

Working Safely with Goats

Many livestock producers have never stopped to consider why animals behave as they do, and more importantly, how this behavior may affect personal safety. Animal-handling practices are often acquired from watching others and from personal experience. Too often, this results in unsafe animal-handling and restraint practices.

According to the 1999 National Safety Council Report, agricultural accidents are the second leading cause of death in work-related accidents. Machinery accidents are first, while livestock accidents are second. Although most animal accidents are not fatal, many men, women, and children are needlessly injured each year because of a lack of safety awareness. Broken bones, crushed limbs, missed days of work and school, and unnecessary medical expenses are some of the results of animal-related accidents.

Individuals may work carefully around animals most of the time, but injuries involving animals occur because of preoccupation, haste, impatience, or anger. It is during these moments that a livestock handler really needs to understand animal behavior.

What Do I Need to Know?

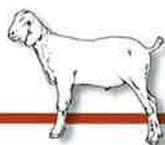
Swine, dairy does, and meat cattle are colorblind and have poor depth perception. Colorblindness causes extreme sensitivity to contrasts, which may cause an animal to balk at shadows, shiny objects, or rapid changes in light to dark. However, goats

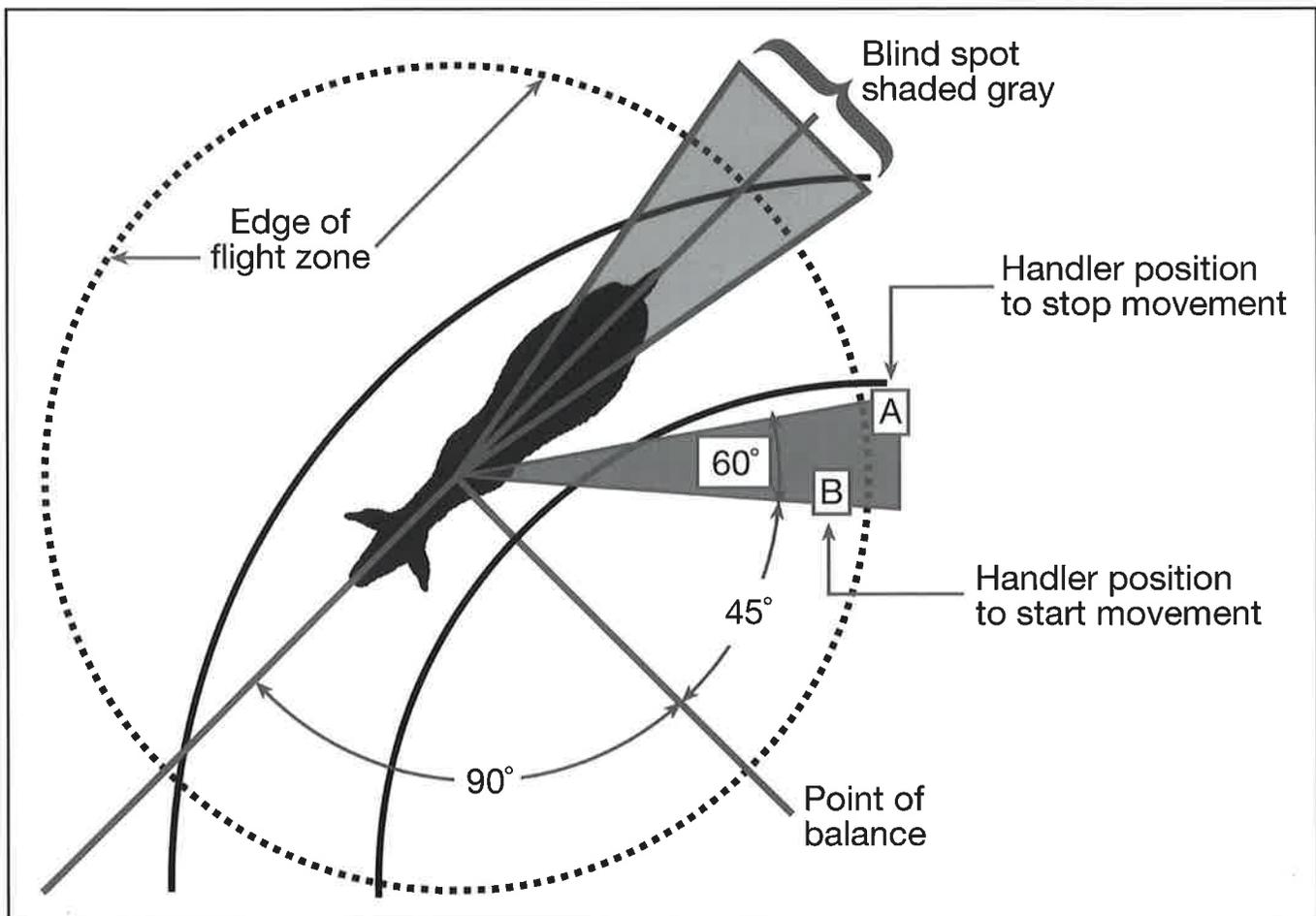
have good depth perception and good peripheral vision. This is because their pupils are horizontal instead of round like cattle and pigs. Goats still have difficulty seeing small details and faraway objects.

To be able to work safely and handle livestock, you must be aware of each animal's "comfort" or "flight" zone (see figure 3.1). Animals develop a distinctive, comfortable space around them. This may change and depend on how familiar the animal is with people or the person working with the animal. As a person starts to enter the zone, the animal becomes tense and may try to move away. The deeper a person enters the zone without allowing the animal time to adapt, the more severe the reaction may become.

Goats also have panoramic vision. This means that they can see everything around them except what is in their "blind spot." This is the area directly behind them. When someone enters this area, the animal cannot see the person and may be easily startled when it does see or hear someone. This can lead to the animal kicking or running. To keep from startling the animal, you should approach the animal from the side or front, giving it time to adapt to having a person enter its flight zone.

Handlers can use the flight zone and the point of balance to easily move animals. When you are in front of the point of balance (the shoulder) and enter the flight zone, the animal moves backwards. If you are behind the point of balance, the animal moves forward.





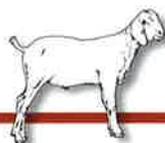
Adapted from Temple Grandin, *Livestock Handling Guide: Management Practices that Reduce Livestock Bruise and Injuries and Improve Handling Efficiency*.

Figure 3.1. Flight zone.

Animals experience hunger, thirst, fear, sickness, injury, and strong maternal instincts, similar to what humans experience. Livestock in these conditions are usually more defensive and can be difficult to handle. When possible, let the young stay close to the adult when handling. This makes them more comfortable. They also develop individual behaviors, such as kicking, biting, and head-butting. The handler should be aware of these behaviors and take necessary precautions. Safety precautions include using personal protective equipment, such as safety glasses, gloves, long trousers, steel-toed shoes or boots, shin guards, and a hard hat, depending on the activity and type of livestock being handled.

The majority of goats also have a strong territorial instinct and develop a sense of “homeland” in their pens, barn lots, and pastures. They develop a very distinctive, comfortable attachment to these areas. You may notice this when they escape from their enclosures and stay close to familiar surroundings. Other examples of this homeland instinct are the well-worn paths they make from the barn to their pastures, watering areas, or feed bunks. Forcible removal from a homeland area can cause a goat to react unexpectedly.

Considering these animal traits, it is easy to understand why animals often hesitate when going through unfamiliar gates, barn doors, and handling and loading



chutes. In addition, shadows, yelling, and rapid changes in lighting can further excite animals and make their behavior unpredictable. Similar problems occur when animals are moved away from feed, separated from the herd, or approached by an unfamiliar person. When moving animals, it is best to have your facilities set up ahead of time to move the animals. To move your goats, it may be best to put a collar or a halter on them and lead them where you want them to go.

Most animals are extremely sensitive to noise and are easily frightened or spooked. In their attempts to move away from the direction or source of the noise, they may crash into or through objects, including people. Be cautious around animals that are blind or deaf on one side. They tend to favor that side and can suddenly swing around to investigate disturbances. If standing too close, a person could easily be knocked down and trampled.

Young farm animals can form relationships simultaneously with other animals and with their human handlers. Animals respond to the way they are treated and draw upon past experiences when reacting to a situation. For example, a newborn raised on a bottle or a bucket may develop a very strong attraction for the person feeding it and feel comfortable around people. However, animals that are isolated from people or chased, kicked, hit, or frightened when young naturally fear being approached. Goats raised around people are usually very friendly, to the point of being almost dog-like, and relate well with their handlers if treated kindly.

Animals are often said to be “stubborn” because they balk or refuse to enter an unfamiliar area. Once this has happened, the animal is likely to refuse the next

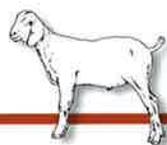
several times, as well as becoming a little excited and dangerous with each refusal. It is important to take time to prepare for moving animals. Many farmers are tempted to move animals without the necessary planning and often end up in a battle with the animal that could lead to an injury. Carefully plan how to move your animals. If young stock will be entering into the milking herd soon, it may be helpful to get them comfortable to the milking area and some milking equipment and procedures before they freshen so that they are familiar with those surroundings when they start to milk.

Another risk to be concerned about is **zoonotic diseases**, which are illnesses that can be transmitted between humans and animals. Some of the diseases to be concerned about are leptospirosis, rabies, brucellosis, salmonellosis, and ringworm. A person can contract these diseases by being bitten by the animal, handling an infected animal, or disposing of infected tissues. To reduce the chance of contracting a disease, use good hygiene and sanitation procedures, which include prompt and adequate treatment or disposal of infected animals.

Proper cleaning of contaminated sites and proper use of personal protective equipment are also important.

Facilities and Safety

Facilities play a major role in safety and accident prevention on the farm. Good facilities provide a means of controlling animals while allowing easy access for routine chores—all in a safe environment. To help prevent accidents, keep walkways and work areas properly lit and clear of debris and obstructions. Give workers and animals slip-resistant footing to reduce the



risk of slipping and falling. Make sure that all pens, chutes, gates, fences, and loading ramps are strong and working properly. An escape route should always be available to easily get away from an animal in case of an emergency.

Make sure that properly designed treatment areas and appropriate animal restraint equipment and facilities are available during animal examination, treatment, hoof trimming, dehorning, and artificial insemination. The majority of accidents involving livestock on farms come from inadequate restraint equipment.

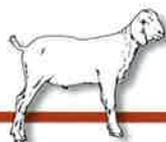
Most animal-related accidents are the result of “people-problems.” Poor judgment and lack of understanding are major causes of accidents involving animals. Plan ahead to allow plenty of time to move animals so there is no need to hurry. Do not try to handle animals when you are angry. Some handlers may exhibit a feeling of

superiority over animals, but remember, there are times that you are handling an animal that is much larger and stronger than you are. Other common problems, such as horseplay, improper lifting of young animals, prodding an animal that has no place to go, tying an animal to a person, attempting a task without enough help, not having the proper and safe facilities, and not wearing personal protective equipment, should be avoided.

What can you as a livestock producer do to increase the level of safety when handling animals? Although there is no magic formula, common sense is a key ingredient.

Remember—to minimize accident or illness from livestock:

1. Understand animal behavior
2. Provide proper and safe facilities
3. Protect against zoonotic diseases
4. Wear personal protective equipment



Housing Facilities

Goats do not need extensive housing; however, some sort of facility is necessary and very important for their welfare. Several criteria need to be met:

1. Provide for the health and well-being of the animal.
2. Provide a safe, desirable, and efficient working environment for laborers.
3. Meet environmental and safety codes.
4. Be economical.

Types of Housing

There are two types of housing that are commonly used for goats: *cold housing* and *warm housing*.

Cold housing is a building that is uninsulated, that has natural ventilation, and that has an inside temperature very similar to the outside temperature. It provides a draft-free, dry area in the winter, and wind ventilation and shade in the summer. It is usually less expensive to build and to keep this type of building cool in the summer. Some problems with cold housing in the winter are frozen waterers and the possibility of increased feed intake needed to maintain the animals' body temperature.

Warm housing is an environmentally controlled building. These buildings are usually heavily insulated with some sort of mechanical ventilation system that is thermostat controlled. Temperatures are kept well above freezing, regardless of outside temperatures. There tend to be more health problems in these types of facilities due to a higher humidity.

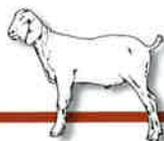
The type of housing that is chosen depends on the climate and your region of the United States. Regardless of the type of housing, the ventilation system must function to provide fresh air, remove excess heat during hot weather, remove moisture from the building, and remove odors and gases from the animal waste. If the building has a poor ventilation system, health problems, such as pneumonia, can arise due to irritation of the lungs.

Most housing for goats is the cold housing type, consisting of a simple three-sided shed. Goats are most comfortable when temperatures are between 55 and 70 degrees F and can easily handle colder temperatures without any difficulty. Problems arise with intake, milk production, and growth when the temperatures get over 80 degrees F, so the main housing problem arises on how to keep animals cool in the summer, not warm in the winter.

Methods of Housing

The two most common methods of housing goats, whether they are in dairy, meat, or fiber operations, are loose housing and stall housing. The method of housing used often depends on available space and existing buildings.

Loose housing is where animals are in a shed or pen. Feeding systems are usually in a shelter, and there is access to an outside exercise lot. A generous recommendation is to allow 15 to 20 square feet per animal inside and another 20 to 25 square feet per animal outside. Ten to 12 square feet per



animal inside, in addition to an outside exercise area, is a minimum. Using a manure pack (allowing bedding, feces, and urine to cumulate over time) is typical for loose housing and eliminates the need to remove manure on a daily basis. Advantages of loose housing are that it is less costly and less labor intensive.

Loose housing for dairy goats often includes freestalls. Depending on the breed of your goats, freestalls should be 18 to 20 inches wide and 36 inches in length. Rear curb height should be 8 inches. Bedding should be 3 to 4 inches higher in the front of the stall than at the rear. Alley width should be wide enough to get a scraper through for removal of manure. Some disadvantages of these systems are that more bedding is required, the milking parlor is required to be completely separate, and some boss goats may cause injury to other animals.

Stall housing is where animals are confined to their own box stalls or tie stalls, with

limited or no access to an outside area. Box stalls should provide each animal with 20 to 25 square feet, and tie stalls should be 18 to 20 inches wide and 40 inches in length. Rear curb height should be 8 inches and the feeder should be 8 to 10 inches high. The stall should be designed to keep urine and feces to the rear or out of the stall. Advantages of this system are less bedding is used and animals usually receive more individualized care. A big disadvantage is that it is much more labor intensive. Keep in mind that for the best ventilation, the main opening of the barn should be to the south or southeast.

Enrichment. Goats are active, social animals that do best in stimulating environments. You can ensure their well-being by enriching their environment. Some examples of enrichment include climbing structures, trees and bushes, and human interaction.

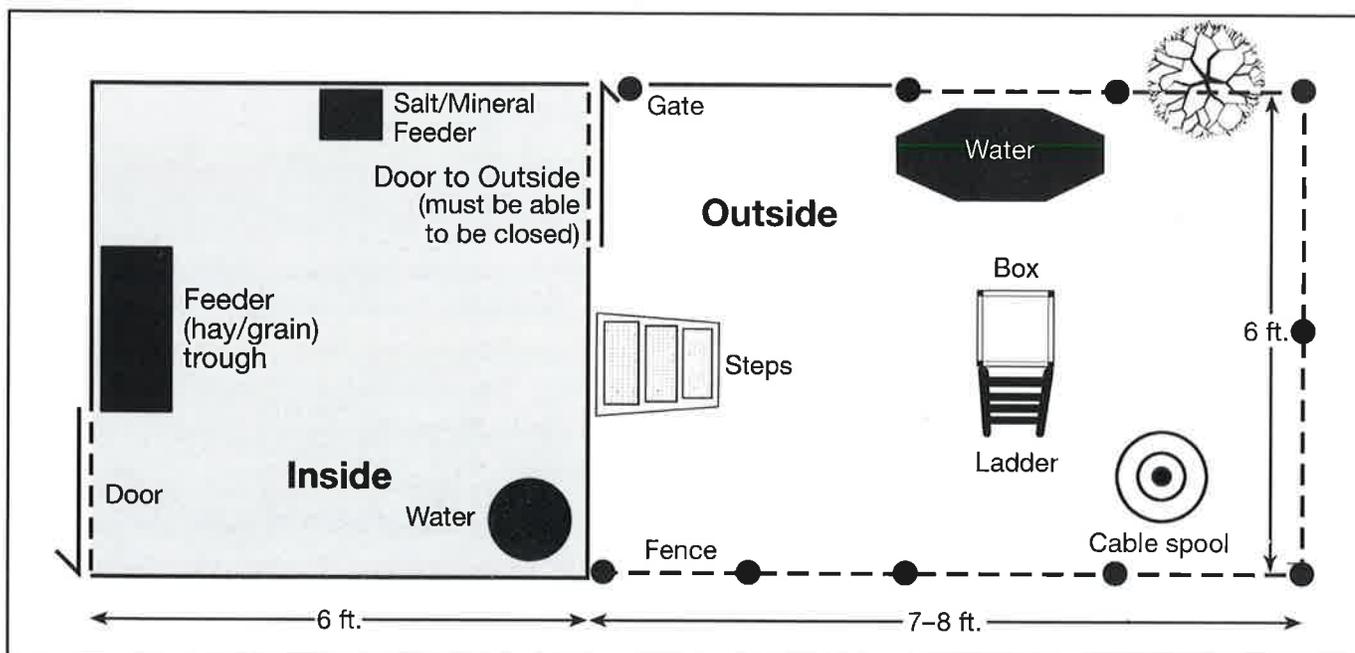


Figure 10.1. Example pen for two goats.

Ohio State University Extension.



Housing Newborn Kids and Young Stock

How young stock is housed largely depends on the kind of operation you have. However, all kids, regardless of the system, need to be in an area that is clean, dry, and free from drafts. In extremely cold weather, they also may need heat lamps to help them maintain body temperature.

In dairy systems, kids are often removed from the doe either immediately or within the first three days of birth after adequate colostrum intake. Housing for kids should be a separate pen in the barn, with or without access to an outside yard. They should also be grouped by age so that older kids are not restricting access of younger, smaller kids to feed bunks and water. As kids grow older, more space and an exercise system are necessary.

In meat and fiber systems, it is important to monitor how kids are nursing to be sure that they are nursing well and receiving enough milk. The majority of kids in meat and fiber systems are weaned when they 60 to 90 days old. At this time, if there are intact males housed with females, they should be separated so that early maturing animals are not bred too early.

Housing Bucks

Bucks should be housed separately. They require minimum housing; enough shelter to keep them clean and dry is sufficient. Bucks can be housed together and require approximately 30 to 40 square feet of pen space and 100 square feet of exercise area per animal. In dairy systems, bucks should be housed downwind from the milking herd because of the off-flavor their odor can give to the milk.

Sick Pens

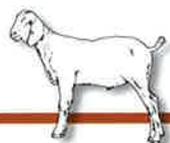
Sick pens or hospital pens for goats should be approximately 16 to 20 square feet in a clean and dry area of the shelter or barn, away from other animals. If a goat is sick with an infectious disease, separation from the remaining herd is very important to avoid infecting other animals. The hospital pen should contain a headlock or stanchion so that the animal can be easily restrained and treated without injury to themselves or the person doing the treating. Due to space limitations, sick pens do not need to be available all of the time and can serve as storage areas when not in use.

Maternity Pens

An important aspect of kidding is a clean birthing area. This can be a pen in the barn or on pasture in good weather. A pen should be 4 x 6 or 5 x 5 feet, with enough room for the doe to lie down and give birth to twins without injuring the first kid that is born. Does should stay with kids in a pen for the first three to five days after birth, until the kids are firmly established on the doe. If kidding outside, make sure that the does are in an area where they can be checked frequently and where they have access to shelter in case of bad weather.

Fencing

Fencing for goats has two goals: keeping goats in and keeping predators out. Keeping goats in is probably the most difficult part. Goats love to climb and are excellent jumpers. When housing bucks, make sure fencing is secure so that they cannot get into the does' enclosure. Fencing needs to be sturdy enough for the goats to stand on the

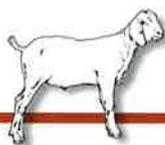


fence and tall enough, about 48 inches, for them not to jump over.

Electric fence works well for goats once they have been trained to it. The lowest strand of an electric fence needs to be no more than 6 to 8 inches off of the ground; otherwise, the goats will crawl under. Hardware or stock panels are also another good choice and are sturdy enough to withstand goats standing on them with their front feet. A combination

of electric fence and stock panels also works well if goats are escaping from their enclosure.

Rail fencing doesn't work well for goats unless the rails are placed very close to each other. Typical rail fence does not work, as the goats, especially kids and young stock, slip through the rails. Woven wire fencing is not a good choice as it starts to sag quickly when goats stand on it.



Manure Management and Environmental Quality

One of the most important aspects of being a responsible livestock owner is managing animal waste responsibly. In order to do so, a livestock owner must know *how much* waste the herd is going to produce. Understanding how much manure is produced by animals is critical in making decisions about

- Bedding selection
- Waste storage buildings
- Acres needed for land application of manure

Bedding Selection

The bedding you select has a direct impact on the volume of waste matter, which in turn determines how much waste your storage facility needs to manage. The most common types of bedding for goats is straw or dried sawdust.

Waste Storage Buildings

Manure systems can be broadly categorized into solid and liquid systems. Most goat operations use a solid system that involves collecting the manure from animal pens and stockpiling it for composting or for spreading onto land. A manure storage facility must be able to manage the volume of manure and must be designed to prevent seepage of manure liquids and runoff from rain. It also should provide a minimum of six months of storage. The amount of surface drainage (including roofs) and direct rainfall in the storage structure also must be included when determining structure

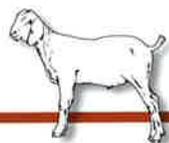
size. When sizing storage structures, be conservative by sizing the structure for more capacity than you think you will need.

In dairy operations, wastewater from the milking parlor may be handled with or separately from manure. In most dairy goat operations, parlor wastewater is handled separately. Small operations may rely on the household septic system, but milk proteins and fat may clog and overload it. Larger operations in climates that permit it may use a filter bed system that disperses milk wastewater over a large grass sod area, allowing it to evaporate and be absorbed.

- Dairy goats (100 lb BW) excrete about 1.23 lb/day of DM (feces and urine).
- Meat goats (100 lb BW) excrete about 1.0 lb/day of DM.

Acreage Needed

Generally, goats daily excrete 1.0 to 1.2 % of their BW as manure. Of course, this does not include the moisture in the manure. Feces alone may be 50 to 60% DM, but when combined with urine, fresh manure is usually about 75% water and just 25% DM. Although diet affects nutrient composition of manure, the approximate concentrations of nitrogen (N), and phosphorus (P), and potassium in manure are 4, 2, and 4% (DM basis), respectively. Other factors, such as storage system, nutrient concentration, and crop, also affect the acreage needed.



Large operations. If you have a large goat operation and are handling silage, you must control for the risk of silage leachate (seepage). Storage containers or filter strips that prevent contamination of ground and surface water must be used. Silage leachate and manure must not be mixed because a rapid release of hydrogen sulfide or other poisonous gases can occur. Amount of leachate varies depending on the type of silo, dry matter of the silage, particle size of the silage, and type of forage. Tower silos result in the greatest flow of leachate immediately after filling, but horizontal silos result in a more continuous flow. The steadiness of the flow from horizontal silos also depends on whether the silo is covered or uncovered, with uncovered silos resulting in possibly twice as much effluent. One of the major factors at limiting the volume of leachate is harvesting the forage at the proper dry matter (Graves and Vanderstappen, 1993).

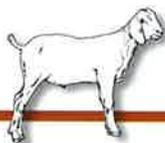
Environmental Impact

Environmental regulations have been developed to protect the water supply, stemming primarily from the Clean Water Act, first initiated in 1972, that is enforced by the U.S. Environmental Protection Agency (US EPA). Each state must abide by the federal regulations, but more strict regulations can be enacted within a state. The regulations relate primarily to water contamination by any effluent from animal housing, manure storage, manure application, parlor waste (for example, wastewater from parlor), and feed storage (for example, seepage from silos).

Federal regulations in existence are primarily for animal feeding operations (AFO) that are large enough to be deemed concentrated animal feeding operations (CAFO). According to the US EPA, a

facility is an AFO if animals are stabled or confined, or fed/maintained, for 45 days or more within any 12-month period, and the facility does not produce any crops, vegetation, or forage growth (<http://cfpub1.epa.gov/npdes/afo/virtualcenter.cfm>). However, any operation may be designated as a CAFO if it discharges wastes (adds pollutants) to surface waters of the state.

Insect and rodent control are not regulated at the federal level; however, some states are developing regulations. Although disease transmission can occur via insects and rodents, the most common issue relates to nuisances and costs to the operation. Managing manure properly with good sanitation is the best way to control flies on livestock farms. The fly life-cycle takes about two weeks—one for the larvae to develop and one for the larvae to pupate prior to emerging as an adult fly. Manure is a favorite place for flies to lay their eggs, but wet feed and seepage from silos also are prime areas for fly breeding. Preventing water leaks and seepage from outside sources into the animal housing, feed distribution, and feed storage areas can help to minimize fly breeding. Barnyards should be well drained and vegetative growth around the facilities should be kept low to minimize areas where flies might breed. Water management for prevention of mosquito breeding is essential for effective control. Eggs do not hatch unless they are in water. Locate standing water on the premises and eliminate it if possible, including the removal of open containers with water, and drainage of puddles, ditches, or swampy areas around the facility. Approved pesticides are often useful in controlling flies and mosquitoes. Control of rodents around livestock structures is best accomplished by minimizing their access to a food supply. Farmers control



rodents by proper storage of feed, proper disposal of spoiled feed, and limiting areas attractive as living quarters for rodents.

Water Quality

Just because neither the stream runs through *my* property nor does *my* property adjoin the property through which the stream flows, *I* should be responsible for actions that can affect the quality of water in the watershed for which *I* live and conduct business. The US EPA defines a watershed as “those land areas that catch rain or snow and drain to specific marshes, streams, rivers, lakes, or to ground water,” and this agency provides a mechanism for you to locate your watershed: <http://cfpub1.epa.gov/surf/locate/index.cfm>. The quality of the nation’s water supply is monitored by federal and state EPA offices. The divisions for drinking and ground water focus on the quality of water for human consumption. The standards for safe drinking water are at <http://www.epa.gov/safewater/standards.html>. The division of surface water focuses on the quality of water in the stream that is needed to sustain aquatic life.

Environmental regulations are in place and under constant review to protect the nation’s water supply. These regulations focus on preventing the direct contamination of water with manure or excessive leaching of N and P into the water supply. Permits to install animal operations over a specified size (for example, CAFO) are required in some states and the inspections occur to ensure environmental compliance. The local Soil and Water Conservation District offices (listed under local county offices in the phone directory) in each county handle complaints against agricultural operations that are impacting water quality. The Department of Natural

Resources–Division of Wildlife office handles fish kills and stream litter. Local health departments have some jurisdiction over problems with contamination of a public water supply.

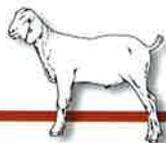
Air Quality

The regulation of air quality in animal agriculture is less defined than the regulation of water quality and is more enforceable as it relates to nuisances. The Clean Air Act of 1990 provides for regulations to minimize environmental and human health problems with smog, carbon monoxide, volatile organic compounds, hazardous air pollutants or air toxins, and particulate matter (soot, dust, smoke, etc.) (<http://www.epa.gov/compliance/civil/caa/index.html>).

The most notable odorous compounds detectable on dairy farms are ammonia, hydrogen sulfide and other sulfurous compounds, amines, organic acids, and heterocyclic nitrogenous compounds; however, with the exception of manure storage pits and covered silos, the maximum allowable concentrations are not normally found on or near the farm (Shultz and Collar, 1993). Therefore, the most common concern with air quality with relation to animal agriculture is the nuisance of odors. The odor from manure on farms can be minimized by proper storage, handling, and application of manure to soils.

Community Acceptance of Animal Agriculture

As each generation becomes further removed from an agricultural lifestyle, there is greater need to educate and communicate with consumers. The public’s

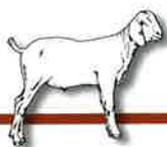


concern for food safety, animal well-being, and environmental protection is growing ever stronger. Without adequate and accurate information, the general public sometimes has misperceptions about animal agriculture.

Farmers, ranchers, and other agriculture professionals must accept that they have a role in the general public's perception and acceptance of their work. They need to be advocates for sound animal husbandry and environment-friendly practices. Everyone involved in animal agriculture, including 4-H youth, can help educate the general public and create goodwill by reaching out to the local community with these actions:

- Maintain a clean and organized home farm. A picture is worth a thousand words.
- Provide farm tours with hands-on learning experiences. Schools are continually looking for these kinds of opportunities.

- Practice environmentally sound methods of farming and animal husbandry.
- Do business in your local community and provide a positive attitude about what you do.
- Be well informed on key issues and trends as they relate to your specialty. Ignorance is not bliss.
- Use your local Extension educator to assist you in providing accurate and up-to-date information to the public.
- Understand the important difference between animal rights and animal welfare.
- Use technology to “tell your story” to consumers.
- When approached about sensitive topics, avoid being defensive. Be prepared with facts, figures, and reliable sources of information.



Caring for Animals

Goals and Objectives

- Increase the awareness of the issues of animal well-being, quality assurance, and show animal ethics.
- Encourage you to reflect on your values concerning these issues.

Privileges, Responsibilities, and Rewards

Everyone associated with livestock, either on the farm or in the show ring, is responsible for the well-being of his or her animals.

As a 4-H member, you need to learn to care properly for your projects and develop acceptable livestock husbandry skills.

Your duty as a 4-H member is to properly care for your animals. As a 4-H animal owner, you need to understand the privileges, responsibilities, and rewards that you can expect from the 4-H program.

Privileges

- To know as much about your project as possible.
- To receive information to raise the project.
- To be given a variety of experiences relating to project work.
- To be given sound guidance and direction.
- To ask questions and share concerns.
- To be recognized.

Responsibilities

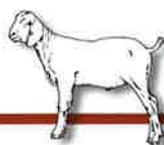
- To treat all livestock projects in your possession humanely.
- To be sincere and believe in the value of a job well done.
- To be loyal to the values and ideals of the 4-H program.
- To accept the guidance and decisions of the program coordinators.
- To be willing to learn and participate in training programs and meetings.
- To continue learning throughout your years of 4-H membership.
- To follow good practices ensuring a safe, wholesome product of the highest quality.

Rewards

- To enjoy satisfaction from a job well done.
- To receive both public and personal recognition.
- To learn new skills, receive special training, and experience personal growth.
- To make new friends and have fun.
- To feel good about producing a wholesome, consumable product.
- To know you are special and you can make a difference.

Animal Well-Being

As a 4-H member, you need to be aware of the things you can do with your own animal to promote animal well-being. You need to set goals and develop a plan that positively



impacts your animal's well-being, either on the farm, in your backyard, or at the fair.

You can complete some tasks before you even obtain your animal. First, think about the size your animal will be as it grows to maturity. Are your facilities large enough for the animal to exercise in? Are there hazards where you are going to keep your animal, such as protruding nails, broken boards, or wire? Can the animal reach any potentially dangerous objects? (For example, an electrical box or a poisonous plant.)

Think about the type of bedding you will be using and the quantity it will take to keep your animal dry and warm or cool. You should have an ample supply of fresh water available to your animals at all times. A designated feeding area should be kept free of manure, urine, and bedding. If you have dairy goats, think about your milking facilities. Is the equipment clean and operating properly? Is the equipment adjusted in a manner that prevents teat and udder damage to the doe?

Once your animal arrives and is in your care, providing it with a balanced ration is an important first step. Many processed feeds, supplements, and pre-mixes are available. Be sure your animal is receiving the nutrition it needs in relation to its age, growth cycle, and purpose. Your animal also needs special consideration if it is pregnant or lactating.

Animal Health

Know Your Vet

When questions or concerns arise, involve your veterinarian. Develop a *veterinarian client-patient relationship* (VCPR). This relationship requires that the veterinarian

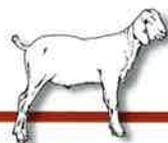
has seen and has knowledge of the animal (patient) and has discussed a health plan or any treatments with the owner (client). Your veterinarian can be very helpful in developing a health-care program for your animal. Your plan should include an appropriate schedule for vaccinating, dehorning, internal/external parasite control, etc.

Using Medicine

You should check with your veterinarian before administering medication, especially if there is any question about the diagnosis and the medication you are planning to use. If injections are necessary, give them in the proper location using good technique.

It is important that you follow *withdrawal time* directions as given by the label or as prescribed by your veterinarian. This is the period of time that must pass between the last treatment and the time milk from the animal may be sold to the processor or the animal may be slaughtered. For example, if a medication with a 14-day meat withdrawal period was last given on August 1 at 2:00 p.m., the meat withdrawal would be completed on August 15 at 2:00 p.m. and that would be the earliest the animal could be sent to market or slaughter to be processed for meat for human consumption.

Unlike meat products, which are safe for use immediately following completion of the withdrawal time, milk from treated lactating does presents a slightly different situation. When considering lactating does, it is important to remember that does continuously produce milk. The milk is stored in the doe's udder until the milk is harvested during milking. Therefore, when a lactating doe is treated with a drug that has a milk withdrawal time, all milk produced by the doe during the withdrawal



time must be discarded. (It is not safe for human consumption and should not be sold to the processor.)

But what if the withdrawal time is complete at 4:00 p.m. and you do not milk the doe out until 6:00 p.m.? Do you have to discard the milk from the 6:00 p.m. milking since you milked out the doe two hours after the withdrawal was complete?

Yes. Keep in mind that the milk stored in the udder between milkings is collected in large holding areas called gland cisterns. In these holding areas there is no way to separate the milk that was produced during the withdrawal time (prior to 4:00 p.m.) and the milk that was produced during the two hours following completion of the withdrawal time. Therefore, the entire 6:00 p.m. milking is not safe for human consumption and must be discarded.

Use the following rule of thumb when in doubt: **All milk produced by the doe during the withdrawal period and harvested during the first milking following completion of the withdrawal time must be discarded.**

In addition to the withdrawal time, the label of a drug lists the animal species for which the drug is approved, the dosage to be administered, how it is to be given, and for what diseases/conditions it can be used as a treatment. Any use, other than that printed on the label, can only be directed or prescribed by your veterinarian.

For example, a neighbor's animal is sick and a veterinarian has treated it using twice the dose listed on the label of an OTC (over-the-counter) product. Your animal becomes ill and is showing the same symptoms as your neighbor's. You may not use the neighbor's double dose for your animal without a veterinarian examining

your animal and prescribing the specific treatment. Any deviation from the label directions when using a drug is referred to as *extra-label drug use* (ELDU). Unless directed by a veterinarian with whom you have established a VCPR, **extra-label drug use is illegal.**

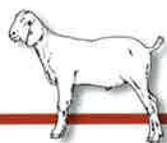
Animal Identification

Each animal in your care should be permanently identified. Individual animal identification enables good record keeping. If your animal becomes lost, stolen, or needs medical attention when you are not available, the only way to know the animal's identity and health history is by permanent identification. This is most commonly done by tattooing or ear tagging. For specific information about tattooing and ear tagging, see Herd Management and Diseases.

If your animal is registered with a breed association, identification may consist of recording identifying marks of the animal with a drawing or photograph. Other breed associations use tattooing for identification. Your Junior Fair program may identify all 4-H animals through county-wide tagging or tattooing. If not, you are responsible for permanently identifying all of your animals.

Know Your Animal

Training animals and acquainting yourself with them needs to begin at an early age or as soon as you acquire your animal. If at all possible, you should spend time with your animal daily. As you walk, stand, and set-up your animal, you develop trust in each other and become accustomed to each others' movements. You also become aware of what sounds or sights bother your animal and in which direction it tends to jump or shy away from.



Handling your animal daily also helps you to recognize abnormal behavior in your animal that could signal illness, stress, or pain. The longer you avoid working with your animal, the more difficult training and preparation for show becomes. The two Ps—practice and patience—usually pay off.

From the day you acquire your animal until the day it leaves your care, you should maintain feed and treatment records. This is important for the day-to-day care of your animal and for whoever might later purchase your animal. This is also the best way to keep track of the kinds and amounts of expenses you have incurred with your project.

Finally, if you plan to exhibit your animal, continue the same quality care program throughout the exhibition as you did at home. This starts by loading and hauling your animal safely and with concern for its well-being. The exhibition facilities should be prepared and checked ahead of time, just as you prepared your facilities at home when you first acquired your animal. Continually watch your animal for signs of stress, pain, or illness. Exercise your animal daily. Clean, feed, and water your animal regularly.

Above all, enjoy your animal project experience. You should feel good about the knowledge you gain and the quality care program you develop and implement with your animal project.

Quality Assurance and the Livestock Industry

With your livestock project comes new responsibilities. You are now a member of the livestock industry. The livestock industry, just like any industry, provides a product to the consumer.

Think back to some time when you bought a toy or other product and were disappointed in it. Would you buy it again? Consumers will choose to buy or not to buy a product from their perception of the value of that product. What would happen to a business if no one purchased its products?

Many businesses have quality assurance departments to make sure that their products are of the highest quality. Businesses pay attention to quality assurance because that helps to build consumer satisfaction. When quality is high, consumers will buy again. Livestock products must be safe, wholesome, and produced in a manner that meets consumer approval.

Who is in charge of quality assurance in the livestock industry? When you sell the milk your does have produced or sell a cull doe to market, who is responsible for assuring that the milk and meat eaten by the consumer is a high-quality and safe product? The retailer? The processor? The packer? You? **Everyone involved in the livestock industry is obligated to do his or her**

Topics Important to Quality Assurance

Nutrition

Essential nutrients, feed and forage analysis, ration balancing.

Environmental Design

Space requirements, ventilation, freedom from hazards and injury, feeding systems, handling and loading, housing comfort, milking facilities, feeding facilities, manure handling, image.

Genetics

Suitability to livestock production systems, processor needs, consumer preferences, producer needs.

Veterinary Health

Disease prevention, proper drug usage, drug residues and withdrawal times, injection technique, records.



part to provide a safe, wholesome product to the consumer.

Quality assurance in the livestock industry begins with providing the right genetics and continues with the proper husbandry of the live animal, a good processing plant or packing house, and good retailing. Every action you take as a livestock producer will reflect on the quality of the livestock industry as a whole. The image of the agricultural industry and the 4-H program is affected by the decisions you make and the actions you take in the care of your animal.

Quality assurance in raising livestock involves providing for the animal's needs to produce a healthy animal and a wholesome product. Basic animal needs include water, food, shelter, and care. Proper attention to animal husbandry helps assure a high-quality marketable product.

Good animal husbandry requires an understanding of many different sciences, including nutrition, environmental design, genetics, veterinary health, production, and economics. These topics all contribute to a quality livestock product. To learn more, consult your project book, a 4-H advisor, an Extension educator, a veterinarian, or a livestock production expert.

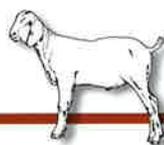
Evaluating quality assurance of your project is something like looking into a mirror. Reflect on your project for a moment. Do you like what you see? More important, will the consumer like it?

Good Production Practices

Ten Good Production Practices (GPP) that relate to quality assurance and food production are listed below:

- GPP 1:** Identify and track all treated animals.
- GPP 2:** Maintain medication and treatment records.
- GPP 3:** Properly store, label, and account for all animal health and medicated feeds.
- GPP 4:** Use veterinary prescription drugs (or FDA-approved drugs in an extra-label manner) only when there is a valid veterinary/client/patient relationship.
- GPP 5:** Educate all employees and family members on proper administration techniques.
- GPP 6:** Use drug residue tests when appropriate.
- GPP 7:** Establish an efficient and effective animal health management plan.
- GPP 8:** Provide proper animal handling and care.
- GPP 9:** Follow appropriate feed processor procedures and feed tag recommendations.
- GPP 10:** Review and update quality assurance program at least once a year.

The dairy double. Dairy producers have product responsibilities that are two-fold. The obvious product is milk. The less obvious but no less important product is meat. Many dairy producers often forget that the majority of cull does go to slaughter for meat. Therefore, the dairy producer needs to be aware of both milk and meat quality assurance.



Important Treatment Record Information



Veterinarian-Client-Patient Relationship (VCPR) is established when a veterinarian, who knows about an animal's health by having seen it or other animals in the same herd, takes charge of the medical decisions about the animal's treatment. The veterinarian has to be available for follow-up in case the animal does not respond as expected, and the caretaker of the animal has to agree to follow the veterinarian's instructions regarding the treatment program.



Withdrawal Time is the time needed to allow drug *residues* to diminish to a safe level. It is the period that must elapse after the last treatment and before harvest of the animal (slaughter) or use of its products (milk, meat, and eggs) for human consumption.



Extra-Label Drug Use is using a medication in a way other than that stated on the label by the manufacturer. For instance, using a medication as a treatment for a disease not listed on the label for that type of animal is extra-label use. Extra-label use, if not directed by a veterinarian with an established VCPR, is illegal.

Veterinary drugs are available in two categories, **over the counter (OTC)** and **prescription (Rx)**. To be an OTC product, the medication must meet certain criteria for safety to both the animal and the person handling the product. If simple directions can adequately be written on the label by the manufacturer, a product can be classed as an OTC. The OTC medications may be sold through retail outlets such as farm supply stores in the same manner as aspirin is sold at a grocery store.



When human and animal safety, proper diagnosis, and special directions are concerns, medications are classed as prescription (Rx) products. A prescription product can be identified because the exact following statement will appear on the container: **Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian.** Just as veterinarians are not allowed to authorize extra-label drug use without a valid VCPR, neither are they permitted to prescribe Rx medications for animals where a valid VCPR has not been established. The Rx medications are available only from or on the order of a veterinarian much as prescription drugs for people are only available from physicians and from a pharmacist by prescription.



Proper Administration of Animal Drugs

Follow these general guidelines when administering drugs to your animal.

I. Read label directions carefully and determine how the drug is administered. Medications must be given to your animal according to label instructions, which should indicate one of these methods:

Oral (O or PO). Giving drugs through the mouth. Tablets, pills, capsules, and liquid medications are easily administered orally. A drenching tube, balling gun, or oral dosage syringe is usually used to place the liquid or pill at the base of the tongue at the back of the mouth. Make sure the medication goes down the throat and the animal swallows it. Take care the animal is not choked by the medication going down the trachea (windpipe). You might also be able to administer medication in the animal's feed or water.

Topical route. Applying the medication to the skin or to the mucous membranes of the eyes, ears, or nasal passages. Such medications are available as ointments, aqueous solution, powders, and sprays. Do not allow these products to come in contact with the animal's eyes, nose, reproductive tract, or mouth unless they are specifically formulated for that use.

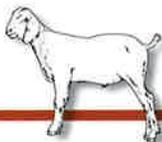
Injectable route. Administering the drug directly into the animal's body with a syringe and needle. Injections are the most common method of administering medications to individual animals. The label specifies which specific injection method to use:

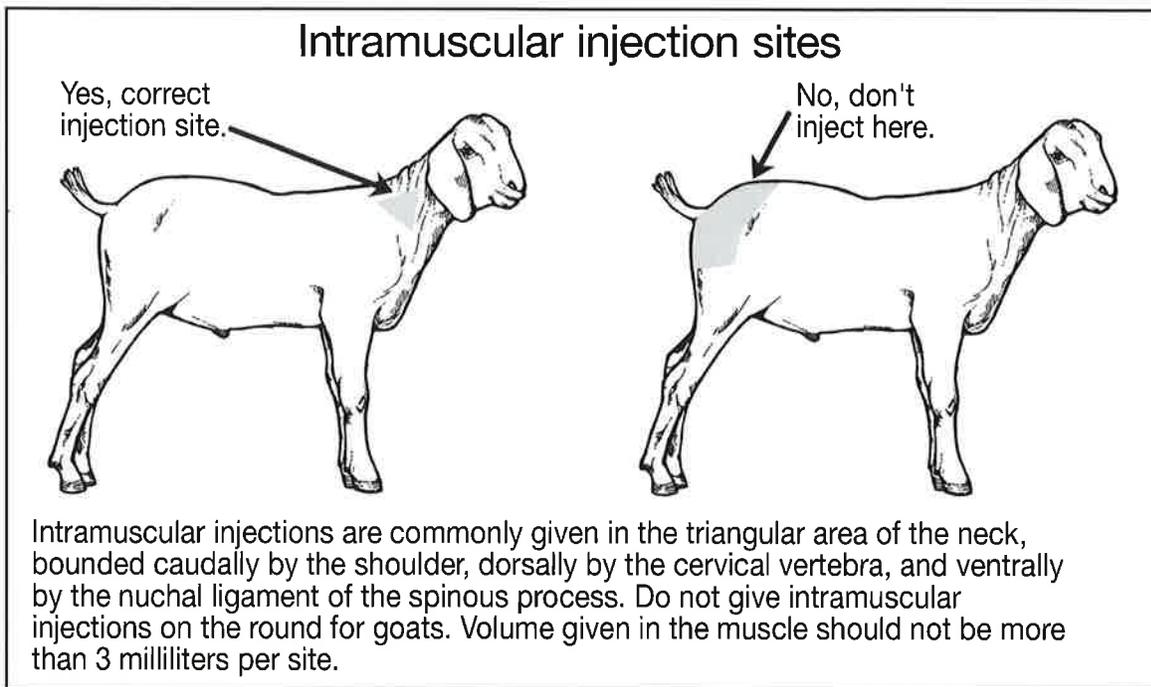
- **Subcutaneous (SQ)** injections are accomplished by inserting the needle just under the skin and not into the muscle. This is important because SQ injectables are designed for a slower rate of absorption or are highly irritating to muscle tissue.
- **Intramuscular (IM)** injections are the most commonly used. This is accomplished by inserting the needle straight into the skin and deep into the muscle.
- **Intravenous (IV)** injections are given directly into the bloodstream and are used when the medication is a strong irritant to muscle tissue and may cause damage. IV injections get the medication into the system of a sick animal and eliminate the chance of tissue damage.

Intramammary infusions. Administering drugs directly into the udder. A syringe with a blunt, tube-like end called a cannula is used to inject medications or dry doe treatments into the udder. Proper technique is critically important—inserting the cannula too far into the teat canal may damage the teat and introduce additional bacteria into the udder. (See following section.)

Whenever possible, give injections SQ so that muscle tissue is not injured. When you do need to give an IM injection, avoid areas where the muscle (meat cuts) are of high value. For example, giving an IM injection in the thigh causes damage to the meat and increases the risk of injection site lesions.

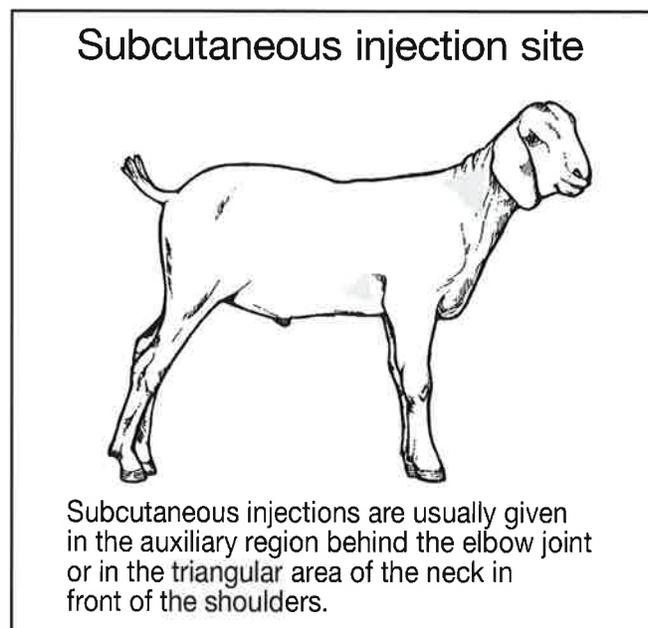
2. **Use sterilized needles and syringes and keep bottles and bottle caps clean.**
3. **Restrain the animal in a safe manner. You may need someone to hold your animal.**





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4. Give injections at clean, dry sites on the animal.
5. Do not transfer needles back and forth from animal to bottle. You may carry bacteria from the animal's skin. Needles are used just once and then discarded; do not use the same syringe needle multiple times.
6. Products with low dosage rates are preferred.
7. When making multiple injections, space injections at least six inches apart.

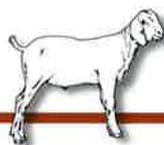


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Injection Reminders

All products labeled SQ are administered behind the elbow joint or in front of the shoulder. Without exception and regardless of age of the animal, all products labeled IM are administered in the neck region.

Whenever possible, IM injections are to be avoided. Products labeled for SQ, IV, or O administration are recommended.



Intramammary Infusion Procedures

- All products labeled for intramammary infusion shall be given directly into the udder through the teat canal.
- To administer intramammary infusion, use the following procedure:
 1. Clean and dry the teats.
 2. Dip teats in an effective germicidal product (teat dip). Allow at least 30 seconds of contact time before wiping the teats with an individual disposable towel.
 3. Clean and disinfect each teat end thoroughly by scrubbing with cotton soaked in 70% alcohol. Use a separate piece of cotton for each teat.
 4. Prepare teats on the far side of the udder first, if more than one quarter is to be treated, followed by teats on the near side. Treat quarters in reverse order—near side first, far side last.
 5. Insert only the tip of the cannula into the teat canal. Do not allow the sterile cannula to touch anything prior to infusion. This avoids damage to the teat canal and avoids the introduction of new bacteria into the udder.
 6. Dip teats in an effective germicidal product (teat dip) after treatment.
 7. Identify treated does with plastic or velcro leg bands, hock markers, neck straps, paint sticks, etc. If you group lactating does, move treated does to the sick doe group to prevent drugs from entering the milk supply.

- Infusing a drug into one or more quarters affects the milk produced in all four quarters. Therefore, all milk produced during the withdrawal period and harvested during the first milking following completion of the withdrawal period must be discarded.

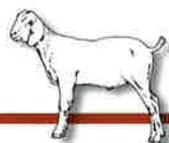
Courtesy of the National Mastitis Council (NMC), Dry Doe Therapy. Used with permission.

What is hot milk? Hot milk is milk that contains antibiotic residues. There is a zero tolerance policy for antibiotic residues in milk. Milk that tests positive for antibiotic residues may subject the producer to stiff fines, or the producer may be forced to pay for an entire truckload of milk. Where there are several violations, the license to sell milk may be revoked.

Such violations can be avoided by carefully observing and following milk withdrawal times for medications and medicated feeds. Some dairy producers use on-farm drug residue screening tests to determine the presence of antibiotic residues in their bulk tank. There are a wide variety of on-farm drug screening tests available. Keep in mind, however, that there are no FDA-validated screening tests for milk from individual does. It is extremely important that you work with your veterinarian or milk processor to determine the best way to make sure that the milk you produce is safe to sell.

Drug Storage

Producers are subject to strict drug storage guidelines. These guidelines are enforced by state and federal agencies and, in the case of dairy, by milk processors. Producers who violate drug storage guidelines may be subject to fines and may not be allowed to sell their products for specified periods of time.



Federal and state laws specify that drugs for lactating does and drugs for other animals, including non-lactating does, kids, replacement does, wethers, etc., must be stored separately. This can be done by labeling shelves in your medication cabinet or refrigerator “Drugs for Lactating Animals” and “Drugs for Non-Lactating Animals.”

All medications must be stored so that they do not come in contact with feed, milk, or milking equipment. If you are a dairy producer, check your state guidelines to learn about specific drug storage regulations.

Guide to Reading the Medication Label

Name of drug. Brand or generic name of drug being prescribed.

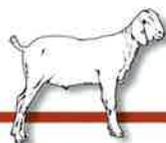
Active ingredients. Chemical name(s) of what is in the drug.

Withholding/Withdrawal times. The time period that must elapse after the last treatment and before harvest of the animal (slaughter) or use of its products (meat, milk, and eggs) for human consumption.

Medication Label

<u>Name of Drug</u> OMNIBIOTIC	
(Hydrocillin) <u>Active Ingredient</u>	
<u>Cautions and Warnings</u>	Directions for use: See package insert.
	Warning: The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food. Exceeding the highest recommended dosage level may result in antibiotic residues in meat or milk beyond the withdrawal time.
	<u>Withholding Times</u>
	Store between 2° and 8°C (36° and 46°F)
	Keep dry and away from light.
<u>Quantity of Contents</u>	Net Contents: 100 mL
	Distributed by
	USA Animal Health, Inc.
	<u>Name of Distributor</u>
<u>Lot Number</u>	<u>Expiration Date</u>
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This activity was adapted from information found in the **Quality Assurance and Animal Care Youth Education Program**. Based upon work supported by the Extension Service, United States Department of Agriculture, under special project number 93-EFSQ-4096.



Cautions and warnings. Tells of items to be cautious about when using the product. Examples: (a) Do not give to certain kinds of animals; (b) do not give too much; (c) pay attention to withholding times (see above).

Storage. Tells how the medication should be kept while not in actual use. Many medications may lose their potency when exposed to moisture, direct light, warm and/or freezing temperatures. Most also lose effectiveness with time. The label will indicate how the product should be stored to retain maximum strength.

Quantity of contents. Tells how much is in the container. Usually in metric units. Liquid measure: 1 fluid ounce = 29.6 milliliters (ml); dry measure: 1 pint = 551 milliliters (ml); 1 cubic centimeter (cc) = 1 milliliter (ml).

Name of distributor. This will tell you who distributed the medication.

Expiration date. Tells when to discard the drug. Most drugs lose effectiveness with time. Do not use medication after the expiration date listed.

Lot number. A manufacturer's reference number that indicates the day or batch in which this product was made. These numbers are needed if the product is recalled. The Lot Number can also be referred to as the Serial Number.

Guide to Reading the Medication Insert

(sometimes found on outer label)

Species and animal class. The species and animal class in which the drug is to be used. (Example of species: Cattle, sheep, or

swine; Example of class: lactating or non-lactating).

Approved uses (indications). The situation for which the drug is to be used. Indicates the particular type of animal, stage of lactation, condition, illness, etc.

Dosage. How much to give and how often/how many times to give.

Route of administration. How is the product given to the animal? Basically, there are four routes of administering medications (see descriptions in Proper Administration of Animal Drugs):

1. **Oral route**
2. **Topical route**
3. **Injectable route**
 - **Subcutaneous (SQ)**
 - **Intramuscular (IM)**
 - **Intravenous (IV)**

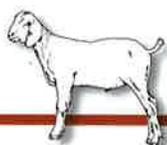
4. **Intramammary infusions**

Cautions and warnings. Tells of items to be cautious about when using the product. Examples: Do not give to certain kinds of animals; do not give too much; pay attention to withdrawal times.

Storage requirements. Tells at what temperature the medication should be stored. For example: Do not freeze.

Withholding/withdrawal times. The time period that must elapse after the last treatment and before harvest of the animal (slaughter) or use of its products (meat, milk, eggs) for human consumption.

Sizes available. Tells how the medication is supplied and sizes available.



Medication Insert

Name of Drug OMNIBIOTIC

(Hydrocillin in Aqueous Suspension) **Active Ingredient(s)**

For use in Meat Cattle, Lactating and Non-Lactating Goats, Swine, and Sheep

Species and Animal Class

Read Entire Brochure Carefully Before Using This Product.

Active Ingredients: Omnibiotic is an effective antimicrobial preparation containing hydrocillin hydrochloride. Each ml of this suspension contains 200,000 units of hydrocillin hydrochloride in an aqueous base.

Approved Uses

Indications: Cattle — bronchitis, foot rot, leptospirosis, mastitis, metritis, pneumonia, wound infections. Swine — erysipelas, pneumonia. Sheep and goats — foot rot, pneumonia, mastitis, and other infections in these species caused by or associated with hydrocillin-susceptible organisms.

Recommended Daily Dosage

The usual dose is 2 ml per 100 lb. of body weight given once daily. Maximum dose is 10 ml/day.

Dosages	<i>Body Weight</i>	<i>Dosage</i>
	50 lb.	1 ml
	100 lb.	2 ml
	300 lb.	6 ml
	500 lb. or more	10 ml

Continue treatment for 1 to 2 days after symptoms disappear.

Route of Administration

Cautions and Warnings

Caution: 1. Omnibiotic should be injected deep within the fleshy muscle of the neck. Do not inject this material in the hip or rump, subcutaneously, into a blood vessel, or near a major nerve because it may cause tissue damage. 2. If improvement does not occur within 48 hours, the diagnosis should be reconsidered and appropriate treatment initiated. 3. Treated animals should be closely observed for at least 30 minutes. Should a reaction occur, discontinue treatment and immediately administer epinephrine and antihistamines. 4. Omnibiotic must be stored between 2° and 8°C (36° and 46°F). Warm to room temperature and shake well before using. Keep refrigerated when not in use.

Storage Requirements

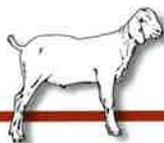
Sizes Available

Warning: Milk that has been taken from animals during treatment and for 48 hours after the last treatment must not be used for food. The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food.

Withholding Times

How Supplied: Omnibiotic is available in vials of 100 ml.

This activity was adapted from information found in the **Quality Assurance and Animal Care Youth Education Program**. Based upon work supported by the Extension Service, United States Department of Agriculture, under special project number 93-EFSQ-4096.



Ohio Livestock Coalition

This statement from the Ohio Farm Animal Commission, now known as the Ohio Livestock Coalition, summarizes many of the topics discussed in this chapter. Be sure to read the statement, understand the purpose of the coalition, and follow the Code of Practices.

Policy Statement

The Ohio Farm Animal Care Commission (OFACC) was organized in 1990 to provide leadership on matters related to farm animal care. In 1997 the organization changed its name to the Ohio Livestock Coalition (OLC) to provide leadership and lend support to the recommendations by the Ohio Livestock Industry Task Force, which released its report in 1996. The Commission was then designated a vital part of the OLC.

The Commission has dedicated itself to the promotion of sound animal husbandry practices in the care and efficient production of animals used for food and fiber. The use of proper animal husbandry practices minimizes stress, improves animal efficiency and profitability for the farmer and insures a safe, healthy and wholesome product to the consumer at a reasonable price.

The Commission believes animals are vital to human existence and therefore deserve our protection and compassion. Humans have had an inseparable relationship with animals and nature, as man has served as their sole caretaker for centuries. Yet, humanity is answerable to another set of laws and concepts that is uniquely a product of human society. Animals cannot be made subject to the laws that we as human beings are governed by and therefore do not have the rights of humans.

The Commission firmly believes that all animals use other animals for their existence. Thus, the responsible use of animals by humans is natural and appropriate.

The Commission believes that farmers take pride in their responsibility to provide proper care for their animals and endorses the following "Code of Practices."

Code of Practices

The following describes general responsibilities of the farmer and all persons in their authority, in the proper care and handling of animals raised for food and fiber:

- To provide food, water and care necessary to protect the health and welfare of my animals.
- To provide a safe and healthy environment for my animals that is clean, well ventilated and provides ample space.
- To provide a well-planned disease prevention program to protect the health of my herd or flock. This includes a strong veterinarian/client relationship.
- To use humane and sanitary methods when it becomes necessary to dispose of my animals.
- To make timely inspections of all animals to evaluate the health and ensure that all basic requirements are being met.
- To ensure proper handling techniques are used to eliminate any undue stress or injury when manual manipulation is necessary.
- To provide transportation for my animals that avoids undue stress or injury caused by overcrowding, excessive time in transit or improper handling when loading or unloading.
- The willful mistreatment of my animals or the mistreatment of any animal will not be tolerated. In cases of mistreatment, I will notify the proper authorities.
- To make management decisions based on scientific fact and to consider the welfare of my animals.
- We encourage livestock producers to complete species-specific quality assurance programs.

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