

Practical biosecurity – an integral piece to herd health planning

Julia Herman, DVM, MS

Beef Cattle Specialist Veterinarian

National Cattlemen's Beef Association, a contractor to the Beef Checkoff
Centennial, CO 80112

Abstract

Biosecurity is the one aspect of a cattle operation that the producer has the most control over. Each producer has practices in place to protect their cattle and optimize their health. Veterinarians are purposefully trained to understand the components of biosecurity including animal health, epidemiology, infectious disease and public health consequences. Biosecurity planning is an important piece to herd health planning that can benefit the producer and the veterinarian. The National Cattlemen's Beef Association (NCBA) Producer Education team works on the Beef Quality Assurance (BQA) and other Beef Checkoff-funded programs each day to ensure cattle producers and veterinarians have industry-leading information and resources. Several resources developed by the Producer Education team at NCBA, and the separately managed Secure Beef Supply, are available for producers, veterinarians and transporters to review for more information on biosecurity to improve cattle welfare before and during potential disease outbreaks.

Key words: Beef Quality Assurance, BQA, Secure Beef Supply, producer education, biosecurity, herd health, VCPR

Introduction

Biological risk management is essential for the people working on farms and ranches and for preventing the spread of human illness between these operations. Veterinarians are integral to the implementation of BQA principles,¹ and have many opportunities to collaborate with producers to improve their production systems, especially in the realm of biosecurity. Utilizing the Veterinarian-Client-Patient Relationship (VCPR) in aspects of animal health, animal movement, nutrition consulting and other herd health planning (such as biosecurity planning), can be a yearly exercise in operation review and continuous improvement. A yearly consultation with the herd veterinarian is recommended where multiple facets of the operation are evaluated, goals for the next year are set, and potential interventions are considered. This meeting can provide in-depth understanding of the operation's capabilities and limitations which can help shape future recommendations.

Foundational principles of biosecurity are necessary to build upon and to understand where the cattle operation stands at present. The goal of biosecurity is to protect animals from disease and to improve animal health, welfare and productivity. This can include implementing practices that reduce the introduction and spread of diseases, including those caused by viruses, bacteria and parasites.² Annual biosecurity training for employees and visitors in control practices can reduce the risk of disease spread between animals and humans (zoonotic disease) and prioritizes public health among employees and visitors. These practices can protect the operation from lawsuits and financial loss.

- **Exclusion:** Complete removal of disease risks with no introduction of animals, equipment, or other risk; most effective but most difficult to implement
- **Separation:** Preventing exposure to disease by using physical means (e.g., walls, gates, distance), time (e.g., quarantine period, time between visits), or procedures (e.g., changing footwear or clothing, dedicating employees to one area of the operation) to minimize disease spread
- **Cleaning:** Removing organic matter from equipment or clothing to enhance effectiveness of disinfectants
- **Disinfection:** Proper product selection for the pathogen of concern is critical along with applying at the correct concentration and contact time; read the label of each product used

Veterinarians are trained to evaluate individual animals within a herd system and provide integrative management plans to prevent diseases or problems from occurring in the future. Biosecurity measures mitigate risk but do not eliminate risk. It is important for veterinarians to remind producers that small steps can reduce disease transmission probability by orders of magnitude. Simple measures such as hand washing and cleaning boots can have a great impact on disease transmission. Identifying probable pathogens and preventing their entry into your herd requires planning and preparation.

Identifying routes of transmission of various pathogens can help protect against new or emerging infectious diseases.² An animal must be exposed to these pathogens to develop disease, so understanding the routes of transmission makes it easier to gain control over the spread. To fully assess the herd risk and individual animal risk, it is important to know what pathogens are leaving the operation, entering the operation, and spreading throughout the operation. Disease agents can spread from animal to animal (within or between species) or animal to human (zoonotic), or vice versa. When assessing biological risk management, the main routes of transmission to consider are: aerosol, direct contact, fomites, oral and vector-borne. Zoonotic diseases (which spread from animals to humans through any of the previous routes) are important for human, animal, and public health. From a management standpoint, it may be easier to identify risk areas (such as fomites) and then design protocols to minimize exposure.

Resources

Cattle producers and veterinarians should collaborate to develop a biosecurity plan that suits the individual operation. The Checkoff-funded BQA program developed a daily biosecurity plan template for producers and veterinarians to complete together as a team.¹ Understanding current risks and preventing future risks is essential to protecting the herd and it helps to have an outside set of eyes evaluating the operation. Across the beef supply chain, companies are seeking cattle producers

and business partners who demonstrate similar, consistent management philosophies that ensure the safety and quality of products leaving their facilities. Implementing BQA biosecurity principles and planning can help producers avoid costly production mistakes. Veterinarians serve as key assets for producers with advising on many aspects of the operation such as animal health and welfare, nutrition, biosecurity and best management practices. These resources can serve as a template for evaluating the operation's activities and discovering potential areas of improvement.

Daily biosecurity practices include some of the most important steps to protecting the cattle herd. Released in late 2020, the BQA Daily Biosecurity Plan for Disease Prevention template is designed so cattle producers can customize plans to meet the needs of their operation. This flexibility allows producers and their resource team to evaluate what management practices work best for their situation. From animal movement and employee training to pest control, the tool includes all aspects that should be considered. As the herd veterinarian, working through this stepwise plan with your producers provides a unique opportunity to evaluate each operation thoroughly and collaborate on ideas to for improvement. Involvement of other entities such as an extension agent or state BQA coordinator, and/or utilizing other resources about biosecurity preparedness, can also be beneficial. This daily biosecurity plan can be found at www.BQA.org along with other producer-friendly resources.

BQA collaborated with the USDA-funded Secure Beef Supply Plan,³ an established resource for disease response training, to ensure similar language and completeness. This is particularly helpful when an operation moves to an enhanced biosecurity plan, which is necessary during a potential foreign animal disease outbreak, because the producer already has some of the biosecurity steps in place from the daily template. Livestock veterinarians are essential in recognizing disease outbreaks at farms, livestock markets and packing plants, and play an important role in ensuring a safe food supply. These biosecurity plans can improve preparedness and awareness of potential biosecurity threats in addition to building a trusting relationship with producers.

A foreign animal disease such as foot and mouth disease (FMD) would need enhanced biosecurity procedures to contain the virus.⁴ FMD is the most contagious viral disease that affects cloven-hooved animals (i.e., cattle, pigs, sheep, goats, wildlife). This vesicular disease causes blisters in the mouth and on the feet of these animals. It is important to remember that FMD does not affect public health or food safety so meat and milk from affected animals are safe to eat and drink.

The Secure Beef Supply Plan was developed in collaboration between the beef industry, state and federal government officials, and two universities, Iowa State University and Kansas State University. It was developed to provide opportunities to voluntarily prepare before an FMD outbreak. The plan focuses on contingency planning for cattle operations that are affected by movement restrictions during an FMD outbreak in the U.S., such as stopping animal movement in areas around infected animals. This plan is specific to each operation and includes evaluating and documenting biosecurity practices. Planning materials for cattle producers, veterinarians, packers and regulatory officials can be found at securebeef.org.

Online BQA advanced education module on biosecurity

This new advanced education topic launched in 2021 and provides foundational information on understanding biosecurity principles. Users can develop their own daily biosecurity plan and be introduced to the Secure Beef Supply plan. This interactive module serves as an additional training opportunity for anyone responsible for cattle care.

Conclusion

With the cattle industry continuously looking to improve everyday biosecurity practices on the farm or ranch, it is important that producers and veterinarians have practical tools and resources. All producers will start their biosecurity plans at different levels, so emphasizing foundational biosecurity principles will be advantageous during development of the plan. Cattle producers in all sectors should strive for continuous improvement in biosecurity planning including record keeping and annual reassessment of their practices. For more information and downloadable preparation documents, visit the BQA website at www.bqa.org or the Secure Beef Supply Plan website at securebeef.org. The greatest contribution to disease preparedness will include preparation through biosecurity planning in the beef industry.

References

1. Beef Quality Assurance Program, Official Website. www.BQA.org. Accessed Jan 25, 2022.
2. The Center for Food Security & Public Health, Official Website. www.cfsph.iastate.edu. Accessed Jan 25, 2022.
3. Secure Beef Supply, Official Website. www.securebeefsupply.org. Accessed Jan 25, 2022.
4. World Organization for Animal Health (OIE). Foot and mouth disease. www.oie.int/en/disease/foot-and-mouth-disease/. Accessed Jan 25, 2022.

