

# Sheep and Goat Basics for Hawaii

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Sheep and goats, also called small ruminants, have been a part of Hawaii’s cultural and physical landscapes for over two centuries. Flock numbers gradually fell during the 1900s, but the last decade has seen a strong resurgence in small ruminant production on both large ranches and homesteads. In addition to commanding a healthy market for cabrito and lamb, producers use these animals to meet multiple land management objectives: fire fuels reduction, weed management, brush control, and others. Truck crop, orchard, and other farmers are finding creative ways to integrate small ruminants into their operations for weed control and to diversify their agricultural portfolio.

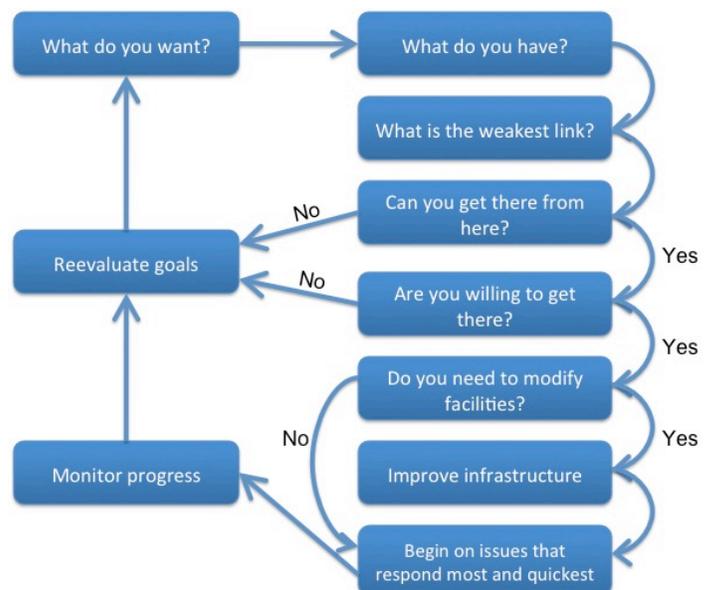
Meat from small ruminants is particularly popular among cultures from the Philippines, East Asia, Latin America, the Middle East, Africa, the Caribbean, and others. Individuals from these regions drive strong demand for goats sold on the hoof for home slaughter in Hawaii, while many restaurants are sourcing both local lambs and goats from USDA inspected slaughter facilities. Much of the demand peaks around religious holidays, graduations, weddings, and other celebrations.

This article is an appetizer for full extension publications in development. This brief will provide general guidelines and considerations for those interested in or currently raising goats and sheep on the commercial scale or for pleasure with particular attention to issues relevant to Hawaii. Each section is worthy of an entire publication, so please check the CTAHR publications webpage for the release of in-depth articles. Furthermore, this article supplements a host of good information readily available and referenced at the end. The information presented here is for educational purposes only, and please consult a veterinarian for any specific health management concerns or practices.

## Getting Started: Goals, Breeds, Space & Time

**Goals.** Any agricultural production system, whether for hobby or for profit, begins with a clear and explicit statement of your goals. In making production goals, start with the end in mind: If you had 10 to 15 market-ready goats today, what would you do with them? Specifically, who would you sell them to (i.e. What restaurant? Which individuals?)? What does the market want (e.g. Live animals? Carcass of 60-80lbs.?)? Can you meet this demand consistently in quantity and quality? Do you have adequate resources or are you willing to get them? Are you willing to invest and do what it takes to meet this market? Figure 1

Figure 1. Guide for setting goals (adapted from a graphic by Mark Thorne, see references).



can help guide you through the goal making process. For more on effective goal setting see [Goal Setting for Farm and Ranch Families](#) by Doye.

**Breeds.** For those just starting out in small ruminant production, as well as seasoned producers, selecting animals from breeds with traits suited to production in the tropics will greatly reduce headaches down the road. While individuals from many breeds and crosses of breeds can potentially do well, four particular goat breeds stand out and are well tested in Hawaii: Kiko, Spanish Meat Goat, Boer, and Tennessee Meat Goat. Of sheep, hair breeds were developed for tropical climates: St. Croix, Kathadin, Barbados black belly, or Dorper and their crosses are popular. Supply of breeding stock is somewhat tight in Hawaii as many producers are expanding, and bringing in livestock from the mainland can be both costly and risky. If you are beginning an operation, start small with a handful of animals purchased locally to uncover any surprises before making bigger commitments.

**Space & Time.** How much land do I need to raise goats or sheep, and how much time does their management take? The answer to these questions depends on many interacting factors, namely – how many animals you intend to market and their varying nutrition requirements, the quantity and quality of the pasture or feed throughout the year, and the efficiency of your management system. Beyond basic acreage considerations, an effective production system will address the type of management system (extensive free range, intensive rotational grazing, or dry lot), water needs, reliable feed supply or pasture improvements, breeding calendar, marketing, animal health needs throughout the production year, labor requirements, protection from predators, and capital resources. Adjustments to or uncontrollable fluctuations in any one of these areas affects each of the others in varying degrees. Which issues require your focus or priority will depend on your individual farm goals and your starting point. For the purposes of this article, plan your pasture or feed management based on the highest points of nutritional demand (birth and early lactation for dams, growth and finishing for market animals) and over-estimate to hedge against unexpected forage losses (drought or flood damage) or spikes in input costs. In general, pregnant and growing small ruminants eat 3-5% of their body weight on a dry feed basis everyday.

For a detailed description of grazing management planning and how to estimate forage production for determining stocking rates, see the CTAHR Extension publications [Foraging Behavior and Grazing Management Planning](#) (PRM-2) and [Stocking Rate: The Most Important Tool in the Toolbox](#) (PRM-4).

## Health Basics

Take the time to sit down with other sheep and goat producers and a veterinarian to develop an annual health management plan for your flock. Specific health concerns will vary by region and year to year despite best efforts. What follows are general considerations for health management in Hawaii. The key areas for maintaining healthy sheep and goats are:

- ▶ Biosecurity
- ▶ Immunity
- ▶ Parasite Control
- ▶ Hoof Care

**Biosecurity.** Prevention is the starting point for keeping your animals productive. As much as possible, keep a closed flock and limit new acquisitions to males or artificial insemination. If purchasing off-farm animals, keep an image of a healthy sheep or goat in your mind as you evaluate potential purchases. Figure 2 shows healthy goats: alert, active, tidy, and in good body condition relative to feed available. Keeping this image in mind will allow you to spot deviations from healthy in potential new purchases or among your flock. Also, bear in mind that sheep and goats share many diseases. Quarantine any new animals or animals returning from off-farm in a separate pasture, and monitor their health for at least 30 days. Practice good sanitation especially if lending out or borrowing equipment or vehicles.

**Immunity.** Immunity is the capacity to which an animal can resist disease. Livestock will acquire immunity naturally from their mothers via antibodies in colostrum (first milk) and from the infections they will encounter in life. Producers also artificially develop immunity in their flocks by vaccinating against important diseases. Consult with a veterinarian for specific protocols. In Hawaii, pay particular attention to clostridial diseases (clostridium types C and D and tetanus).



Figure 2. Healthy animals will be alert, active, tidy, and in good body condition relative to feed available.

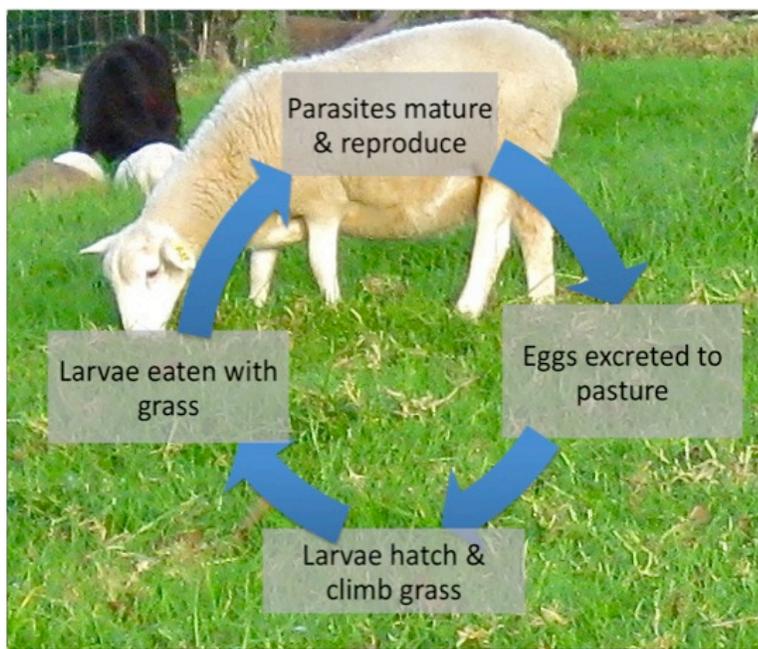


Figure 3. Generalized description of many internal parasite life cycles.

**Parasite Control.** There are two general classes of parasites: internal (worms) and external (ticks, lice, mange, flies, etc.). Of the two, internal parasites can be economically devastating in the tropics. In Hawaii, external parasites are less problematic, but wool breeds of sheep, especially in the wet parts of the islands, are susceptible to fly strike issues. Internal parasites impose substantial direct and indirect costs for producers. Worm resistance to pharmaceutical treatment is a growing problem worldwide, and alternative management methods are an active area of research in Hawaii and elsewhere. Regardless of your

specific system, controlling parasites should take an integrated pest management approach: chemical, biological, and cultural/management methods. In other words, coordinating strategic pharmaceutical treatment (e.g. FAMACHA system), pasture rotation, breed selection, and breeding for resistance and resilience are key to mitigating economic losses to worms. Figure 3 shows a life cycle of a generic internal parasite. Management approaches attempt to disrupt the cycle at different points.

**Hoof Care.** There are two types of important hoof disorders: foot scald and infectious foot rot. Foot scald is caused by one type of bacteria and is not passed to unaffected animals. Foot rot is caused by two bacteria, is highly contagious, and can have a higher economic impact than foot scald. Both diseases are favored by wet, anaerobic conditions often unavoidable during certain times of the year. Foot scald is identified by inflammation in between the toes, whereas foot rot will be evident with a strong smell, infection up the leg, or even sloughing off of the hoof. Isolate suspect animals and treat accordingly to prevent spread among the flock. Hoof care can reduce fecal and mud contact, which favors foot scald or foot rot. Overgrown hooves (Figure 4) can also indirectly reduce production as hobbled animals may not forage efficiently or will not breed. Normally, rocky conditions can be sufficient to maintain hooves, but many producers trim hooves with clippers.



*Figure 4. Overgrown hooves are often trimmed to reduce contact with mud and fecal matter and to increase foraging and reproductive efficiency.*

For more information on raising sheep and goats in Hawaii, please keep an eye out for upcoming CTAHR publications and contact any of the livestock extension agents in the State. We are also developing workshop modules for hands on training and education. Check the CTAHR webpage for upcoming workshops.

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