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, 4H 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 skillathon competition and should be used as an additional aid to ongoing educational programs.

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

****** Additional information is noted in the study manual for preparing for the Champion of Champions competition.

Juniors (age 8-10 as of September 1, 2009
Body Parts
Restraint, Knot Tying

Intermediates (age 11-13 as of September 1, 2009
all of the above plus...
Health Supplies
Animal Identification
How to give an Injection, Injection Sites

Seniors (age 14 and over as of September 1, 2009
all of the above plus....
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 results in animal suffering, decreased productivity and potential threats 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 may be caused by infectious agents (bacterial, viral, fungal, prion, and parasitic) which might be passed around by biting insects, wild animals, fecal contamination, sexual contact, air borne, or contaminated feed and water. Health problems may also occur from noninfectious causes (malnutrition, trauma, cancer, genetic defects, and environmental hazards like toxins, poison or extreme weather conditions). Disease prevention practices include purchasing healthy animals, isolation, quarantine, testing, and immunization (vaccination) programs. In extreme cases animals are sometimes destroyed to prevent further spread of disease. Treatment might involve the use of antibiotics, medications or antiparasitic compounds. Excellent powers of observation, an understanding of normal behavior, good sanitation practices, and diligent vaccination and deworming schedules are key components of animal health maintenance.

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. This is a skill that develops after working with and caring for livestock over time. The following are some of the characteristics that serve as the basis for assessing animal health. Deviations from normal are early indicators that something may be wrong and may allow early response.

Normal Eating Behavior
Normal Fecal Pattern and Consistency
Normal Stance, Movement, Posture and Activity Patterns
Group (Herd or Flock) Behavior
Sounds or Acoustical Communication
Normal Vital Signs

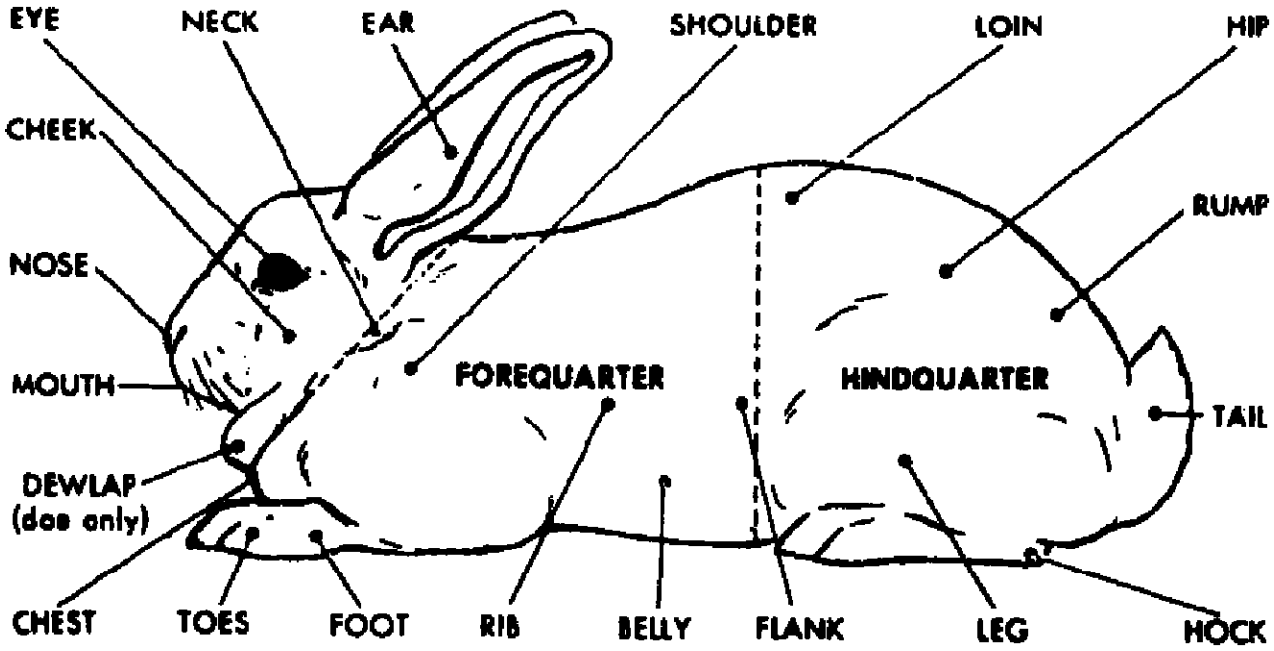
Assessing Vital Signs**

Body temperature, pulse rate and **respiration rate** are called vital signs. The body's response to an infectious agent or some other problem 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 102.5(101.5 - 103.5) ˚F. Pulse is the surging of blood through arteries and is usually defined as the heartbeats occurring in a minute (bpm). In rabbits you can feel the heart beating under the ribs, or you may use a stethoscope to listen to the heart beat which ranges from 140 -150 bpm. Respiration rate can be measured by simply counting the expansion and relaxation of the rib cage and abdominal wall (50 - 60 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.

Juniors, Intermediates and Seniors

Rabbit 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
3. Confinement – cage, box
4. Tools and physical force – harness, hands
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.

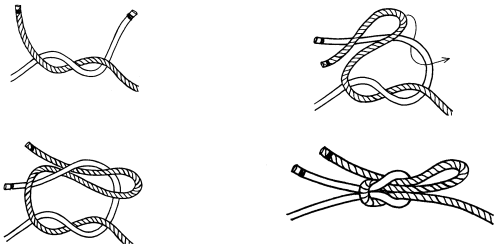
Knots for Livestock Handling

There are many circumstances in animal 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.

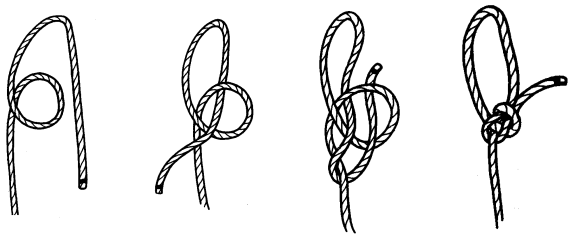
Knots join ropes together, attach ropes to a post or rail, or attach ropes to an animal.

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.

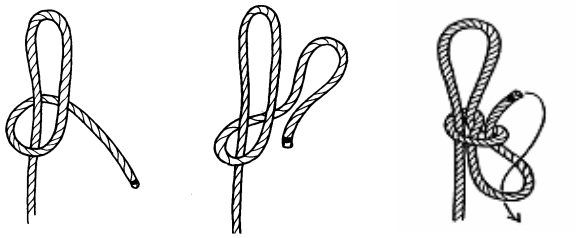
Splices are used to permanently join ropes to one another - individual strands from each rope are interwoven with strands from the other.



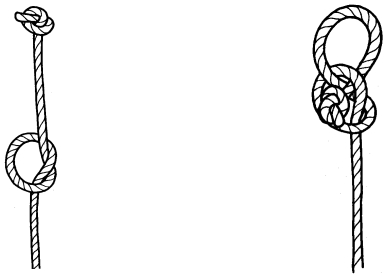
Reefer's Knot *(Quick-Release Square Knot)*
A good non-slip knot for tying ends of rope together and can easily be released. An advantage is that it can be tied under tension - an important feature for a knot used to restrain livestock.



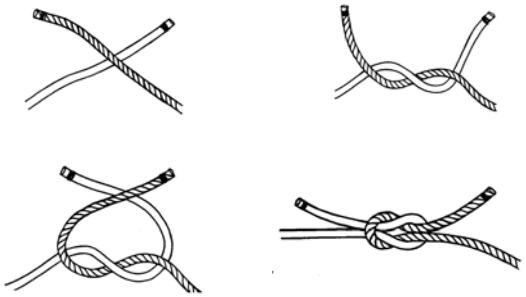
Bowline Knot
A non-slip knot used to form a loop that will not tighten or draw down when placed around an animal's body or a post.



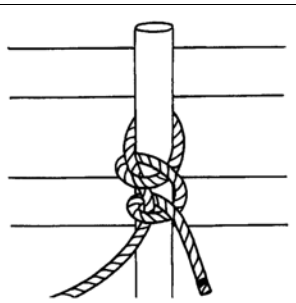
Quick-Release Knot
The standard way to tie an animal to a post. A variation of a slipknot that can be released very quickly, even when under tension. This knot should never be tied around the neck or body of an animal.



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 NAIS is a national program intended to identify specific animals in the United States and record their movement over their lifespan. It is being developed by the U.S. Department of Agriculture (USDA) and State agencies—in cooperation with industry—to enable 48-hour trace back of the movements of any diseased or exposed animal. This will help to ensure rapid disease containment and maximum protection of America's animals. The records maintained will include: Animal Identification Number, AIN , or Group/Lot Identification Number; GIN, Premises Identification Number, PIN of the location where the event takes place; Date of the event; Event type (movement in, movement out, sighting of an animal at a location, termination of the animal, etc.) For more details you may visit the following websites:
National Animal Identification System website. http://animalid.aphis.usda.gov/nais/index.shtml

Few options exist for rabbits. Identification methods should be visible, easy to apply, unalterable, inexpensive and not cause harm or discomfort to the animal. The primary method of rabbit identification is ear tattooing, but implanted transponders could be used.

TATTOOING

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

Disadvantages – Animal must be restrained to read it.

Equipment Necessary -

- Tattooing Instrument
- Tattooing Numbers &/or Letters
- Alcohol
- 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. Always check the numbers and/or letters on a piece of paper or card board 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 right ear is used for the registration number and the left for the individual number.

8. Clean the tattooing equipment with alcohol after each day of use.

Rabbit Health Supplies

Intermediates and Seniors

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
- Dewormer
- Needles
- Nesting boxes
- Penicillin
- Side cutting pliers
- Syringes
- Toe nail clippers
- Tattoo
- Thermometer
- Tincture of Iodine
- Vaccine

Administering Medications and Vaccinations

As a routine part of herd health management, livestock producers must administer medicine. It may be given topically (on the skin), orally (by mouth), or by injection. 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. Injections put medications directly into the animal's system. There are many routes but we will focus on subcutaneous and intramuscular. In subsequent sections of the manual, detailed descriptions are given.

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 - *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 to trim away abscess sites. If given the option of subcutaneous or intramuscular, always choose subcutaneous .

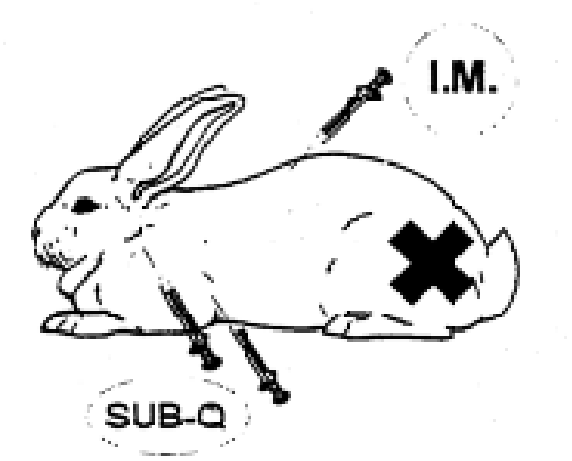
Always use sterile equipment as dirty equipment could cause infections at the injection site. Remember to dispose of all needles and biological wastes properly. Since animal species differ, the route of injections and the types of vaccines and medications needed are different. It is important that you 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).

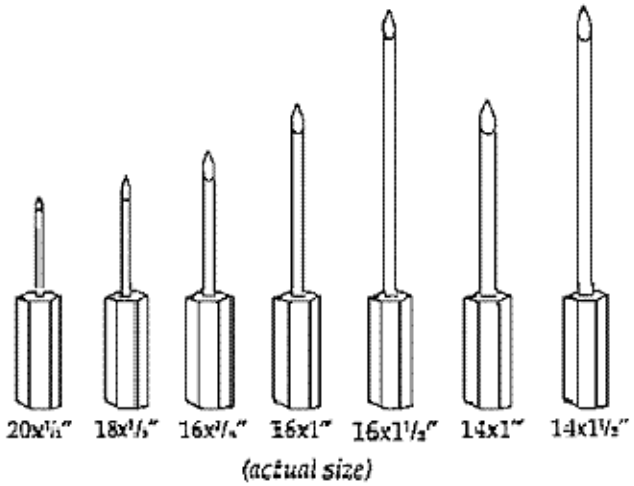
Relative to injections, keep in mind the following:
If intramuscular (IM) medications must be used, administer them in the neck. The volume of solution injected at one site will directly influence tissue damage, scar tissue and potential abscesses. Always use subcutaneous (SQ; under the skin) or intravenous (IV; in the vein) routes of administration when permitted by the product's label. Check product labels closely and administer the product as specified on the label. Select products that have subcutaneous (SQ) as an approved route of administration. Ask suppliers to find products that have SQ, IV or oral routes of administration rather than intramuscular (IM; in the muscle) route of administration**.**

Giving Injections



Needle Selection

Investigate needle gauges to find the correct size for your project animal. (Gauge number increases as needle diameter decreases.)



Seniors

Calculating Dosages

Read medication labels carefully when calculating doses.

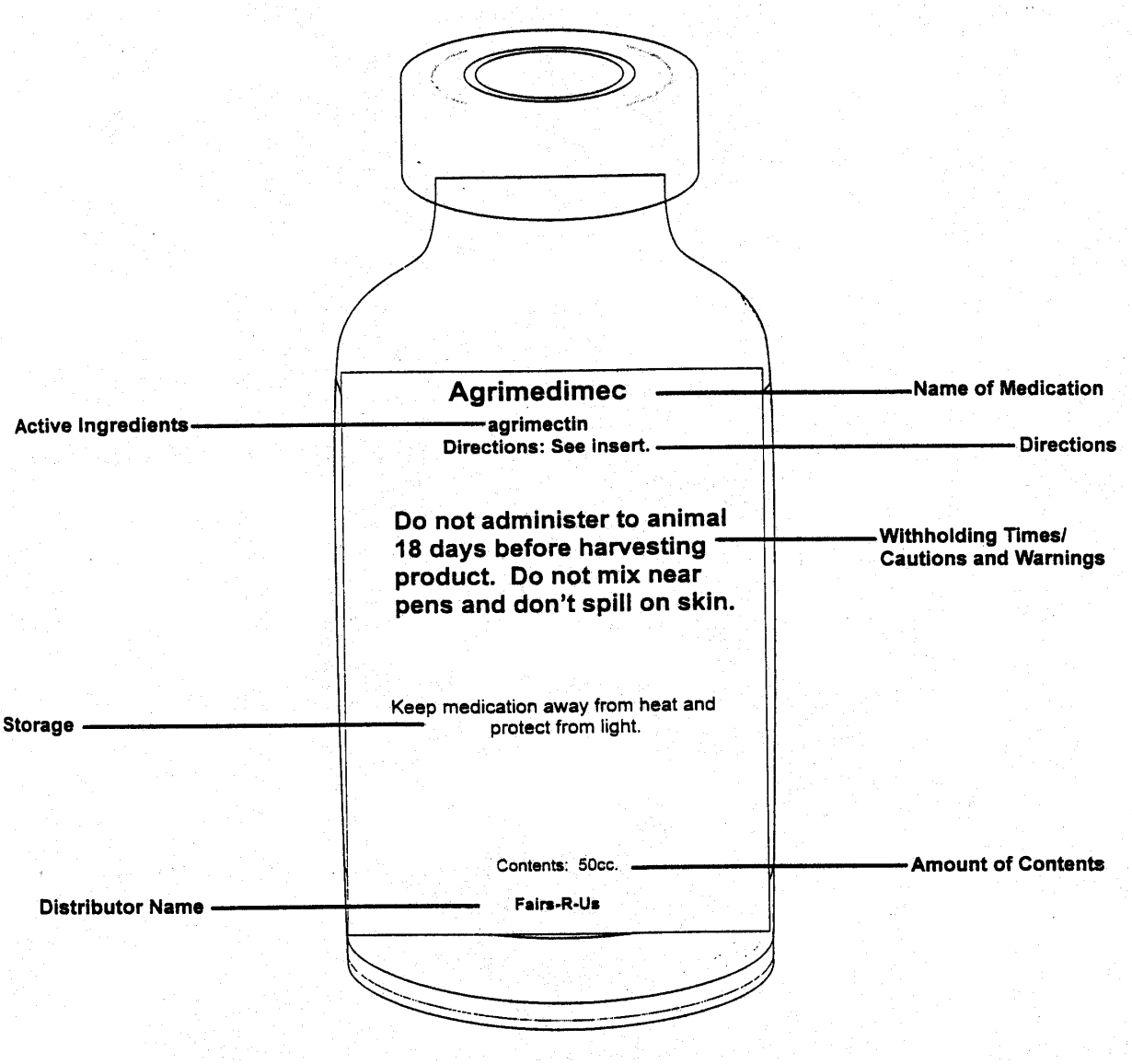
Example: A 5 pound sick animal requires an injection of antibiotic at a dosage rate of 2,500 units/pound. The antibiotic to be used contains 50,000 units/ml. How much antibiotic should the producer give to the animal?

Step 1: Calculate how many units a 5 pound animal needs.
2,500 units/lb X 5 lbs = 12,500 units

Step 2: Calculate how many mls. of the antibiotic would deliver the needed units.
12,500 units / 50,000 units/ml = 0.25 mls.

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.

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?

Rabbit Diseases**

Name:	Pasteurellosis
Common Name:	
Cause:	Bacteria, *Pasturella multocida*
Major Symptoms:	Sneezing, coughing, discharge from nasal cavity, and going off feed are all symptoms with Pasteurellosis.
Prevention:	Culling the infected rabbits to keep the bacteria from spreading. The rabbit's area needs to have good ventilation, low ammonia levels, as well as low humidity.

Name:	Bordetellosis
Common Name:	
Cause:	Bacteria, *Bordetella Bronchiseptica*
Major Symptoms:	The symptoms of snuffles are generally present when a bordetellosis infection is present. Along with signs of snuffles, an upper respiratory infection with nasal discharge and sneezing can be present.
Prevention:	A decrease in stressful conditions as well as culling of infected animals, and vaccination will aide in preventing an out break.

Name:	Coccidiosis
Common Name:	
Cause:	Protozoan
Major Symptoms:	If the liver is the affected organ then the rabbit may stop eating and diarrhea will begin. The protozoan will cause lesions in the liver that can only be seen after death. If the intestinal tract is infected then the rabbit will exhibit weight loss, soft to watery feces, mucus or blood in the feces, soiled anal area, dehydration and an increase in thirst.
Prevention:	Rabbits should be housed in a wire meshed floor enclosure, where the bottom of the cage does not come in contact with the rabbit or feeding area, and cleaned regularly.

Rabbit showmanship is quite different from that of other animal species. Rabbit showmanship involves thoroughly examining an animal as a judge would do in competition. Each step that a youth forgets to complete is counted against their overall score. Appearance of the exhibitor and their knowledge are two other areas important in this competition.

ATTIRE:
Required Dress Code: All exhibitors will be required to be clean and neat and dressed in white, green, dark blue or dark black jeans or slacks with a solid white shirt with a white collar. FFA and 4-H accessories are strongly recommended. No caps or hats. Closed-toed shoes or boots are required..

The following is a list of actions exhibitors must perform in the showmanship class:

Appearance and Actions of Showman	10 points
a. Clean and neatly dressed	
b. Natural, graceful actions	
c. Good eye contact	
d. Confidence	
Appearance of Animal	5 points
a. Clean condition and healthy	
b. Free from major defects and deformities	
Examination of Rabbit	
a. With the rabbit in sitting position	10 points
1. Check ears for mites, tattoo, and tears	
2. Examine fur for fur mites	
3. Run hands over body & check for blemishes	
4. Examine the fur quality and color	
b. With the rabbit on its back	35 points
1. Properly and safely flip the rabbit over	
2. Check the eyes for blindness, white spots, proper color and diseases	
3. Check the nose for snuffles	
4. Check teeth for broken, missing, malocclusion or simple malocclusion	
5. Check the front 5 toes and toenails for broken, missing or mis-colored	
6. Check the front legs for straightness and signs of broken bones	
7. Check the back 4 toes and toenails for broken, missing or mis-colored	
8. Check back legs for signs of broken bones	
9. Check the vent area for disease & sex (examine bucks for missing testicles)	
10. Check tail for straightness and signs of broken bone	
11. Run hand down entire abdomen looking for blemishes	
c. Completing the examination	10 points
1. Properly post the rabbit for its specific breed	
2. Smooth down the fur	
3. Make sure the tail is carried properly	
Knowledge of Animal/Project	30 points
a. Answer general knowledge questions	
b. Answer breed specific questions	
TOTAL POINTS	**100 POINTS**

Preparation for this contest is like any other. Practicing with your rabbit ahead of time will earn you more points on the day of the contest. Use an animal that is familiar with the procedures described, not an unruly one. Also, read up on rabbit information in the American Rabbit Breeders Association's Book of Standards.