

Assuring Quality: A program for youth livestock producers -- Animal Health Products Activities

Year Three Activities

Medications and Animal Health Products Activity 1: Record Keeping

Resources Needed:

Copies of the record keeping worksheet and scenarios
Calendars

Procedure:

1. After discussing the items that must be recorded in medication records, distribute worksheets and scenarios to youth.
2. Assign scenarios based on reading level and experience of youth. Scenarios 1 and 2 are suited more for beginning level, scenarios 3, 4 and 5 for more advanced youth.
3. Consider pairing older youth with younger youth to complete activity.
4. After providing 5 - 10 minutes, depending on number of scenarios assigned, have youth share the information they recorded for each scenario.
5. Discuss the questions below.

Questions:

1. Why is recordkeeping important?

A: *Specifically in this situation, it is important to have a record of the products given so that if any problems do occur with abscesses or residues, you can go back and prove that you did do everything according to the label directions or under the supervision of a veterinarian.*

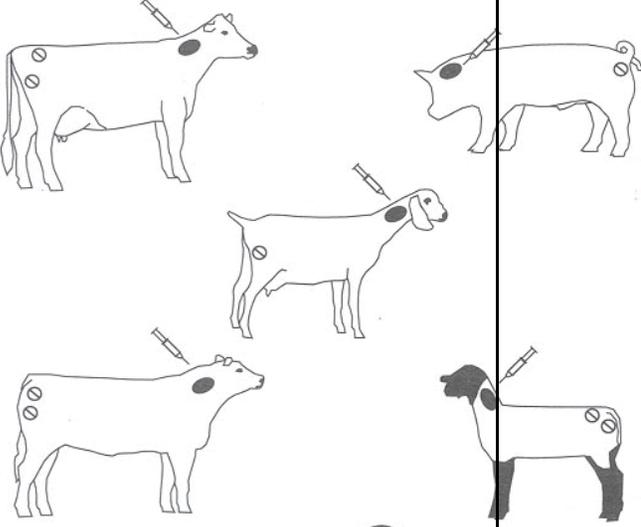
In more general terms, recordkeeping is important because there is a lot of important information that we can't always remember it all, or remember it accurately. If it is written down as soon as something is done or happens, then you don't have to try to remember it, and you can be sure that it is accurate.

2. Besides keeping medication records on your animal projects, are there other areas where you are required to keep records, or your parents are required to keep records for you? Are there other areas where you SHOULD keep records, even though no one says you have to?

A. *Examples of required records are immunizations to go to school, other health information, such as allergies and medication treatments that may be needed if you stay with someone else. Parents must keep records for taxes, ownership of land, etc. Examples of things we SHOULD keep records on might include checking account balances, other health records, production information on livestock, etc.*

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Record Keeping Worksheet for Activity 1

	 <p>● YES, correct injection site. ○ NO, incorrect injection site.</p> <p>Tips for Proper Injections</p> <ul style="list-style-type: none">● Properly restrain animal before giving injection.
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•	Give injections according to label directions. Subcutaneous (SQ) means under the skin; intramuscular (IM) means in the muscle.
•	When label directions indicate SQ or IM, choose SQ so that muscle tissue is not irritated.
•	Give all injections in front of the shoulder, NEVER in the rump or hind leg.
•	Use sterilized needles and syringes.
•	Give injections at dry, clean sites on the animal

Treatment Record								
C - (Calendar date)	A- (Anim al ID)	L (label - product name)	C - (Calendar - withdrawal time and ending date)	U (you - or who gave treatment)	L - (Location of injection)	A - (Amount)	T - (Type of admin)	E (Extra - symptoms, weight, vet, etc)

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Scenarios for Activity 1: Record Keeping

Scenario 1 (Swine, prescription)

Today is July 2, 2004 and your name is ___xxxx_____. Three days ago your market hog, "Spot", a 200 lb blue butt barrow with ear notch 12-4, started having difficulty breathing. Then, Spot wouldn't eat anything and wouldn't move around unless you forced him to do so. At your request, Dr. Bruce E. Losis, the local veterinarian, examined your hog on June 30 and diagnosed the problems as pneumonia. He administered medications at the time and recorded the treatment on your medication record (not shown). He also left you with more medicine to give. You gave the followup medication for yesterday and today. Make sure your medication treatment record is up to date and accurate for the treatments you have given.

Owner: XXX	Date: June 30, 2004
Indications: Pneumonia	Animal ID: hog 12-4, blue butt barrow
Directions: Give 15 ml (cc) subcutaneously (SQ) for the next two days.	
Warning: Use of this drug must be discontinued for 7 days before slaughter or marketing for food.	
Product: Biomyacin	Expiration Date: August 30, 2004
Prescribed by: Bruce E. Losis, D.V.M. 100 Quality Avenue Hometown, NE 68000 402-444-4444	

Scenario 2 (Beef, prescription)

Today is April 5, 2004 and your name is __xxxx_____. Your 800 lb. breeding heifer, tag number JR-003, went through a barbed wire fence last week and cut her front right leg pretty badly. You've kept it clean, but it has still become swollen and infected. You had your veterinarian, Julie R. Mender, look at it. She prescribed the following treatment. Make sure your medication treatment record is up to date and accurate for all days of treatment.

Owner: XXX	Date: April 5, 2004
Indications: Infected cut on front leg	Animal ID: Heifer JR-003
Directions: Give 1 ml per 100 lbs body weight today and for the next 2 days. Injection should be given in the muscle of the neck.	
Warning: Use of this drug must be discontinued for 30 days before slaughter.	
Product: Omnicillin	Expiration Date: June 1, 2004
Prescribed by: Julie R. Mender, D.V.M. 100 Swine Avenue Hometown, NE 68000 402-222-4444	

Scenario 3 (Sheep, OTC)

It is May 15 and you have recently purchased a group of 25 feeder lambs. They weigh an average of 60 lbs and records show they received one vaccination for Clostridium Perfringens, Types C and D (overeating) on April 21, about two weeks before they were weaned. Today you gave them a booster shot of Clostridium Perfringens, Types C and D vaccination, which is available at your local farm supply store. The lambs are individually identified, but you plan to keep them all in the same pen in your yard, known as pen L1. Make sure your medication treatment record is up to date and accurate for all treatments of these lambs.

Product: NebVax - Clostridium Perfringens, Types C and D Toxoid	Lot Number and Expiration Date: Lot 234233 Expires: November 2004
Indications: For vaccination of cattle, sheep and goats as an aid in preventing clostridial enterotoxemia.	Directions: Inject 2 ml subcutaneously. Repeat dose in 3 to 4 weeks.
Precautions: Shake well. Store in the dark at 2 - 7° C. Use entire contents after opening.	
Warning: Do not vaccinate within 21 days of slaughter.	

Scenario 4 (Cattle, OTC)

It is August 1 and you have a number of feeder calves that have developed pinkeye. The calves include # 58, which weighs 400 lbs; # 75 which weighs 450 lbs, and # 82, which weighs 300 lbs. Instead of consulting your veterinarian, you have decided to try to save some money and use an over-the-counter medication. Decide the proper dosage and administration of the product for each calf and record the appropriate data in the records.

Product: BioPinkFix	Lot Number and Expiration Date: Lot 983798 Expires: December 2004
Indications: Cattle: In cattle, BioPinkFix is indicated in the treatment of pneumonia; infectious bovine keratoconjunctivitis (pinkeye); foot-rot; and bacterial enteritis (scours) caused by <i>Escherichia coli</i> . Swine: In swine, BioPinkFix is indicated in the treatment of bacterial enteritis (scours, colibacillosis) and pneumonia.	
Precautions: Exceeding the highest recommended dosage level of drug per pound of body weight per day, administering more than the recommended number of treatments and/or exceeding 10 mL intramuscularly or subcutaneously per injection site in adult beef cattle and dairy cattle, and 5 mL intramuscularly per injection site in adult swine, may result in antibiotic residues beyond the withdrawal period.	
Warning: Discontinue treatment at least 28 days prior to slaughter of cattle and swine. Milk taken from animals during treatment and for 96 hours after the last treatment must not be used for food.	
Dosage: Cattle: At the first signs of pneumonia or pinkeye administer a single dose by deep intramuscular injection or subcutaneous injection at a rate of 4 cc per 100 lbs body weight. Swine: At the first signs of pneumonia administer a single dose by deep intramuscular injection according at a rate of 1 cc per 25 lbs body weight.	

Scenario 5 (dairy)

Your 4 year old dairy cow Bessie, that you planned to exhibit at the county fair next week has developed mastitis in her front right quarter. It is August 3 and you need to have this cleared up in order for her to be exhibited by August 8. You decide to use the following over-the-counter mastitis treatment. Record the necessary information for all days of treatment.

Product: LAC - FX	
Indications: FOR LACTATING COWS ONLY ---- For the Treatment of Bovine Mastitis LAC - FX for Intramammary Infusion should be used at the first signs of inflammation or at the first indication of any alteration in the milk. Treatment is indicated immediately upon determining, by C.M.T. or other tests, that the leucocyte count is elevated, or that a pathogen has been cultured from the milk.	
Precautions: This product should be administered with caution to subjects which have demonstrated some form of allergy, particularly to penicillin. Such reactions are rare; however, should they occur, discontinue treatment and consult a veterinarian.	
Dosage: Infuse the entire contents of one syringe (10 mL) into each infected quarter immediately after the quarter has been completely milked out. Repeat once only in 12 hours. If definite improvement is not noted within 48 hours after treatment, the causal organism should be further investigated. Consult a veterinarian. Milk out udder completely. Wash the udder and teats thoroughly with warm water containing a suitable dairy antiseptic and dry, preferably using individual paper towels. Carefully scrub the teat end and orifice with 70% alcohol, using a separate swab for each teat. Allow to dry.	
Warnings: 1. Milk that has been taken from animals during treatment and for 96 hours after the last treatment must not be used for food. 2. Treated animals must not be slaughtered for food until 4 days after the last treatment. 3. Administration of more than the prescribed dose may lead to residue of antibiotic in milk longer than 96 hours.	

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Scenario 1 Key

Treatment Record								
C - (Calendar date)	A- (Animal ID)	L (label - product name)	C - (Calendar - withdrawal time and ending date)	U (you - or who gave treatment)	L - (Location of injection)	A - (Amount)	T - (Type of admin)	E (Extra - symptoms, weight, vet, etc)
July 1, 2004	12-4	Biomyacin	7 days - July 8	xxx	right neck, 4 inches apart	7 cc and 8 cc	SQ	Dr. Losis
July 2, 2004	12-4	Biomyacin	7 days - July 9 *	xxx	left neck, 4 inches apart	7 cc and 8 cc	SQ	Dr. Losis

* For July 2, the 7 day withdrawal period ends on July 9. Whether the pig could actually be sold and slaughtered that day depends on when during the day the product was given. For example, if the product was given at 8 am and you sell the pig and have it slaughtered in the afternoon or evening, July 9 could be your marketing day. But, if you gave the injection at 6 pm, you would not want to have that pig slaughtered on July 9. You should wait until after the full withdrawal period had ended, which would be 6 pm on July 9, so it wouldn't be marketed or slaughtered until July 10.*

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Scenario 2 Key

Treatment Record								
C - (Calendar date)	A- (Animal ID)	L (label - product name)	C - (Calendar - withdrawal time and ending date)	U (you - or who gave treatment)	L - (Location of injection)	A - (Amount)	T - (Type of admin)	E (Extra - symptoms, weight, vet, etc)
April 5, 2004	JR-003	Omniceillin	30 days - May 5	xxx	right neck	8 cc	IM	Dr. Mender, 800 lbs
April 6	JR - 003	Omniceillin	30 days - May 6	xxx	left neck	8 cc	IM	Dr. Mender, 800 lbs
April 7, 2004	JR-003	Omniceillin	30 days - May 7*	xxx	right neck, closer to shoulder than 4/5	8 cc	IM	Dr. Mender, 800 lbs

* See discussion about withdrawal dates ending and potential marketing under Scenario 1 Key.*

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Scenario 3 Key

Treatment Record								
C - (Calendar date)	A- (Animal ID)	L (label - product name)	C - (Calendar - withdrawal time and ending date)	U (you - or who gave treatment)	L - (Location of injection)	A - (Amount)	T - (Type of admin)	E (Extra - symptoms, weight, vet, etc)
May 15, 2004	Sheep Pen L1 - all lambs	NebVax, Clos. perfringen Types C & D vaccine	21 days - June 5*	xxx	right neck	2 ml	SQ	booster shot, first given before purchase

* See discussion about withdrawal dates ending and potential marketing under Scenario 1 Key.*

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Scenario 4 Key

Treatment Record								
C - (Calendar date)	A- (Animal ID)	L (label - product name)	C - (Calendar - withdrawal time and ending date)	U (you - or who gave treatment)	L - (Location of injection)	A - (Amount)	T - (Type of admin)	E (Extra - symptoms, weight, vet, etc)
August 1, 2004	58	BioPink Fix	28 days - August 29*	xxx	right and left neck	16 cc total, 8 cc on each side	SQ	400#
August 1, 2004	75	BioPink Fix	28 days - August 29*	xxx	right and left neck	18 cc total, 9 cc on each side	SQ	450#
August 1, 2004	82	BioPink Fix	28 days - August 29*	xxx	right and left neck	12 cc total, 6 cc on each side	SQ	300#

* See discussion about withdrawal dates ending and potential marketing under Scenario 1 Key.*

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Scenario 5 Key

Treatment Record								
C - (Calendar date)	A- (Animal ID)	L (label - product name)	C - (Calendar - withdrawal time and ending date)	U (you - or who gave treatment)	L - (Location of injection)	A - (Amount)	T - (Type of admin)	E (Extra - symptoms, weight, vet, etc)
Aug 3, 2004; 6:00 am (morning milking)	Bessie	LAC-FX	96 hours - Aug 7, after morning milking	xxx	right front quarter	10 ml (one syringe)	intra mamma ry	--

* The withdrawal period is 96 hours, so AFTER 96 hours it is OK to use the milk. The 96 hour period ends is completed with the morning milking on August 7. The morning milking is not OK to use, the evening milking would be.*

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Medications and Animal Health Products Activity 2: Reading Labels

Resources Needed:

- Copies of the labels worksheets and pencils
- Product bottles and labels (optional)

Procedure:

1. After discussing the items that are found on medication labels, distribute worksheets and example labels to youth.
2. Assign worksheets based on reading level and experience of youth. Label 1 and "Insert for Label 1" go together and are suited for beginning level, Label 2 is more suited for advanced youth.
3. Consider pairing older youth with younger youth to complete the activity.
4. If available, consider using actual products and their labels. The questions on the Label 1 worksheet could be used for any other product also.
5. After providing 5 -10 minutes, have youth share answers to questions and discuss the following questions:

Questions:

1. Was the information easy to find? Why or why not?
 1. *This will vary between youth and depending on which label they used. In general terms, prescriptions written by veterinarians are easier to read and find the needed information, because, since it is a prescription written by a veterinarian, much of the information that isn't directly needed is not included. This might include the indications for other diseases, instructions for other species, some of the precautionary statements, etc.*
2. What happens when someone doesn't read and follow label information?
 - A. *Specifically in this situation, you have the chance for violative drug residues, abscesses or other food safety and quality problems. You may also have the drug not work as intended, (ie the animal doesn't get better). In general terms, things don't go as expected or work as planned, because it wasn't done according to the directions.*
3. Can you think of other tasks you do at home or school where it is important to read the directions before you start?
 - A. *Examples might including cooking and following a recipe – if you don't add the correct amount of sugar, flour or eggs, the cake or cookies might not taste like you want; if you don't follow the baking directions, they may not be fully cooked, or may be burned. Another example might be building a birdhouse. If you don't follow the plans, the corners might not match up squarely, the hole for the birds to go in might not be big enough, etc.*

Assuring Quality Medications and Animal Health Products Activity 2: Reading Labels

Tetrabiotic (hygrocollin)
Directions for use: See package insert
Warning: The use of this drug must be discontinued for 30 days before treated animals are for food. Exceeding the highest recommended dosage may result in antibiotic residues in meat or milk beyond the withdrawal time.
Store between 2° and 8° C (36° and 46° F). Keep dry.
Net contents: 100 ml Distributed by NebHealth, Inc.

Questions for Label 1 and Insert Label 1:

1. What is the name of the product?
2. For which species and for what type of animal is this product approved?
3. For what uses is this product approved?
4. What is the proper dosage? Is the dosage the same for all species?
5. How should the product be administered?
6. Is there a withholding or withdrawal period? If the animal was treated today, how soon could it be sold for slaughter?
7. How should the product be stored?

Insert for Label 1

Tetrabiotic (hygrocillin in aqueous suspension)	
For use in Beef Cattle, Lactating and Non-lactating Dairy Cattle, Swine and Sheep <i>Read entire insert before using this product.</i>	
For Subcutaneous Use Only	
Ingredients: Tetrabiotic is an effective antimicrobial preparation containing hygrocillin. Each ml contains 20,000 units of hygrocillin hydrochloride in an aqueous base.	
Indications: Cattle: Foot rot, mastitis, pneumonia, wound infections. Swine: Erysipelas, pneumonia, abscesses. Sheep: Foot rot, pneumonia, mastitis, wound infections. Also other infections in these species associated with hygrocillin susceptible organisms.	
Recommended Daily Dosage	
Usual dose is 2 ml per 100 lbs of body weight given once daily. per day.	Maximum dose is 15 ml
<i>Body Weight</i>	<i>Dosage</i>
100 lbs	2 ml
200 lbs	4 ml
500 lbs	10 ml
750 lbs or more	15 ml
Continue treatment for 1 to 2 days after symptoms disappear, for a maximum of 4 days.	
Directions: 1. Hygrocillin should only be injected subcutaneously in the neck area consistent with BQA and quality assurance guidelines. Do not inject intramuscularly, as extensive tissue damage may occur. If improvement does not occur within 48 hrs, the diagnosis should be reconsidered and appropriate treatment. Hygrocillin should be stored between 2° and 8° C. Warm to room temperature and shake well before refrigerated when not in use.	
Warning: Milk that has been taken from animal during treatment and for 48 hours after the last dose should not be used for food. Use of this drug must be discontinued for 30 days before treated animals are used for food.	

Assuring Quality

Antibiotics and Animal Health Products Activity 2: Reading Labels

Label & Insert 2

BIO-CILTIN

(bioterracycline) Injection --- Antibiotic

Read entire insert carefully before using this product.

Active Ingredients: Bio-Ciltin (bioterracycline injection) is a sterile, ready-to-use solution of the broad spectrum antibiotic. Each mL contains 200 mg of bioterracycline in an aqueous base

Caution: When administered to cattle, muscle discoloration may necessitate trimming of the injection site(s) and surrounding tissues during the dressing procedure.

	Warning: Discontinue treatment at least 28 days prior to slaughter of cattle and swine. Milk taken from animals during treatment and for 96 hours after the last treatment must not be used for food.	
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Precautions: Exceeding the highest recommended dosage level of drug per pound of body weight per day, administering more than the recommended number of treatments and/or exceeding 10 mL intramuscularly or subcutaneously per injection site in adult beef cattle and dairy cattle, and 5 mL intramuscularly per injection site in adult swine, may result in antibiotic residues beyond the withdrawal period.

Storage: Store at controlled room temperature, 15°-30° C (59°-86° F). Keep from freezing.

Care of Sick Animals: The use of antibiotics in the management of diseases is based on an accurate diagnosis and an adequate course of treatment. When properly used in the treatment of diseases, most animals that have been treated with bioterracycline injection show a noticeable improvement within 24 to 48 hours. It is recommended that the diagnosis and treatment of animal diseases be carried out by a veterinarian. Since many diseases look alike but require different types of treatment, the use of professional veterinary and laboratory services can reduce treatment time, costs and needless losses. Good housing, sanitation and nutrition are important in the maintenance of healthy animals, and are essential in the treatment of diseased animals.

Indications: Bio-Ciltin is intended for use in the treatment of the following diseases in beef cattle, dairy cattle and swine when due to identified susceptible organisms: **Cattle:** In cattle, Bio-Ciltin is indicated in the treatment of pneumonia and shipping fever complex associated with *Pasteurella* spp. and *Haemophilus* spp.; infectious bovine keratoconjunctivitis (pinkeye) caused by *Moraxella bovis*; foot-rot and diphtheria caused by *Fusobacterium necrophorum*; and bacterial enteritis (scours) caused by *Escherichia coli*. **Swine:** In swine, Bio-Ciltin is indicated in the treatment of bacterial enteritis (scours, colibacillosis) caused by *Escherichia coli*; pneumonia caused by *Pasteurella multocida*; and leptospirosis caused by *Leptospira pomona*.

Dosage: Cattle: Bio-Ciltin is to be administered by Intramuscular or subcutaneous to beef cattle and dairy cattle. At the first signs of pneumonia or pinkeye administer a single dose of Bio-Ciltin by deep intramuscular injection or subcutaneous injection at a rate of 4 mg per 100 lbs of body weight. ** Do not administer more than 10 mL at any one injection site. **Swine:** At the first signs of pneumonia administer a single dose of Bio-Ciltin by deep intramuscular injection at a rate of 1 ml per 25 lbs of body weight. ** Do not administer more than 5 mL at any one injection site.

Keep out of reach of children.

Questions for Label 2 (Bio-Ciltin):

1. Name at least four diseases this medication may be used to treat in cattle?
2. How might a violative drug residue occur, even if you followed the 28 day withdrawal time?
3. In what ways could this drug be administered? Which is the preferred method?
4. What would be the dosage for a 1000 lb steer? How many injections would this dosage

take? Where should the injections be located?

5. How soon should you see an improvement in an animal that has been treated for pneumonia?
6. What type of storage conditions might decrease the effectiveness of this drug?

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Medications and Animal Health Products Activity 2: Reading Labels

KEY for Questions for Label 1 and Insert Label 1:

1. What is the name of the product?

Trade name = Tetrabiotic

Generic drug name = hygrocillin

2. For which species and for what type of animal is this product approved?

Beef cattle, lactating and non-lactating dairy, sheep and swine

3. For what uses is this product approved?

All species: Pneumonia, wound infections

Cattle and Sheep: also foot rot and mastitis

Swine: also erysipelas

4. What is the proper dosage? Is the dosage the same for all species?

2 ml per 100 lbs body weight, up to 15 ml; yes

5. How should the product be administered?

SQ injection only

6. Is there a withholding or withdrawal period? If the animal was treated today, how soon could it be sold for slaughter?

Yes, 30 days.

7. How should the product be stored?

Refrigerated

Assuring Quality
Medications and Animal Health Products Activity 2: Reading Labels

Key for Questions on Label and Insert 2:

1. Name at least four diseases this medication may be used to treat in cattle?
Pneumonia, shipping fever, pinkeye, foot-rot, diphtheria, E.coli scours
2. How might a violative drug residue occur, even if you followed the 28 day withdrawal time?
If you gave higher than recommended dosage, more than the recommended number of treatments, or gave more than 10 ml in one site on cattle or more than 5 ml in one site on swine.
3. In what ways could this drug be administered? Which is the preferred method?
IM or SQ, SQ is preferred
4. What would be the dosage for a 1000 lb steer? How many injections would this dosage take? Where should the injections be located?
40 cc, which would take 4 injections, should give two on each side of the neck, at least 4 inches apart
5. How soon should you see an improvement in an animal that has been treated for pneumonia?
Within 24 - 48 hours
6. What type of storage conditions might decrease the effectiveness of this drug?
Freezing, extreme heat or cold

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Medications and Animal Health Products Activity 3: Extra Label Drug Use

Resources Needed:

Copies of the worksheets
Pencils

Procedure:

6. After discussing the three types of drug use, have youth complete the worksheet.
7. Ask youth the answers and reasons for answers.

KEY

<u>Extra Label</u>	The label says to give 10 cc of the drug ... your vet says to give 20 cc	
<u>Okay</u>	Your pig is diagnosed with foot rot and you treat it with an OTC medication approved for foot rot.	
<u>Off Label</u>	You decide to use a drug for pneumonia to treat your sheep's foot without consulting a veterinarian.	rot
<u>Off Label</u>	You use a drug approved for chickens on your pig without talking to a veterinarian.	talking
<u>Okay</u>	The label says treat the calf twice a day and you treat it once at 8 am and once 8 pm.	
<u>Extra Label</u>	The label says "treat once daily" and your vet tells you to treat the calf at 6 am, noon, and at 6 pm.	
<u>Extra Label</u>	The label says "administer only to lactating sows" and your veterinarian says to give the medicine to your 3 week old piglet.	
<u>Okay</u>	The label says treat for 5 days. Your first treatment is on Monday and you give the last shot on Friday.	

Extra Label Drug Use Worksheet

Extra Label Drug Use: Only prescribed by a Veterinarian

Veterinarian increases dosage beyond label

Veterinarian changes frequency of administration beyond label

Veterinarian changes duration of treatment

Veterinarian changes disease to be treated

Veterinarian changes species to be treated

Veterinarian prescribes any other non-label use of OTC or Rx drug

**Off Label Drug Use: Producer uses without veterinarian approval
(this is illegal!)**

Label each situation as **Off Label, Extra Label or Okay**

- _____ The label says to give 10 cc of the drug ... your vet says to give 20 cc
- _____ Your pig is diagnosed with foot rot and you treat it with an OTC medication approved for foot rot.
- _____ You decide to use a drug for pneumonia to treat your sheep's foot rot without consulting a veterinarian.
- _____ You use a drug approved for chickens on your pig without talking to a veterinarian.

- _____ The label says treat the calf twice a day and you treat it once at 8 am and once at 8 pm.
- _____ The label says “treat once daily” and your vet tells you to treat the calf at 6 am, noon, and at 6 pm.
- _____ The label says “administer only to lactating sows” and your veterinarian says to give the medicine to your 3 week old piglet.
- _____ The label says treat for 5 days. Your first treatment is on Monday and you give the last shot on Friday.

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Medications and Animal Health Products Activity 4: Residues (Chocolate Milk Activity)

Resources Needed:

1. Pitcher or 2 liter pop bottle of water for each group
2. Ice cream bucket or similar container
3. Whole (or 2%) chocolate milk (whole works best, skim does not work well!)
4. Whole (or 2%) milk (whole works best, skim does not work well!)
5. Chocolate or strawberry syrup
6. Powdered chocolate or strawberry mix
7. 1 clear glass for each participant (glass or clear plastic)
8. Copies of Observation worksheets and pencils

Procedure:

2. Split the class into teams of three.
3. Have each participant prepare a glass of chocolate or strawberry milk, either from purchased, powdered or syrup product. Try to have one participant use powdered, one syrup and one prepared chocolate milk in the group.
4. Instruct participants as follows:
5. Drink your glass of milk.
6. After you have drank your milk, fill the empty glass with clean, clear water from the pitcher.
5. Record what they observe or see about the water in the glass.
6. Carefully dump the water from the glass into the ice cream bucket.
7. Refill the glass with water from the pitcher.
8. Again, record what you observe or see.9. Continue dumping and refilling the glass and recording what you observe until the water in your glass appears completely clear. Record what you observe after each refill.

10. Discuss questions at end of activity.

Residues Activity Worksheet

Time

Observation (What did you see)

Immediately after drinking milk (before rinsing)	
First Rinse	
Second Rinse	
Third Rinse	
Fourth Rinse	

Questions

1. Why was the water cloudy after you drank the milk?

A: *Some of the milk was still in the glass. This is a residue of the milk. The dictionary defines a residue as “the part remaining after another part has been taken away”.*

2. Why was the water less cloudy after each rinsing? Was there any difference between different types of milk (powder vs purchased)

B. *Residue is the substance that remains in the glass. Some of the residue was removed with each rinsing, so there was less and less residue to make the water cloudy, after each additional rinse. There will probably be differences between the types of milk. Usually the purchased will rinse clear more quickly, as the chocolate is more uniformly mixed throughout the milk to begin with. The powder is the most difficult to rinse out, as the particles tend to stick to the sides.*

3. When we talk about residues in the livestock industry, what are we referring to?

A. *Residues are substances that remain in an animal’s body tissue after the animal has been exposed to that substance. Medications enter an animal’s body as a feed additive, water additive, as an injection or pour-on or sometimes by accident. These medications may leave a residue in the animal’s body tissue, which becomes the meat we eat. They may also leave a residue in milk the animal is producing. Residues leave an animal’s body at different rates. Sometimes residues take a few hours to leave the animal’s body and others take days or months, depending on the medication. Some residues may never entirely leave certain tissues during the animal’s lifetime. With the glass, each rinsing of the glass clears away some of the residue. Each day after you stop giving the animal a medication, some of the residue is cleared. Time removes some of the drug residue from the animal, because the animal’s tissue are constantly being broken down and rebuilt.*

4. How can we make sure our animals don’t have residues from medication when we send them to slaughter, or that the milk they produce doesn’t have residues?

A. *Look for the **Withdrawal or Withholding Time** on the medication label. The Food and Drug Administration, part of the US government establishes and enforces rules about acceptable levels of residues. The FDA bases the withdrawal times for products on scientific experiments which ensure that unacceptable residues are not in the product when it is marketed.*

5. Why should you be concerned?

A. *Meat or milk that contains unsafe levels of residues is in violation of federal law. Persons who are v that are present. Also, consumers expect safe residue-free meat. People may lose confidence in the quality of the food products that we produce if there are residues.*

Assuring Quality: A program for youth livestock producers -- Animal Health Products Activities Year Three Activities

Medications and Animal Health Products Activity 5: Giving Injections

Resources Needed:

8. Bananas and oranges, 1 for every two or three 4-H'ers (older, dryer oranges work better than fresh ones; bananas need to be firm)
9. Selection of syringes and needles
10. Rubber top bottles filled with colored water
11. Cotton ball soaked in rubbing alcohol
12. Towels and/or newspapers to cover table and for cleanup
13. Sharp knife (for leaders only)
14. Additional adult supervision
15. If needed, additional background information may be found in *Quality Assurance and Animal Care, Youth Education Program*, pp 101-104 (pink book found in Learning Laboratories).

Procedure:

1. Demonstrate IM and SubQ injections, including how to properly load a syringe. Steps in this include:
 - a. Obtain a sterilized disposable syringe.
 - b. Swab the rubber plug on the top of the bottle with a cotton ball soaked in alcohol or
 - c. Pull the syringe plunger back to fill it with about the same amount, or slightly less, air
 - d. Push the needle through the rubber plug on the bottle and push the plunger in, forcing
 - e. Slowly draw the plunger back, drawing the medication into the syringe. Fill to correct
 - f. Withdraw needle from bottle.
 - g. For an IM injection, use an orange or a banana and insert the needle straight into the
 - h. Slowly push the plunger in. Leave needle in place for at least 2 seconds after all
 - i. For a SubQ injection, a banana works best for the demonstration. Insert the needle at
 - j. Remove needle from fruit and disinfect.

2. Have 4-H'ers give an IM injection in the orange. Only use .5 - 1 cc of colored water to inject the orange. Usually there is a maximum of 2 - 3 injections per orange before the

water starts leaking back out right away. 4-Hers do not need to go through the disinfection process, but should be aware that this is proper procedure.

3. Cut open the oranges, so youth can see how the product is distributed throughout the fruit.
4. Next, have youth give a SubQ injection.
5. Again, cut open the fruit. The product should be between the peel and the meat of the fruit, not distributed throughout.
6. Discuss questions below.

Questions:

1. Which type of injection was easier to do? Why?
 - A. *IM is usually easier for people to do because you just push the needle straight in, as compared to SQ, where you have to be concerned about not getting it in too deep, but getting it in adequately underneath the skin.*
2. Would it be harder or easier to get the injectable product in the right place on an animal? Why?
 - A. *Animals are going to be harder because they won't stand still. However, it will probably be easier to determine where the skin ends, because the skin will slide around over the tissues beneath it on many animals.*
3. If IM is easier to give, why isn't it the preferred method of injection?
 - A. *The muscle is the part of the animal that becomes meat. Many products are very irritating and can cause inflammation in the muscle, and have the potential to cause an abscess, even when given correctly. There is less irritation and less chance for problems in the meat with SQ.*