

# HOMESTEAD GOAT FARMING

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## History & Characteristics of Goats

Goats (and Sheep) were first domesticated approximately 12,000 ago (only dogs were domesticated earlier).

Uses: Meat, dairy, hides, fiber, brush removal, compost, draft, companionship, and possibly more.

There are 300 varieties of goats worldwide and a few breeds are common in the US

7 **dairy breeds** are common in the US: Alpines, Toggenburgs, Saanen, Oberhasli, LaManchas, Nubians (dual purpose meat) and Nigerian Dwarfs (dual purpose meat), Kinder (usually a cross between another dairy breed and a Nigerian – also dual purpose meat).

**Meat breeds** common in the US: Boer, Kiko, Spanish, Myotonic (Fainting Goats), and Pygmy

**Fiber breeds** (the notion of breed is looser because these names describe the type of fiber they grow): Cashmere, Angora, Cashgora (a cross of the other two types)

## Goats as Ruminants

Goats are browsers who prefer eating brush above the knee (not grazers like sheep that eat grass below the knee). Of course they will eat grass instead of starving and can grow accustomed to it. As ruminants, they have a digestive fermentation process which involves cud chewing between stages of fermentation. The goat's stomach has four chambers: 1) the *rumen* 2) the honeycombed *reticulum* 3) the *omasum* and 4) the *abomasum* (or true stomach). Fermentation occurs in the first 3 chambers.

## Basic Nutritional Needs

**Protein** legumes (alfalfa hay is a common source of protein)

**Roughage** cellulose (oat hay and grass hay can provide this with some carbohydrates and vitamins in addition to the roughage.)

**Minerals** usually given as a loose supplement or as a mineral block – also available in kelp meal.

Some important minerals like selenium can be given in an injection (BoSe is a brand name of an injectable selenium/vitamin E solution). Copper is also given in boluses.

## General Needs

**Pen & Shelter** A pair of goats need a minimum of a 15' x 15' (225 sq ft) with 3 half hour walks per week to keep in optimal physical health. More room in the pen and additional structures to climb would reduce the need for walks as the goats could get their minimal amount of exercise in the pen.

**Fencing, Feeders & Feed Storage** a minimum of 5 foot high fences for standard goats and 4 foot high for Nigerians will keep them from learning how to climb out, which they could eventually do with a lower fence. A manger to hold hay is essential – you can just throw hay on the ground, but most of it will be wasted as they will eat the fresh hay and trample the remaining hay and refuse to eat it later. The best mangers have catch pans and other design elements such as key hole sides to prevent waste. There are ready made mangers available at feed stores. You can find a variety of designs on the internet and in goat raising books. You'll need a secure and dry place outside the goat pen to store hay. This can be as simple as placing bales of hay on wooden pallets and covering them with a tarp. If you place hay on the ground it can wick up moisture and rot. Storing hay where goats can reach it will allow them to over eat and also to waste hay by spreading it around.

**Feed & Water** Dairy goats need clean fresh water to produce fresh milk. Buckets should never run dry and should be rinsed and refreshed daily. Other goats deserve plenty of water particularly in hot weather. There is no way to predict a minimum need, so be sure they always have plenty of water all the time. Some combination of the above mentioned hay should be fed once or twice a day. If fed once a day, the hay should last for 3-5 hours of browsing. If fed twice a day the hay should last for two hours of browsing. If hay last longer goats may fatten up or spill excessive amounts riffling through for tasty morsels. If goats finish browsing in a shorter time they may not get enough to eat.

**Minerals** Goats need Copper, Selenium and other trace minerals to stay healthy. Copper boluses and BoSe should be given every 4-6 months other minerals should be available all the time in a dispenser if in a powder form or as a salt mineral block.

**Hoof Trimming** needs to be done every 3-6 weeks (see web page for method).

**Psychological Needs** Goats desire companionship; they are social animals and they are happiest in herds (two goats can make a herd). Occasionally a goat does OK by herself, but more often a lone goat will get sick or die in isolation. Goats like to play, climb, eat brush (non poisonous tree trimming are a great substitute), romp about, watch other animals including people, and bask in the sun. They spend a good portion of their free time butting heads and testing each others strength. This is how they establish rank and dominance in the herd. Consider setting up your pen so they can enjoy their day being able to play and tussle for leadership. Also consider walking then so they can taste the neighborhood and take in some new views. Goats like having a larger territory than just their pen.

## Goat Health

**Diseases to be aware of** include: Bloat, Ketosis, milk fever, CAE, Johne's disease, mastitis, parasites (internal and external), Scours & Poisoning

**Veterinary support** You'll want to have an established relationship with a vet before a crisis occurs. It's often worth driving an extra half hour to 45 minutes to get to a vet that has understanding of and experience with goats. In the SF Bay Area we can drive to UC Davis veterinary hospital when we have a serious condition to address but for simpler needs it best to find a closer vet. (I usually drive up to the Cotati Large Animal veterinary practice but there are other options in Castro Valley and out towards Concord.)

**Vaccines and Deworming** Tetanus is the most important vaccine to use. This should be administered annually once an initial immunity is established with two vaccinations two months apart for kids. It's very important for pregnant mothers to have their tetanus vaccine current so their colostrum will give newborns immunity while their own immune system is developing. I usually give kids their first Tetanus vaccination around two months. I'm not aware of other vaccines that goats need but goats do need deworming from time to time. In areas where there are a great deal of parasites waiting to infest your goat, deworming may be necessary every 6 months. These areas are where there are lots of other ruminants (including deer) near by. In urban settings there aren't many parasites around that can infect goats. It's a good idea to deworm your goats when you first bring them home to prevent establishing a parasite population on your land but after that initial deworming, it may not be necessary to deworm your animals. You can deworm then routinely as a precautionary measure but this could be excessive. A better strategy is to routinely (every year or so) have their feces analysed by a lab (UC Davis is a possibility) to see if they have any parasites and only treat when they need it. There are chemical dewormers and "natural" dewormers. The natural dewormers are harvested from natural sources – usually plants or fungi. Be aware that natural dewormer still are poisoning the parasites and have potential overdose levels for your goats. Use any dewormer as instructed on the label or with the support of a seasoned goat owner.

**Other diseases** you may hear about: TB, E. Coli, Rabies,

## First Aid Kit

It's a good idea to have a first aid kit on hand to help with minor injuries or ailments. Here are a few items that could begin your kit: Bleed stop, activated charcoal, superglue, thermometer, nail clippers and unflavored dental floss, syringes, vet wrap, newborn feeding syringe, rubbing alcohol, antibiotic ointment and vaccines: CD/T, tetanus

## Maintaining a Goat Dairy

Where to milk? In a fancy milking parlor or under a tarp. Milk is a highly nutritious food for us and micro-organisms, so it's important to have a place to work where the milking process and the equipment you use can remain clean. I do not recommend milking in the goat pen. Ideally you will have a room to milk in. This room should have a sink to wash your hands and the equipment. The minimum equipment includes a milk pail, a stanchion and teat dipping containers. Wash rags or paper towels are also very useful. I highly recommend that you wash the goat's udder before milking. I also pre-dip teats with hydrogen peroxide before milking (we've never had a case of mastitis). Post dipping with a teat dip prevents infection as well.

To maximize milk production and to minimize infection it's important to maintain a regular milking schedule. In a given season, this can be once or twice a day at the same time of day give or take one half hour. Once the milk is in the pail it should be filtered before storing it in a clean and sterile container. The faster the milk is cooled down the better it will taste and the longer it will last in the refrigerator. Using an ice bath for bottles as you fill them will help cool them quickly.

### Milk & Milk Products

Raw vs. pasteurized. Pasteurization can be done easily with a home pasteurizer (see goat catalogs for models). It's extremely important to handle milk carefully once it's been pasteurized – it's a blank slate that any contaminant can grow uncontrollably in/on. Use of sterile containers and refrigeration are critical. Raw milk has naturally occurring micro-organism at a low level. These are usually harmless and some are beneficial for digestion. They may outcompete the growth of harmful organisms, nevertheless it's a good idea to refrigerate raw milk and keep it in clean containers. Any clean milk can be used for cultures such as buttermilk, kefir, yogurt, fil (filmjölk). Also you can make cheese (whole other class ask Ruby). A non-edible product is goat milk soap.

### Breeding & Raising Kids

In order for goats to bred a female must be in heat (Estrus) and the male must be in rut. Tropical goats such as Nubians or Nigerians will come into heat or rut at any time of year – in fact they just stay in season whereas northerly goats particularly swiss breeds only come into season in the Fall and Winter. Their gestation period is 145-155 day – five months. This means northerly breeds give birth in the Spring or early Summer. Most goats can give birth without any assistance from you. But your presence at the birth can help to prevent some small mistakes that could kill a kid. Also being there will allow you to assist or get help if a birth goes wrong. Feeling a doe's pinbones when she is due to birth will allow you to know if she will give birth in the next 24 hours. Feeling a firm and tight pinbone allows you to get on with your day not needing to worry about an imminent birth. Read the sections in goat raising books describing the birth process. It's nice to have rags and towels to help the new mother clean off the newborn.

If there is any chance the mother has CAE you should remove the kid immediately and raise it on pasteurized milk. (unless you only want the kid for meat). If there is no concern about CAE you may want to help the newborn kids get their first taste of Colostrum from their mother's teats. But within a few hours you need to know if you want the kids raised by their dam or if you will be bottle raising them.

There are pros and cons to both approaches. Dam raised kids require a lot less work. The doe focuses on their needs and enjoys raising them. The kids learn what it means to be a goat from their mom. It's hard to ween kids from their mom and some goats nurse into adulthood. In addition goats raised by their dam may be skittish and wary of humans. You will need to invest time to tame them down and get them to trust people. This is best done from the day they are born, preventing them from ever mistrusting people. When kids are raised by their dam they may not be getting enough milk and you will only be sure of this when you see they are not thriving. Also, as kids grow they can be rough on their mom's udder and damage the udder with this treatment. This may lessen the time the dam will be useful to you as a milk goat.

Bottle feeding kids immediately bonds them to you. You can be sure to feed them ample amounts of milk and even supplement the amount of milk their mom provides. Weening is simple because you just stop providing the bottle. Even before weening the kids, they can be housed with their dam (usually around 8 weeks). There are drawbacks to bottle raising kids. The kids and dam will be upset at being separated initially. This stress can

be reduced if they are housed right next to each other with key hole windows for the dam to nuzzle the kids without them getting to her udders. At first you will be feeding 3-4 times per day. After a month you still will be bottle feeding twice a day. You will need to warm milk and clean bottles for the kids each time you feed. Sometimes folks do a combo system where they separate the kids for the night, milk out the mom in the morning and bottle feed the kids before returning them to spend the day with their dam.

When you have boy kids you will need to consider castration. Some people do this a few days after birth other folks wait until the bucklings are two months old. This can be done with an elastration band or with a knife (called open castration).

Disbudding (cauterizing horn buds) should be done within the first two weeks of life. If you have a hornless herd you should disbud kids so they won't hurt your adults. If you have horned goats you should raise horned kids so the kids can defend themselves as they grow.

If you are using the males for meat you should consider what yield they will give. Newborns give very little meat no more than a third of their weight-- so 2 – 5 lbs. As the males get older that yield can increase to 45% live weight for dairy breeds and as much as 60% for meat breeds. Females will be able to provide milk after giving birth (this is called "freshening"). A standard goat shouldn't be bred before she weighs 50 lbs. Dwarfs and pygmies should be closer to 50% of their adult weight.

## Labor & Money Needed

**Pen & milking parlor** \$300 - \$2000

**Feeding** Grain is only needed for milking does. You're likely to spend \$.50 to \$2.00 per day. Hay can be as much as \$20 a bale. You're likely to spend \$15 - \$25 a week on hay per animal depending on how good you are at preventing waste.

You'll need a vehicle that can at least carry one bale of hay, but your life will be saner if you can load 10 – 40 bales in a larger vehicle. Organic hay is hard to find and it's worth coordinating with other goat owners to buy it directly from a small farmer.

**Exercise** If you keep your goat in a minimum sized pen, plan to spend 2 hours a week giving 3 (40 minute) walks to your goats.

**Milk processing & storage** about 1-2 hours a week cleaning milk containers and making cheese.

**Maintenance of pen & parlor** should be about 1-2 hours a week raking up spilled hay, turning bedding, and composting, plus a longer day once a season.

**Milking equipment** can be built and repurposed from free and cheap material or purchased new at a feed store: \$100 - \$1000.

**Purchase of Goats** Two kids could be as cheap as \$150 (\$75 each) two does could be \$250 each or fancy goats can go for \$500 and up.

**Vet Costs** can be from 0 - \$500 per year per animal. Mine have averaged at about \$100 per year.

**Stud fees** for freshening can be as little as \$40 and as much as \$200 but are most likely to cost \$80.

## Equipment review

- Vehicle

- Modular fencing

- Feeders & mineral dispensers

- Storage containers

- Hoof trimmers, castration tool

- Stanchion

- Halters, collars & lead ropes

- Nipples & bottles

- Disbudding tool (I'd recommend not doing this)

- Other items for first aid kit

- Pail, filters, refrigeration

## LINKS

<http://www.garlicbarrier.com/sheep.html>

<http://www.saanendoah.com/copper1.html>

<http://fiascofarm.com/goats/milking.htm>

<http://kinne.net/laminit.htm>

<http://www.goatbiology.com/articles.html>

<http://extension.psu.edu/courses/meat-goat>

<http://anrcatalog.ucdavis.edu/pdf/8398.pdf>

<http://www.jefferspet.com/jeffers-livestock/camid/LIV/ca/135/>

<http://www.caprinesupply.com/>

<http://www.adga.org/>