Biosecurity, Antibiotic Use, and Beef Quality Assurance

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Lesson 4

Introduction

A biosecurity program is like an insurance policy for the health and productivity of the herd. It may be not be cheap nor easy develop and implement but the protection it provides your herd is priceless. The first step is for producers to make decisions about their "risk tolerance level" based on the chances of a disease occurring and the expected economic losses from the disease. Producers can then implement the appropriate level of risk management.

There is no "*one size fits all*" program for biosecurity. Producers must learn about the variety of tools and methods available and select those that best suit your operation and provide the adequate level of control for the many infectious diseases that can jeopardize the profitability and future of your cattle operation. All of the tools can be adapted to your individual objectives regardless of the size or scope of the operation. Development of the plan is not the final step; there must be planning, commitment and education of all personnel throughout the operation to attain the goals set for an effective infectious disease control (biosecurity) program. With the stakes so high, biosecurity should be a very high priority in day to day management decisions.

Biosecurity Basics

*Prevention is less costly than treatment***.**

Biosecurity is defined as an infectious disease control program that will prevent or limit the introduction of new disease on the farm, as well as limit or prevent the spread of disease within the operation. Biosecurity encompasses many different on-the-farm components. Cattle health, visitors, vehicles traffic, receiving replacement cattle, feedstuffs, animal identification and rendering practices all have a role in a biosecurity plan.

Biosecurity management practices are designed to prevent the spread and movement of infectious diseases onto the operation. The goal of a biosecurity plan is to minimize the movement of biologic organisms and their vectors (dogs, cats, rodents, birds, etc.) onto and within your cattle operation. While developing and implementing biosecurity is difficult, it is the cheapest, most effective means of disease control available, and no disease prevention program will work without it.

The possibilities of agroterrorism attacks on the U.S. livestock industry, including the introduction of foreign animal disease, are real. Beef producers need to keep informed about this threat and how to implement biosecurity plans measures into their operations to prevent the spread of disease. These same measures will protect the livestock on the operation from more common animal diseases that can impact your bottom-line.

Intentional introduction a foreign animal disease into the U.S. would not be terribly difficult, according to officials at the Department of Homeland Security. It is therefore very important for producers, veterinarians and others involved in the field of agriculture to become familiar with the issues surrounding agroterrorism. Biosecurity is the first one of the first lines of defense against an attack on the livestock industry, particularly at the producer level.

Intentional introduction of a foreign animal disease could cripple the economy, induce fear and panic among consumers, close export markets, or cause disease and death in animals and humans. It has been stated that one in six jobs in America is related to agriculture in some manner. Beef production is the single largest segment of the agricultural industry, accounting for 1.4 million jobs and $188.4 billion dollars of direct and indirect economic activity. Moreover, beef cattle are produced in all 50 states and thus have an impact on all state and local economies.

Infectious diseases can be spread between operations by:

- ✓ The introduction of diseased cattle or healthy cattle incubating the disease.
- ✓ The introduction of healthy cattle that have recovered from disease but are now carriers.
- ✓ Vehicles, equipment, clothing and shoes of visitors or employees who move between herds.
- ✓ Contact with inanimate objects contaminated with disease organisms.
- ✓ Carcasses of dead cattle that have not been disposed of properly.
- ✓ Feedstuffs, especially high risk feedstuffs, which could be contaminated with feces.
- ✓ Manure hauling equipment.
- ✓ Exposure to horses, dogs, cats, wildlife.

Developing your biosecurity plan. A biosecurity plan has three major components. They are **isolation**, **traffic control** and **sanitation**. When effectively managed, these components meet the principle biosecurity objectives of preventing or minimizing cross contamination of body fluids (feces and urine) between animals, animals to feed and animals to equipment.

1. **Isolation** prevents contact between animals within a controlled environment. The most important step in disease control is to minimize commingling and movement of cattle. This includes isolation of new purchases for at least 3 weeks as well as commingling between established groups of cattle. Always isolate sick cattle and return them to their original group when they've recovered. Clean and disinfect facilities appropriately between groups. Is also means isolating higher risk cattle, like purchased feedlot cattle, from lower risk cattle, like the breeding herd and young calves. Contact can occur through the fence, same handling facilities, or drainage from the feedlot through the pasture.

2. **Traffic control** includes traffic and visitors onto your operation and traffic patterns within your operation. It is important to understand that traffic includes more than vehicles. All animals including dogs, cats, wildlife, horses, birds, rodents and people must be considered. People spread contamination material directly by boots, shoes, and hands and clothing. Disease can be spread indirectly by truck tires, farm machinery, hair clippers and other equipment passing between farms.

3. **Sanitation** is the third component of a biosecurity plan. Beware of using instruments and equipment on healthy animals following their use on sick or infected animals. Avoid using common syringes and needles for vaccinating, blood testing or administering animal health products. Isolate sick animals, especially animals with unfamiliar symptoms or those that don't get better with the usual treatment.

Improving an animal's disease resistance is at the heart of disease prevention and herd health programs and must be considered in the standard operating procedures of all livestock production management. However, improving disease resistance is not possible for many of the diseases that can affect livestock health and production. Therefore an understanding of biosecurity basics is essential for a properly designed disease resistance health program.

Commitment to a biosecurity plan is a vital step toward control of infectious disease. Keeping pathogens out of a herd improves production efficiency, lowers costs and reduces risk to family and employees.

Biosecurity Practices/Herd Health Program Protocol for Controlling Disease

- ✓ Vaccinate the herd against all endemic diseases.
- ✓ Use low stress management practices during movement and processing.
- ✓ Isolate all sick animals- designate a hospital pen.
- ✓ Work from younger or healthier animals to older higher risk animals.
- ✓ Maintain a closed herd, if possible.
- ✓ Know the health history of incoming animals.
- ✓ Purchase feed from reputable sources.
- ✓ Minimize fence line contact with neighboring animals.
- ✓ Do not place cattle of different ages in the same pen.
- ✓ Keep records of all disease occurrences and treatments.
- ✓ Limit access to your farm.
- ✓ Maintain fences to keep your animals in and others out.
- ✓ Minimize visitors and traffic on your farm.
- ✓ Post signs at the farm entrance to inform visitors of procedures to follow.
- ✓ Educate yourself and employees to recognize and report diseases.
- ✓ Maintain a written biosecurity plan and update it regularly.
- ✓ Prevent off-farm vehicles from driving in areas where animals travel.
- ✓ Individually identify every animal.
- ✓ Monitor and inspect animals daily for signs of illness.
- ✓ Clean equipment, boots and change clothing between animal groups with different health status.
- ✓ Promptly euthanize animals that are not going to recover.
- ✓ Have your vet necropsy animals that die from unknown causes.
- ✓ Promptly remove dead animals from your operation.
- ✓ Place animal delivery and load-out facilities on the perimeter of your farm.

Attached at the end of this lesson you will find the "*Biosecurity Best Management Practices Checklist"* developed by the Iowa Beef Council. How does your Biosecurity Plan Rate? Complete the Checklist and find out. (It will be a test question.)

Antibiotic Use in Cattle Production

What are antibiotics? Antibiotics, also known as antimicrobials, are medications that fight infections caused by bacteria. Antibiotics made specifically for cattle are used to help an animal regain or maintain superior health and produce safe beef. Antibiotics can prevent infection when bacterial pathogens are suspected or known to be in the animal's environment or when an animal encounters high-stress situations that can increase its susceptibility to illness. Antibiotics used in beef cattle must go through a rigorous testing process before being approved by the FDA to assure the safety of cattle as well as beef products entering the food supply.

Avoiding antibiotic residues. The beef industry is doing an excellent job of controlling violative drug residues in our meat products. Improvements have occurred by educating producers on the importance of identification and handling of individually treated animals. Producers need to remember that identifying each animal treated, accurately recording the treatment, date and treatment dose, as well as strictly following prescribed withdrawal times. You need to have a working relationship with a licensed veterinarian. Producers need to be aware that taking advice from anyone who is NOT highly acquainted with your operation and the proper use of animal health products could jeopardize your operation and livestock.

Guidelines for prudent use of antibiotics. The American Veterinary Medical Association (AVMA), Food and Drug Administration (FDA), and various veterinary practice groups and beef quality assurance programs have developed the following guidelines for use of antibiotics in livestock. These guidelines are based on providing the best care for the animal and at the same time protecting public health.

Often it is the beef producer who decides how antibiotics will be used. Anyone who administers antibiotics to animals should understand and be willing to apply these general concepts of use of antibiotics.

1. *Provide a system of care to prevent common diseases*
   It is more cost effective to prevent disease rather than rely upon antibiotics to treat disease once it has developed. Minimizing disease risk on your operation is a necessity for any sound production system and is achieved by maintaining sanitation and hygiene, providing high quality feed, providing protection from the elements, implementing biosecurity measures, performing regular health exams and using vaccines and parasite control.

2. *When animals do get sick, have an accurate diagnosis*
   This ensures antibiotics will be used to treat the appropriate symptoms. Diagnosing an animal's condition should be based on: clinical signs, history, necropsy results,

lab data, and the evaluation of the herd health history. Rely on your vet for an accurate diagnosis.

Determine if antibiotics are the most appropriate option. Consider the treatment outcomes you want for the animal and what types of therapy will help you achieve them. Will an antibiotic provide the results you want? Will the animal's condition even respond to antibiotics? Does the animal need another type of therapy? Will using antibiotics be the most economically sound treatment?

Choose the most appropriate antibiotic for the situation. Not all antibiotics work the same and each drug acts against different types of bacterial infections. Culture test of organisms will help determine the type of antibiotic most effective in clearing the infection. Select an antibiotic that can be easily administered and will result in effective concentrations reaching the site of the infection. When appropriate, use local therapy instead of systemic. Use only medications approved for the use you intend.

Work with your veterinarian to enhance your options. Vets have the knowledge and resources necessary to determine the most effective therapy. Your veterinarian can offer valuable guidance for the use of over-the-counter antibiotics and, within the context of a valid "*Vet-Client-Patient Relationship*" can offer enhanced therapy through the use of prescription and extra-label use medications. You must establish a valid VCPR with your veterinarian before receiving drug prescriptions or using an antibiotic any way other than exactly as labeled. Your veterinarian may provide written protocols for diagnosing and treating commonly disease conditions.

Use antibiotics and other medications as ordered. THE LABEL IS THE LAW. You must use medications at the ordered dosage for the animal.

1) If there is not a suitable product for the condition, then consult your veterinarian about using a product extra-label.
2) Follow the new instructions outlined by your veterinarian for the extra-label use and pay particular attention to the revised withdrawal times.
3) These times may be longer that the labeled withdrawal times because of the modified usage of the antibiotic.
4) Pay attention to quality assurance guidelines to protect against drug residues.
5) Train all family members and personnel involved with antibiotic use and disease symptoms, dosages, routes of administration, proper injection techniques, treatment duration, withdrawal times, storage, handling, record keeping, and accurate diagnosis of diseases common for your operation.

Treat the appropriate animals. Limit the therapeutic antibiotic treatment to those animals that are sick or are legitimately at-risk of becoming sick. Avoid prolonged treatment of animals and consider the alternatives for chronic cases or those with a poor chance of recovery.

Store antibiotics and other medications appropriately. Drug integrity is maintained by following the label and veterinarian instructions for proper handling, storage and observations of expiration dates. Mistakes in administering the wrong medication are less likely if drugs are clearly labeled and stored in the appropriate places.

Minimize environmental contamination. Dispose of outdated medications according to label directions or veterinary advice. Use disposal methods that minimize contamination of soil and water supplies. Provide feed and water medication delivery so that there is minimal spillage into the environment.

Use records to track treatment and evaluation outcomes. Keep accurate, detailed, and current records of antibiotics treatments and outcomes. Identify all animals either by individual, pen, or lot so they may be monitored. Treatment records should include the identity of animals treated, dates treated, drugs administered, who administered the drugs, the amount administered, and withdrawal times.

Treatment Protocol Book. Beef producers should work with their veterinarians to develop a ***Treatment Protocol Book*** specific to the operation. The ***Treatment Protocol Book*** should be reviewed regularly and updated as often as appropriate (record if new products are used, treatment outcomes, etc.). One copy of the ***Treatment Protocol Book*** should be kept near your working facilities, while the other copy should be on file in your office. As you update your book, copies of past treatments should be kept on file for a year or more, so that you have a log of what did not work and what did. These written treatment protocol, along with current prescriptions are important documents that the beef operation must have if there is a government inspection of the beef operation facilities, review of drug usage procedures or the development of residue avoidance plans. Of greater significance, the treatment book provides written guidelines for your animal health programs, thus minimizing chances of mistakes or misunderstandings.

Beef Quality Assurance (BQA)

"BQA is a process of figuring out what could go wrong, planning to avoid it, then validating and documenting what you have done. BQA is just part of good business."
Dee Griffin, DVM-University of Nebraska

The Beef Quality Assurance (BQA) program can be an extremely useful tool in the creation of your biosecurity plan. Most producers think BQA just teaches producer how to give injections properly to cattle, but the program encompasses much more. BQA addresses many facets of the cattle industry such as nutrition, pesticide, animal welfare, traceability, herd health, industry trends, consumer trends and the importance of record keeping. The records keeping template and concepts presented in the BQA program can be the corner post of a solid biosecurity plan.

BQA record keeping. Record keeping, either computer or hand generated, is a critical management tool and is a substantial part of any biosecurity plan. The original purpose of Beef Quality Assurance was to ensure consumer confidence and maintain market share. The thoroughness of these records allows us to document the safety of our product while proving effective documentation over risk factors that have the potential to damage and even destroy your herd.

Records are very important to business success. Regulatory inspections by FDA, USDA, EPA or OSHA will prove the necessity of good records. Effective documentation that shows appropriate compliance and documentation with animal sale and movement records, inventory control list, animal identification logs, drug withdrawal times, and animal disposal may help to limit or avoid liability from a residue contamination.

Computer record systems make extensive evaluation easy and efficient; however, hand-kept record systems are still very effective. Each system has its own merits and you should select the system that is the most feasible for your beef operation. **All records must be kept for a <u>minimum</u> of two years and up to ten years in the case of animal movement records.** Samples of record keeping documents are attached at the end of this lesson.

How do I become a BQA certified producer? Cattle producers can become BQA certified when they meet criteria for quality beef production set forth in BQA guidelines. Most states have individual BQA programs and offer their own certification standards. To find out more information on how to become a Beef Quality Assurance producer contact your state beef council or university extension beef specialist. The BQA program is developed for all beef producers without regard to membership in a cattlemen's association.

References and Supplemental Readings

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Iowa Beef Council, Ames, IA www.iabeef.org

Minnesota Beef Council, Bloomington, MN www.mnbeef.org

National Cattlemen's Beef Association, *Beef Quality Assurance*, www.bqa.org

Texas Beef Quality Producer Program, www.texasbeef.org

Notes

Lesson 4 Quiz

Biosecurity, Antibiotic Use and Beef Quality Assurance

True or False

1. Prevention is more costly than treatment.

2. Carcasses of dead cattle that have not been disposed of properly can spread infectious diseases.

3. Culture test of organisms will help determine the type of antibiotic most effective in clearing the infection.

4. The antibiotic/drug label is the law.

5. A Treatment Protocol Book is an important document if a drug residue occurred in one of your market cows.

6. Records should be written on old feed sacks, the barn wall, or the palm of your hand.

7. It is advised that all BQA records be kept for a minimum of two months and up to ten years for animal movement records.

8. The BQA Program is developed for **only** beef producers in a cattlemen's association.

9. What was your score on the "Biosecurity Best Management Checklist"? (the Biosecurity Best Management Checklist is included in the reference materials with this lesson)

10. List 5 things you will do to improve biosecurity on your operation?

PLEASE SEND YOUR QUIZ TO YOUR ASSIGNED GRADER UPON COMPLETION

Name_____ Phone _____

Address_____

Fax (Optional)_____ Email (Optional)_____

2008 Minnesota Beef Home Study Course

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For more information on beef-related topics, visit the U of M Beef Team website:

www.extension.umn.edu/beef