

BIOSECURITY: GOATS



BASICS

OVERVIEW

- Biosecurity procedures are management practices implemented to prevent the introduction of pathogens, minimize chemical/biological hazard impacts, and control the spread of disease inside and outside the operation. It also has become a good strategy to protect the food chain against bioterrorism attacks.
- A biosecurity program also improves animal and public health. Diseases such as paratuberculosis (Johne's disease), tuberculosis, brucellosis, caprine arthritis encephalitis (CAE), and foot-and-mouth disease transmission can be addressed by well-designed programs.
- The biosecurity principals are isolation, sanitation, and restricted movement. Therefore, stricter quarantine procedures, more thorough sanitation, increased testing for pathogens, and less contact between animals are all components of a biosecurity program.
- Implementation of a biosecurity program should commence with identification of the risks and hazards in the specific operation that can potentially result in disease outbreaks. Individual farm risk assessment is the key to developing a successful caprine biosecurity program.
- Biosecurity is a program designed by the owner with the help of animal health care professionals that both prevents the introduction of new disease(s) onto the farm from outside sources and helps prevent the transfer of infectious disease within the farm environment.
- Biosecurity should be a top priority when formulating management decisions.
- Factors constituting potential disease exposure: new animal arrivals (new goats, embryos, semen), feed, water, direct animal contacts (fence line, shows/fair traffic, different age group intermixing), wildlife (including insects), vaccination/treatment of many animals with the same needle, transport vehicles, rendering vehicles and visitors are a few high-exposure examples.

BIOSECURITY PLANNING

- Most of the measures that will be incorporated in biosecurity plans are fairly basic (See Table 1). They remain effective only when the biosecurity measures are practiced as a regular part of management, and that requires training and commitment. The producer is the one ultimately responsible for the effectiveness of the biosecurity plan.
- Programs such as HACCP and BTM are useful tools for implementing biosecurity. Both focus on identifying critical control points and establishing controls to prevent hazards.
- It is recommended that the farm veterinarian work closely with the farm management in developing and implementing the biosecurity plan.
- The first step in managing and preventing disease in an operation is deciding whether the farm will maintain an open or a closed operating program. This is the first phase in directing the farm risk assessment program.
 - Will the farm totally exclude visitors (closed), allow visitors only in specific areas (modified closed), or be an open production system without controls (open)?

- Farm priority plans need to be developed allowing each farm enterprise to evaluate and determine which specific target disease(s) the owner wishes to exclude from the premises (e.g., Johne's disease, CAE, caseous lymphadenitis, brucellosis, parasites).
- Methods of animal selection need to be determined. Selection within a closed herd (i.e., produce all of its own replacement stock without buying outside animals) versus selection with an open herd (outside/off-farm animals purchased from a known certified or specific pathogen-free herd).
- Quarantine programs should be in place for all new stock or those animals that have left the premises (i.e., show animals). Sufficient time and distance from other stock need to be determined on a per farm basis. These data should be determined by developing a farm priority plan for the exclusion of specific diseases.
- All new animals should have a thorough physical evaluation including serologic testing to exclude those animals potentially carrying specific diseases. Risk assessment would include serologic/fecal testing for specific diseases.
- Open or modified-closed system biosecurity management:
 - Scrub brushes to remove all organic debris from boots before entering and exiting the facilities should be readily available.
 - Plastic booties available for use on feet
 - Chemical disinfectants or travel footbath should be in place (e.g., One Stroke Environ or Roccal) and changed according to use, depth, or organic matter content.
 - Some farms maintain wheelbaths for vehicles entering the premises.
 - Paper coveralls may be provided.
 - Shower-in shower-out may be necessary with expensive research herds.
 - Total exclusion of off-farm vehicles
- All farms should maintain a visitor's log in which the name, date, and time of visit should be logged to help assess potential point epidemics.
- Some farms have a locked gate with an entrance bell. Only those individuals with immediate business or a "need to enter" are allowed on the premises.
- On those farms that maintain a modified closed operation, restriction zones can be a good deterrent to disease transmission.
- Posted rules, standard operating procedures (SOPs), and regulations are imperative. These should be posted at all entrances. Having SOPs that describe precisely the essential steps to be taken in each facet of biosecurity is important. The SOPs should be readily available to all workers and written clearly in the worker's native language.
- Milk pickup should be assessed. The milk truck technician should be required to wear plastic shoe coverings. On-farm milk sales should be stopped or modified.
- Additionally the bulk tank/milk house can be moved outside the farm's "safe perimeter". This limits potential contamination of the farm premises by the milk hauler.
- Development of a containment management plan is important. In the event of a disease incursion/outbreak, design and implementation of management practices to contain and prevent the spread of disease need to be outlined.
- Fences or barriers are installed to discourage wildlife (including birds and insects).
- All individuals who work directly with dairy goats should practice clean sanitary hygienic practices.
- Farm risk assessment should include input from local extension scientists, university animal scientists, local veterinary practitioners, and, if needed, the public health department.

Table: Biosecurity Decision Making

Purchased animals	Test new animals and keep them in quarantine until all vaccination and testing regimens are completed.
	Buy semen, embryos, or bucks from suppliers with control programs for infectious diseases in place.
Maternity pen	Should be a designated area away from the rest of the herd. The area has to be thoroughly cleaned of all organic debris and pressure-washed using approved disinfectants after each kidding.
Feeds and water supply	Ideally, test every new lot of hay or load of feed. Feedstuffs should be tested for microbial content, including molds, aflatoxin and <i>Salmonella</i> spp.
	Ask your feed suppliers about quality control measures, if necessary make an inspection on their sites.
	Do not handle feed with equipment that was used to handle manure.
	Keep feed and water storage protected from rodents and other potentially diseased animals.
	Protect wells from runoffs and test the water once a year for pollutants/pathogens.
Rodents	Have a pest control plan in place.
Vaccination	Use appropriate vaccine handling and administration techniques.
People	Control public and commercial visits; provide clean clothes and boots to visitors.
	Traffic patterns should be from younger to older animals and boots should be washed and disinfected between groups.
Vehicles	Restrict vehicles in the operation. Cars and trucks from outside the property should stay in a secure entrance limited area and are not allowed to drive through the property.
	Feed trucks should limit their activity, should be away from animal areas; feed workers should wear clean clothes and boots, should also have a disinfection solution readily available, and a brush to clean their boots should be provided when exiting and entering the vehicle.
Environment	Properly remove, treat, and dispose of manure.
	Avoid runoffs.
	Keep animals away from streams and undeveloped/water sources.
	Do not spread manure from livestock shows and fairs.
Kids	Make sure kids receive an adequate amount of pathogen-free colostrum within the first 18 hours after birth.
	Try to prevent mixing of age groups.
	The buildings (including all equipment, water buckets, and utensils) should be thoroughly cleaned and disinfected between each age group.
	Check buildings for good, draft-free ventilation, and don't overstock holding areas.
Other animals	Minimize the contact with wild life animals whenever possible.
	Minimize fence contact between animals.
Milking	Sample the bulk tank at least monthly and preferably biweekly for problem organisms.
	Animals with mastitis should be milked separately and after the healthy stock.
	Milking equipment and bulk tanks should be properly cleaned and disinfected on a regular basis.
Sick animals	Segregate sick animals to a hospital pen, if possible.
Pesticides and chemicals	Identify and label pesticides and chemicals and store in a secure area.
	Choose the right disinfectant for the job. The ideal disinfectant would be broad spectrum, work in the appropriate environment, be nontoxic, nonirritating, and noncorrosive.



MISCELLANEOUS

SEE ALSO

- Biosecurity: Research Herds
- Biosecurity: Sheep

ABBREVIATIONS

- BTM = breaking through management
- CAE = caprine arthritis encephalitis
- HACCP = Hazard Analysis of Critical Control Points
- SOPs = standard operating procedures

SUGGESTED READING

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Author Erica McKenzie

Consulting Editor Erica McKenzie

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