INTRODUCTION

This manual has been developed as a study guide for the Florida State Fair Skillathon which is part of the Champion Youth Program. The topic for this year's Skillathon is **Health care management**.

The Florida State Fair recognizes that agricultural education instructors, 4-H agents, parents, and leaders provide the traditional and logical instructional link between youth, their livestock projectsand current trends in the animal agriculture industry. **PLEASE NOTE:** This manual is provided as a ***study guide*** for the skillathon competition and should be used as an additional aid to ongoing educational programs. Additional information is available on websites that are listed throughout the manual.

Sections are labeled **Junior, Intermediate & Senior, Intermediate & Senior, or Senior** to help exhibitors and educators identify which materials are required for their age level.

If you qualify for the "Champion of Champions" event, you will want to visit the State Fair website to download and study the skillathon manuals for the other species shows.

Juniors (age 8-10 as of September 1, 2025)
Body parts
Restraint, knot tying
Animal Identification (methods)

Intermediates (age 11-13 as of September 1, 2025)
all of the above plus...
Animal Identification (procedures)
Recognizing Illness
Preventing Illness
Health supplies
How to give an Injection, injection sites
Internal Parasites
External Parasites

Seniors (age 14 and over as of September 1, 2025)
all of the above plus....
Disease Identification
Weight estimation & Dosages
Medication label identification
Withdrawal times & Medical Calculations

GOOD LUCK!

Animal Health

Assuring animal health is a primary responsibility of livestock managers. Failure to do so results in animal suffering, decreased productivity and could even pose a threat to human health. Animal health is so important that the United States Department of Agriculture has an Animal and Plant Health Inspection Service (APHIS) to work with the livestock industry in disease prevention: https://www.aphis.usda.gov/aphis/home/. Concerns over bioterrorism and potential threats to human health have brought animal health concerns into the spotlight in recent years.

Disease is a departure from health. Disease may be caused by infectious agents like bacteria, viruses, fungi, prions, protozoa and parasites. Infectious diseases might be contagious, passing from one animal to another. Transmission occurs through direct or indirect contact with the diseased animal. Direct contact transmission happens when the diseased animal physically touches or is very close to another animal. Transmission is passed through saliva, nasal discharge, sexual contact, pus, feces, and/or blood, or can be airborne. Diseases may also be transmitted indirectly by a third party or mechanically. Contaminated feeders, waterers, shoes, and clothing, farm equipment and tires, biting insects, wild birds and animals can all transmit diseases. Although exposure to infectious agents cannot be completely avoided, most of the time the animal will remain healthy. On occasion, these agents overwhelm the body's immune system and the animal becomes ill.

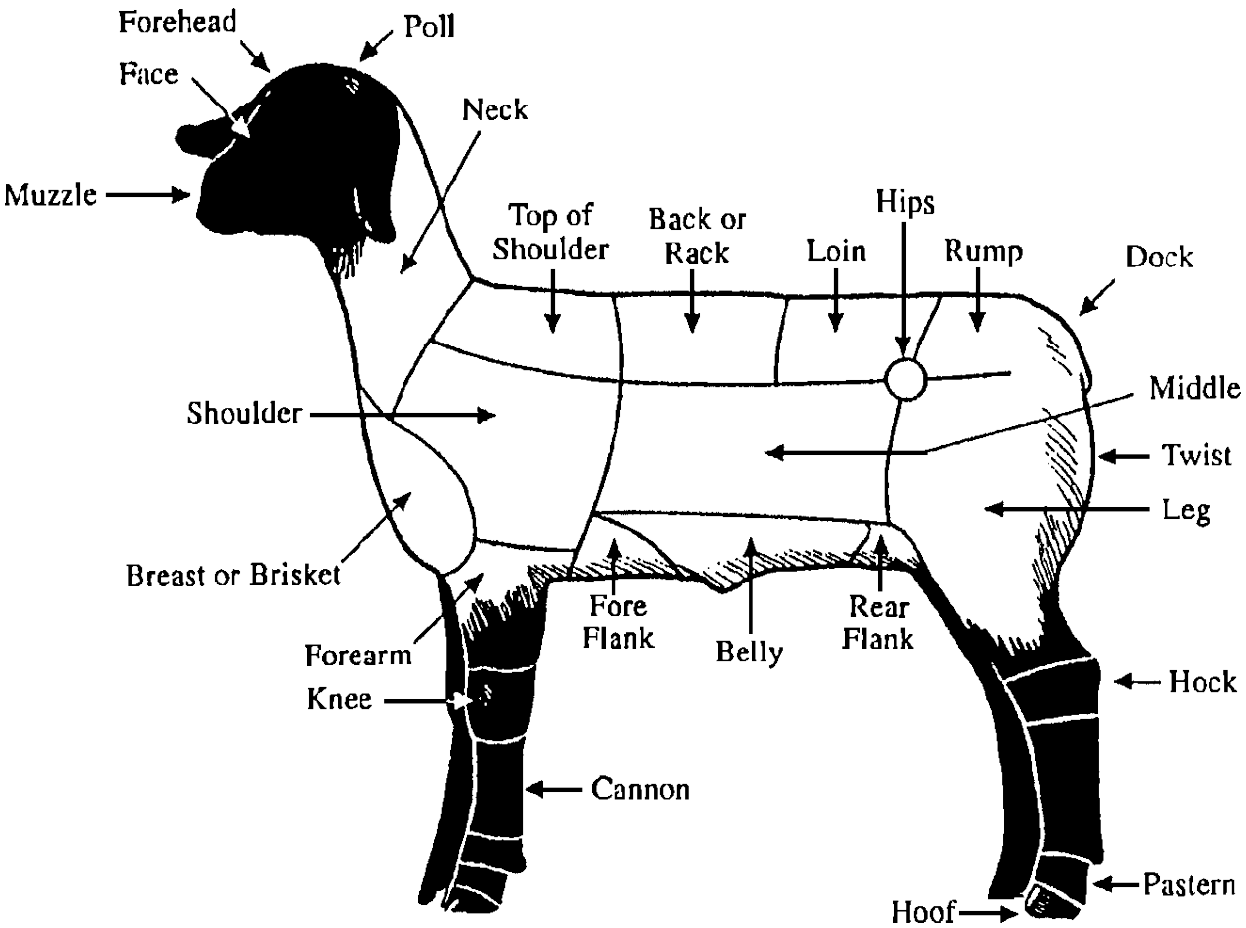
Health problems may also occur from noninfectious causes. Malnutrition, trauma/injury, cancer, genetic defects, and environmental hazards like toxins, poison or extreme weather conditions can cause illnesses. While these cannot be passed on to other animals, they can be stressors that lower the animal's resistance to any of the infectious diseases.

APHIS Home

Juniors, Intermediates and Seniors

Sheep Body Parts

It is important for livestock producers to share a common language. Using the correct names for various body parts is one way to be certain your message is understood. Study the pictures with the names of the body parts labeled so that you can communicate with other producers using correct terms.



Restraint

In order to carry out routine animal health care practices, animals must be prevented from moving about freely. Methods of restraint could be put into five categories.

1. Psychological – knowledge and anticipation of natural behaviors to accomplish task
2. Train or desensitize – repeat exposure to stimulus, cotton in ears, blind fold
3. Confinement - chutes, alleys, stalls, or barriers
4. Tools and physical force –ropes, crooks, canes, hands, prods and whips
5. Chemical sedation or immobilization – potentially dangerous, should not be used without veterinary supervision.

Whichever method or methods are employed, it is important to use common sense, plan ahead, be safe and always use SELF CONTROL. Haste is the enemy. Ask the following questions: Will the method minimize the danger to the handler? Will the method minimize danger to the animal? Will the method cause unnecessary pain or fright? Will the method allow the management technique to be completed as necessary? If any of the questions are answered negatively, other restraint methods should be used.

Ropes Used in Restraint

Rope is one of the tools used most often by livestock producers. Knowledge of rope, knots, and hitches is indispensable. The most common type of rope used by livestock producers is the three strand braided rope which can come in many diameters and be made of man-made or natural fibers. Cotton ropes are soft, flexible and are least likely to cause rope burn though not as strong as other fibers and will rot and deteriorate over time. Cotton ropes are good for tying up limbs, for neck ropes and for lead ropes (if 5/8 inch or larger). Nylon is the strongest type of rope and will not rot from water or mildew but will stretch and often causes rope burn. It makes the strongest lead rope and is excellent for slinging and total restraint. Regardless of the fiber, ropes should be of fairly wide diameter, soft-surfaced and free of knots. Webbing should be free of rust and dirt and have smooth surfaces. Ropes should be kept clean, dry and untangled.

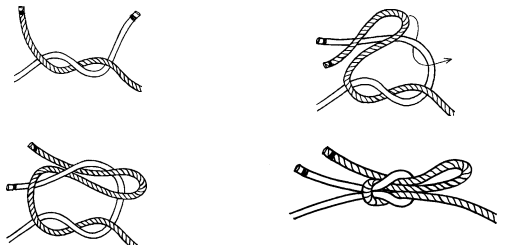
Knots for Livestock Handling

There are many circumstances in sheep handling that will require you to tie knots. Take the time to learn to tie several types of knots and hitches so that you will have the right knot for the right circumstance. Practice often so that it becomes second nature. In an emergency situation, you do not want to have to think about which knot to choose and how to tie it.

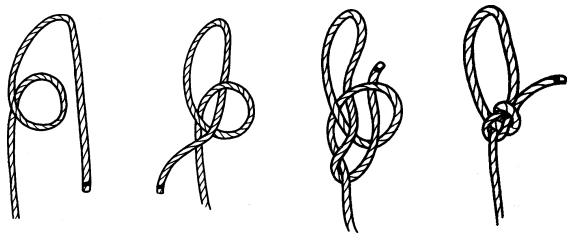
Knots join ropes together, attach ropes to a post or rail, or attach ropes to an animal.

Hitches are used to attach a rope to a post or rail - only thing securing the rope to post is the pressure of one rope coil wrapping upon the others.

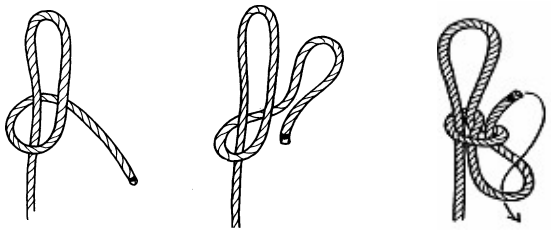
Splices are used to permanently join ropes to one another - individual strands from each rope are interwoven with strands from the other.



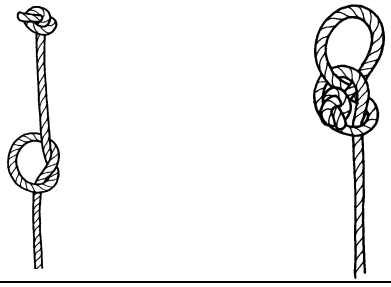
Reefer's Knot *(Quick-Release Square Knot)*
A good non-slip knot for tying ends of rope together and can easily be released. An advantage is that it can be tied under tension - an important feature for a knot used to restrain livestock.



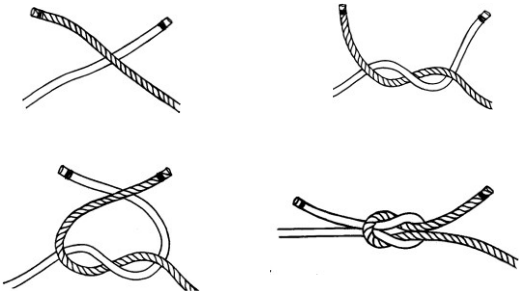
Bowline Knot
A non-slip knot used to form a loop that will not tighten or draw down when placed around an animal's body or a post.



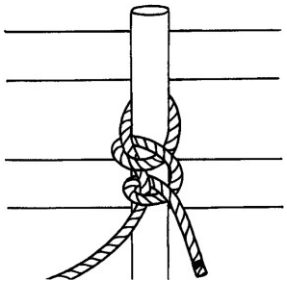
Quick-Release Knot
The standard way to tie an animal to a post. A variation of a slipknot that can be released very quickly, even when under tension. This knot should never be tied around the neck or body of an animal.



Honda Knot
Knot used to form small loop in the end of a rope in order to pass the rest of the rope through, forming a much larger loop, or lariat.



Square Knot
Excellent for tying two nearly equal size ropes together or for tying the ends of a single rope together to form a loop. Used mainly to secure gates or cage openings. Also used to tie a cloth or gauze bandage around the limb of an injured animal.



Double Half Hitch
A quick and easy knot which acts like a slipknot and is a convenient way to tie up the end of a rope.

Methods of Animal Identification

Proper animal identification has always been essential for record keeping and for efficient execution of normal management practices. In recent times, the threat of bioterrorism and the potential for rapid spread of diseases affecting livestock and human populations has led to the development of the **National Animal Identification System (NAIS).** The intent was to enable 48-hour trace back of the movements of any diseased or exposed animal to help ensure rapid disease containment and maximum protection of America's animals. Opposition to the program has led to less restrictive regulations for improved traceability of U.S. livestock moving between states. Animal Disease Traceability website: http://www.aphis.usda.gov/traceability/ Most sheep and lambs must have premise identification ear tags because of the threat of Scrapies. For more details you may visit the American Sheep Industry Association website: http://www.sheepusa.org/Home.

In Florida sheep must be identified with their flock/herd of birth to comply with the state's scrapie identification requirements. Only USDA/APHIS approved identification methods can be utilized. These include:

- Official USDA APHIS Veterinary Service ear tags
- Premises identification tattoos
    - Tattoos must be legible and contain the flock/herd number and unique animal number.
    - Tattoos must be accompanied by either an official breed registration certificate or a health certificate that includes the corresponding official registration number.
- Electronic microchip/implant
    - Microchip/implant must be accompanied by owner statement of ID numbers and chip manufacturer. The owner should have a chip reader for verification of placement.

For more information on goat identification requirements, and requirements to move goats in and out of Florida, visit the FDACS website: https://www.fdacs.gov/Agriculture-Industry/Livestock/Animal-Movement/Sheep-Movement-Requirements.

Many identification options exist for sheep, some permanent, and some temporary. Whatever method is chosen, it should be visible, easy to apply, unalterable, inexpensive and whenever possible, not cause harm or discomfort to the animal. No single method meets all of these criteria so most producers use a combination of ID methods. Possible methods of sheep identification include: ear tattooing, ear notching, ear tags, neck chains, paint branding and transponders (electronic ID).

TATTOOING

Advantages - It is permanent and does not disfigure the animal.

Disadvantages - Animal must be confined in order to read tattoo. Tattoos are hard to read on dark-skinned animals. Must wait until lamb is 6 months old so tattoo is readable.

Equipment Necessary -

Squeeze Chute or Head Gate
Tattooing Instrument
Tattooing Numbers &/or Letters
Tattooing Ink or Paste
Alcohol
Clean Cloth

Procedures -

1. Assemble the necessary equipment. It is important that the numbers and/or letters be placed into the tattooing instrument in the proper order. As you look at them in the tattooing instrument, they should appear backward. Always check the numbers and/or letters on a piece of paper or cardboard before you begin to make sure they are correctly placed.
2. Restrain the animal.
3. Locate the widest spot in the ear between the rib of cartilage nearest the bottom and the two ribs at the top
4. Clean the inside of the ear, where the tattoo will be placed, with a cloth soaked in alcohol. Infections or warts can result if a tattoo is placed in a dirty ear.
5. Position the tattoo instrument inside the ear so that the needlepoint dies are above the ribs as described in step three. Squeeze the handles of the tattooing instrument together completely and quickly; then release them fully.
6. Rub tattoo ink or paste into all of the needle marks. Work the ink or paste well into the marks.
7. The same procedure can be used on the inside of the flank where there is no wool growth. It will be necessary to set the sheep on its rump for this process.
8. Clean the tattooing equipment with Nolvasan (disinfectant) after each day of use.

https://www.youtube.com/watch?v=gjtgQnYVZrk

EAR TAGGING (plastic)

Advantages - Economical; can be read from a distance.

Disadvantages - Plastics tend to become hard and brittle in cold weather; easily lost;
Pre-numbered tags with block-type numbers are difficult to read if they get soiled.

Equipment Necessary -
Squeeze Chute or Head Gate
Ear Tag and Applicator
AntisepticMarking Fluid
Cloth

Procedures -

1. Select tag style.
2. Select the tag size.
3. Select contrasting ink and tag colors.
4. Select a numbering system for the ear tags.
5. The next decision will be whether to purchase pre-numbered or blank tags. Pre-numbered tags are more convenient, but not as adaptable to your "system" as the blank tags can be. Make this decision based upon the unique needs of your operation. If you choose the blank tags, number the plastic tags with marking fluid recommended by the tag manufacturer. Plastic tags should be numbered the day before they are inserted into the ear. Number the tags with large numbers along their bottoms so that they can be seen from a distance. Soak the tags before application.
6. Insert the ear tag into the appropriate applicator. Each tag manufacturer has an applicator designed specifically for its type of tag. Two-piece tags require that the male portion of the tag be slid over a pin and the female portion inserted into a clip. Be sure to follow the manufacturer's directions when inserting the tag into the applicator. When using two part tags make sure that the male portion of the tag lines up with the female portion of the tag.
7. Select the ear to be tagged.
8. Select the tagging site on the ear. For lambs, it is best to locate a spot on the widest part of the ear and above the lowest rib on the ear, but below the top two ribs.
9. Hold the ear of the lamb with one hand while using the other hand to insert the ear tag. Be certain to restrain the head securely while piercing the ear until the pliers are removed so the lamb will not tear the ear by shaking its head.
10. Release the animal and allow it to return immediately to its flock mates.

https://www.youtube.com/watch?v=O84Y-xnEGHs

EAR TAGGING (metal)

Advantages – Durable.

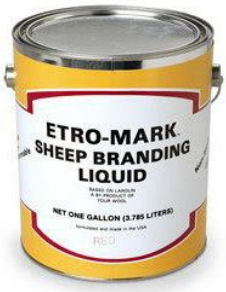
Disadvantages – Difficult to read at a distance.

Equipment Necessary
Self-piercing tag or non- piercing tag and hole punch
Pliers

Procedures –
Self-piercing metal tags
1. Insert self-piercing ear tag into the pliers.
2. Find the area on the inside of the ear that has the widest space between the ribs of cartilage.
3. Place the ear tag in the ear with the number facing forward. Clamp it tightly so that the tag is sealed to prevent its loss from the ear.

Non-piercing metal tags
1. Locate a spot in the widest part of the ear between the rib nearest the bottom an the two ribs at the top.
2. Punch a clean hole through the ear, removing any loose cartilage that remains.
3. Place the ear tag in the ear with the number facing forward.
4. Clamp the ear tag together with a pair of pliers or bend the small tab at the end of the tag to secure it in the ear.

PAINT BRANDING (Stenciling)



Advantages - Easy to read; Can be used on young lambs shortly after birth;

Disadvantages - Temporary.

Equipment Necessary -
Paint brands (2½“ for lambs, 4” for sheep)
Wool-branding paint

<u>Procedure</u> -
1. Pour a small amount of wool-branding paint into a container to saturate a piece of cloth or burlap.
2. Place the stencil in the container until the figure is covered with branding paint.
4. Place the stencil on the back of the lamb or ewe so that it can be read from front to rear while standing on the left side or left to right while standing at the sheep’s rear.
5. Allow the paint to dry before moving or handling the animal.
6. Clean the equipment after use.

EAR NOTCHES

Intermediates and Seniors

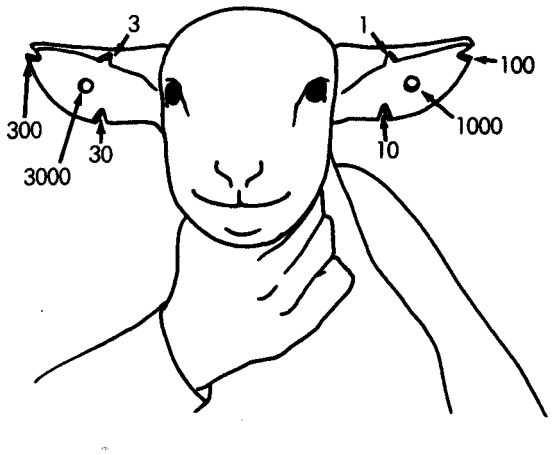
Advantages - Permanent; most economical method

Disadvantages – Detracts from appearance for show animals; difficult to read on breeds with wool on the ears

Equipment Necessary - Ear notcher, antiseptic

Procedure –

1. Choose a simple system like the one used in pigs. This system can be used to number 999 animals. If more numbers are needed, a hole can be punched in the middle of the left ear for 1000 and the middle of the right ear for 3000.
2. Check the number of the lamb and determine where to put the notches.
3. Hold the sheep by the head and use notches to remove a V-shaped amount of tissue from the edge of the ear in each of the locations needed to mark the correct number.
4. Treat the notches with iodine or some other antiseptic.



Sheep Health Supplies

Research the following items and practices to gain knowledge of their purpose in livestock production. Be prepared to identify these items and explain their use. Livestock equipment supply catalogs are a good study resource. Some have photographs on their web sites.

- Antiseptic/disinfectant
- Balling gun
- Blood stopper
- Epsom salts
- Dewormer
- Emasculator/Elastrator
- Ear tags
- Disbudding iron/dehorner
- Dose syringe
- Drench bottle
- Fly tag
- Ear notcher
- Ear punch
- Ear tag,
- Hoof trimmers
- Mineral oil
- Needles
- Paint brands/stick
- Penicillin
- Probiotic
- Stomach tube
- Syringes
- Tattoo
- Thermometer
- Tincture of Iodine
- Vaccine

Recognizing Illness

How do you know if an animal is healthy or not? One of the keys is to understand what is normal so that you can recognize what is abnormal. Once this skill is learned, it becomes easier to recognize abnormal behavior. This is a skill that develops after working with and caring for livestock over time. Deviation from normal can be an early indicator that something may be wrong. This knowledge and close observation allows early intervention. Some of the characteristics that serve as the basis for assessing animal health include: *Normal Eating Behavior, Group (Herd) Behavior, Normal Vital Signs, Normal Fecal Pattern and Consistency, Sounds or Acoustical Communication, Normal Stance, Movement, Posture and Activity Patterns*

Keeping good records of feed and water intake, death loss, reproduction rate, and/or growth rate can help you notice if there is a health problem in your flock. Major changes over time may mean a disease is present. Managers should take time each day to drive through the flock and notice the sheep's actions and reactions,

Monitoring health in farm animals often includes assessing *vital signs* such as *body temperature, pulse rate and respiration rate*. The body's response to an infectious agent or some other problems often results in a change from normal in one or more of the vital signs. Recognizing these changes along with other symptoms may allow early identification and treatment of a problem before it gets out of hand. Body temperature is measured with a rectal thermometer while the animal is properly restrained and averages *102 (100.9 – 103.8) ˚F.* Pulse is the surging of blood through arteries and is usually defined as the heartbeats occurring in a minute (bpm). In sheep it can be felt directly by placing the fingertips between the ribs, just behind the elbow or by palpating the femoral artery one third of the way down the inside of the hind leg; averages 75 *(60 – 90) bpm.* Respiration rate can be measured by simply counting the expansion and relaxation of the rib cage and abdominal wall (*averages 12-15 breaths/minute; 20-25 breaths/minute for lambs*). It is helpful to examine the mucous membranes (inner eye lid, nostrils, inner lips and gums) checking for a moist, pink appearance. Check for dehydration by pinching the skin on the side of the neck and releasing it. If the skin goes back into place quickly (less than 3 seconds), the animal has good skin pliability and is likely not dehydrated.

Preventing Illness

While all animal owners will likely experience losses due to illness and death, there are many things that can be done to limit illness and injury. There are many disease prevention practices that sheep managers should follow. Some are listed below:

1. Purchase healthy animals.
2. Quarantine all newly acquired animals away from the rest of the flock for a minimum of thirty days to allow for sheep that have been exposed to a disease to show symptoms.
3. Isolate sick animals: give the correct medication at the correct dosage for the correct duration.
4. Work with your veterinarian to develop and follow an appropriate **herd health program** that involves the use of testing, vaccinations, and antiparasitic compounds
5. Provide a constant supply of clean, fresh water.
6. Provide for the safety of your animals with proper fencing, predator control, vigilant repair schedule, and preventing exposure to harmful chemicals.
7. Reduce stress by following proper handling procedures and maintaining good sanitation.
8. Provide appropriate nutrition for the age and stage of production of your flock.
9. Observe regularly in order to identify early signs of trouble.
10. Keep excellent records.

Administering Medications and Vaccinations

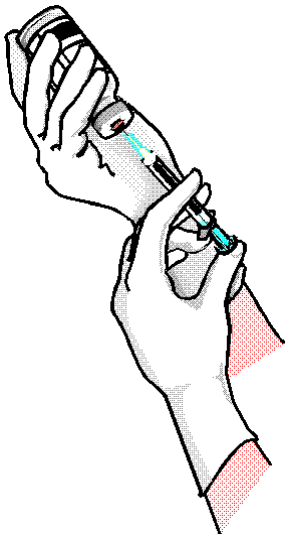
As a routine part of flock health management, sheep producers must administer medicine. This is considered a critical control point in the production chain. The best way to avoid problems associated with this critical control point is simply to follow the drug's label and package insert and to identify each animal that receives the drug at the time you administer it. This way you won't forget to identify the animal and risk sending an animal to slaughter with tissue residues.

It is important to **administer** drugs properly. There are two key elements: (1) route of **administration** (the way you get it into the animal), and (2) dosage (the amount you give to the animal and the interval at which you give it). There are seven ways drugs can be **administered**:

- Oral
- Intramuscular
- Intramammary
- Topical
- Subcutaneous
- Intravenous
- Intrauterine

Each of these techniques may bring about undesirable behavioral responses so you must properly restrain the animal and protect yourself. Topical treatments may be dangerous to humans so you should wear gloves and follow all safety precautions of the manufacturer. Medications given by mouth may be fed, loaded into a balling gun, or mixed into a drench or a dose syringe. Care should be taken that the animal does not choke and fluids are not forced into the lungs.

How to Give an Injection



Vaccines and many medications must be given by injection. When learning to give an injection, some of you may find it easier to practice on an orange or banana because fruit cannot feel pain. The discomfort that an animal getting a shot feels is similar to the discomfort that you feel when you get shots from your doctor. When giving an injection to an orange or banana, we must remember that it is somewhat different than giving an injection to a live animal. The live animal may move around and the skin may be harder to get the needle through.

There are two main types of injections given on the farm - *subcutaneous* (Sub-Q) or *intramuscular* (I.M.). The subcutaneous injection is given just under the skin and the intramuscular injection is given within the muscle tissue. On your orange, the peel is comparable to the skin on an animal, the orange sections are comparable to the muscles and the area in between these two is the comparable to the subcutaneous space.

To draw up an injection, wipe the vial top (rubber stopper) with an alcohol moistened cotton ball to disinfect it. Make certain the needle is securely attached to the syringe by inserting the plunger portion of the syringe into the open end of the syringe and twisting the needle onto the syringe tip. Remove the cap - do not touch the needle. Draw the plunger back to fill the syringe with an amount of air equal to the amount of vaccine you want to inject. Push the needle (with syringe) through the rubber stopper of vaccine and inject air - this prevents a vacuum from forming as you draw the vaccine out. Turn the vaccine vial (with needle/syringe still inserted) upside down, and draw out the desired amount of vaccine. Turn vial right-side up, remove needle/syringe, and cap needle until ready to use.

To give a subcutaneous injection:
Place the needle just under the skin by picking up a fold of skin on the neck or shoulder between your fingers and insert the needle just under the fold of skin. Push the plunger to expel the injection into the animal.

To give an intramuscular injection:
The needle must penetrate the muscle. Draw up the material as before. You may wish to rub the animal vigorously with your fingertips where you are going to give the shot to desensitize them to the stick and then quickly put the needle through the skin and into the muscle. After the needle is in the muscle, push the material into the animal with the plunger. When the syringe is empty, remove the needle and syringe from the animal making sure that the needle is still attached and replace the cap to prevent injury. Intramuscular injections should be given in the neck region. Injection site blemishes may include abscesses or scar tissue. Packers and processors have problems with injection sites in the hip area because they have to trim away product from this high value area. If given the option of subcutaneous or intramuscular, always choose subcutaneous.

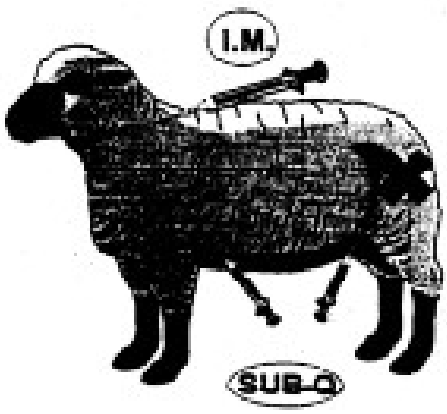
Always use sterile equipment as dirty equipment could cause infections at the injection site. Remember to dispose of all needles and biological wastes properly. Since animal species differ, the route of injections and the types of vaccines and medications needed are different. It is important that you consult your veterinarian before giving any shots and always READ THE LABEL and FOLLOW INSTRUCTIONS. Proper animal identification and record keeping are vital components of your livestock management program. Remember to always WRITE IT DOWN.

Injection Site Management

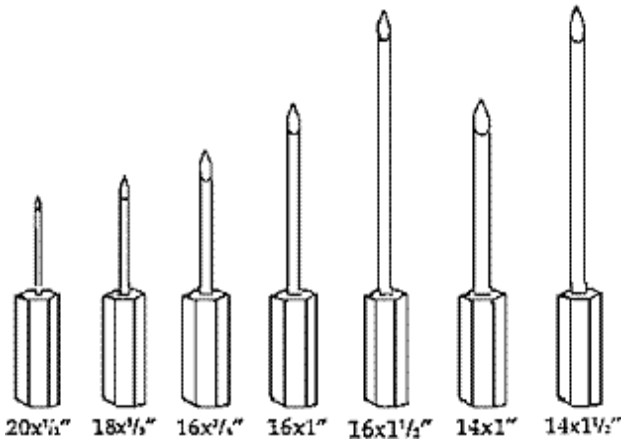
Selection of appropriate injection sites is very important for the well being of the animal to avoid abscesses and nerve damage. Since most livestock eventually end up in the retail case, it is also important to choose injection sites wisely so there is no adverse effect on the products for sale. Problems and concerns for food safety fall under 3 areas: injection site management, residue avoidance (antibiotics, chemicals and feed contaminations) and foreign object avoidance (broken needles). A ***Sheep Safety and Quality Assurance Implementation*** program was developed for sheep producers. For detailed information visit: https://www.americanwoolassurance.org/wp-content/uploads/ssqa-manual.pdf

Relative to injections, keep in mind the following:
If intramuscular (IM) medications must be used, administer them in the neck and never exceed 5 cc per IM injection site. If 12 cc is the calculated dose, use three, 4 cc injections instead of two, 6 cc injections. The volume of solution injected at one site will directly influence tissue damage, scar tissue and potential abscesses. Always use subcutaneous (SQ; under the skin) if that is an option. Intravenous (IV; in the vein) route of administration should only be done under supervision of a veterinarian by a very experienced individual when permitted by the product's label. Check product labels closely and administer the product as specified on the label. If possible, select products that have subcutaneous (SQ) as an approved route of administration. Ask suppliers to find products that have SQ, oral routes of administration rather than intramuscular (IM; in the muscle) route of administration.

Giving Injections



Investigate needle gauges to find the correct size for your project animal and product administered. (Gauge numberincreases as needle diameter decreases.)

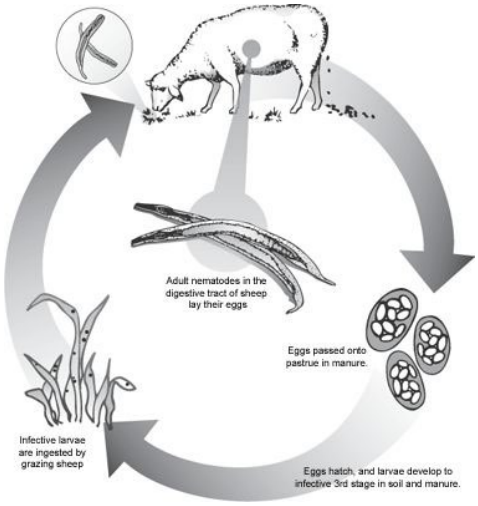


Internal Parasites in Sheep

Internal parasites are organisms which live in and feed on internal body tissue or fluid for at least a portion of their life cycle. One of the largest health concern for one's sheep will likely be controlling internal parasites. Worms are a common internal parasite in sheep. Barber pole worms, roundworms, lungworms, whipworms, and nodular worms are some of the major internal parasite concerns in sheep. Protozoal diseases, usually coccidiosis, can also be a problem in sheep. A healthy sheep in a clean pen or pasture typically will not develop coccidiosis. Liver flukes can also be an issue in sheep.

Keep pens or pastures as clean as possible. This will help protect sheep from parasites and disease. Worms and other internal parasites can rob the animal of weight gain and thriftiness. Several anthelmintics (dewormers) are approved to use in sheep. As with any drug, follow label directions.

Symptoms of internal parasite infestation in sheep include weight loss, diarrhea, depression, listlessness, fast breathing, and bottle jaw. To diagnose parasite infestation, most will analyze a fecal sample under a microscope. For more information read these Extension publications: https://smallfarms.oregonstate.edu/sites/agscid7/files/em9055.pdf#:~:text=Parasites%20commonly%20found%20in%20sheep%20and%20goats%20can,common%20of%20which%20are%20coccidia%20%28Eimeria%20or%20Isospora%29.



An illustration of the life cycle of an internal parasite in sheep. Source: https://resources.ext.vt.edu/

External Parasites in Sheep

External parasites live outside the body and feed on the skin/hair/wool/skin/blood of the animal for at least one part of its life cycle. External parasites can make an animal extremely uncomfortable and affect weight gains. Lice (both biting and sucking lice) are a common external parasite in sheep. Nose bot flies, keds (or louse flies), mites, fleas, and fly maggot larvae can also infest sheep. Insecticides are available to treat external parasites in extreme cases; check with your veterinarian or county Extension agent for advice. For more information on external parasites read this publication: https://edis.ifas.ufl.edu/publication/IG129.

Seniors

Estimating Body Weight

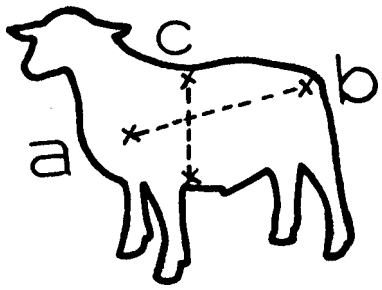
One challenge in administering medications is determining the proper dose. Many medications base the dose on body weight. If you do not have a scale available, you should have a method of estimating weight that is fairly accurate so you do not overdose or underdose your animal. Always follow label directions. Too much of a good thing is often very bad but underdosing of products like dewormers can speed up resistance by the parasites. Weight tapes are available that are fairly accurate or you can measure your animal and calculate weight

Step 1: Measure the circumference (heart girth) from a point slightly behind the shoulder blade, hence down over the foreribs and under the body, behind the elbow (distance C of figure below). In unshorn sheep, be sure to part, or compress the wool, to ensure an accurate heart girth measurement.

Step 2: Measure the length of body, from the point of the shoulder to the point of the rump (pinbone), in inches (distance A-B of figure below).

Step 3: Take the values obtained in steps 1 and 2 and apply the following formula to calculate body weight:

Heart girth^2 X body length ÷ 300 = weight in pounds



Calculating Dosages

Read medication labels carefully when calculating doses. Keep in mind 1 cc = 1 ml.

Example 1: Your 50 pound lamb needs to be treated for internal parasites. The recommended dose is 1 ml/100 pounds body weight of dewormer. How much dewormer should you administer to your lamb?

50lb X 1ml/100lb = 0.5ml

Example 2: A 50 pound sick animal requires an injection of antibiotic at a dosage rate of 2,500 units/pound. The antibiotic to be used contains 100,000 units/ml. How much antibiotic should the producer give to the animal?

Step 1: Calculate how many units a 50 pound animal needs.

2,500 units/lb X 50 lbs = 125,000 units

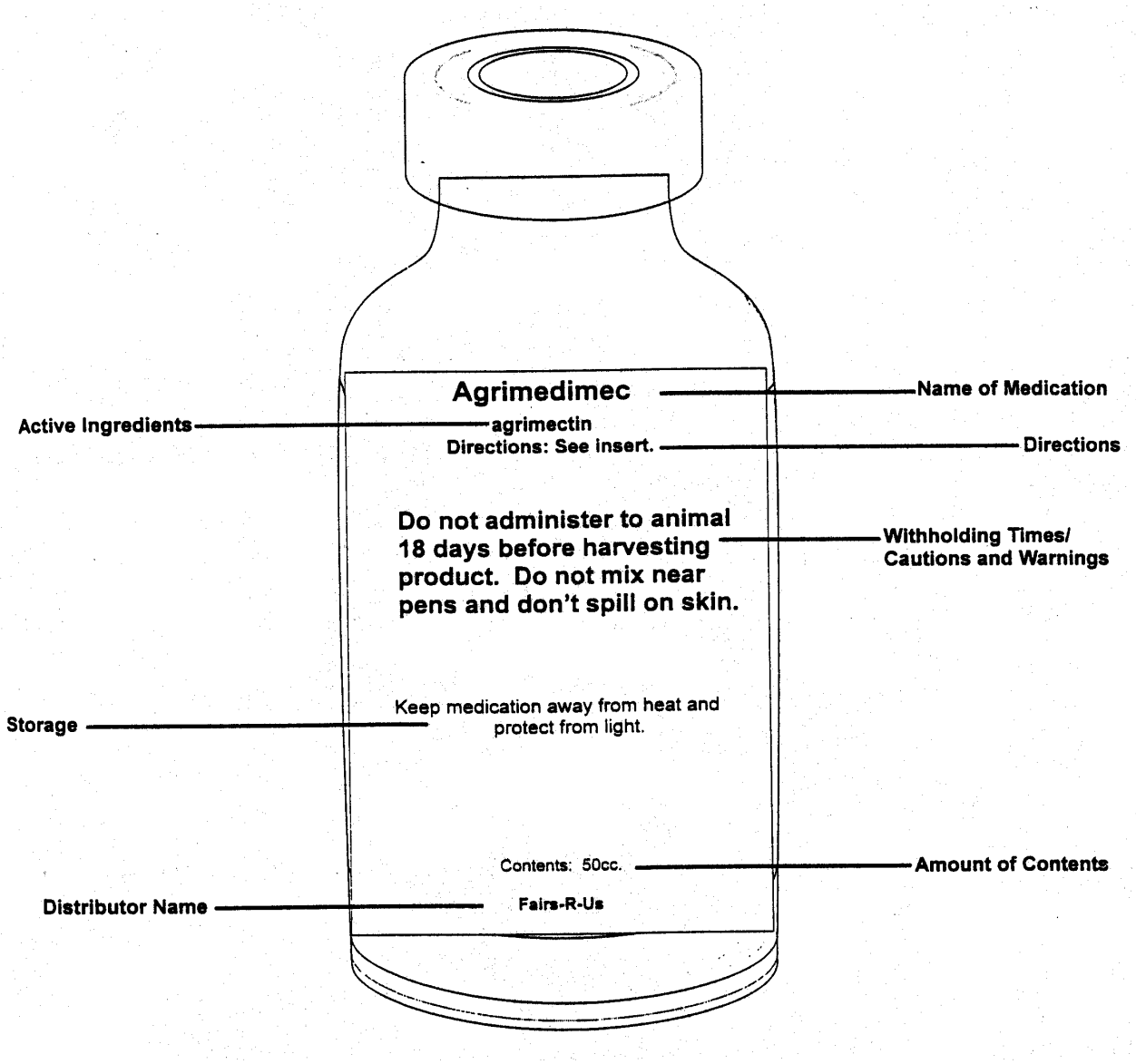
Step 2: Calculate how many mls. of the antibiotic would deliver the needed units.

125,000 units / 100,000 units/ml = 1.25 mls.

Seniors

Medication Labels

Manufacturers of pharmaceutical products follow strict guidelines in labeling their products. Understanding what is on the label and how to use the information is a critical skill for livestock health care management. Using the picture shown here, study the labels on the products you routinely use on your project animals.



The use of tradenames in this publication is solely for the purpose of providing specific information. It is not a guarantee, warranty, or endorsement of the products named and does not signify that they are approved to the exclusion of others.

Medication Calculations

Seniors

Be prepared to read a medication label and calculate when to administer booster shots, withdrawal times, etc.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 Gave Animal Antibiotic Shot	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18 Harvested Animal	19	20	21
22	23	24	25	26	27	28
29	30					

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

QUESTIONS:

Looking at the first calendar, if a medication that had a 32 day withdrawal time was administered on the 3rd, is it proper protocol for the animal to be harvested on the 18th? Why?

Using the calendar above, when could your animal be safely harvested if administered the antibiotic on the 3rd?

Sheep Diseases

Some people like to remark that sheep are born looking for a place to die. The statement is an exaggeration but there are many afflictions that sheep can be affected by. Gastrointestinal diseases include enterotoxemia, Johnes disease, ketosis, acidosis, bloat, scours and hardware disease. Infectious diseases include brucellosis, foot rot, listeriosis, sore mouth, pneumonia ringworm, scrapie and Q-fever. Of course they can suffer from mastitis just like dairy cows or goats. They can get pink eye, rabies, tetanus and many other common livestock diseases. They can be plagued by internal and external parasites. Details on several diseases are outlined below. An excellent source for learning about sheep diseases, complete with pictures is: http://www.sheep101.info/201/diseasesa-z.html

Name:	Club Fungus Disease
Common Name:	Woolrot, Lumpy wool, Ovine ringworm, Ovine dermatopytosis
Cause:	Fungus
Major Symptoms:	Presence of thick scaly, usually round-appearing, pustules on the skin, typically found on the ears and face, but can be found all over the body.
Prevention:	Use rubber surgical gloves when handling infected sheep, avoid nicking or cutting sheep while shearing. Keeping the sheep's area sanitary, as well as the sheep. If an outbreak occurs quarantine the infected sheep to control any further spreading.

Name:	Enterotoxemia
Common Name:	"Over eating" or pulpy kidney
Cause:	Bacteria *Clostridium perfringens* Type C and D
Major Symptoms:	Periodic muscular tremors and convulsion foaming at the mouth, grinding of the teeth, and oscillations of the eyes are all signs of Enerotoxemia. Death usually occurs within two hours of signs.
Prevention:	Properly timed and well balanced rations along with vaccinations and booster will help with any outbreaks. Likewise gradual transition between roughage feed to a highly concentrated ration, about 2 to 3 weeks

Name:	Contagious Ecthyma
Common Name:	Sore Mouth, CE, Orf
Cause:	Virus
Major Symptoms:	With an infection of contagious ecthyma sheep will show sings of formation of vesicles, pustules and thick scabs on the lips, nostrils, face, eyelids, teats, udder, feet and occasionally inside the moth.
Prevention:	Vaccination of the whole flock, the disease must run its whole course, so vaccination should happen before an out break.

Name:	E. Coli Scours
Common Name:	Watery Mouth
Cause:	Bacteria, *Escherichia Coli*
Major Symptoms:	Sheep infected with E. Coli Scours will show signs of diarrhea, dehydration, depression, going off their feed, a decrease in gut mobility resulting in a painful slightly bloated appearance to the abdomen, they will salivate from the mouth, and the mouth will be cool to the touch.
Prevention:	Good sanitation is the most important prevention tool for this disease. Re-hydrating the lamb, giving antibiotics prescribed by a vet, and making sure adequate amounts of colostrum are obtained in the lamb, are measures that should be taken when symptoms are observed.

Name:	Scrapie
Common Name:	
Cause:	Prion like factor
Major Symptoms:	Sheep infected with Scrapie will show signs of, weight loss without a loss in appetite, itching, biting at the legs, motor abnormalities, bunny hopping in rear legs, increased sensitivity to noise and sudden movements, tremors, wool pulling, lip smacking, high steeping with front legs, blindness, and swaying of back end.
Prevention:	Flock certification and testing, and not moving high risk or infected animals are two forms of prevention.

Name:	Pneumonia
Common Name:	Ovine Progressive Pneumonia, Progressive
Pneumonia Cause:	Virus
Major Symptoms:	Weight loss, labored breathing, paralysis, swollen joints, and hard unproductive udders are some signs that may appear with an infection.
Prevention:	To test for the infection a lamb must be bleed and have their blood examined. All positive cases need to be culled from the flock. Continue testing every 6 and 12 months culling all positive sheep till all test negative. Once a flock has tested negative 3 consecutive times then it is determined to be pneumonia free. Another method would be to remove all lambs from infected ewes before any contact, nursing or licking, has occurred and raise them artificially, to start a new pneumonia free flock.

Name:	Scrapie
Common Name:	
Cause:	Prion like factor
Major Symptoms:	Sheep infected with Scrapie will show signs of, weight loss without a loss in appetite, itching, biting at the legs, motor abnormalities, bunny hopping in rear legs, increased sensitivity to noise and sudden movements, tremors, wool pulling, lip smacking, high steeping with front legs, blindness, and swaying of back end.
Prevention:	Flock certification and testing, and not moving high risk or infected animals are two forms of prevention.

Name:	Pneumonia
Common Name:	Ovine Progressive Pneumonia, Progressive Pneumonia
Cause:	Virus
Major Symptoms:	Weight loss, labored breathing, paralysis, swollen joints, and hard unproductive udders are some signs that may appear with an infection.
Prevention:	To test for the infection a lamb must be bleed and have their blood examined. All positive cases need to be culled from the flock. Continue testing every 6 and 12 months culling all positive sheep till all test negative. Once a flock has tested negative 3 consecutive times then it is determined to be pneumonia free. Another method would be to remove all lambs from infected ewes before any contact, nursing or licking, has occurred and raise them artificially, to start a new pneumonia free flock.

Anemia from worm infestation

Healthy Eye Color