INTRODUCTION

This manual has been developed as a study guide for the Florida State Fair Skilathon which is part of the Champion Youth Program. The topic for this year's Skilathon 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 projects and current trends in the animal agriculture industry. **PLEASE NOTE:** This manual is provided as a ***study guide*** for the Skilathon 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 Skilathon manuals for the other species shows.

Juniors (age 8-10 as of September 1, 2021)
Body parts
Restraint, knot tying
Animal Identification (methods)

Intermediates (age 11-13 as of September 1, 2021)
all of the above plus...
Animal Identification (procedures)
Recognizing Illness
Preventing Illness
Health supplies
How to give an Injection, injection sites

Seniors (age 14 and over as of September 1, 2021)
all of the above plus....
Disease Identification
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 a *Health Inspection Service* to work with the livestock industry in disease prevention. Concerns over bioterrorism and potential threats to human health have brought animal health concerns into the spotlight in recent years.

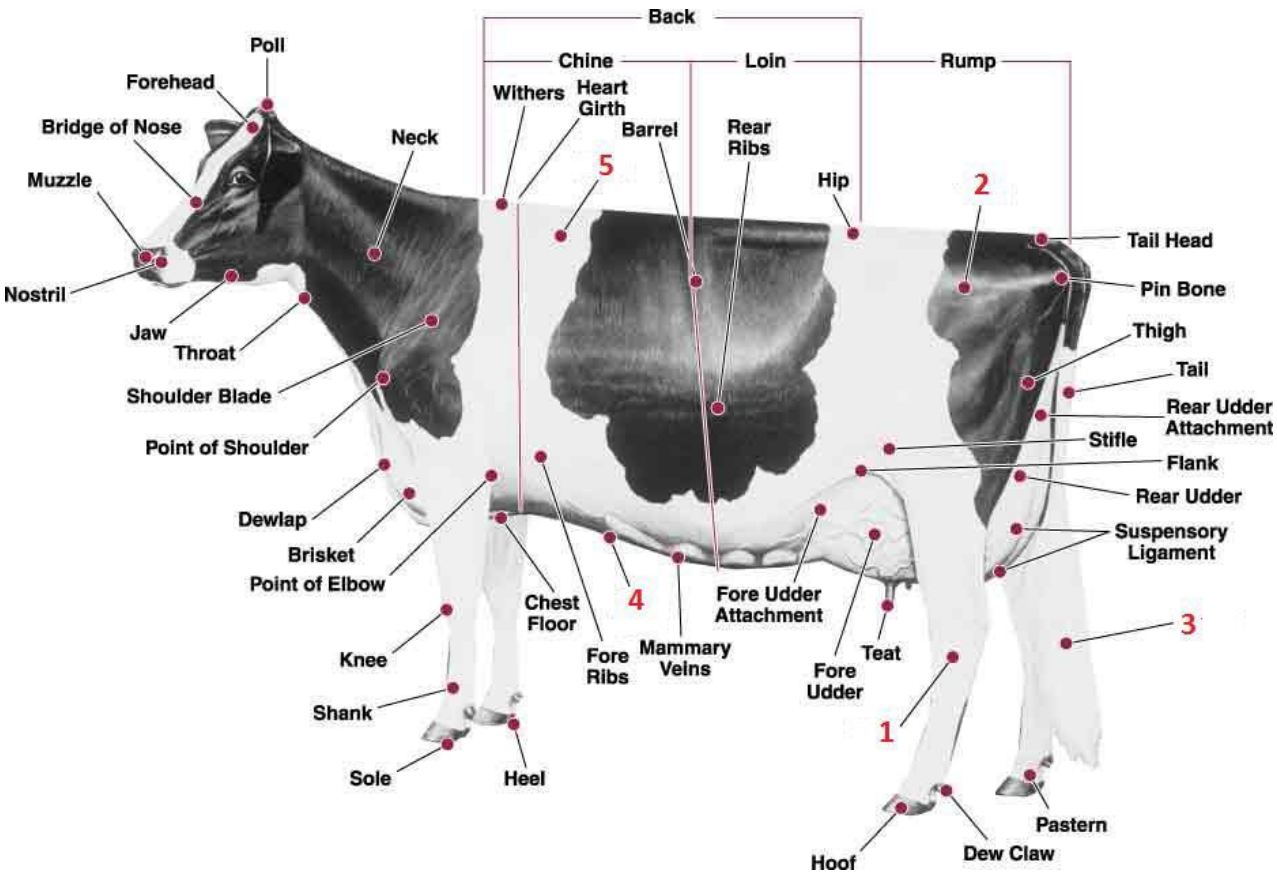
Disease is a departure from health. Disease may be caused by *infectious agents* like bacteria, viruses, fungi, prions, protozoa and parasites. Infectious diseases might be *contagious*, passing from on animal to another. Transmission occurs through *direct* or *indirect contact* with the diseased animal. *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, air borne, pus, feces, placenta, and/or blood. 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.
Exposure to infectious agents cannot be completely avoided, but most of the time the animal will remain healthy. Sometimes 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, theycan be stressors that lower the animal's resistance to any of the infectious diseases.

Juniors, Intermediates and Seniors

Dairy Cattle 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 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, snares, nose tongs, canes, prods and whips
5. Chemical sedation or immobilization –should not be used withoutveterinary supervision.

Whichever method or methods are employed, it is important to use common sense, plan ahead, be safe and always move in a calm, controlled manner. 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.

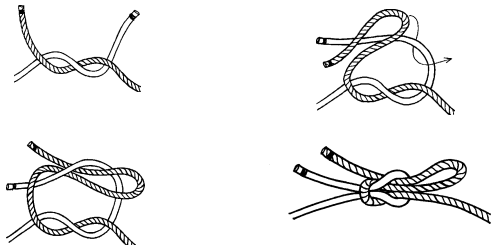
Knots for Livestock Handling

There are many circumstances in cattle 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.

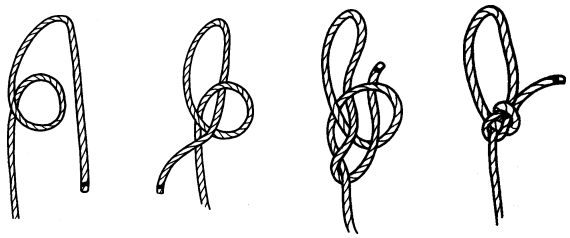
Knots join ropes together, attach ropes to a post or rail, or attach ropes to an animal.

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.

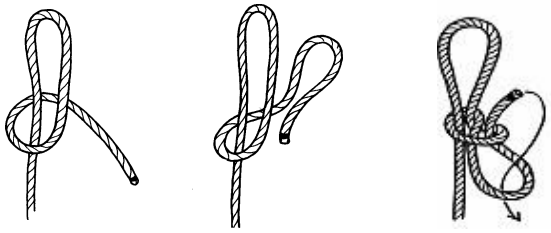
Splices are used to permanently join ropes to one another - individual strands from each rope are interwoven with strands from the other.



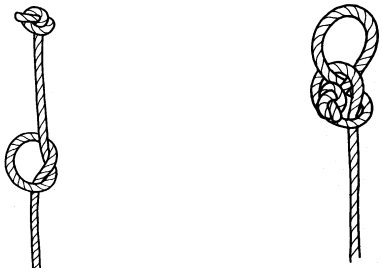
Reefer's Knot *(Quick-Release Square Knot)*
A good non-slip knot for tying ends of rope together and can easily be released. An advantage is that it can be tied under tension - an important feature for a knot used to restrain livestock.



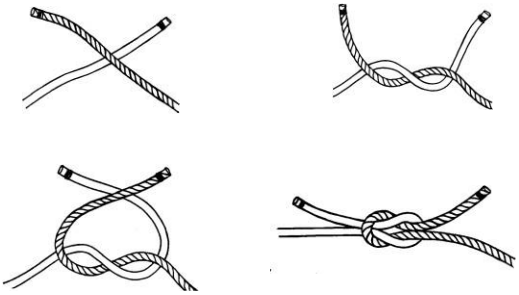
Bowline Knot
A non-slip knot used to form a loop that will not tighten or draw down when placed around an animal's body or a post.



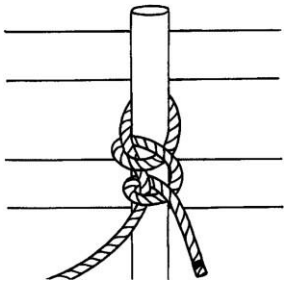
Quick-Release Knot
The standard way to tie an animal to a post. A variation of a slipknot that can be released very quickly, even when under tension. This knot should never be tied around the neck or body of an animal.



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 of a national identification program is 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 the food supply. The current rule requires cattle 18 months or older to be tagged with an official tag when moving within the state. Official tags are available from private manufacturers as well as from USDA. Private manufacturers offer several different types of official tags, including metal tags, plastic panel tags and radio frequency identification device (RFID) tags. Animal Disease Traceability website: http://www.aphis.usda.gov/traceability/
January 1, 2014 the FDACS Division of Animal Industry adopted a Florida Cattle Identification Rule (5C-31): http://www.freshfromflorida.com/Divisions-Offices/Animal-Industry/Florida-Cattle-Identification

Many options exist for cattle, some permanent, and some temporary. Whatever method is chosen, ideally 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 dairy cattle identification include: ear tattooing, flap ear tagging, electronic ear tag, hot branding, freeze branding, and neck chains.

TATTOOING
Advantages - It is permanent.

Disadvantages - Animal must be confined in order to read tattoo. Tattoos are hard to read on dark-skinned animals or from a distance.

Equipment Necessary -

Squeeze Chute or Head Gate
Tattooing Numbers &/or Letters
Alcohol
Tattooing Instrument
Tattooing Ink or Paste
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. Check the numbers and/or letters on a piece of paper or cardboard before you begin to make sure they are correctlyplaced.
2. Restrain the animal.
3. Two ribs of the cartilage divide the ear into top, middle and bottom thirds. The tattoo should be placed in the top third of the ear just above the cartilage rib and equal distance from the base and the tip of the ear. Tattooing on the edges of the ear or in the hair portion of the ear can make reading the tattoo difficult. Do not tattoo between the two cartilage ribs; this area is reserved for some types of ear tags or for a brucellosis vaccination tattoo in the right ear of heifers.

4. Clean the inside of the ear, where the tattoo will be placed, with a cloth soaked in alcohol. Infections 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. Release the animal.
8. Clean the tattooing equipment with Chlorhexidine disinfectant after each day of use.

FLAP EAR TAG

Advantages - Can be read from a distance

Disadvantages – Can tear ear and get lost if caught on something

Equipment Necessary -

Squeeze Chute or Head Gate	Ear Tag and Applicator	Antiseptic
Tag pen	Cloth	

Procedures -

1. Select tag style and size.
2. Select contrasting ink and tag colors.
3. Select a numbering system for the ear tags.
4. 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 pens recommended by the tag manufacturer. Plastic tags should be numbered the day before use. Write in large, clear, numbers on the front and back of the tag.
5. Insert the ear tag into the appropriate applicator. Each tag manufacturer has an applicator designed specifically for its type of tag. Be sure to follow the manufacturer's directions.
6. Select the ear to be tagged. The flap of the tag goes inside the ear. Clean the ear with alcohol or antiseptic.
7. Select the tagging site on the ear. The site selected will vary with the style of tag selected. Two-piece tags should be placed between the cartilage ribs, approximately halfway between the base and tip of the ear.
8. Hold the ear with one hand while using the other hand to insert the ear tag. Pay particular attention to the proper ear tag site. The two-piece tag is applied with a pliers-type applicator by squeezing the handles until the ear tag snaps together.
9. Treat the pierced ear around the tag with an antiseptic to prevent infection and fly irritation.
10. Release the animal.

ELECTRONIC EAR TAG

Advantages - Can be used track animal movements and allows for automated reading and sorting

Disadvantages – Difficult to read from a distance, expense

Equipment Necessary -

Squeeze Chute or Head Gate	Electronic Ear Tag and Applicator
Antiseptic	Cloth

Procedures -

1. Insert EID into tag applicator, follow manufacturer instructions

2. Application site must be free of foreign debris prior to placement of tags on the animal. Clean the ear. Review applicator instruction prior to tagging. IMPORTANT: Caution, “Free Air Space” is critical for proper healing and retention. Inspect placement after tagging to ensure there is sufficient space between ear and EID tag.

3. The EID tag should be placed vertically, in the middle of the ear, between the two cartilage ribs and 2/3 from the outside edge of the ear, 1/3 from the head. (Application too deep in the ear is not recommended).

4. The female portion of the tag should be on the inside of the ear with EID tag application. Note that this is a thicker part of the ear. Application may be more difficult than when applying a visual tag.
5. Release the animal.

HOT BRANDING and FREEZE BRANDING - Not often practiced in Dairy Cattle for individual identification

Intermediates and Seniors

NECK CHAIN OR ROPE AND NUMBER

Advantages – Reusable, does not disfigure the animal.

Disadvantages – Needs adjusting as animal grows, easily lost, cow could hang itself by the chain

Equipment Necessary -

Neck chain or Rope Number
Halter Squeeze Chute or Head Gate

Procedure -

1. Assemble the necessary equipment.
2. Restrain the animal.
3. Position chain around the neck, making sure the tag has first been slipped on the chain.
4. The chain or rope should be tight enough that it will not slip over the head, but loose enough to interfere with breathing, 4 fingers should comfortably fit beneath the chain.
5. Release the animal.

Monitoring:

Activity Meters

Pedometers can be used to measure activity in cows. Pedometer measurements can be used to detect large increases or decreases in activity. Large decreases could be a sign of illness or sickness. Large increases in activity can indicate that a cow is in heat (receptive to be bred).

Monitoring Collars

Monitoring collars have a wide range of capabilities. Monitoring collars use movement to determine different types of activities including walking, eating, lying down, and ruminating. These measurements are used to predict heat and health events. Some monitors have been successful at notifying herd health personnel of health problems before traditional health measures are seen.

Other types of monitoring

Monitoring devices are continuing to be developed to help manage the health of dairy cattle. Ear tags, rumen boluses, and intervaginal devices are all being assessed for their ability to predict health events and reproductive status.

Recognizing Illness

Intermediates and Seniors

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 allow for 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 herd. Major changes over time may mean a disease is present. Managers should take time each day to drive through the herd and notice the cattle's actions and reactions,

Monitoring health in farm animals that are mammals 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, with an average of *101.5 ˚F for cows and 102.5 ˚F for calves.* Pulseis the surging of blood through arteries and is usually defined as the heartbeats occurring in a minute (bpm). It can be felt in the artery under the tail in cattle and averages *60 bpm in cows and 100 bpm in calves.* In some animals you cannot feel the pulse but you can feel the heart beating under the ribs, or youmay use a stethoscope to listen to the heart beat. Respiration rate can be measured by simply counting the expansion and relaxation of the rib cage and abdominal wall (*averages 30 breaths/minute*). It is also helpful to examine the mucous membranes (inner eye lid, inside the nostrils, inner lips and gums) checking for a moist, pink appearance. You can 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 cattle managers should follow. Some are listed below:

1. Purchase healthy animals.
2. Quarantine all newly acquired animals away from the rest of the herd for a minimum of thirty days to allow for cattle that have been exposed to a disease to show symptoms.
3. Isolate sick animals: accurately determine the cause of the illness, 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 you 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 herd.
9. Observe regularly in order to identify early signs of trouble.
10. Keep detailed records.

Intermediates and Seniors

Dairy Cattle 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
- A.I. Rod
- Bleach
- Balling gun
- Blood stopper
- California Mastitis Test
- EID Tag
- EID Reader
- Epsom salts
- Dewormer
- Emasculator/Elastrator
- Ear tags
- Disbudding iron/dehorner
- Disinfectant
- Dose syringe
- Drench bottle
- Fly tag
- Tattoo (ID)
- Hoof nippers
- Hoof block
- Mineral oil
- Needles
- Paint stick
- Antibiotics
- Probiotic/Direct Fed Microbials
- Stomach tube
- Syringes
- Tag Applicator
- Teat cannula
- Teat dip cup
- Thermometer
- Tincture of Iodine
- Vaccine

Administering Medications and Vaccinations

Intermediates and Seniors

As a routine part of herd health management, livestock 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. Don't forget to identify the animal and risk putting contaminated milk in the tank or 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). These are seven ways drugs can be **administered**:

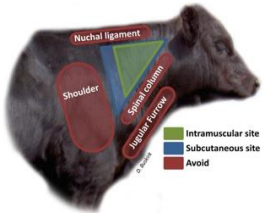
- Oral
- Intramuscular
- Intramammary
- Topical
- Subcutaneous
- Intravenous
- Intrauterine

When treating animals with any of the above methods of **administration**, take the following precautions:

- Clean the injection site and use a sterile needle for all injections.
- Milk treated cows last.
- Use the labeled method of **administration** and follow beef quality assurance guidelines for reducing the chance of residue.
- When using intramammary medications, follow label for milk withdrawal.
- Keep medicated feeds separated from non-medicated feeds.
- Thoroughly wash all equipment (inflations, hoses, weigh jars, etc.) that has come in contact with milk from treated cows before milking additional cows into the tank. This is particularly critical if treated cows are not milked last.
- Make sure that containers used to receive milk from treated cows are kept separate from saleable milk
- Ensure that calves fed waste milk from cows treated with antibiotics are not sent to slaughter until withdrawal times are met.

Intermediates and Seniors

How to Give an Injection



Many vaccines and medications must be given by injection. When learning to give an injection, 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 feelwhen you get shots from your doctor. When giving an injection to an orange or banana, we must remember that it is different than giving an injection to a live animal. The live animal will move around, and the skin may be harder to get the needle through.

There are two main types of injections - *subcutaneous* (Sub-Q) or *intramuscular* (IM). The subcutaneous injection is given just under the skin and the intramuscular injection is given within the muscle tissue. Every vaccine and medication has a label with directions about which type of shot should be used. If the label indicates either IM or Sub-Q, choose Sub-Q to help prevent damage to tissue (meat). All injections should be administered in the injection triangle area of the neck.

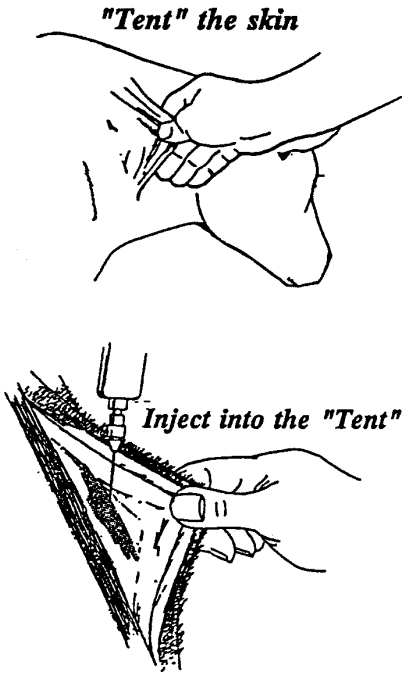
To draw up an injection, wipe the vial top (rubber stopper) with an alcohol pad to disinfect. Make certain the needle is securely attached to the syringe by inserting the plunger portion of the syringe into the open end of the syringe and twisting the needle onto the syringe tip.Remove the cap - do not 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 therubber 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 untilready 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.

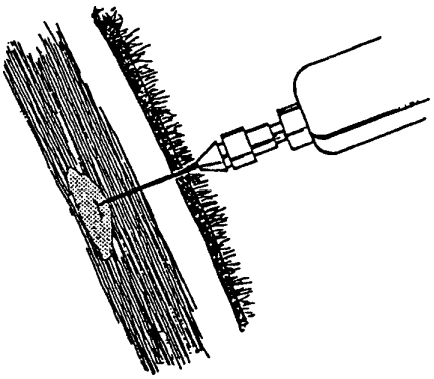
To give an intramuscular injection:
The needle must penetrate the muscle. Draw up the material as before. You may wish to rub the animal vigorously with your fingertips where you are going to give the shot to desensitize them to the stick and then quickly put the needle through the skin and into the 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.

Always use sterile equipment. Dirty equipment could cause infections at the injection site. Remember to dispose of all needles and biological waste 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: WRITE IT DOWN.

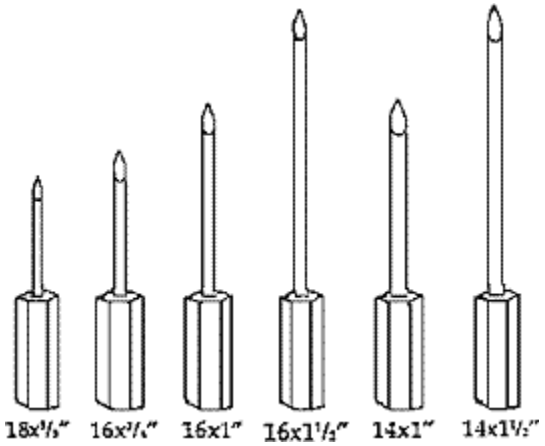
Giving Injections



Subcutaneous “Tent” Method



Intramuscular Technique



Investigate needle gauges and length (listed second) to find the correct size for your project animal. (A bigger gauge number means a smaller diameter needle). Thicker, more viscous medications may require a bigger (smaller gauge number) needle.

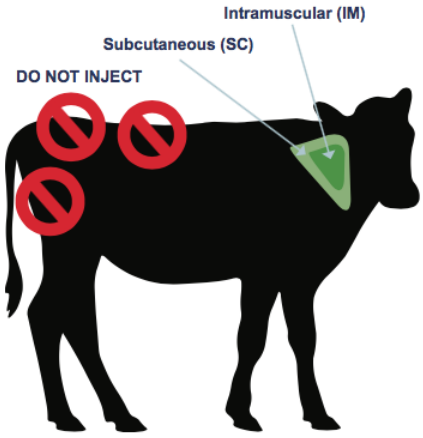
Injection Site Management

Intermediates and Seniors

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). Texas A & M Extension provides further guidance for dairy cattle injections techniques. For detailed information visit: https://cdn-ext.agnet.tamu.edu/wp-content/uploads/2018/09/E-567-proper-injection-techniques-in-dairy-cattle.pdf

Relative to injections, keep in mind the following:

- Products labeled for subcutaneous (SQ) administration should be administered SQ in the neck region (ahead of the shoulders).
- All products labeled for intra-muscular (IM) use shall be given in the neck region only (no exceptions, regardless of age).
- All products cause tissue damage when injected IM. Therefore, all IM useshould be avoided if possible.
- Products cleared for SQ, intravenous (IV), oral or topical administration are recommended.
- Products with low dosage rates are recommended and proper spacing should be followed.
- No more than 10 cc of product is administered per IM injection site.
- Use a BQA processing map to record information each time cattle are treated.



Calculating Dosages

Seniors

Read medication labels carefully when calculating doses.

Example 1: Your 500 pound calf 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 calf?

500lb X 1ml/100lb = 5ml

Example 2: You are vaccinating a group of 38 heifers. The label instructions say to give 2 mL Sub-Q per animal. Each vaccine bottle contains 20 mL. How many bottles do you need to vaccinate the group.

Step 1: Calculate how much total vaccine you need.

38 heifers x 2 mL per heifer = 76 mL

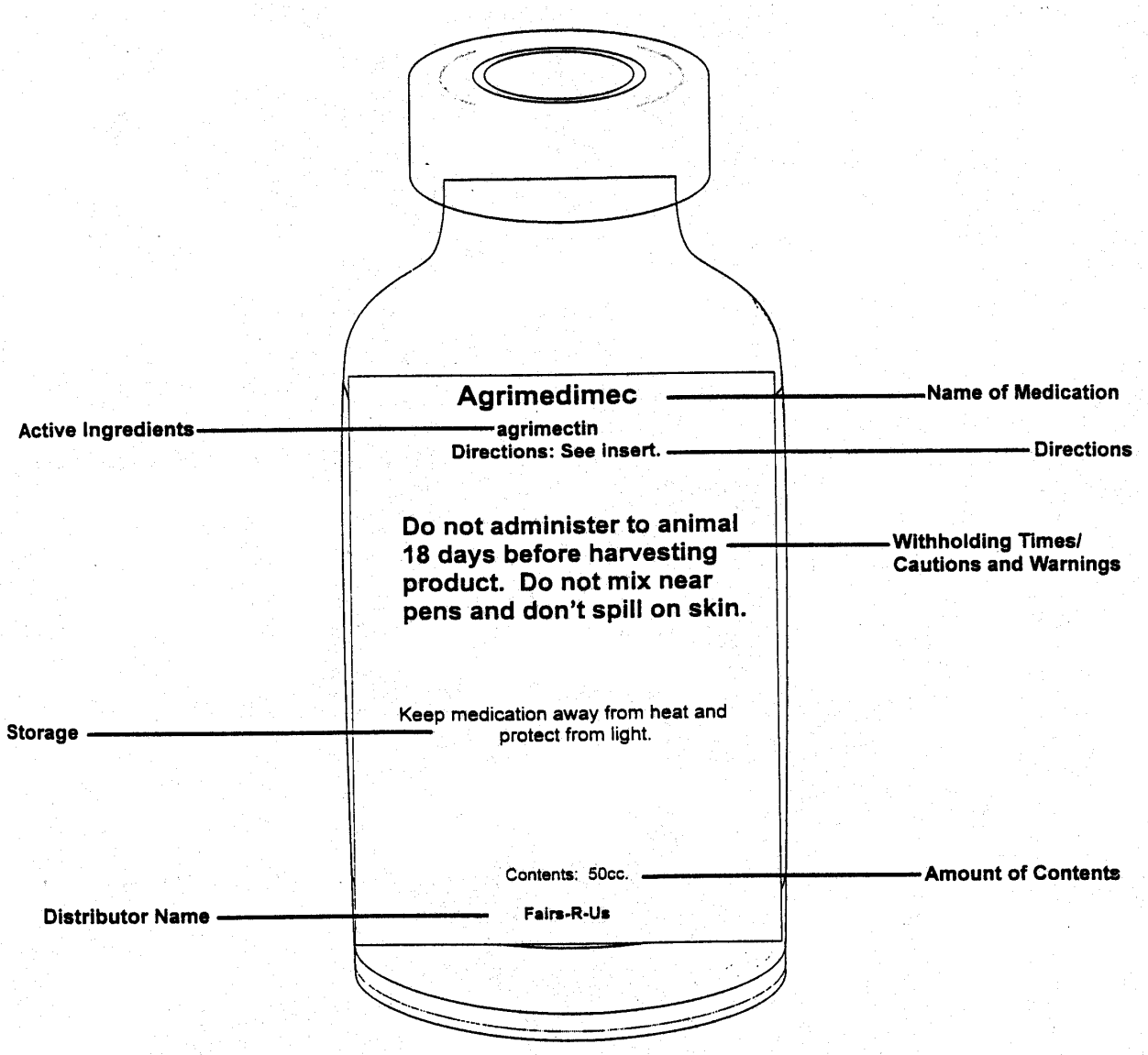
Step 2: Calculate how many bottles you need to have at least 76 mL of vaccine.

76 mL / 20 mL per bottle = 3.8, you need 4 bottles of vaccine

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 trade names 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. Withdrawal times are given only for label usage. If product is administered off-label under the direction of a veterinarian, discuss withdrawal time with them.

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 meat and 7-day milk withdrawal time and was administered on the 3rd, is it proper protocol for the animal to be harvested on the 18th? Why?

No, the 18th is only 15 days after administrations. The harvest date must follow the meat withdrawal.

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

Milked: After the 10th Harvest (meat): After the 5th of the next month

Cattle Diseases

Name:	Brucella Abortus Disease
Common Name:	Brucellosis
Cause:	Bacteria, *Brucella abortus*
Major Symptoms:	Abortion of first calf in last third of pregnancy and retained afterbirth. Some infected cows show no signs but calves may be born weak.
Prevention:	Testing for the disease at stages in the cattle's life, such as on the farm, at the stock market, and at the slaughter facilities. Once infected animal should be culled. If more than one is infected, the whole herd should be quarantined. Good herd management and 1 time only calfhood vaccination by a licensed veterinarian can help with prevention of outbreaks. Note: Florida is currently a "Brucellosis free state".

Name:	Bovine Respiratory Synctial Virus
Common Name:	BRSV
Cause:	Virus
Major Symptoms:	Temperatures of 103-105 degrees F, coughing, and some nasal discharge. In adult cattle that are susceptible, clinical signs are fewer and usually are not noticed until the cattle begin collapsing and die within a few hours.
Prevention:	Vaccination when an outbreak has occurred will only aid in slowing down the spreading of the virus. If the herd is known to not be infected, then vaccination will help in preventing an outbreak.

Name:	Infectious Bovine Rhinotracheitis
Common Name:	IBR, or Red Nose
Cause:	Virus
Major Symptoms:	Watery to yellow colored discharge from the nose and eyes along with coughing, increased respiration rate and fever. This infection usually follows or is included with other infections such as BVD and or BRSV. So, many of the vaccines come with a strand of the IBR virus to aid in prevention.
Prevention:	Vaccination

Name:	Bovine Viral Diarrhea
Common Name:	BVD or BVDV
Cause:	Virus
Major Symptoms:	Cattle infected with this disease do not usually show any symptoms, but the immune system is weakened and other diseases are more likely.
Prevention:	Good herd management and good sanitation are the best ways to combat this disease. Vaccination will help prevent outbreaks, but will not stop the infection.

Name:	Parainfluenza 3
Common Name:	PI3
Cause:	Virus
Major Symptoms:	Watery to yellow-colored discharge from nose and eyes, coughing, fever, and an increase in respiration rate.

Prevention:	PI3 usually infects cattle that are already infected with other diseases such as IBR, BVD, or BRSV so a strand of PI3 is usually pre-mixed with another vaccine. Along with vaccination, good herd management is needed along with good sanitary practices to prevent an outbreak.
Name:	Leptospirosis
Cause:	Bacteria, *Leptospira interrogons,* subclassification, “serovars” hardjo
Major Symptoms:	Infected cattle with a chronic or long-lasting infection will usually abort the fetus, have a stillborn, or give birth to a weak calf. In rare acute infections, often in calves, the signs are high fever, jaundice (yellowing of the skin), and death.
Prevention:	Regular herd vaccinations twice a year will help along with the vaccination of any new replacement heifers or bulls. In chronic cases, once abortion has occurred it is too late to vaccinate. Provide water from a tank and instead of a pond.
Name:	Mastitis
Cause:	Bacteria, *Streptococci, Staphylococci, E. coli, Mycoplasma*
Major Symptoms:	Inflammation of the udder; decreased milk production.
Prevention:	Use California Mastitis Test (CMT) or somatic cell counts (SCC) – checksfor white blood cells in mil; avoid injury to udder; use proper milking techniques.
Treatment	Antibiotics, frequent milking, anti-inflammatories
Name:	Clostridial Disease
Common Name:	Blackleg
Cause:	Bacteria, *Clostridium chauvoei*
Major Symptoms:	Depression, swelling of muscles or groups of muscles, skin may become discolored and crackle when touched. Adult cattle may show signs of lameness before any other signs appear. Many calves are found dead before any signs appear.
Prevention:	Vaccination of the whole herd is important, not just for *Clostridium chauvoei*, but for all Clostridium bacteria. This is accomplished through vaccinating with 7 or 8 way Clostridium vaccine.
Name:	Bovine Spongiform Encephlopathy
Common Name:	BSE, “Mad Cow Disease”
Cause:	Prion, an abnormal form of a normal protein
Symptoms:	Cattle tend to show signs of progressive degeneration of the nervous system and changes in temperament. Abnormal posture, incoordination and difficulty rising are also observed due to the degeneration of the nervous system. There is a decrease in milk production and a loss in body weight, but there is no loss of appetite.
Prevention:	There is no cure for BSE, but there are some guidelines to help prevent an outbreak. Do not feed meat bone meal, or other feed stuff that contains parts from ruminants. Ensure good slaughter and processing procedures so as not to contaminate edible products. Though BSE is not contagious, monitoring the off spring of an infected cow is recommended, even though the transmission of the prion from cow to calf is low. Finally the humane destruction of infected cattle to prevent any possible spreading due to contamination is required.

Name:	Johne's Disease
Cause:	Bacteria, Mycobacterium paratuberculosis
Symptoms:	Weight loss and diarrhea with normal appetite. Several weeks after the onset of diarrhea, a soft swelling may occur under the jaw. This intermandibular edema, or "bottle jaw," is due to protein loss from the bloodstream into the digestive tract. Animals at this stage of the disease will not live very long—perhaps a few weeks at most. For every obvious case of Johne's disease (Stage IV) among dairy cattle on the farm, 15 to 25 other animals are likely infected. The clinical case represents only the "tip of the iceberg" of Johne's infection
Prevention:	There is no cure for Johne's, but there are some guidelines to help prevent an outbreak Keep a closed herd or purchase animals only from a negative herd. Calves should be born in a clean environment and kept away from manure from mature cows. Don't feed waste milk or pooled milk. Prevent new infections by culling infected cows at the onset of visible signs.