

Introduction to a Meat Goat Quality Assurance Program and HACCP

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Unit Objective

After completion of this module of instruction the producer should be able to evaluate the benefits of a Meat Goat Quality Assurance program as it relates to his/her own meat goat operation and to be able to distinguish between quality control and quality assurance. The producer should be able to apply HACCP Principles and Preferred Production Practices in Herd Health, Nutrition, Feedstuffs, Management and Proper Care, Record Keeping and Biosecurity to his/her own meat goat production program. The producer should be able to score a minimum of 85% on the module test.

Specific Objectives

After completion of this instructional module the producer should be able to:

1. Identify the agency of the federal government that has responsibility of testing food supply for safety.
2. Name three contaminants that affect meat safety.
3. Distinguish between quality control and quality assurance.
4. Distinguish between the meaning of pre-harvest and post-harvest quality assurance.
5. State how pre-harvest practices can affect post-harvest quality.
6. Explain the benefits of a Meat Goat Quality Assurance (MGQA) Program.
7. State the key to a Hazard Analysis Critical Control Point (HACCP) System.
8. Name the seven (7) principles of the HACCP System.
9. State what "Preferred Production Practices" or PPP are based on.
10. Be able to apply HACCP-like principles in the context of PPP.
11. State the 5 areas of PPP in MGQA.
12. Explain the PPP in the area of Herd Health.
13. Name the acceptable routes of giving injection to goats.
14. State the acceptable gauge and needle length for giving injections to goats.
15. Explain the meaning of extra-label drug use and who can authorize it.
16. Explain what is meant by a valid veterinarian-client-patient relationship.
17. Explain the PPP in the area of Management and Proper Care.
18. State proper gathering and handling techniques for goats.
19. Explain the PPP in the area of Nutrition/Feedstuffs.
20. List feedstuffs prohibited from being fed to goats.
21. Explain the PPP in Record keeping.
22. Distinguish between acceptable and unacceptable methods of identification of goats.
23. Explain the PPP in the area of Biosecurity.
24. State the acceptable time frame for prohibiting an individual that has traveled to another country and returned to the United States to visit your meat goat operation.

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Quality Assurance and Food Safety

Today's U.S. meat supply is the safest it has been in history, yet consumers have concerns about the quality and safety of the food products they purchase. News of food recalls based on the presence of potentially harmful bacteria, other disease-causing agents, or contaminants raise fear in consumers and lower the confidence in our nation's food supply. While food safety may be at an all time high, the perception of many consumers is that there is genuine risk in consuming many of the products marketed at grocery stores. Increases in consumption of foods labeled as "organic" or "naturally produced," foods purchased directly from the farm, or from farmers markets, are indicators of this perception.

The USDA Food Safety Inspection Service (FSIS) is the government agency that has as one of its responsibilities the testing of our food supply to ensure its safety. By FSIS definition, food safety refers to the conditions and practices that preserve the quality of food to prevent contamination and food-borne illnesses. Detecting the presence of disease organisms, chemical residues, or foreign material in foods and recalling those foods are examples of some of the work conducted by the FSIS to safeguard the nation's food supply. These quality control measures evaluate the final product prior to sale and prevent potentially harmful food from being distributed or consumed by the public. However, while quality control measures detect harmful substances, they cannot correct the production practice(s) at fault leading to the presence of those substances. That is the role of quality assurance.

The presence of drug residues in meat can serve as an illustration of the difference between quality control and quality assurance. Tests can be performed to detect the presence of unacceptable levels of drug residues in meat necessitating that meat be condemned and destroyed. This quality control process identifies the problem, unacceptable levels of drug residues, but cannot pinpoint where in the production process the problem occurred. Quality assurance programs, on the other hand, set forth guidelines to prevent failures in quality from occurring and, when problems are detected, provide the framework to identify and correct the production practices that led to compromised product quality. Thus, a producer following a quality assurance program can trace back in his or her production system and identify where the failure occurred. Protocols and procedures can be evaluated, corrective actions taken, and records kept to prevent future occurrence. The goal of a quality assurance program is to consistently produce a safe product at the level of quality demanded by the consumer and mandated by law.

Pre-Harvest vs. Post-Harvest Quality Assurance

The drug residue scenario provided an example of how livestock production practices pre-harvest, or from birth to abattoir door, can affect "post-harvest" processing and sale of meat. Obviously, there are many aspects of livestock slaughter and subsequent post-harvest processing that affect final meat quality and safety over which a producer has no control. Conversely, the abattoir and meat processors have no control, except that exerted through market channels, on the product they receive for processing. The responsibility of delivering an animal that can yield high quality, and high value, edible product belongs to the producer. The role of a quality

assurance program for production is to devise and implement pre-harvest production practices that ensure quality standards for marketed animals.

Increasingly, consumers are becoming concerned not only with the immediate safety of food, but with all aspects of food production and marketing. The public is becoming better educated about the nutritional implications of food consumption on long-term health and disease incidence. The trend to consume cuts of meat lower in fat and cholesterol to combat potential atherosclerosis and heart disease is a prime example. Consumers are also concerned with the presence of other contaminants or diseases that can arise during the production, or pre-harvest, phase. Further, consumers are becoming increasingly concerned with the conditions in which food animals are raised and their welfare. These issues have put pressure on the livestock industry to respond and use production practices and quality assurance protocols to assuage consumer concern about its product and the pre-harvest conditions under which animals are raised.

Benefits of a Meat Goat Quality Assurance Program

The demand for goat meat in the U.S. is increasing. In 1990, 1,361 metric tons of goat meat was imported into the U.S. and 1,581 metric tons of goat meat exported. In 2000, 5,642 metric tons of goat meat was imported and exports fell to 104 metric tons. In 2004, imports grew to 9,551 metric tons with a value of more than \$28 million while exports dropped further to only 84 metric tons (USDA Foreign Agricultural Service database). In response to increased demand, U.S. producers are raising more goats for slaughter. In 1990, only 229,600 goats passed through USDA inspected slaughter facilities. This number increased to more than 548,700 in 2000 and to 634,500 in 2003 (USDA National Agricultural Statistical Service database). With this increase in production comes the need for implementation of a standardized, formal framework of practices and procedures to assure the public of the safety and wholesomeness of all goat products produced in the U.S. These types of frameworks are already used in other livestock industries such as beef - Beef Quality Assurance, pork - Pork Quality Assurance, and sheep - The Sheep Safety and Quality Assurance Program.



The need for a Meat Goat Quality Assurance Program (MGQA) is not only to show the public that the goat industry is working to produce safe, wholesome products, although that is one objective, it is also needed to assist producers in making production decisions and guiding them through the production process.

1. MGQA as a production tool

The dramatic increase in goat slaughter in the U.S. indicates that production is rapidly expanding. This expansion has come about through herd growth, a shift in focus from fiber to meat goat production, and through new producers entering the goat industry.

Some producers new to raising goats have extensive experience with raising other livestock species such as cattle or sheep. Some new producers have little to no livestock experience. Since

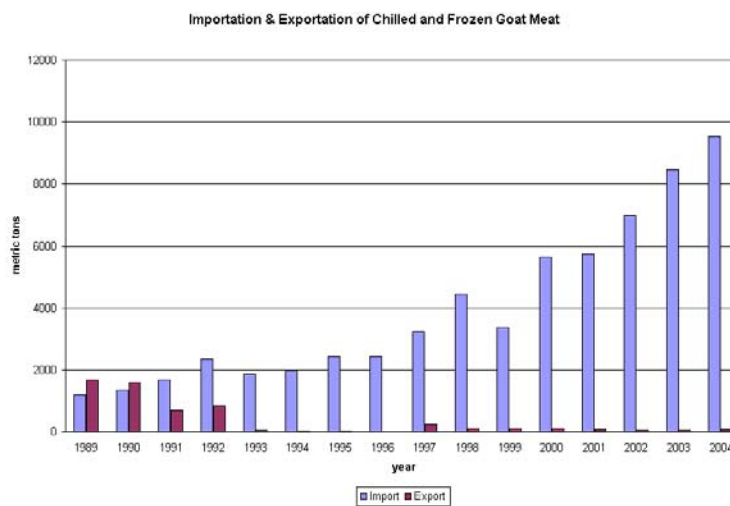
goats are considered a “minor species,” few drugs are approved for the treatment of diseases and parasites and education is needed in this area. Many producers have a need for current and correct information on how to raise goats and produce the safe, wholesome products demanded by the public. A MGQA program, with recommended production practices and procedures, can assist both experienced and inexperienced producers in making sound production decisions that result in animals that meet or exceed industry and federal standards for meat quality.

2. MGQA in long-term industry development

All meat goat producers should understand that they are part of a growing meat goat industry whose goal is to have goat meat considered alongside other red meats such as beef, pork, and lamb in the marketplace. Production of an animal that may have drug residues, injection site lesions, or one that yields poor quality meat affects the image of the industry as a whole. A standard MGQA adopted by the main meat goat associations in the U.S. will unify producers in working toward an industry standard, i.e., wholesome goat meat products.

3. MGQA as a marketing tool

The overwhelming majority of goat meat sold in the U.S. is imported. With many meat safety issues in the minds of the public, many consumers wish to know where their meat was produced. There exists a segment of the U.S. population that would purchase and consume more goat meat if they were assured that the product was U.S.-grown and conforms to all laws governing domestic meat production. Adoption of an industry-wide MGQA program would be a large step in the promotion of U.S.-grown goat meat to the consuming public. A quality assurance statement, coupled with the natural benefits of goat meat compared to other red meats in terms of fat and cholesterol content, could be the basis for a very effective marketing campaign.



4. MGQA as an industry safeguard

As the industry grows and additional producers enter the marketplace a wider variety of production systems, and potential problems, are likely to emerge. Future developments in the livestock industry, such as animal identification allowing the tracing of diseased animals back to their farm of origin, will affect all meat animal producers. Having an industry approach to quality assurance can assist producers in complying with federal regulations and avoid problems that could drastically, negatively affect the entire industry.

Adopting MGQA demonstrates to the public that producers in the meat goat industry do all they can to protect the welfare of their stock. While goat producers are very caring toward their animals, misunderstandings can arise with the general public. As fewer and fewer people are involved in direct animal production, there is a growing lack of understanding of animals, production systems, and the management actions involved in producing this nation's food. In some countries of the world, this has led to establishment of government regulations on animal production, some of which can be quite restrictive. For example, the Codes of Recommendations for the Welfare of Livestock: Goats established by the Department of Environment, Food and Rural Affairs in the United Kingdom states that all disbudding must be carried out by a veterinary surgeon. Adoption of MGQA and adherence to its standards are ways that meat goat producers can show the public how they care for and uphold the welfare of their stock.

Preferred Production Practices and HACCP

An effective pre-harvest quality assurance program will focus on not only production and product safety issues, but also on the total production environment. The program should set standards that address issues directly concerned with product safety and quality along with animal welfare and well-being. Practices range from basic herd management to herd health to nutrition and feeding. In MGQA these are "Preferred Production Practices" or PPP. On-farm evaluation and use of PPP are based upon the Hazard Analysis Critical Control Point (HACCP) principles.

HACCP systems are extensively used in the food processing and preparation industry, i.e., post-harvest processes, as a major means of assuring food safety. The key to the HACCP system is the analysis of potential production hazards and the pinpointing of places in production, called critical control points, where preventive measures can be taken. As an example of HACCP's impact on the food industry, the U.S. Department of Agriculture mandated that meat and poultry processing establishments begin using HACCP by January 1999 to improve product safety and prevent the three main hazards that occur in food processing, biological (microbial contamination), chemical (toxins or drug residues), and physical (foreign material in food, e.g., glass or plastic).

Processing facilities must have HACCP plans in place to deal with hazards that occur post-harvest during processing and hazards that are present due to pre-harvest production practices. Thus, it is important for livestock industries to use HACCP-like principles in quality assurance programs to assist post-harvest processors trace detected failures in production and prevent future occurrences.

Quality assurance programs such as those mentioned for the beef, sheep, and pork industries are pre-harvest programs that use HACCP-like procedures to assist in the production of animals giving safe, wholesome products.

There are seven HACCP principles that assist producers and industry to identify, evaluate, control, and, finally, prevent food safety hazards and assure quality.

HACCP principles

- 1. Conduct a hazard analysis.*** Review your production system for procedures or places that could allow for harm to animals, compromise production, or introduce biological (microbial), chemical (toxins or drug residues) or physical contamination.
- 2. Determine critical control points.*** Critical control points are those areas in production where problems could happen resulting in lower quality products and where production changes or interventions should occur to prevent problems.
- 3. Establish critical limits for control points.*** Set desired limits on identified hazards.
- 4. Establish monitoring procedures for control points.*** Decide how to monitor and determine if critical limits have been met.
- 5. Establish corrective actions.*** Actions to be taken when monitoring procedures indicate a problem.
- 6. Establish record keeping and documentation procedures.*** Records should be kept on identified problems, corrective steps taken, effectiveness, and methods to prevent future occurrences.
- 7. Establish verification procedures.*** These procedures verify that proper corrective measures were taken and have been effective.

These seven principles can be used in virtually all aspects of production. For instance, in the drug residue example the seven HACCP principles would be as follows:

1. *Hazard analysis* - potential presence of drug residues.
2. *Critical control point* - withdrawal time prior to sale.
3. *Critical limit* - zero drug residues in meat.
4. *Monitoring procedures* - records kept on all animals treated on-farm, including animal number, drugs used, treatment dates, and withdrawal periods.
5. *Corrective action* - improved record keeping, employee training in drug use and record keeping.
6. *Effective record keeping* - check treatment documents to ensure proper, correct, and current information.
7. *Verification procedures* - periodic review of all records, no further reports of residues in meat.

While it may appear difficult to follow the seven steps of HACCP, in reality most livestock producers are already using HACCP-like procedures to solve and prevent problems. Diagnosing problems and taking corrective action are common occurrences on farms. The advantage of HACCP is that it provides a formal, proven framework of procedures whereby a producer can objectively evaluate current production systems, identify flaws, and put into place evaluation and corrective action plans prior to the occurrence of a problem. Using HACCP-like principles

represents a shift from being reactive to events that cause production or quality loss, to being proactive by working to prevent those occurrences from happening.

Further, by using HACCP-like procedures, if a problem does occur the necessary planning for corrective actions are already in place saving time and eliminating other potential mistakes. Ultimately, preventing problems and production loss will result in an enhanced production environment with fewer problems that will lead to increased profit. That is the goal of all quality assurance programs.

Exposed nails or sharp wire on farm structures provide an illustrative example of the way producers may already be using HACCP-like principles. These sharp points and edges can cut a goat's skin and lead to increased use of antibiotics, potential production loss from slower growth rates, damage to hides, etc. Thus, exposed nails and wire are a hazard and when noticed these are repaired or removed.

Using HACCP-like principles does not change the basics of what is performed, that is the prevention of cuts. What using HACCP-like principles does, is to assist in structuring a method of checking on the hazard and deciding what to do in the future to prevent another occurrence. To illustrate, the hazard is exposed nails or sharp wires. The control points are those portions of your pens and buildings where nail points could be exposed or where goats can damage facilities resulting in exposure. A desired critical limit is zero nails or wire exposed that could cause harm. Looking at facilities when feeding is one method of monitoring those control points. Corrective actions would be repairing fences or buildings to prevent nails from protruding or perhaps installing a shield in prone areas. Repairs or shield installation should be recorded in your farm records, particularly if any expense was involved. Finally, a regularly scheduled, periodic walkthrough of your facilities to inspect repairs and current condition would be a method of verifying that monitoring and corrective actions have worked.

Preferred Production Practices of MGQA

Preferred Production Practices in a MGQA program represent critical points in goat raising where problems or issues may arise that could lead to reduced product quality and safety or compromised welfare of the animal. One example would be proper injection techniques and the issue of broken needles. A needle that breaks off inside an animal represents more than a foreign object that could be found in the meat. It also affects the welfare of that animal. Unless immediate action is taken to locate and remove the needle, the broken point could migrate inside the animal causing pain, infection, and death. Thus, a critical point in herd health is proper injection technique.

Five areas have been targeted by this MGQA program as critical points in the production of quality goat meat. These five critical areas are: Herd Health, Nutrition/Feedstuffs, Management and Proper Care, Record Keeping, and Biosecurity. A brief description of the major points in each PPP is given.

Preferred Production Practices in Herd Health

Herd Health PPP #1 - Establish and follow a herd health program

A herd health calendar specific to your production system should be developed upon consultation with a veterinarian. All vaccinations should be given at times appropriate to individual groups of animals. Management practices that can impose stress on an animal, such as castration, should be done properly to prevent health complications. All kids should receive colostrum and receive proper care to prevent disease problems. The environment surrounding the animals should be maintained to minimize exposure to pathogens, for example, through regular manure removal.

Herd Health PPP #2 - Establish a valid veterinarian - client - patient relationship and use any off-label drugs in accordance with guidelines for their use within such a relationship

Having a good relationship with your veterinarian will assist in forming and following a comprehensive herd health program. Only a veterinarian can authorize the use of any drugs not specifically cleared for use in goats.

There are few drugs cleared by the Food and Drug Administration for use in goats. Many drugs used to treat diseases in goats are used in an “off-label” manner, meaning that they are administered in a manner not according to their labeled use. This is referred to as ELDU (extra-label drug use) and can only be authorized by a veterinarian in the context of a valid veterinarian - client - patient relationship. In general this means that 1) the veterinarian has been to the farm, examined the animal(s) in question and determined that no approved drug exists to treat their condition or that the dosage prescribed for an approved drug is ineffective; 2) the veterinarian instructs the producer on proper use and administration of the drug and determines an appropriate withdrawal period; and 3) the veterinarian is available in the case of adverse reaction to the drug and for follow-up examination and treatment. All three conditions must be met for ELDU. Complete records of animal number, drug given, dosage, route of administration, date, and specified withdrawal period must be maintained for all ELDU.

Herd Health PPP #3 - Store and administer drugs according to labeled use or veterinarian authorized off-label use and follow all withdrawal periods

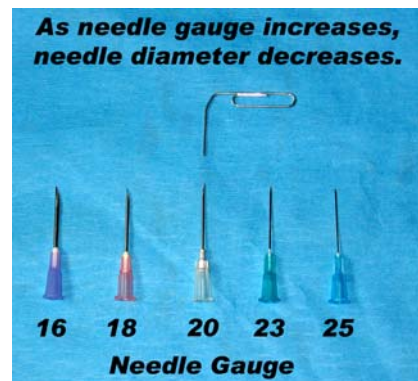
Drugs should be stored securely away from curious animals and unauthorized persons. Some drugs require refrigeration. When administering drugs, follow recommended dosages and administration guidelines or follow veterinarian instructions regarding ELDU. Protect drugs from sunlight and heat during use to prevent reducing their effectiveness. Do not use drugs past their expiration date. Record the date and amount of drug administered and the date when the prescribed withdrawal period has been fulfilled. As an example, the dewormer Safe-Guard® states that “Goats must not be slaughtered for food within 6 days following treatment. Because a withdrawal time in milk has not been established, do not use in lactating goats.” Instructions such as these should be followed for all drugs administered on-farm.

Herd Health PPP #4 - Use proper injection technique including preferred injection site (in front of the point of the shoulder)

Use the correct injection method when administering injectables. Subcutaneous (SC) administration is preferred to intramuscular (IM) or intravenous (IV) injections. When administering drugs SC, use proper “tenting” technique to avoid entering the muscle. If IM injections must be given, ensure that all injections are given in front of the point of the shoulder. Lesions can form from injection sites and injecting in the neck prevents damaging the more valuable cuts of meat.

When giving IM injections, proper technique calls for pulling back slightly on the plunger after entering the muscle to make sure a vein or artery has not been penetrated. Injections given in muscle allow for slower absorption of the active drug than IV injections. If, in an IM injection, a vein has mistakenly been penetrated, the rate of drug absorption will be dramatically increased. This can cause shock, seizures, or animal death. Intravenous injections should only be given by experienced individuals.

Proper injection technique also includes proper needle selection depending upon the viscosity or thickness of the drug given, injection method, and age of the animal. Generally, 18 to 20 gauge needles are sufficient for most injections. Lengths of 1 to 1½ inches should be used for IM or IV injections, while shorter lengths of ½ to ¾ inch are suitable for SC injections. To minimize animal discomfort, avoid using dull needles. It is suggested to change needles after a maximum of every 10 animals. If a blood-borne disease is suspected to be present in the herd, needles should be changed after every animal. If a needle becomes bent, replace it immediately. Have an appropriate “sharps” container to dispose of used needles.



Herd Health PPP #5 - Provide training to all persons treating animals on proper drug usage and administration techniques

All persons who work on the farm should be trained in proper herd health care including drug use and storage, injection techniques, and in completing the record keeping system used. Training should be kept up to date and reviewed when new drugs are introduced.

Preferred Production Practices in Nutrition/Feedstuffs

Nutrition/Feedstuffs PPP #1 - Provide proper nutrition to all animals according to age and stage of production

Proper nutrition is essential in the well-being and productivity of all farm animals. Properly fed animals are healthier and will exhibit greater production efficiency than underfed or overfed animals. Good nutrition and health begin with ensuring that all kids consume colostrum to receive needed nutrients and antibodies. Body condition scoring provides producers with

information on the nutritional status of their herd and the need for feeding adjustments. Using a nutrient calculator, such as the web-based calculator developed by the American Institute for Goat Research found at www2.luresext.edu, can help producers determine the amount of energy and protein needed for animals at different ages and production stages.

Nutrition/Feedstuffs PPP #2 - Ensure that feed and water are free of contaminants

Feed should be stored in areas that are free of the risk of contamination from foreign substances, such as motor oil, chemicals, baling twine, etc. Storage conditions should also ensure that no fermentation or mold growth occurs that could lead to the presence of mycotoxins. Purchased feed should be free of aflatoxins and other harmful substances. Water should not contain high levels of dissolved salts, chemical residues, feces, or urine. Feeders and waterers should be constructed to minimize opportunities for animals to foul feed and water through urine or manure. Control rodents from entering your feed supplies. Purchased feed and hay should be free of chemical, biological, and foreign material hazards.

Nutrition/Feedstuffs PPP #3 - Comply with FDA regulations on the ban of feeding ruminant-derived protein supplements to other ruminants

The Food and Drug Administration has published regulations prohibiting the feeding of goats feed or feedstuffs containing proteins derived from other ruminant species. This has been mandated to prevent potential cases of Bovine Spongiform Encephalopathy (BSE), from occurring in ruminants in the U.S. Banned feeds include all protein supplements of ruminant origin including ruminant-derived meat meal, meat and bone meal, bone meal, blood and blood by-products, glandular meal, etc. Also prohibited is the feeding of broiler litter to ruminants as poultry feed may contain ruminant-derived protein supplements and spilled feed may be present in the litter. Pet food may contain substances banned from ruminants, thus, food for guard dogs should not be readily available for goats to eat. Other prohibited substances include human plate waste processed for livestock feed.

Nutrition/Feedstuffs PPP #4 - Take proper care in the use of medications and other feed additives

Few medications and feed additives are approved for use in goats. To find the current status of drugs, additives, and medications approved for goats, consult a veterinarian or the Food and Drug Administration “Green Book” that lists approved drugs for livestock. This searchable on-line database can be found at <http://www.fda.gov/cvm/greenbook/greenbook.html>. As of this writing, April 2005, only 23 drug products have been approved for use in goats. Consult a veterinarian concerning any possible use of medicated feeds in an off-label manner.

Nutrition/Feedstuffs PPP #5 - Record use of chemicals on pastures to prevent harvest and feeding of feed containing chemical residues

A major issue in food safety is chemical residue avoidance. Chemical residues (drug residues or chemical toxins) are one of the three contaminants that affect meat safety, the others being biological (microbial) and foreign substances (such as broken needles, glass, plastic, etc.).

Anytime a pesticide or herbicide is applied there is potential for that chemical to enter the food chain. Appropriate sprayer cleaning procedures and proper disposal of used containers is essential. Care should be taken during application to prevent chemical runoff that will contaminate water supplies.

Preferred Production Practices in Management and Proper Care

Management PPP #1 - Provide proper care to all animals

Goats should have daily observation and care to lead healthy, productive lives. Observing animals during feeding and learning their normal behavior allows a producer to immediately sense when something is “wrong” and extra attention is needed.

Proper care of goats begins with care of pregnant does, including nutrition, housing, vaccination, and avoiding stress. Properly cared for does will have healthier kids with fewer future health problems. Care should be matched to animal age and expected production level. Trim hooves as needed to prevent foot and leg problems. At all times, the welfare of the goats should be considered and efforts made to minimize pain and stress on the animals. This promotes a healthy production environment and reduces the need for medicines and veterinary costs.

Management PPP #2 - Use proper gathering and handling techniques to reduce animal stress

The herding behavior and flight zone of goats should be understood in order to make gathering and catching them easier. In a pasture setting, a small catch pen should be made and goats fed a small supplement in that area to accustom them to entering. The use of a catch pen or similar arrangement is much less stressful, and tiring, to both goat and owner than trying to catch untrained animals on pasture. When herding goats, move calmly and let goats go at their own pace. Most people will move faster than the rate at which goats normally walk. Goats should not be caught or held by grasping the hair or skin, or by catching a leg or tail.

The preferred method of holding is to place one hand under the chin and the other on the back of the head. Animals should not be subjected to undue stress.

Management PPP #3 - Provide training in proper goat care and handling techniques to all people working on the farm

All persons who care for or manage animals on your farm should receive training in goat care and handling. This will pay dividends in better animal productivity and reduced injuries and disease incidence. If many people are employed or the production system is complex, training manual providing information on the management and care practices used on-farm could be devised and available for employee use.

Management PPP #4 - Inspect facilities periodically to maintain them in good working condition

Buildings and fencing should be inspected periodically and repairs made. The condition of buildings and facilities can affect the welfare and productivity of goats. Injuries due to poorly maintained facilities can leave an animal open to infection, necessitating additional expenditures for veterinary care and (or) long-term problems. In extreme cases, death can result from inadequately cared for buildings or fencing. As an example, predators can enter animal pens or pastures through holes in fencing or walls and kill animals.

In general, any money spent in maintaining facilities will be recouped in reduced veterinary costs and death losses.

Preferred Production Practices in Record Keeping

Record Keeping PPP #1 - Identify each animal

Identifying animals is essential for good record keeping and all animals should have a unique identifying number. Some breed registries may require a tattoo be applied and have their own policies concerning placement and numbering. Ear tags or neck ropes may be used as identification. Ear tags are preferable to neck chains for goats in grazing situations. If used, neck chains should be moderate in strength allowing them to break if the chain gets caught in brush or on fencing where it could be a choking hazard. Ear tags should be applied properly between the cartilage ribs on the ears. If clip type ear tags are used on young animals, the tag should be placed allowing for future growth of the ear. Ear notching is an acceptable form of identification if performed on animals less than two weeks of age. Some breed organizations may not allow ear notching. Ear notching pliers should be disinfected between animals to prevent transmitting blood-borne diseases. Goats should never be hot or freeze branded.



Record Keeping PPP #2 - Keep and maintain records on all animals on pertinent production parameters, vaccinations given, and other drug treatments

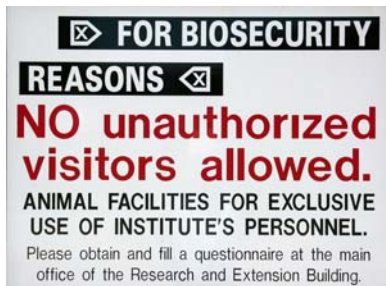
Complete, accurate records of animals on your farm will assist in making management decisions regarding breeding, culling, and sale. Records of health treatments given to animals are necessary to prevent the harvest of animals prior to completion of withdrawal periods, to prevent multiple doses of a drug being given to a particular animal, and to check on treatment progress. Records on chemical use, feed and drug purchase, etc., can also help safeguard your operation should questions arise concerning animals you may have sold. Breeding records are necessary for registration purposes. Keep written records in a safe place and ensure backup copies are made of any electronic files kept on a computer.

Record Keeping PPP #3 - Periodically review records for completeness and accuracy

Records are most useful when complete and accurate. A periodic review of records and record keeping methods will help catch mistakes and oversights while they can still be easily corrected. This review should happen at least annually. A better management practice would be to review records quarterly. Ensure that all new employees are trained in record keeping to prevent mistakes from occurring.

Preferred Production Practices in Biosecurity

Biosecurity PPP #1 - Establish a biosecurity plan for your farm



Consider your production operation and devise a plan to ensure your animals are protected from diseases entering your herd. Potential ways in which diseases could enter your farm include: visitors, feed deliveries, new animal acquisition, and show animals returning to the herd, stray animals, rodents, birds, and others. The potential risk from these various areas should be examined in the context of your production situation. Plans should be made to protect animals from identified risks and to

deal with animals that become ill so that diseases occurring on your farm are not transmitted beyond your farm gate.

Biosecurity PPP #2 - Minimize or avoid contact between your animals and animals not on your farm

Many diseases are transmitted through animal to animal contact. Avoiding contact with animals not on your farm will reduce disease outbreaks. Consider the location of pastures and grazing areas in relation to your neighbors' animals. If new facilities are planned, consider the location of neighboring livestock barns and pens. Do not build facilities in or near drainage areas from livestock facilities. If your animals are very valuable, for example breeding males whose semen is collected for sale; consider double fencing along adjoining property lines to further protect them from neighboring animals. At exhibitions, house animals using solid partitions to minimize contact. Control stray animals, both domestic and wild. Maintain quarantine procedures. Do not haul other animals with your own and clean mud and manure from livestock trailers.

Biosecurity PPP #3 - Establish a quarantine protocol for animals entering your herd

Preventing diseases entering your herd from new animals begins during purchase. Be sure to ask the seller for health and production records on animals you plan to buy. Ask about the disease or herd health program followed. Also, look at the whole herd, not just the few animals you plan to purchase. This will give an indication of the health program followed. Upon arrival at your farm, place new animals in quarantine for a minimum of 30 days. Consult a veterinarian for a quarantine vaccination and deworming protocol and any diagnostic tests that should be performed. Buckets, shovels, fencing, etc., used in the quarantine area should not be moved and used in the general herd. Feed and care for quarantined animals last and do not re-enter your herd

before changing clothing and washing boots to prevent carrying diseases from new animals to your herd. As an example, if a quarantined animal has a caseous lymphadenitis abscess that bursts, a person may inadvertently step in the pus from that abscess and carry that on his or her boots. If that person then reenters the farm herd, he may contaminate the ground or other animals.

Quarantine animals upon return from exhibitions or fairs if they have had contact with other animals. Follow the same quarantine guidelines for these animals as with purchased animals. Do not haul animals other than your own to and from shows.

Biosecurity PPP #4 - Establish a protocol for visitors to your farm

Many visitors to your farm will likely be producers themselves. To ensure that diseases are kept from entering your farm area, establish a protocol for any visitors and their vehicles. Control traffic entering your farm and have a separate parking area or ensure that vehicles are clean of mud and manure. This includes livestock trailers, feed delivery trucks, and veterinary vehicles. Consider having disposable boots available for visitors who wish to tour your facilities and herd. Alternatively, have a footbath with disinfectant where visitors can clean their shoes before and after seeing your animals. Have a wash basin or facility for visitors to wash their hands before and after handling animals. Explain that your procedures protect not only your herd, but theirs as well.

Biosecurity PPP #5 - Do not allow persons who have had contact with livestock in foreign countries on your farm, or bring clothing or other items from them to your farm, for a period of 5 days after their arrival in the U.S.

Largely in response to outbreaks of Foot and Mouth Disease (FMD) in other countries, the USDA published guidelines for persons from, or who have traveled to, foreign countries where FMD is present. These persons are encouraged not to have contact with livestock for 5 days after entering the U.S. Some states or institutions, such as Langston University, recommend a 10-day waiting period. The virus causing FMD can be carried in hair and nasal passages, clothing, luggage, shoes, etc. Following this PPP helps safeguard the entire U.S. livestock industry. Outbreaks of FMD, while not a threat to humans, result in the necessary destruction of all infected and potentially infected animals with enormous industry and economic consequences.

Preventing or minimizing contact between foreign travelers and your herd for the period after their arrival may also prevent the spread of other diseases as well.

Long-Term Benefits to the Meat Goat Industry

Adoption and use of MGQA sends a signal to the livestock industry and to consumers that the production of meat goats has grown from being a “backyard project” to an economically viable nationwide industry. Sustaining and enhancing this growth requires increasing the availability of safe, wholesome goat products in the marketplace. Using MGQA procedures can assist livestock owners in making correct production decisions. The Preferred Production Practices (PPP) may also bring new ideas or approaches to existing management activities. Utilizing HACCP-like

principles in implementing the MGQA promotes a quality management style that anticipates and prevents problems.

Adherence to MGQA guidelines benefits all aspects of the meat goat industry from pre-harvest production of animals yielding high quality, edible products through post-harvest processing and sale. This embodies a total quality management approach to the meat goat industry assuring consumers of the wholesomeness and quality of U.S.-produced goat meat products.

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