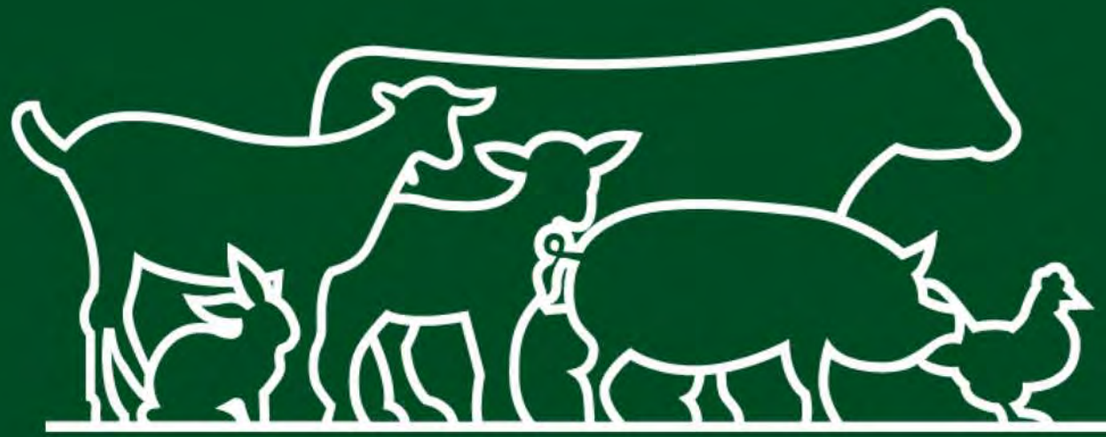

Meat Quality Assurance.

Educating Youth to Produce
Wholesome Animal Products.

COLORADO STATE UNIVERSITY
EXTENSION

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Purpose of the MQA Program

- Help define your responsibilities as a youth livestock producer.
- Increase the use of production practices that relate to Meat Quality.
- Assist you in providing a “safe” product.

Your Responsibilities as a Livestock Producer

- Provide safe, wholesome food to consumers.
- Understand and follow the labels carefully for every feed additive, medicine or product used.
- Develop a close working relationship with your veterinarian.

Food Supply Continuum

Good Production Practice #1

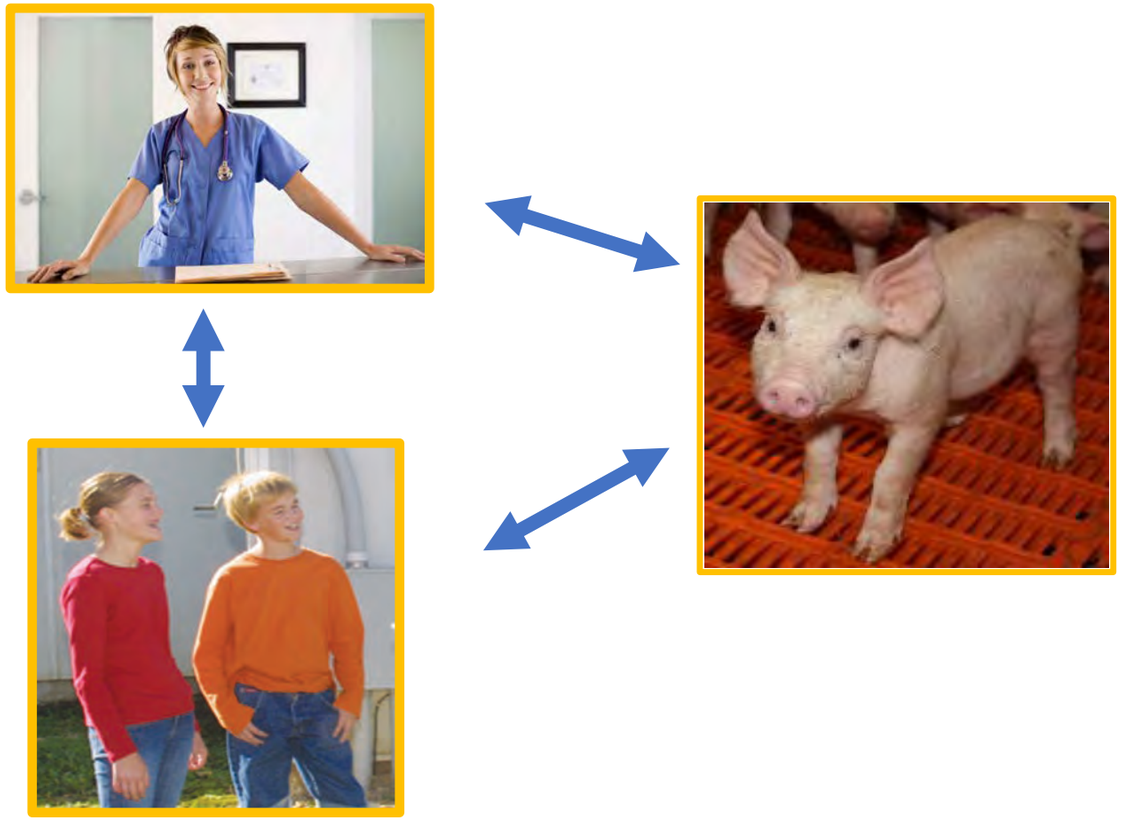
Use an appropriate veterinarian/client/patient relationship (VCPR) as the basis for medication decision-making

Veterinarian/Client/Patient Relationship

A working relationship with your veterinarian where they advise and guide you in determining which medications are appropriate and when to use them as part of your animal project.

The parts of VCPR:

- **V**eterinarian
- **C**lient = You (animal owner)
- **P**atient(s) = Your Animals
- **R**elationship = Vet knows you and your animals



In a VCPR a Veterinarian Must:

- Have working knowledge of the animal(s) and/or operation.
- Accept the responsibility for the administration of a drug or medication.
- Provide continued care following the administration of a drug or medication, if needed.
- Be available for follow up assistance or treatment if needed.

Distribution & Use of Approved Animal Medications

- Label Use – Administration of a medication by the directions on the manufacturer’s label
  - Can be Over the Counter or Prescription medication
- Over-The-Counter (OTC)
  - Can be purchased by anyone from places such as farm supply stores, animal health company, catalogs and veterinary clinics.
- Prescription (Rx)
  - Medications for which the FDA requires veterinarian oversight for labeled usages because of their effects on animals or humans.

Extra Label Drug Use

- Extra Label Drug Use (ELDU) - Actual use or intended use of a medication(s) in an animal in a manner that does not follow the approved label directions.
- Only a veterinarian with a VCPR for your animal(s) can direct extra label drug usage.
  - Veterinarians have advanced training, access to scientific literature and ability to draw conclusions from their resources.
  - They use knowledge and information to establish extended withdrawal times so no residue violations occur.

What is Considered Extra Label Drug Use?

- Increasing the dosage.
- Changing the frequency and/or route of administration.
- Changing duration of the treatment.
- Treating a disease or condition not stated on the label.
- Changing the species or life stage to be treated.

Producer Requirements for Extra Label Drug Use

- Have an established VCPR.
- Have records showing the instructions from the veterinarian directing the extra label drug use.
- Maintain appropriate treatment records when extra-label products are administered.

Using Over-the-Counter Products in an Extra Label Manner

- A VCPR exists.
- Extra label use instructions have been provided by the veterinarian and are followed by the animal's caretaker.
- A withdrawal time has been assigned by the veterinarian.
- Identity of the treated animal is maintained.
- Treatment is recorded, and records are maintained by the producer for at least **1 year** after animal's last treatment.

Veterinary Feed Directive

- Veterinary Feed Directive (VFD)
  - Required for certain antibiotics considered medically important to humans
  - Medication intended for use in animal feed(s) or water and will be ingested
  - VFD is a prescription and comes from your veterinarian you have a VCPR
  - Records on VFDs must be kept for **2 years** after the last use of the medication
  - VFD Cannot use medications ELUD manner

Remember…

- Using a drug or medication in a manner different from the manufacturer’s label is not legal unless administered by, or on the order of, a licensed veterinarian.

- **Extra label use of feed medications is not allowed.**

How to Avoid Drug Residue

- Record the date(s) of treatment.
- Record the animal(s) treated.
- Record the name of the product administered, its lot number and expiration as well.
- Record the dosage and route of administration for treatment(s).
- Record the withdrawal date and time.
- Record the identity of the person who administered the product.

Good Production Practice #2

Establish & implement an efficient and effective health management plan.

Health Management Plan

- A proper health management plan should include
  - Development and maintenance of a veterinarian client patient relationship (VCPR)
  - Development of a health plan for your animals.
  - Development of a biosecurity plan.
  - Development of an emergency plan.

Herd Health Plan

- Designed to
  - Address potential and current health challenges.
  - Help prevent diseases from entering your operation.
- The Plan
  - Includes all vaccinations to be given.
  - Includes the treatment guidelines for common disease challenges.
  - Helps prevent and control potential disease outbreaks.

Biosecurity

- A combination of management practices designed to prevent the introduction and spread of diseases and disease-causing agents into a herd.
- Biosecurity may include:
  - Barn cleaning and disinfecting.
  - Rodent control.
  - Caretaker and visitor entry guidelines.
  - General security measures.

Biosecurity

- External Biosecurity
  - Keeping diseases outside of a herd out.
- Internal Biosecurity
  - Keeping diseases already in one or more area(s) of the herd from spreading to other area(s).

External Biosecurity

- Control wildlife and pests to prevent contact with your animal(s) by including the use of perimeter fencing and bird screening.
- When considering the purchase of new animals, ask your veterinarian to discuss the health maintenance program you should start when the new animals get to your farm.
- When possible, establish an isolation and quarantine facility for newly introduced animals and animals returning from an exhibition.
- Limit the number of visitors to your facility and minimize their contact with your animals.

External Biosecurity

- Consider supplying disposable plastic boots to all visitors.
- Change clothes and boots after visiting other exhibitors, livestock markets or shows.
- Limit equipment and tools, including scales, to those that have been cleaned and disinfected.
- Clean and disinfect all tools, scales and equipment every time prior to introducing them to your operation.

Internal Biosecurity

- Establish routine veterinary visits to monitor herd health.
- Clean and disinfect in between groups of animals.
- Develop a routine check of all equipment and have an emergency plan for feed and water delivery.

Zoonotics

- Zoonotic Diseases are diseases that can be passed between humans and animals
  - Proper sanitation is an important prevention method
    - Wash hands before and after handling animals
    - Wash or sanitize shoes and clothing before and after moving between different groups of animals
    - Clean livestock trailers and facilities between different loads of animals

Emergency Plan

- A plan to follow in case of a livestock emergency or natural disaster
- Emergency Contacts
  - Livestock Owner / Alternative Contact
  - Emergency Veterinarian (VCPR Vet)
  - Local Emergency Services – Fire, EMT, Law Enforcement, Brand Inspector
- Address of livestock facility
- Location of human and animal first aid supplies
- Euthanasia Plan

Good Production Practice #3

Use antibiotics responsibly.

Antibiotic Use in Livestock Production

Antibiotics are used to:

- Treat illness
- Control or prevention of disease
- Improve nutritional efficiency

Responsible Antibiotic Use

1. Take appropriate steps to decrease the need for antibiotics.
2. Assess advantages and disadvantages of all uses of antibiotics.
3. Use antibiotics only when they provide measurable benefits.
4. Fully implement the management practices described for responsible use of animal health products into daily operation.
5. Have a working veterinarian/client/patient relationship and follow the responsible antibiotic use guidelines.

Good Production Practice #4

Properly store & administer animal health products.

Properly Administering Products

1. Read, understand, and follow label directions when giving any medication.
2. Develop a medication record and animal ID system so all caretakers know the medication status of animals prepared for harvest.
3. Identify all treated animals.
4. Keep records for making judgments about marketing animals that have been treated.
5. Use medication records to determine when withdrawal times have been completed.

Drug Labels

- Trade Name
- Active Ingredient
- Indications
- Dosage
- Direction for Use
- Cautions and Warnings
- Withdrawal Times
- Manufacturer's Lot Number
- Expiration Date
- **Species may or may not be listed on the label**
- **Label may not list if a Prescription is required**

Omnibiotic

(Hydrocillin in Aqueous Suspension)

Directions for use:

For use in Beef Cattle, Lactating and Non-Lactating Dairy Cattle, Swine and Sheep

Read Entire Brochure Carefully Before Using This Product

For Intramuscular Use Only

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

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

Recommended Daily Dosage

The usual dose is 2 ml per 100 lb. of body weight given once daily. Maximum dose is 15 ml/day.

Body Weight	*Dosage*
100 lb	2 ml
300 lb	6 ml
500 lb	10 ml
750 lb or more	15 ml

Continue treatment for 1 or 2 days after symptoms disappear

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

Warning: Milk that has been taken from animals during treatment and for 48 hours (4 milkings) after the last treatment must not be used for food. The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food.

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

Lot # 56789B Expires June, 20XX

Take Time: Observe Label Directions

Drug Storage

- **Store medications as directed on the label**.
- Once a bottle of medication has been opened, it should be stored as directed on the label unless specifically directed by your veterinarian.
- Observe medication expiration dates and maintain your supply to avoid using expired products.
- Maintain drug identity. Keep labels and any informational sheets with the product.
- Do not store medications in syringes. Draw medications from labeled bottles with a clean needle and syringe. Administer the product in a timely manner.

Drug Storage

- Store medication appropriately to prevent contamination.
  - Keep injectable medications in a tightly sealed, clean bottle.
  - Clean rubber stoppers before inserting a needle into the bottle.
  - Use only clean needles to withdraw contents from multi-dose vials.

Administering Medication

- Oral
  - Given through the mouth or using water or feed
  - No risk of broken needles or injection-site reactions
- Topical
  - Applying to animal’s skin
  - Sprays, dusts, pour-ons and dips
- Injection
  - Treat individual animals too sick to eat or drink
  - Use needle and syringe to deliver medication

Injections

- Intramuscular (IM)*
  - In the Muscle
- Subcutaneous (SQ)*
  - Under the Skin
- Intravenous (IV)
  - In the Vein
- Intranasal (IN)
  - In the Nasal Passages
  - Not a true injection as a needle does not go through tissue
- Intraperitoneal (IP)
  - In the Abdominal Cavity

*Most common methods of injection

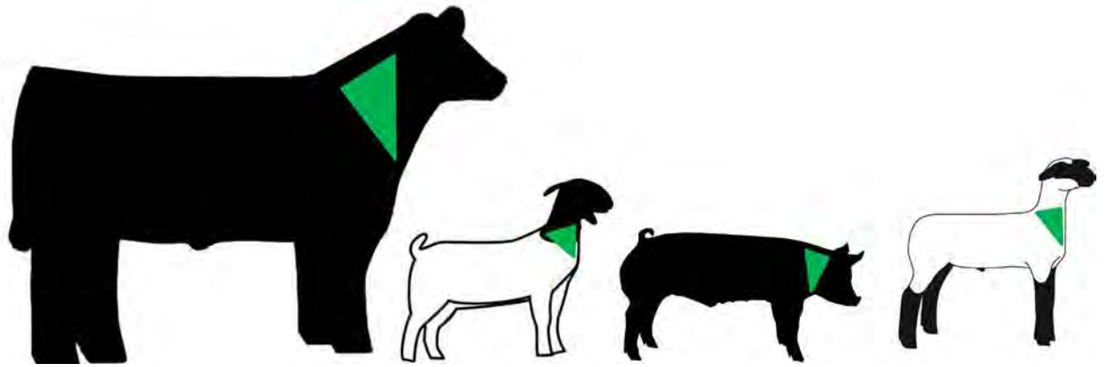
Where to Administer IM & SQ Injections

IM and SUB Q injections should be administered in the injection triangle of the neck.

No injections in any other areas unless directed by your VCPR veterinarian.

Do not administer more than **10cc** per injection site.

Make a proper record of all injections.



What Size Needle to Use?

Recommended Needle Sizes and Lengths for Swine*				
	Intramuscular (IM)		Subcutaneous (SQ)	
Type of Pig	Needle Gauge	Needle Length	Needle Gauge	Needle Length
Baby pigs	18 or 20	5/8" or 1/2"	--	--
Nursery pigs	16 or 18	3/4" or 5/8"	16 or 18	1/2"
Finishing pigs	16	1"	16	3/4"
Breeding stock	14 or 16	1" or 1 1/2"	14 or 16	1"

*Source: NPPC Pork Quality Assurance Guidelines

Administration route (IM or Sub Q), product viscosity (thickness of fluid), age and size of animal must be considered when choosing the correct needle size.

Good Production Practice #5

Follow proper feed processing protocols.

Veterinary Feed Directive

- Regulated by the Food & Drug Administration
- What is a Veterinary Feed Directive (VFD) Drug?
  - Antibiotic drugs added in the feed or water that is considered medically important to humans by the FDA.
    - Ex. Penicillin & Tylosin
- To purchase medicated feed containing a VFD drug you MUST have a prescription from your veterinarian!!
  - Why it is so important to have a VCPR
- VFD records must be kept a minimum of **2 years**

Strategies for Livestock Exhibitors for Medicated Feeds (not VFD)

- Make sure all feeds, especially medicated feeds, are properly labeled.
- Store medicated feed separate from non-medicated feeds.
- Clean storage & feed equipment used for medicated feed after use, if a different feed is to be used next.
- Properly identify all animals receiving medicated feeds & monitor the withdrawal period.
- Maintain records for medicated feeds for at **least 1 year.**

Strategies for Livestock Exhibitors for Feeding in General

- Clean feed equipment regularly.
- Employ pest control practices.
- Regularly inspect feed for quality and freshness.
- Store feed in a dry environment.
- Rotate feed – Use oldest feed and hay first

Good Production Practice #6

Establish effective animal identification, medication records & withdrawal times.

Identify Treated Animals

When animals are vaccinated or treated with medication they should be identified. They can be identified by:

- Individual
- Pen
- Lot

Methods of Identification

Permanent Identification

- Brand (Hot & Freeze)
- Ear Notch
- Retinal Scan
- Tattoo

Temporary Identification

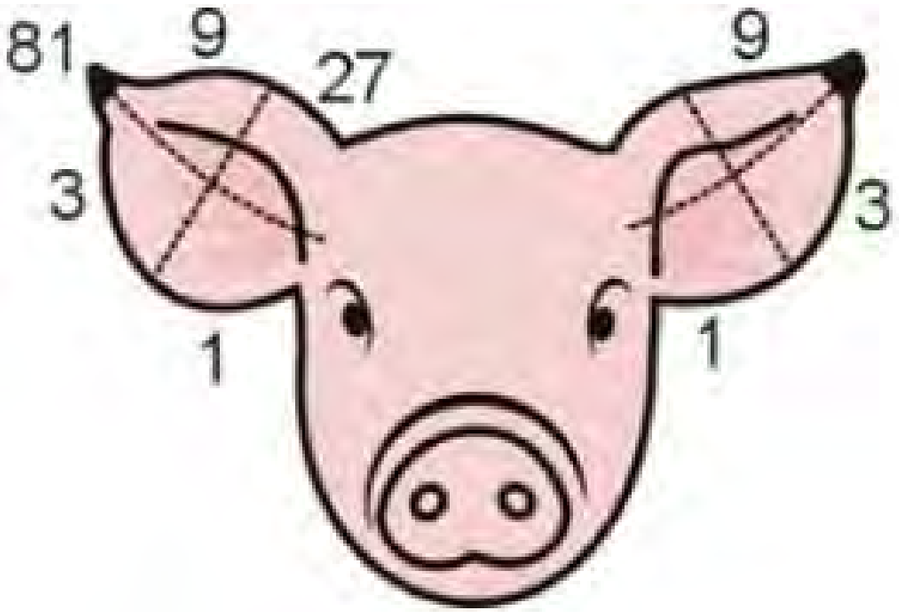
- Ear Tag
  - Electronic ID
- Leg Band
- Paint Brand

Brand

Ear Notch

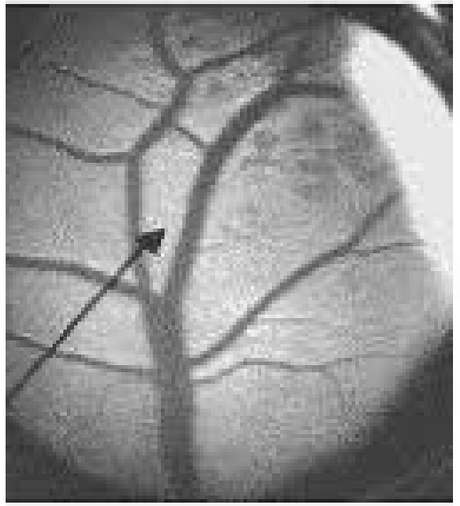
Ear Notch System

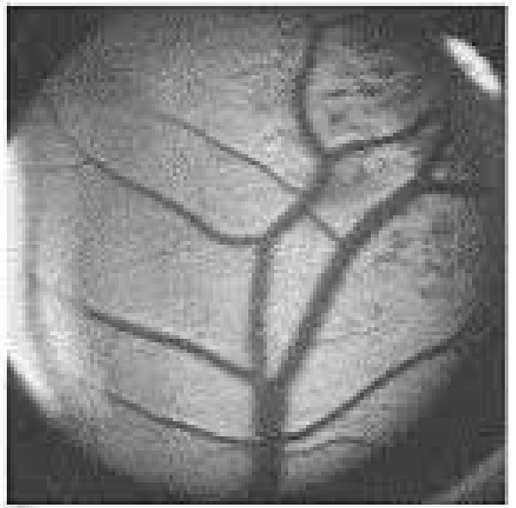
Right Ear -Litter Number



Left Ear - Individual Pig Number

Retinal Scan





Tattoo


L 52


TATTOO INK
BLACK
FOR VETERINARY USE ONLY
NET WT. 3 OZ.
Manufactured For:

Ear Tag

Electronic ID

Leg Band

Paint Brand

Official Government Identifications

- Federal agencies like the U.S. Department of Agriculture (USDA) and state agencies like the Colorado Department of Agriculture (CDA) can issue official government identifications.
- These are used to track possible disease outbreaks or other issues with livestock or food produced from livestock.
- These identifications cannot be removed. If lost, they must be replaced with another government ID and records kept showing the change in ID.
- IDs can include ear tags, leg bands, tattoos and ear notches.

Scrapies Tags

Required on all intact sheep and goats!!!

- The breeder of the animal must provide the Scrapies tags.
- Not lawful to remove a Scrapies tag!
- Some fairs & shows require Scrapies tags for wethers too.
- Look for a tag with a number that starts with a postal code for the state the animal came from. Example – CO, KS, WY or TX

840 Tags

- Part of a USDA Traceability Program.
- Consists of a 15-digit tag number, starting with 840.
- Can be used in multiple species.
- Created for traceability purposes.
- It is unlawful to remove an 840 tag!!!
  - If lost or damaged, they should be replaced with a new 840 tag
  - Producer should document old and new tag number

Medication Records

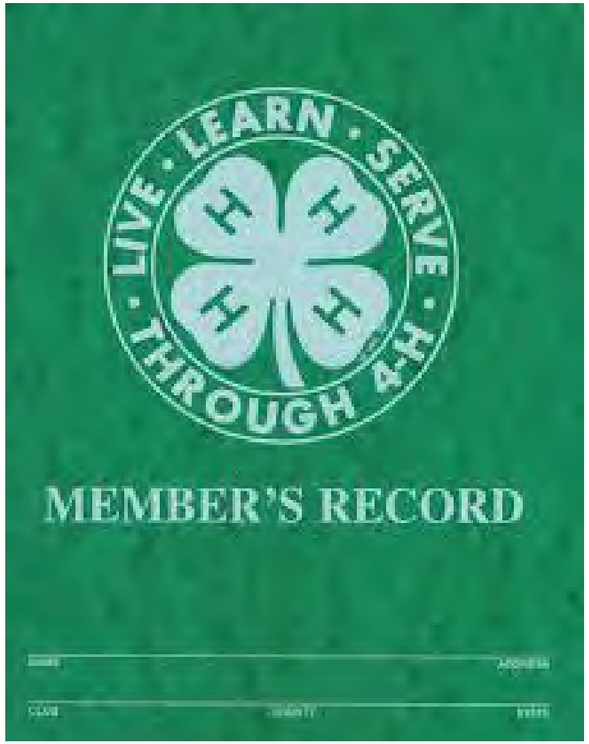
- When vaccinations and medications are used, records should be kept and include:
  - The animal(s) that were treated. (using proper ID)
  - The date(s) of treatment, including last day of administration.
  - The drug(s) administered.
  - The route of administration.
  - The person who administered each drug.
  - The amount of each drug administered.
  - The withdrawal time prior to harvest.
- Records for any medications given (injected, in feed or other) **must be kept for 1 year**.

Medication Records

Table 3.Animal Medication Record (minimum requirement)						
Date	**ID**	**Product Name**	**Amount Given**	**Route**	**Given By**	**Withdrawal Time**
9-17	145	Penicillin	10 ml	IM	Bill P.	7 days

4-H Project Records

- Keep 4-H project records for at least 1 year after marketing your animal
  - Excellent source of medication records



Withdrawal Times

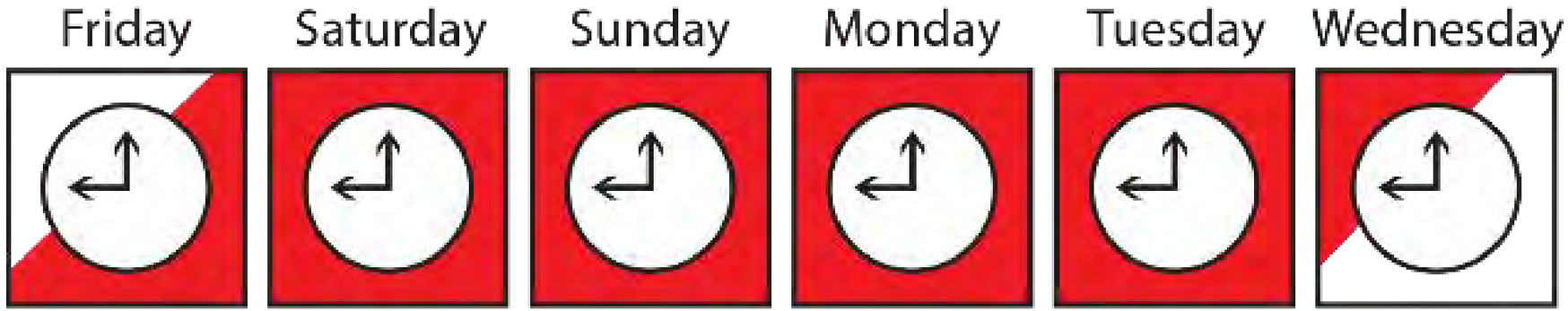
- **Period of time required for medication or animal health product to be metabolized, broken down or excreted to a level remaining in the animal's body at harvest that is below the level established as safe for humans.**
- Found on medication label, package insert or feed tag.
- Veterinarian assigns withdrawal time for extra label drug uses.

How to Calculate Withdrawal Time

Each withdrawal day is a full 24 hours starting with the last time the animal is treated or has had access to medicated feed, water, topical or injectable products.

How to Calculate Withdrawal Time

If an animal is last treated at 9 a.m. on Friday with a drug having a 5-day withdrawal, when would the withdrawal period end?



The withdrawal period would be complete at 9 a.m. on the following Wednesday.

How to Calculate Withdrawal Time

- Administered Medication
  - Withdrawal time begins after the last administration of the medication or product
- Medicated feed or water
  - Withdrawal time begins when all medicated feed **is removed** from the feeder or water supply and feeders and water devices have been cleaned and flushed.
  - Withdrawal time starts at the time the medicated feed was physically **removed from the animal's environment,** not the last time the feed bin was filled with medicated feed or medication was put in the water supply.

Good Production Practice #7

Practice good environmental stewardship.

Environmental Practices

- General Site Conditions
- Buildings
- Manure Management
- Emergency Action Plan (EAP)
- Inspection

Your goal is to protect our natural resources with all you do in your project.

Daily, Weekly & Monthly Inspections

- Manure storage and disposal method
- Insect and rodent population control method
- Drinking water and cooling devices
- Pens, alley and facilities free of excessive manure
- Fencing
- Building ventilation system
- Disposal of animal health products
- Cooling and heating systems
- Proper shelter and shade
- Dead animal disposal methods
- Emergency contact list

Good Production Practice #8

Maintain proper workplace safety.

Safety is Everyone’s Responsibility

- Youth owners and caretakers are responsible for all aspects of safety including:
  - Assigning responsibility.
  - Conducting safety checks.
  - Defining hazard risks for all activities.
  - Allocating resources to ensure safety in all operational activities.
  - Measuring progress and evaluating performance of safety and environmental management.
  - Reviewing all program components and making adjustments.

Controlling Hazards

- Eliminate the hazard completely.
- Limit who is exposed to potential hazards.
- Make sure those around your animal projects aware of potential hazards and how to be safe.
- Wearing the appropriate equipment to protect against the hazard.

Have an Emergency Action Plan

- Have an Emergency Information Sheet that includes:
  - Address of facility.
  - People at the farm trained in first aid.
  - Location of first aid kits, fire extinguishers and alarms.
  - Evacuation plan for each building.
  - Emergency farm map.
  - Emergency contact information outside building for caretakers and neighbors to use if they notice something is wrong.
    - Owner number, veterinarian number, power and electric company, emergency 911, etc.

Protect Yourself

- Always wash hands before and after working in barn and with animals.
- Wear waterproof and puncture resistant gloves when caring for sick animals or assisting with procedures.
- Wear facial protection whenever exposed to splashes or sprays.
- Clean all injured areas with soap and water immediately.
- Don’t eat or drink around your animals.

Good Production Practice #9

Provide proper animal handling and care.

Caretaker’s Ethical Responsibility

- Providing feed, water and an environment that promotes the well-being of his/her animals.
- Providing proper care, handling and transportation for animals at each stage of life.
- Protecting animal health and providing appropriate treatment, including veterinarian care when needed.
- Using approved practices to euthanize, in a timely manner, those sick or injured animals that fail to respond to care and treatment.

Daily Observation

Animals should be observed at least once a day!!!

Look for:

- Any sick or injured animals
- Availability of water and feed
- Any potential biosecurity risks or hazards

Promoting Animal Well-Being

- Feed Availability
  - Check feeders daily to ensure they are in good working condition and that feed delivery is not blocked.
- Water Availability
  - Poor water quality can reduce consumption rates and negatively impact animal health.
  - Water should be available all the time.
  - Waterers should be designed so animals can drink freely and have adequate flow rates.

Promoting Animal Well-Being

- Ventilation
  - Temperature
  - Air Quality
    - Control contaminants such as dust, ammonia, and others
- Shelter
  - Shade during extreme heat
  - Wind breaks and shelter during extreme cold

Facility Maintenance

- Pens, Flooring and Alleyways
  - Remove sharp protruding objects that can cause injures.
  - Non-slip flooring provides good footing where animals are handled.
- Chutes
  - Before loading and unloading animals, inspect chute for damage.
- Feeders
  - Allow unobstructed feed delivery to animals and not cause injury.
- Waterers
  - Designed and positioned so animals can drink freely and have flow rates to meet their water intake needs.

Animal Performance

- Average Daily Gain
  - Average amount of weight an animal gains each day over a period of time.
- Feed Efficiency
  - Pounds of feed required per pound of live weight gain.

Body Condition Score

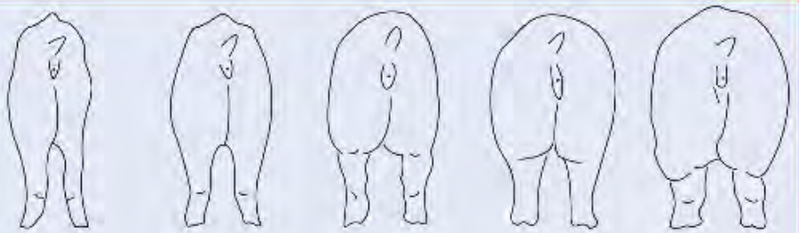
Image					
Score	1	2	3	4	5
Condition	Emaciated	Thin	Ideal	Fat	Obese
Detection of Ribs, Back Bone, "H" Bones and Pin Bones	Obvious	Easily detected with pressure	Barely felt with firm pressure	None	None

Table 1. Description of Body Condition Scores in Beef Cattle. (after Sprott and Herd, undated)

1	**Severely emaciated - no fat observed, backbone, tail head and ribs are prominently visible.**
2	**Emaciated - little visible muscle tissue, backbone, tail head and ribs less visible.**
3	**Very thin - no fat over ribs or brisket, backbone still easily visible (about 0.05 inches of fat cover).**
4	**Borderline - individual ribs noticeable, overall fat cover is lacking, there is increased musculature over shoulders and hindquarters, hips and backbone slightly rounded (about 0.10 inches fact cover).**
5	**Moderate - increased fat cover over ribs, only 12th and 13th ribs visible, tail head full or flat but not rounded (about 0.20 inches fat cover).**
6	**Good - back, ribs and tail head slightly rounded and spongy when palpated, fat deposition in brisket (about 0.30 inches fat cover).**
7	**Fat - cow appears fleshy and carries fat on back, tail head and brisket, ribs are not visible, some udder fat (about 0.40 inches fat cover).**
8	**Very fat – squared appearance due to excess fat over back, tail head and hindquarters, fat deposition in brisket and along ribs and in udder (about 0.55 inches of fat cover).**
9	**Obese – fatter than BCS 8 with more fat in udder (about 0.70 inches of fat cover).**

Body Condition Scoring is a tool used to assess an animal's health and nutritional status.

Animal Evaluation

- **Animals should be checked a minimum of once per day**
- Lameness
  - Animals that cannot bear weight on one or more limbs.
- Skin Lesions, Abscesses, Wounds and Shoulder Sores
- Position of ears
- Nasal discharge
- Behavior

Euthanasia

- Humane death occurring with minimal pain and distress
- Timely Euthanasia
  - Animals showing no improvement to intensive care
  - Severely injured or non-ambulatory animals with the inability to recover
  - Any animal that is immobile with a body condition score of 1

Safe Animal Handling

- Flight Zone
  - Imaginary circle around an animal that it considers its space.
- Point of Balance
  - Located at an animal’s shoulders.
- Following/Herding
  - Animals group together to be in visual or physical contact with each other.

Safe Animal Handling

- Handlers should:
  - Be at least two present
  - Act calmly.
  - Avoid sudden movement, loud noises, other distractions.
  - Move animals at their normal walking pace.
  - Avoid aggressive handling.
- Aggressive handling includes things such as:
  - Overuse, or improper use, of electric prods.
  - Loud noises and yelling.
  - Moving animals too fast.
  - Moving too many animals per group.
  - Overcrowding them in chutes, ramps and alleyways.
  - Rough physical contact.

Slow and quiet handling is the best for low stress on animals and livestock.

Willful Acts of Abuse

Willful acts of neglect and abuse are unacceptable and are not tolerable!

- Acts outside accepted production practices that purposely cause pain and suffering
  - Purposely applying prods to sensitive parts of the animal such as eyes, ears, nose, genitals or rectus.
  - Hitting or beating animal.
  - Failure to provide minimal food, water and care resulting in harm or death to animals.

Good Production Practice #10

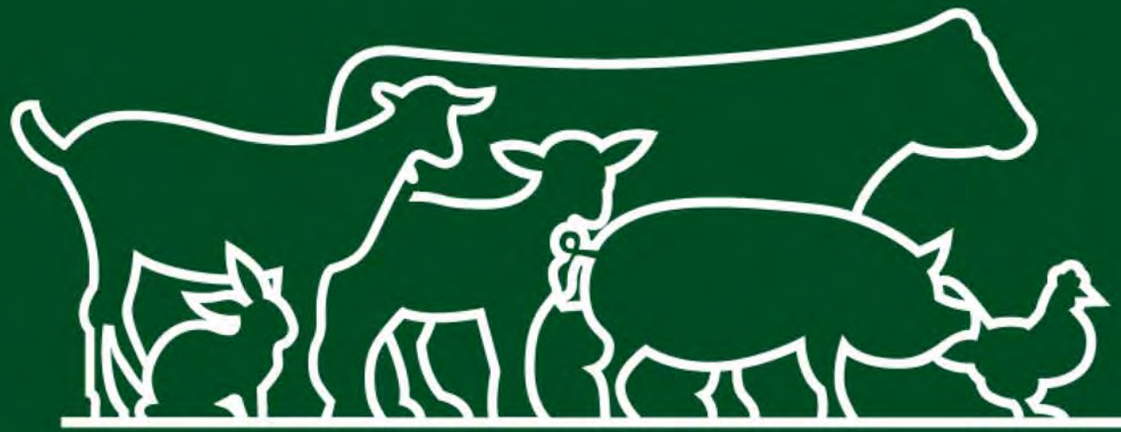
Utilize tools for continuous improvement.

Utilize Tools for Continual Improvement

- Understand the importance of educating all caretakers.
- Use appropriate resources to evaluate records, facilities & animal observations.
- Advocate for agriculture.

Meat Quality Assurance…

A Commitment to Quality Begins With YOU!



Meat Quality Assurance

COLORADO STATE UNIVERSITY
EXTENSION

Junior: Online Quiz

Int/Sr: Online Quiz

Thank You.