.

A21) **Marketing Strategies for Farmers and Ranchers (SAN publication)**

A22) **Overview: Adding Value to Farm Products**

This publication introduces the concept of value-added farm products, explains a few of the nuts and bolts for starting a food processing business, and provides resources for additional information.

A23) **Value-Added Dairy Options**

Considerations for those who want to increase profitability by bottling milk, making cheese or yogurt, or doing some other processing of their milk. This publication discusses regulations and organic milk certification and offers resources for further information. Request through 800-line since enclosures are available only with hard copy.

BOOKS

The following books offer useful information on a wide variety of production and marketing issues. These titles may be available through your local library, or may be requested through inter-library loan. Most of these books will be worthwhile purchases for individuals new to sheep or goat production. Previewing the books at a library is the best way to select the titles that will be most useful to you.

Used copies may be available through on-line services or through other booksellers. Many suppliers of sheep and goat equipment also offer books in their catalogs, and titles are available from the publishers as well.

I. Goats

B1) **Meat Goats: Their History, Management, and Diseases.**

Mitcham, Stephanie and Allison Mitcham. 2000. Crane Creek Publications, Sumner, IA. 264 p.

A well-written combination of the authors' personal experiences raising goats, veterinary knowledge (Stephanie Mitcham is a DVM), and a compilation of information from other experts in the field. Includes information about handling systems (hard to find elsewhere).

B2) **Natural Goat Care**

Coleby, Pat. 2001. Acres U.S.A, Austin, TX. 371 p.

Fascinating book; Australian author pays much attention to nutrition and to maintaining health organically. Call 1-800-355-5313.

B3) **Goat Medicine**

Smith, Mary, and David M. Sherman. 1994. Lippincott Williams & Wilkins. Baltimore, MD. 620 p.

This book is recommended as a useful gift for a veterinarian. Very scientific; some of the terminology will only be understood by a veterinarian. Chapter 1 (Fundamentals of Goat Practice) is very helpful to producers as well as veterinarians. Chapter 20 (Herd Health Management and Preventive Medicine) is also very useful to producers.

B4) **Goat Health Handbook: A Field Guide for Producers with Limited Veterinary Service**

Theford, T.R. 1983. Printed in collaboration with Agricultural Experimental Station, University of Arkansas. 123 p.

Available from:

International Winrock Publication Sales

P.O. Box 9363

Arlington, VA 22209-0363

B5) **Storey's Guide to Raising Dairy Goats**

(revised and updated; originally called "Raising Milk Goats the Modern Way")

Belanger, Jerry. 2001. Storey Books, Pownal, VT. 288 p.

Very good general book for producers of dairy goats.

B6) **Goats and Goatkeeping**

Thear, Katie. 1988. Merehurst Press, London. 176 p.

Very interesting book for goat producers, geared for the small farm. Covers milk, meat, and fiber. Practical and concise, very similar to The New Goat Handbook, but with added detail.

B7) **The New Goat Handbook**

Jaudas, Ulrich. 1989. Barrons Educational Series, Inc., Hauppauge, NY. 93 p.

A colorful book with many photographs and line drawings. Very interesting and informative.

- B8) **Goat Husbandry**
Mackenzie, David. 1967. Faber and Faber Ltd., London. 368 p.
An older book, can be found in libraries and from sellers of used books. British terminology, very good reading. A classic.
- B9) **Angora Goats the Northern Way**
Drummond, Susan Black. 1988. 2nd edition. Stony Lonesome Farm, 1451 Sisson Rd., Freeport, Michigan, 49325. 203 p.
- B10) **Raising Goats for Milk and Meat**
Sinn, Rosalee. 1995. Raising Goats for Milk and Meat: A Heifer Project International Training Course. Heifer Project International, Little Rock, AR. 140 p.
Written for persons with limited resources, this is a very practical book. Available through Caprine Supply (among other sources).
- B11) **The Meat Goats of Caston Creek**
Tomlinson, Sylvia. 1999. Redbud Publishing Co., Edmond, OK. 181 p.
Personal experiences of the author.
Redbud Publishing Co.
P.O. Box 4402
Victoria, TX 77903
361-572-8898
- B12) **Your Goats: A Kid's Guide to Raising and Showing**
Damerow, Gail. 1993. Storey Books, Pownal, VT. 172 p.
Gail Damerow writes very good books; this one is easy to understand and very informative. Not just for kids.

II. Sheep

- B13) **Storey's Guide to Raising Sheep**
Simmons, Paula, and Carol Ekarius. 2001. Storey Books, Pownal, VT. 390 p.
This book is a very useful resource, covering many aspects of raising and marketing sheep and their products. Enjoyable to read, helpful to beginners and to experienced producers.
- B14) **Turning Wool into a Cottage Industry**
Simmons, Paula. 1991. Storey Books, Pownal, VT. 188 p.
This book is a big help to those who want to use fiber.
- B15) **More Sheep, More Grass, More Money**
Schroedter, Peter. 1997. Ramshead Publishing Ltd. Moosehorn, Manitoba. p.112
Personal experiences of the author, emphasizing the need to make a profit with the sheep enterprise and giving examples of how to cut costs and increase profits. Emphasis on grazing management. Very practical.

III. Sheep and Goats

- B16) **Small- Scale Livestock Farming: A Grass Based Approach for Health, Sustainability, and Profit.**
Ekarius, Carol. 1999. Storey Books, Pownal, VT. 217 p.
Not specific to any species of livestock; contains farmer profiles and quite a bit of holistic planning and economic information. Very complete in treatment of rotational grazing.
- B17) **Sheep and Goat Medicine**
Pugh, D.G. 2002. W.B. Saunders Company, Philadelphia, PA. 468 p.
A great gift for a veterinarian. A wealth of information for producers and for veterinarians. Knowledge of veterinary terminology will be helpful in using this book.

- B18) **Building a Sustainable Business: A Guide to Developing a Business Plan for Farms and Rural Business**
DiGiacomo, Gigi, Robert King, and Dale Nordquist. 2003. Minnesota Institute for Sustainable Agriculture, Saint Paul, MN, and the Sustainable Agriculture Network, Beltsville, MD.

Business planning is an important part of owning and managing a farm. A business plan helps farmers demonstrate that they have fully researched their proposed enterprise; they know how to produce their product, how to sell what they produce, and how to manage financial risk. This comprehensive workbook will guide farmers through every step of the process in creating a business plan. Includes many examples from existing farms. This workbook is a bargain. Available for \$14.00 + \$3.95 S/H by calling 802-656-0484 or 800-909-6472. Publication can also be viewed at <<http://www.misa.umn.edu/publications/bizplan.html>>.

- B19) **A Veterinary Guide for Animal Owners**

Spaulding, C.E. 1976. Rodale Press, Inc., Emmaus, PA. 420 p.

Very readable and practical book, with chapters for cattle, horses, hogs, sheep, goats, dogs, and cats.

- B20) **Keeping Livestock Healthy**

Haynes, N. Bruce. 1992. Storey Books, Pownal VT. 322 p.

Covers cattle, horses, swine, sheep and goats. A good book to educate about diseases in general; emphasis on prevention. Most attention is given to large animals.

- B21) **...May Safely Graze: Protecting Livestock Against Predators**

Fytche, Eugene. 1998. Published by the author. 103 p.

Available from:

Eugene Fytche

R.R. #1,

Almonte, Ontario. KOA 1AO.

This book explores how to identify and quantify the predator problem, and includes information on many methods to control the problem, including guard animals, fencing, and management.

- B22) **The Complete Herbal Handbook for Farm and Stable**

Bairacli Levy, Juliette de. 1984. Faber and Faber, Boston, MA. 383 p.

Very interesting book, offering a different perspective on prevention of disease and production of healthy animals without using conventional medicine.

- B23) **The Dairy Practices Council Small Ruminant Guidelines**

Guidelines for the Dairy Industry Relating to Sanitation and Milk Quality for Small Ruminant Operations. The Dairy Practices Council, 51 East Front Street, Suite 2, Keyport, NJ 07735. Telephone 732-264-2643. <<http://www.dairypc.org>>. Set: \$70.00.

A set of 17 Guidelines relating to small ruminants; each may also be purchased separately. Very good technical information for commercial producers of dairy sheep and goats.

- B24) **Sheep Housing and Equipment Handbook**

Hirning, Harvey J., Tim C. Faller, Karl J. Hoppe, Dan J. Nudell, and Gary E. Ricketts. 1994. MidWest Plan Service, Ames, IA. 90 p.

Web Sites

I. General

- W1) **USDA**

www.usda.gov

- W2) **NRCS**

www.nrcs.usda.gov

- W3) **ATTRA—National Sustainable Agriculture Information Service**

www.attra.ncat.org



- W4) **Maryland Small Ruminant Page**
www.sheepandgoat.com
- W5) **Oklahoma State University**
www.ansi.okstate.edu
- W6) **Forage Information System, Oregon State University**
<http://forages.orst.edu/>
- W7) **Farm Financial Standards Council Guidelines**
www.ffsc.org/html/guidelin.htm
- W8) **Measuring and Analyzing Farm Financial Performance, Purdue Extension**
www.agecon.purdue.edu/extension/programs/fbm21/Ec712entry.htm
- W9) **A PRIMER for Selecting New Enterprises for Your Farm, University of Kentucky Extension**
www.uky.edu/Ag/AgEcon/pubs/ext_aec/ext2000-13.pdf

II. Goats

- W10) **Cyber Goats**
www.cybergoat.com
- W11) **Goat Connection**
www.goatconnection.com
- W12) **Langston University-E (Kika) de la Garza American Institute for Goat Research**
www2.luresext.edu/goats/index.htm
- W13) **Fort Valley State University**
Georgia Goat Center Publications- www.ag.fsvu.edu/html/publications/GoatCenter/Publications.htm
Dairy Goat- www.aginfo.fvsu.edu/publicat/commoditysheets/fvsu005.htm
Meat Goat- www.aginfo.fvsu.edu/publicat/commoditysheets/fvsu006.htm
- W14) **North Carolina State University – Extension Animal Husbandry (see Meat Goat)**
www.cals.ncsu.edu/an_sci/extension/animal/eahmain.html
- W15) **Florida A & M – Goat Program**
www.famu.edu/acad/colleges/cesta/goat_program.html
- W16) **The University of Maryland’s National Goat Handbook**
www.inform.umd.edu/EdRes/Topic/AgrEnv/ndd/goat
- W17) **University of California Cooperate Extension**
www.vetmed.ucdavis.edu/vetext/INF-GO_CarePrax2000.pdf
- W18) **Empire State Meat Goat Producers Association**
www.esmgpa.org/index.cfm
- W19) **Meat Goat Home Study Course, Penn State Extension**
<http://bedford.extension.psu.edu/agriculture/goat/Goat%20Lessons.htm>
- W20) **Meat Goat Program, Virginia State University**
www.vsu.edu/ext/smallruminantprogram/meatgoat/index.htm
- W21) **Boer and meat goat information**
www.boergoats.com/

III. Sheep

- W22) **National Sheep Improvement Program**
www.nsip.org
- W23) **American Sheep Industry Association**
www.sheepusa.org
- W24) **Sheep Extension Program, Farm Flock Sheep Production Handbook, Montana State Univ.**
http://animalrangeextension.montana.edu/Sheep/sheep_pub.htm
- W25) **Sheep Resources, Virginia Polytechnic Institute & State University Extension**
www.ext.vt.edu/resources
- W26) **Sheep Information - Cornell University STAR System**
www.ansci.cornell.edu
- W27) **Sheep Publications, University of Nebraska**
www.ianr.unl.edu/pubs/sheep
- W28) **Sheepnet, University of Illinois**
<http://sheepnet.outreach.uiuc.edu/>

IV. Sheep and Goats

- W29) **Association of Small Ruminant Practitioners**
<http://aasrp.org>
- W30) **Electronic Zoo/Net Vet Veterinary Resources, AVMA Network, Small Ruminants**
<http://netvet.wustl.edu/smrum.htm>
- W31) **Sheep and Goat Extension and Research, Texas A&M University**
<http://sheepandgoats.tamu.edu>
- W32) **Northeast Sheep and Goat Marketing Program, Cornell University**
www.sheepgoatmarketing.org/sgm/index.html
- W33) **Clinton County Sheep and Goats, Cornell Cooperative Extension**
www.cce.cornell.edu/clinton/ag/ag-production.html
- W34) **Virginia Livestock Marketing Services**
www.vdacs.state.va.us/livestock/index.html
- W35) **Animal Agriculture Alliance**
www.soundagscience.org/
- W36) **National Institute for Animal Agriculture**
www.animalagriculture.org/
- W37) **Livestock for Landscapes**
www.livestockforlandscapes.com
- W38) **BEHAVE- Behavioral Education for Human Animal Vegetation and Ecosystem Management**
www.behave.net

W39) **National Scrapie Education Initiative**

www.animalagriculture.org/scrapie

W40) **FAMACHA Information**

www.vet.utk.edu/departments/LACS/pdf/FAMACHA.pdf

W41) **Pipestone Vet**

www.pipevet.com

CD-ROMs

Multi-Species Grazing and Leafy Spurge

TEAM Leafy Spurge. 2002.

USDA-ARS Northern Plains

Agriculture Research Laboratory

1500 North Central Avenue

Sidney, MT 59270

406-433-2020

www.team.ars.usda.gov

This CD provides a variety of useful information about using grazing as an effective, affordable, and sustainable leafy spurge management tool. It contains economic reports, posters, photos, a PowerPoint presentation, extensive bibliography, and more. A great resource.

GOATS! For Firesafe Homes in Wildland Areas

Kathy Voth

6850 West County Road 24

Loveland, CO 80538

www.livestockforlandscapes.com

This CD/Handbook is designed to provide fire managers, communities, and livestock owners information on using goats to reduce fire danger. It includes expected results, and the "hows" of managing animals, choosing treatment sites, developing contracts for services, estimating costs, and starting projects. This is a great CD with some excellent videos.

Magazines

Goat Rancher

Terry Hankins, editor and publisher

731 Sandy Branch Road

Sarah, MS 38665

888-562-9529

www.goatrancher.com

Sheep! Magazine

W11564 Hwy. 64

Withee, WI 54498

www.sheepmagazine.com

The Shepherd

5696 Johnston

New Washington, OH 44854-9736

419-492-2364

\$25.00 per year. (12 issues)

Meat Goat Monthly

Ranch Publishing

P.O. Box 2678,

San Angelo, TX 76902

915-655-4434

www.ranchmagazine.com/mgn.html

\$25 per year. (12 issues)

The Goat Magazine

9250 New Salem Road

Pleasantville, OH 43148-9764

740-468-3000

866-221-GOAT (4628) (toll free)

www.goatmagazine.com

The Stockman Grass Farmer

P.O. Box 2300
 Ridgeland, MS 39158-2300
 601-853-1861
 \$32.00 per year. (12 issues)

Small Farm Today

3903 W. Ridge Trail Road
 Clark, MO 65243-9525
 800-633-2535 (toll-free)
www.smallfarmtoday.com
 \$21.00 per year. (6 issues)

Spin Off

Interweave Press
 201 E. Fourth Street
 Loveland, CO 80537-5655
www.interweave.com
 \$24.00 per year. (4 issues)

Dairy Goat Journal

W11564 Hwy 64
 Withee, WI 54498
 \$21.00 per year or \$35.00 for two years. (bi-monthly)

Ranch and Rural Living

P.O. Box 2678
 San Angelo, TX 76902
 915-655-4434
 \$25.00 per year. (12 issues)

Countryside & Small Stock Journal

W11564 Hwy 64
 Withee, WI 54489
 800-551-5691
www.countrysidemag.com
 \$18.00 per year.

United Caprine News

P.O. Box 328
 Crowley, TX 76036
 817-297-3411
www.unitedcaprinenews.com
 \$22.50 per year.

Organizations

Dairy Sheep Association of North America (DSANA)

Contact: Carol Delaney
 c/o University of Vermont
 270 Main St.
 200B Terrill Hall
 Burlington, VT 05406
 Caroldelaney@uvm.edu
www.dsana.org

American Dairy Goat Association

209 West Main Street
 P.O. Box 865
 Spindale, NC 28160
 828-286-3801
www.adga.org/

American Meat Goat Association

www.meatgoats.com
 Marvin Shurley
 P.O. Box 1321
 Sonora, TX 76950
 915-387-6100
marvin@sonoratx.net

International Goat Association

HPI/IGA
 1015 Louisiana Street
 Little Rock, AR 72202
 501-907-2649
www.iga-goatworld.org

American Sheep Industry Association

6911 S. Yosemite St.
 Englewood, CO 80112-1414
 303-771-3500
www.sheepusa.org



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Suppliers

Caprine Supply

P.O. Box Y
3301 W. 83rd Street
DeSoto, KS 66018
913-585-1191
800-646-7736 (toll-free)
<http://www.caprinesupply.com>

Hoegger Supply Company

160 Providence Road
Fayetteville, GA 30215
800-221-4628 (toll-free)
www.hoeggergoatsupply.com

Sydell

46935 SD Hwy. 50
Burbank, SD 57010-9605
605-624-4538
800-842-1369 (toll-free)
www.sydell.com

Hamby Dairy Supply

2402 SW Water Street
Maysville, MO 64469-9102
800-306-8937 (toll-free)
www.hambydairysource.com

Billy Goat Gruff

P.O. Box 10
Dunnville, KY 42528
www.billygoatgruff.net

NASCO

901 Janesville Avenue
P.O. Box 901
Fort Atkinson, WI 53538-0901
800-558-9595 (toll-free)
www.nascofa.com

Jeffers Livestock Supply

P.O. Box 100
Dothan, AL 36302
800-JEFFERS or 800-533-3377 (toll free)
334-793-6257
334-793-5179 FAX
customerservice@jefferspet.com

Premier

800-282-6631 (toll-free)
www.premier1supplies.com

Pipestone Vet

P.O. Box 188
1300 Hwy 75 S.
Pipestone, MN 56164
800-658-2523 (toll-free)
www.pipevet.com

Ketchum Manufacturing Inc.

396 Berkley Avenue
Ottawa, Canada
613-722-3451
613-722-5612 FAX
www.ketchum.ca

Gallagher Animal Management Systems

Gallagher Power Fence, Inc.
130 W. 23rd Ave.
P.O. Box 7506
North Kansas City, MO 64116
800-531-5908 (toll-free)
816-421-2005
816-421-2009 FAX
www.gallagherams.com

Publishers

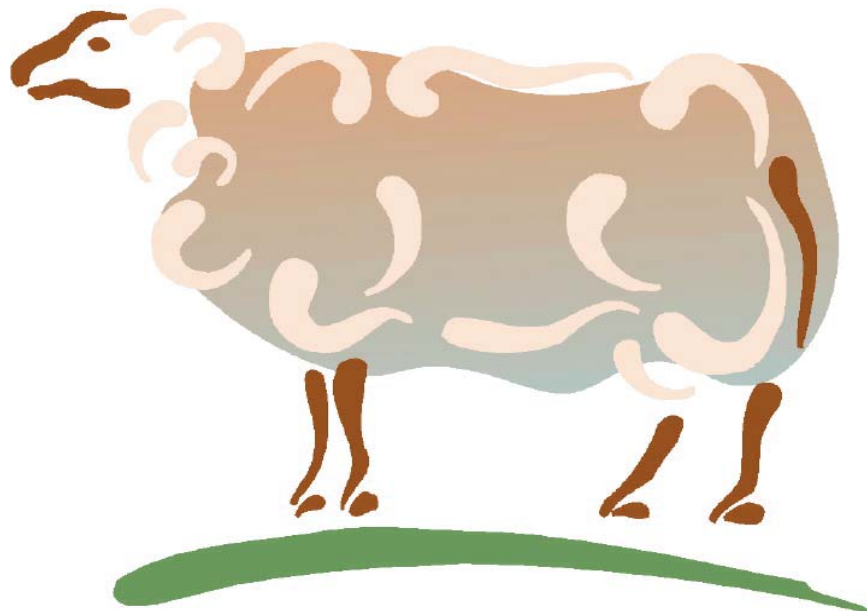
Storey Books

Available at your bookstore, farm store, or directly from Storey Publishing, Schoolhouse Road, Pownal, VT 05261, or by calling 800-441-5700 or visit the Web site, <www.storey.com>.

Barron's Books

May be ordered from your favorite bookstore or visiting the Web site <www.barronseduc.com> or by calling 800-645-3476.

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The electronic version of the Small Ruminant
Sustainability Checksheet is located at:

HTML

<http://www.attra.ncat.org/attra-pub/ruminantcheck.html>

PDF

<http://www.attra.ncat.org/attra-pub/PDF/ruminantcheck.pdf>

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