

LA015 Quality Assurance

Matches these 2015 National AFNR Career Cluster Content Standards:

[CRP.01.02](#), [CS.03.01](#), [AS.01.02](#), [AS.01.03](#), [AS.02.02](#), [AS.07.01](#).

Common Core State Standards:

Reading #1 and 4; Writing #1 and 7; Speaking & Listening #1, 4 and 5; and Language #4 and 6. [Click for CCSS details.](#)

MAIN IDEA: Why are quality assurance practices important for livestock producers?

Responsibility for meat quality and safety rests with the entire food production chain, of which livestock producers are a major component. Management practices employed by producers help ensure that food from their animals remains safe, nutritious and of high quality. Additionally, practicing quality assurance can save producers money by reducing the need to purchase expensive drugs and vaccines. Quality assurance consists of those management practices and records necessary to produce safe, wholesome food.

THREE OUTCOMES OF QUALITY ASSURANCE PRACTICES

Quality assurance of livestock products promotes three outcomes: 1) heightened food safety, 2) improved palatability and animal productivity, and 3) reduced meat loss from injection site abscesses and/or bruising. Injection site losses occur if a muscle is penetrated with the needle of a syringe, making the marks visible in the cut of meat.

1. FOOD SAFETY

Antibiotic residues jeopardize food safety. If not enough time is allowed for the antibiotics to clear the animal's system before slaughter, traces of the antibiotic can still be found in meat from that animal. If someone with an allergy to that antibiotic eats residue-laden meat, they could suffer a potentially fatal allergic reaction.

Additionally, bacteria build up resistance to antibiotics if the drugs are overused or misused, causing antibiotics to lose their effectiveness over time. Evidence exists that antibiotic-resistant bacteria can survive to infect humans who eat products from those animals. Alternately, if humans consistently consume food with antibiotic residues, the residues could result in selection for antibiotic-resistant bacterial strains in the human digestive system.

While different antibiotics are used on animals from those used for people, bacteria that are resistant to animal antibiotics can transfer their antibiotic resistance genes to the harmful bacteria that are treated using human antibiotics. Eliminating the misuse of antibiotics in agriculture is critical to prevent the worsening of antibiotic resistance and the potential for more antibiotics to become ineffective.

The following seven methods can be used to improve food safety by reducing antibiotic residues.

Biosecurity:

Biosecurity practices help maintain animal health and reduce the need for antibiotics by limiting on-farm diseases. Examples of biosecurity principles include limiting visitors, changing clothes and boots after contact with other animals of the same species, isolating and testing new herd additions, and controlling rodents and birds which can spread disease.

Vaccines:

Similarly, producers should know what specific diseases are present on the farm, and attempt to prevent outbreaks with the intelligent use of vaccines. Vaccines prevent sickness which would otherwise require antibiotic treatment. A vaccine is a treatment which helps an animal build immunity to a disease before it contracts the disease. The vaccine provides small and/or weakened amounts of the disease or its toxins to stimulate the immune system of the animal. This enables the animal's body to detect the presence of the disease infection and destroy it before it can cause an illness.

Medication labels:

Medication labels contain extremely important information, such as species of animal for which the drug is approved, dosage rate, treatment duration, treatment frequency, route of administration, and the withdrawal period. The time required from the time the drug is administered until the animal can be used for meat or milk is called the withdrawal period.

Producers must use the drugs as labeled unless otherwise prescribed by a veterinarian. If the drug is used differently than stated on the label for species, rate, duration or route of administration, the drug is being used in an "extra-label" manner. Extra-label use must be under the supervision of a veterinarian, and may require a different (longer) withdrawal period than the time period listed on the label. When veterinarians prescribe extra-label use of a drug, they should also provide an altered withdrawal period.

Extra-label usage of a drug is very different from off-label usage, in which a person who is not a medical professional decides to use the drug in a manner not consistent with its label. Off-label usage is never part of responsible use of medication such as antibiotics or vaccines and should always be avoided.

Recordkeeping:

Sound recordkeeping should accompany antibiotic and vaccine use. Information, including the treated animal's identification, drug used, amount given, withdrawal time,

method of administration (feed, injectable or water), person who administered the drug, and the drug's effect should be recorded on an antibiotic record sheet.

Drug storage and delivery:

Drugs should be stored in dry, secure areas well away from the reach of children. Products requiring refrigeration must be kept cool, or the drug will quickly lose its potency. Injectable medications should always be withdrawn using a sterile needle to avoid contaminating the bottle. If the label states that the bottle should be discarded after opening, any remaining drug or vaccine should be rinsed from the bottle and the bottle should be discarded or recycled after the bottle is first opened.

Multiple-use syringes and reusable needles should be sterilized in boiling water after each use. Bent, dull or disposable needles should be discarded into a hard container labeled "sharps." Intramuscular (in the muscle) injections should always be placed in the animal's neck, shoulder or tailhead to avoid the potential for blemishes in high-priced cuts.

Antibiotics in feed:

When antibiotics are added when mixing and/or grinding animal feed, some medicine can remain in the equipment and could potentially contaminate the next batch of feed. Equipment should be either manually cleaned or followed with feed for animals that are not near their slaughter date in the event that contamination does occur.

Veterinarian consultation:

Antibiotics are considered regulated products and must be used in strict compliance with the law. The best way to avoid antibiotic residues is to avoid the use of antibiotics. However, if antibiotics must be administered, they should be used under the direct supervision and guidance of a veterinarian. A veterinarian with knowledge of the herd's health status and herd health program can make sound, professional recommendations about treatment options.

2. IMPROVING PALATABILITY AND PRODUCTIVITY

Nutrition plays a role in quality assurance for meat animals. Diets should be commercially prepared, or professionally balanced if mixed at home. Ensuring appropriate levels of protein, energy, vitamins and minerals results in efficient, productive animals. All animals must have access to the most essential nutrient of all -- water. Water sources should be clean, fresh and easily accessible at all times.

Adequately fed animals grow faster, are more efficient and deposit more intramuscular fat (marbling) than animals fed inadequate diets. Carcasses from well-fed animals taste good to consumers because the fat intermingled within muscle tissue contributes to

meat flavor and juiciness. Meat from poorly fed animals lacks intramuscular fat and is often tough and dry.

3. REDUCING PRODUCT LOSS

Damaged carcasses must be trimmed at the packing plant. This meat loss costs packers and producers millions of dollars each year. Tissue damage caused by inadequate facilities, poor animal handling practices, and injection site abscesses all cause meat to be discarded.

Further, accidental contamination due to antibiotic residues in milk forces dairy producers to dump entire tanks of milk every year, resulting in considerable financial loss. Milk with antibiotic residues cannot be sold and must be dumped. All milk sold in stores is tested to ensure that it is free of antibiotic residues.

Reducing product loss from antibiotics:

Antibiotics are often used to treat mastitis, a common infection in the udder of lactating dairy cattle. Dairy producers must withhold milk from treated cows, resulting in tremendous economic losses. Clean facilities, adequate udder preparation, and a proper milking technique reduce the incidence of mastitis, and thus the need for antibiotics and withheld milk.

Reducing product loss from bruises:

Bruises from mishandled animals are entirely too common at packing plants. Product loss from meat animals can be controlled by appropriate handling practices. Patience while loading or moving animals destined for slaughter can reduce the animals' excitement level, and thus the odds of injury. Facilities should be free from obstructions, sharp corners or other obstacles which could cause injury or hesitation during moving or loading. Chutes should be designed with solid sides to prevent animals from seeing anywhere except the direction they are moving.

SUMMARY: Quality assurance employs many management practices to help ensure livestock products are safe and wholesome. Antibiotic residues threaten quality assurance as do improper nutrition and poor animal handling. Violation of quality assurance practices results in poor eating quality and lost product at the packing or processing plant.

INTERNET RESOURCES:

** Beef Quality Assurance Center

<https://www.bqa.org/>

** National Institute for Animal Agriculture - Livestock Handling Guide

The author is Temple Grandin.

https://www.michigan.gov/documents/mdard/Livestock_Handling_Guide_454101_7.pdf

** National Pork Board - Pork Quality Assurance Plus

<https://www.pork.org/certifications/pork-quality-assurance-plus/>

** New York Beef Council - Beef Quality Assurance Certification

<https://www.nybeef.org/farmers-fencepost/beef-quality-assurance-certification>

** Texas A&M AgriLife Extension - Ranch TV - Beef Quality Assurance videos 

Series of short videos covering a variety of topics related to quality assurance

https://www.youtube.com/playlist?list=PLIITU9YR3y_bEtLxNG7UbAQv0tf3JzJeX

** Texas A&M AgriLife Extension - Ranch TV - Food Safety video series 

Series of short videos covering food safety, foreign object contamination, ranch issues affecting food safety, and residues in a product.

https://www.youtube.com/playlist?list=PLIITU9YR3y_acz0WTyLAZlgApAE5PSpfF

** University of Nebraska - Beef Quality Assurance

<http://gpvec.unl.edu/bqa/>

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END STUDENT SECTION