Feedlot Emergency Disease Response Plan

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1.0 Introduction

Preventing and responding to a highly contagious disease affecting a concentrated animal feeding operation (CAFO) will require an integrated prompt response to halt the spread of the disease agent. Commonly referred to as feedlots, CAFOs are premises with a high concentration of livestock and a high movement of livestock both entering and exiting the premises. The result of these factors leads to the opportunity for rapid spread of a disease outbreak within, into or out of the feedlot at a more accelerated rate than other livestock operations.

The Colorado Department of Agriculture (CDA) *Feedlot Emergency Disease Response Plan* describes the response actions that will be implemented by the CDA in collaboration with the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS), local emergency management personnel, local and state law enforcement, brand inspectors and the feedlot industry partners to swiftly detect, control, and eradicate a disease outbreak in CAFOs.

1.1 Purpose & Scope

The purpose of the CDA *Feedlot Emergency Disease Response Pla*n is to provide a framework to ensure a rapid and coordinated response to an outbreak of a highly contagious disease in a cattle and/or lamb feeding operation within the State of Colorado. The goal of this plan is three-fold: to control and eradicate the disease on an infected CAFO as quickly as possible; to help affected feedlot facilities to recover; and, to protect and maintain business continuity on unaffected feedlot operations during a disease outbreak.

In Colorado, cattle and lamb feedlots range in size from small farms to large-scale commercial livestock operations. Protocols and response actions described in this plan are designed to address an emergency response for a large CAFO. The US Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment (CDPHE) define large CAFOs by the number of animals confined and the length of time animals are confined. Large CAFOs have the capacity to confine a minimum of 1,000 cattle or 10,000 lambs. Additionally, large feedlots confine and feed livestock for a minimum of 45 days in a 12 month period.

Natural disasters may also cause devastation in the State's feeder cattle and lamb populations requiring a similar response. Many of the protocols and procedures presented in this plan, such as disposal methods, will be applicable in a natural disaster event affecting such livestock. In such incidents, the *CDA Feedlot Emergency Disease Response Plan* may be used as a template to help ensure an adequate response.

1.2 Situation

Ranked 5th nationally as a state in the number of cattle on feed, Colorado's cattle feeding industry is a significant component of the State and local economies. In January 2010, there were over 1,020,000 head of cattle on feed in the state. According to the National Agricultural Statistics Service, in 2007, 132 cattle feedlots with a capacity to confine at least 1,000 head of cattle were located in the state, including 13 feedlots with capacities to confine over 32,000 head

of cattle. Colorado's cattle market is the state's largest agricultural industry with cash receipts from the sale of cattle and calves at $3.17 billion annually.

Colorado is the fourth largest sheep and lamb producer in the US. In 2007, the State's sheep and lamb inventory totaled 400,000 head, valued at $52.0 million. The majority of Colorado's lamb feedlots are located in Weld County, CO.

1.3 Assumptions

- Response to an animal disease outbreak will begin at the local level.
- If an animal disease emergency occurs in Colorado's CAFO industry, the most probable means of discovery will be by feedlot operators, private practice veterinarians and / or trace information from an animal disease investigation in another state. Local livestock experts like brand inspectors and livestock extension agents may also be involved in initial local detection and background information about current prevalence of livestock diseases and conditions.
- Private or consulting veterinary practitioners will likely be the first responders to any animal disease outbreak.
- A veterinarian is required to immediately notify the State Veterinarian or the USDA Area Veterinarian in Charge (AVIC) of any suspected foreign animal disease.
- An animal disease outbreak may occur through natural pathways or could be introduced as an act of terrorism.
- Diagnosis of a highly contagious or emerging animal disease in Colorado, the United States or surrounding countries may significantly restrict the intrastate, interstate and international movement of animals (especially livestock) and animal products.
- Initiation and implementation of response actions for a suspected or positive foreign animal disease (FAD) will be under the jurisdiction of the CDA and carried out by the State Veterinarian or official designee in conjunction with the AVIC of USDA, APHIS. Producer input and involvement will be highly valued and integrated into the response.
- The State Veterinarian and the USDA APHIS AVIC will work in close coordination in any animal health emergency. There are established protocols for investigating and reporting potential FADs and new and emerging infectious animal diseases.
- Response measures for an animal disease emergency may involve the mutual aid support from sister counties and municipalities as well as local private industry support.
- Animal disease emergencies may lead to prolonged economic impacts requiring long term federal and state assistance programs for recovery.
- Owners losing livestock in an animal disease emergency or persons responding to the situation may require psychological counseling and support.

1.4 Plan Maintenance

The State Veterinarian is responsible for the management and maintenance of this plan, under the jurisdiction of the Colorado Agricultural Commission and the Commissioner of Agriculture or his designee. The CDA *Feedlot Emergency Disease Response Plan* will be reviewed and updated as required but at least annually in September to incorporate updates to Homeland Security Presidential Directive (HSPD) 9 – *Defense of United States Agriculture and Food*, Emergency Support Function (ESF) 11– *Agriculture and Natural Resources* and legislative updates as well as lessons learned that are identified in the debriefing process and after action reports following an actual event or training exercise.

2.0 Concept of Operations

The concept of operations provides the operational framework for activating this plan and how the CDA will classify the response. Additionally, this section provides an overview of the CDA's responder health and safety program and guidance on how the Department will interface with agencies, the livestock industry, media and the public during an emergency response event.

2.1 Animal Diseases Significant to Cattle and Sheep

Animal diseases found in cattle and sheep vary in virulence, ease of transmission, mode of transmission, and host affinity. Diseases of concern are highly contagious diseases that cause significant morbidity and/or mortality. Such diseases often present similar clinical signs as diseases that do not result in a high level of morbidity and/or mortality. Under these circumstances, diagnostic testing is required to determine the specific disease agent. Upon diagnosis, if the disease identified is not considered highly contagious it will be managed within normal business operations, management, and best production practices.

Animal diseases likely to cause high morbidity and/or mortality in livestock and trigger activation of this plan are FADs and new and emerging diseases. A list of FADs that cattle and sheep are susceptible to is provided in Appendix B. Additional information on disease transmission, vaccine availability and recommended control measures for listed FADs can also be found in Appendix B.

Animal diseases of concern are commonly categorized in the following manner.

- **Foreign Animal Disease** or exotic animal disease is defined as an important transmissible disease of livestock believed to be absent from the United States and its territories.
- **New or Emerging Diseases** are completely new diseases, or an old disease occurring in new places with new presentations, or newly resistant to available treatments.
- **OIE List of Reportable Diseases** is a unified list of reportable diseases maintained by The World Organization for Animal Health, once known as the Office of Internationale des Epizooties (OIE). For several years, the OIE created two lists (A and B) with different reporting obligations. In January of 2005, the lists were combined to form a single list with over 130 diseases of interest. Four criteria were used to develop the

disease list: international spread, zoonotic potential, significant spread within a naïve population, and emerging diseases.

- **CDC Bioterrorism Agents/Diseases** are biological agents that are rarely seen in the United States. Centers for Disease Control and Prevention (CDC) prioritizes these agents into A, B & C categories. **Category A** agents and disease are easily transmitted from person to person, have a high mortality rates and have the potential for a major public health impact. **Category B** agents and disease are moderately easy to disseminate and result in moderate morbidity rates and low mortality rates. **Category C** agents and diseases include emerging pathogens that could be engineered for mass dissemination.
- **Zoonotic** diseases can be transmitted from animals to humans and /or humans to animals. According to the CDC, approximately 75% of recently emerging infectious diseases affecting humans are diseases of animal origin.

2.2 Colorado Reportable Diseases of Cattle & Sheep

An additional animal disease category is the Colorado Reportable Disease List. A Colorado reportable disease is defined by Colorado Revised Statues CRS 35-50-103 as infectious or contagious disease or emerging disease of livestock that poses a significant risk to the livestock industry of the state resulting from infectious agents, such as viruses, riskettsia, bacteria, fungi, protozoa, internal or external parasites, or prions, or any reportable disease or emerging communicable disease that is capable of being transmitted from one animal to another animal or to a human, whether communicated directly or indirectly through an intermediate plant or livestock host, vector or the environment. Colorado Reportable Diseases of Cattle and Sheep are listed below. Cattle and Sheep are susceptible to many of the same disease agents, however there are diseases that will affect cattle that will not affect sheep and vice versa. An asterisk denotes diseases affecting cattle but not sheep and a check mark denotes diseases affecting sheep but not cattle.

- Anaplasmosis (Clinical Disease Only)
- Anthrax
- Brucellosis
- Bovine Spongiform Encephalopathy (BSE) *
- Malignant Catarrhal Fever
- Paratuberculosis (Johne's Disease)
- Pseudorabies
- Rabies
- Scabies
- Scrapie √
- Trichomoniasis*
- Tuberculosis
- Tuleremia√
- Vesicular Stomatitis

- Vesicular Diseases of all livestock
- All infectious disease or parasites of livestock not previously known to exist in Colorado
- Any disease of unusual morbidity or mortality that does not fit the normal expected clinical picture.
- Any Suspected FAD

2.3 Incident Command System & Response Levels

Since incidents will vary in size and scope, the level of activation will depend on the nature of the outbreak. Not all livestock disease incidents will require local, state, or federal emergency response functions. Many incidents are handled routinely by private practice veterinarians and/or veterinarians employed by the State Veterinarian or APHIS Veterinarian Medical Officer (VMO). The feedlot industry has also invested time and resources in developing plans to deal with their own livestock incidents and situations. It is important to work towards integration of the response planning from private industry, the local community, and from the state/federal plans.

In the event of a highly contagious disease outbreak within a cattle or lamb feedlot, the CDA will manage the incident using the National Incident Management System (NIMS). NIMS provides standardized incident management processes, protocols and procedures for all emergency responders. CDA will also manage each incident using the Incident Command System (ICS), as mandated by NIMS. Designed to be a flexible all-hazard incident management tool, ICS allows decision makers to fill ICS positions to meet the complexities and demands of the incident. For example, a localized disease event may only require the incident commander position to be filled; where as a regional or more wide-spread disease outbreak may require all positions in an ICS incident organization chart to be filled. See Appendix C for an ICS incident organization chart designed for an animal disease outbreak.

CDA will also follow NIMS incident typing and will respond to an animal health emergency using the following activation levels. NIMS incident typing will assist decision makers in determining resources required for specific incidents. Table 1 CDA Response Levels & National Incident Management System (NIMS) Incident Typing System summarizes level of response, lead agencies, and NIMS protocol for each level of response.

2.3.1 *Level 5 Response*

A level 5 response refers to a situation with little complexity that could be managed with one or two single resources. This level of response would be of a short duration and likely would consist of one 12-hour operational period or less.

2.3.2 Level 4 Response

A level 4 response is normally limited to one 12-hour operational period and requires minor state resource input to manage the incident. This level of response does not require an incident action plan (IAP) and can be managed using the resources and personnel of the CDA Animal Industry

Division. Level 4 activities will include those identified for Level 5 and also the following additions:

- Elevated animal origin verifications.
- Notification of private practice veterinarians of specific clinical signs and symptoms of the disease(s) in question.
- USDA AVIC is notified of situation.
- Review of the *Feedlot Emergency Disease Response Plan* relative to a potential response to the disease in question.
- Notification of feedlot industry representative(s) of the disease outbreak and clinical signs and symptoms.

2.3.3 Level 3 Response

A level 3 response reflects the elevated surveillance, preparation and response that may be initiated by the state if there is a presumptive positive or confirmed diagnosis of a FAD in Colorado. A level 3 response may trigger activation of the Colorado Emergency Operations Center (EOC) and deployment of the Eastern Colorado Incident Management Team (ECIMT).

The ECIMT is a Type 3 incident management team (IMT) that will be activated to support incident management for incidents that exceed departmental capability to manage the incident effectively. Type 3 IMTs are deployed as a team of 10-20 trained personnel to manage major and/or complex incidents requiring a significant number of local, regional, and state resources. A level 3 response may evolve into multiple operational periods that require a written IAP for each operational period. Level 3 activities will include those activities identified for all proceeding levels and also the following:

- Import/export of affected, potentially affected or possibly all animals from the impacted states will be suspended, pending control and eradication of the disease.
- Relevant state resources will be inventoried and contract mechanisms supporting the logistics portion of a potential response will be reviewed and made ready for use.
- Public relations material will be reviewed, made current, and vetted with key collaborators in preparation for release. CDA and APHIS will be consulted for their message map on the appropriate disease, its implications for public health, animal health, and the livestock industry.

2.3.4 Level 2 Response

A level 2 response reflects a full-scale multi-state response that may require regional and / or national resources to effectively manage the incident. Level 2 activation is in response to a large, complex incident that will involve multiple operational periods. A written IAP is required for each operational period. A Rocky Mountain Type II or equivalent IMT may be deployed to support management of the incident. A Type 2 IMT is deployed as a team of 20-50 individuals to manage incidents of regional significance and other incidents requiring a large number of local, regional, state, and national resources.

2.3.5 Level 1 Response

A level 1 response will be declared for the most complex incidents that require national resources to safely and effectively manage the incident. A level 1 response will be managed by a Type 1 IMT. A Type 1 IMT is deployed as a team of 35-50+ individuals to manage incidents of national significance and other incidents requiring a large number of local, regional, state, national, and federal resources over multiple operational periods.

2.4 Incident Complexity Analysis

The exact moment when an incident shifts from one level of complexity to the next is often a matter of perception. The State Veterinarian / Commissioner or designees must assess the complexity of an incident and authorize a level of response to meet the needs of the event. An Incident Complexity Analysis may be completed to assist in determining the appropriate level of response. The assessment tool consists of a series of questions regarding the incident and associated information that when answered will help determine the appropriate level of response and resources required to meet the needs of an incident. An example of an Incident Complexity Analysis worksheet is located in Appendix D.

2.5 Responder Health and Safety Program

A fundamental requirement for CDA is ensuring the safety of Department employees involved in responding to a disease outbreak. To meet this obligation, the CDA Homeland Security Director developed the responder health and safety program. The CDA Responder Health and Safety Program is composed of three components: (1) Personal Protective Equipment *GUIDELINES* for CDA Employees – General Guidance Document; (2) CDA – Respiratory Protection Program; and (3) Medical Monitoring and Rehabilitation. Combined, these documents / programs provide a means to assess employee fitness for emergency work, provide for personal health protection via the use of protective equipment and decontamination procedures and monitor vital signs and provide support to assure employees maintain fitness levels needed to conduct assigned activities.

2.5.1 Personal Protective Equipment

This General Guidance Document provides a plan to be followed to assure a safe working environment while allowing flexibility to meet varying needs that might be expected in a livestock emergency situation. The guidance is just that, guidelines that incident commanders, operations section chiefs, Foreign Animal Disease Diagnostician **(**FADD) veterinarians, team or task force leaders or the like can utilize in assessing and deciding upon equipment and procedures they will utilize when conducting their assigned missions. See Appendix E for Personal Protective Equipment (PPE) guidance for zoonotic and non-zoonotic diseases.

Producers or the general public need to realize rather high levels of protection may be utilized initially as the agent at that point may be unknown. Once the agent is identified, levels of protection can be adjusted, generally decreased, to fit specific challenges an agent might pose. It is likely the latter level will be quite similar to employer placed biosecurity programs.

Table 1. Response Levels and National Incident Management System Incident (NIMS) Typing [1]

Response Level	NIMS Incident Type	Lead Agency	Emergency Response Actions*	Source of Resources
Level 5– Local Response	Type 5	CO Dept of Ag	- One 12hr. Operational Period - Incident action plan not required* - Emergency Operations Center not activated - Incident Commander position staffed	- Local
Level 4 – Limited State Response	Type 4	CO Dept of Ag	- One 12hr. Operational Period - Incident action plan not required* - Emergency Operations Center not activated - ICS command and general positions activated as needed	- CDA Animal Industry Division
Level 3–State Response	Type 3	Joint Command: - CO Dept of Ag - USDS APHIS VS	- May extend into multiple operational periods - IAP may be required* - ICS some/all command and general positions activated - A Type III IMT like ECIMT will manage incident - State EOC may be activated	- Local (Support) - State - May require regional resources
Level 2 – Multi-State Response	Type 2	Joint or Unified Command National and regional coordination required	- Extends into multiple operational periods - IAP required - ICS some/all command and general positions activated - Rocky Mountain Type II or equivalent IMT will managed the incident. - State EOC activated	- Local (Support) - State - Regional - May require national resources
Level 1 – National Response	Type 1	National Unified Command	- Extends into multiple operational periods - IAP required for each operational periods - ICS all command and general positions activated - Type I IMT will manage incident - State EOC activated	- Local (Support) - State - Regional - National

*** IAPs are required for all HAZMAT incidents regardless of the type of incident.**
[1] Based on the Department of Homeland Security, National Incident Management System, 2009
For all incidents triggering activation of this plan, the Public Information Officer(s) will be Industry's contact for information on the incident.

Of special note is the fact Colorado is a "non-Occupational Safety and Health Administration (OSHA)" state. This means state employees are not subject to the same regulations as are production facilities and their respective employees. The CDA program has essentially been placed to close this gap. Even so, producers remain responsible to follow appropriate OSHA programs related to their facilities. State employees can not provide any equipment or certain training to private employees though they may recommend general levels of PPE be utilized for different operational activities.

2.5.2 Respiratory Protection Program

Whereas disease agents often utilize the respiratory system as a portal of entry and further where the use of chemicals in cleaning and disinfection or those that are inherently present on livestock operations may pose health risks, the department operates a respiratory protection program. Individuals who may be deployed to an incident have completed a medical questionnaire that has been reviewed and approved by a medical doctor familiar with such programs. These individuals have been trained and fit tested to utilize specific respiratory equipment. Production facilities may or may not have similar programs in place. It is anticipated if they do not, employees could

still work in less hazardous areas or accommodations could be made to have employees trained and tested for such activity.

2.5.3 Medical Monitoring and Rehabilitation

Individuals who work in emergency response will attest to the hard work and long hours needed to complete tasks that must be done. In so doing, individuals can place themselves at risk for underlying problems that can lead to debilitating injuries or even death such as a preexisting cardiac issue leading to a heart attack under physical stress. Medical monitoring affords an opportunity to identify underlying problems and hopefully mitigate them before they become quite serious. Such monitoring occurs when risks exist and is conducted both prior to assignment and throughout the assigned work period. Rehabilitation periods are scheduled to allow responders a break in which to rest, rehydrate and get something to eat if need be.

Production workers generally have scheduled breaks to eat or get something to drink. These may need to be extended and rehydration beverages or food provided dependent upon work schedules. Medical monitoring of production employees might possibly be arranged via local public health or emergency medical service departments.

2.6 Communication Plan

Command, general staff, operational response units and others as identified will be included in the communications plan (ICS 205) within the IAP. Multiple modes of communication will likely be utilized including the use of radios. Contact information for responders will be updated and verified on a daily basis.

External communication during an outbreak will be the responsibility of the State Veterinarian and the CDA Director of Communications. The State Veterinarian, with assistance from the CDA Liaison Officer will direct and maintain communication with federal, state, and local

government agencies and partners that have a statutory responsibility in emergency response (see Appendix F for the regulatory network's contact information). Engaging Feedlot operators located in the area affected by the outbreak and producers near or adjacent to the outbreak premises will be a priority for the CDA Communication Director. Establishing an information flow with feedlot operators and local producers to communicate the threat and to define mitigation steps will be a critical step in reducing the spread of disease. Additionally, the CDA Communication Director will communicate and collaborate with industry representatives such as Colorado Livestock Association (CLA), Colorado Cattlemen's Association (CCA), Colorado Wool Growers Association (CWGA) and others throughout the incident.

Correspondence and communication with the media and public regarding the incident will be directed and managed by the CDA Director of Communications. The CDA Director of Communications or assigned designate will assume the ICS role of Public Information Officer (PIO) upon activation of this plan. Should a Type III or higher ranked IMT assume command, the CDA Director of Communications will become a PIO team member reporting to the IMT-PIO and under direction of the Incident Commander (IC). All information gathered and prepared will be vetted by affected parties and approved by the IC and Commissioner of Agriculture or designee prior to release to the media or public.

3.0 Disease Outbreak Response

This section describes the processes and protocols utilized by the CDA during a disease outbreak affecting feedlot cattle and feeder lambs. These processes and protocols are designed to enable execution of the responsibilities of the CDA and to integrate federal, state, local, and industry efforts into an effective and coordinated approach to a disease outbreak within cattle and lamb feedlots. Responding to a disease outbreak in large cattle and lamb feedlots will involve the following actions. A description and timeline of each action phase follows.

- **Disease Detection** -- Investigate Suspected Animal Disease and Initiate Preliminary Control Measures
- **Disease Control** -- Quarantine Infected and Exposed Premises and Control Movement of Animals
- **Surveillance** – Develop a Surveillance Plan based on Epidemiological Investigation
- **Epidemiology** -- Determine the Extent of the Outbreak and/or Confirm Non-Infected Premises
- **Stabilization** -- Control, Prevent Spread of, and, as Possible, Eradicate Disease
- **Business Continuity** -- Protect Economic Viability and Continuity of Operations
- **Recovery** -- Return Affected Premises to Normal Business Operations

Table 2. Timeline for Disease Control Response Activities[1]					
Disease Outbreak Response Actions*, †	**12 hours** **Within a confirmed positive case**	**24 Hours** **Within a confirmed positive case**	**48 Hours** **Within a confirmed positive case**	**24 Hours** **Within determination of need**	**72 Hours** **Within determination of need**
Disease Control -- Quarantine Infected and Exposed Premises and Control Movement of Animals					
Mobilize livestock disease-related incident command personal.					
Establish initial control areas.					
Enhance biosecurity procedures on infected, contact and susceptible premises.					
Establish quarantine zones for infected and contacted premises and/ or broader movement restrictions.					
Surveillance -- Develop Surveillance Plan Based on Epidemiological Investigation					
Develop a surveillance plan and implement existing diagnostic support.					
Epidemiology -- Determine the Extent of the Outbreak and / Or Confirmed Non-Infected Status					
Implement epidemiological surveillance and diagnostic support plan in at-risk species and notify other states of trace-outs.					
Stabilization -- Control, Prevent Spread of, and, as Possible, Eradicate Disease					
Begin treatment, inoculation, and /or depopulation of animals at identified site.					
Begin decontamination and disposal procedures at identified site.					
Business Continuity -- Protect Economic Viability and Continuity of Operations					
Implement procedures for the creation of bio-secure transportation corridors to market or other key facilities for disease –free goods and animals.					
Develop procedures for managing contaminated products.					
Establish storage and /or disposal areas for animals or products stopped in transit.					

[1] **Based on Department of Homeland Security, Federal Emergency Management Agency. *Livestock and Poultry Disease Emergencies Capability,* August 2009.**

* **Disease Detection and Recovery Actions are not in the scope of the above timeline.**

† **Communication with neighboring states will be initiated within 4 hours of a confirmed positive case.**

4.0 Disease Detection – Investigate Suspected Animal Disease and Initiate Preliminary Animal Movement Restrictions

4.1 Foreign Animal Disease Investigation

Upon notification of a suspected case of a FAD, the Colorado State Veterinarian or USDA AVIC will dispatch a FADD to conduct a Foreign Animal Disease Investigation (FADI). See Appendix G for VMO territories in Colorado. The investigation is conducted using a standardized format developed by USDA. Information and data collected during the FADI includes a general assessment, number and species of livestock present, gathering site information and samples, and epidemiological data (see Appendix H for an example of a FADI Data Collection Form). In addition, the FADD collects the following information about the facility:

- Premises Identification Number (PIN)
- Type of facility
- Plat map description
- GPS Coordinates
- Type and number of buildings
- Available resources
- Number of personnel or employees

The goal of the investigation is to confirm or rule out the presence of disease in a rapid and efficient manner. As such, the FADD examines the animals on site and packages the appropriate diagnostic samples for delivery to a state and federal diagnostic laboratory (see the Colorado Animal Emergency Response Organization (CO AREO) for Standard Operational Procedures (SOPs). Information from the investigation is reported to the State Veterinarian who in consultation with the FADD and the AVIC determines the potential for the presence of an animal disease is “unlikely”, “potential” or “highly likely”. This decision is critical and determines turnaround times on diagnostic samples and aids in establishing appropriate disease control measures. The priority established will determine where the samples are sent and how they are handled for transportation, and the level of response the lab gives the samples. Operations in the collection, shipping and management of laboratory samples shall be in accordance with the USDA Memo 580.4. Initially if the FAD suspects a condition such as FMD he/she is the IC on site and will confer with the appropriate people and he/she will also be the initial individual to implement the hold order and to immediately start the epidemiological investigation.

In most cases, preliminary results are available within 24-48 hours. However, during the investigation, the State Veterinarian may implement certain movement restrictions for livestock or other animal products. Decisions relative to movement controls would be based on the general clinical assessment, probable infectious agent morbidity and mortality of the disease outbreak and the risk to other animal facilities. A description of zones, areas and premises used for restricting movement is located in Section 4.2.

4.2 Hold Order

There are three possible outcomes of an FADI: negative, presumptive positive, or confirmed positive. In the event a FAD is suspected as the initial outcome of the FADI, the State Veterinarian may issue a hold order as authorized by CRS 35-50-103 to restrict animal movement. CRS 35-50-103 defines a hold order as a temporary order issued by the state veterinarian when an infectious disease is suspected in livestock to isolate any specific livestock premises, county, district; and specify sanitary measures, pending completion of testing. The State Veterinarian may authorize the hold order through accredited veterinarians or through another appointed official.

4.3 Quarantine

A preliminary / presumptive positive test result must be confirmed by the National Veterinary Services Laboratories (NVSL). Once the appropriate NVSL laboratory has verified the testing results are a confirmed positive, the State Veterinarian, as the Commissioner of Agriculture's designee, may place the infected premises under quarantine. CRS 35-50-103 defines quarantine as "an order issued by the commissioner when testing has confirmed the presence of an infectious or contagious disease in livestock, which order isolates specific livestock, premises, counties, districts, or sections of the state; restricts the movement of livestock; and specifies sanitary measures."

4.4 Response Plan Activation Sequence

The activation of an emergency plan is at the discretion of the State Veterinarian. Upon confirmation from the Colorado State University Veterinary Diagnostic Laboratory of a presumptive positive test result or from NVSL of a presumptive positive or positive test result to a highly contagious animal disease the State Veterinarian will activate the *Feedlot Emergency Disease Response Plan*.

The State Veterinarian will immediately contact the Commissioner of Agriculture, Deputy Commissioner, the USDA APHIS VS Colorado AVIC, and the CDA Homeland Security Director and relay all known information on the positive test notification. The State Veterinarian should be prepared to make recommendations with respect to any gubernatorial declarations and/ or the need to activate the state EOC (SEOC) and appropriate level of response. Specifically, the State Veterinarian will relay the following information:

- Name and contact information of the verifying laboratory official reporting the confirmatory test
- Name and location of the infected premises including Global Positioning System (GPS) coordinates and Colorado Livestock Security System (CLSS) Premises Identification Number (PIN) if available.
- Type of production facility and number of livestock on the infected premises.

If notification of a presumptive positive or NVSL confirmed positive of a highly contagious animal disease is after normal working hours, on a weekend or holiday, the State Veterinarian will communicate with the Commissioner, Deputy Commissioner, the AVIC, and the CDA

Homeland Security Director at their afterhours contact numbers. Based on direction from the Commissioner, Deputy Commissioner and AVIC, the State Veterinarian will take appropriate action to activate the response level based on incident type –see Table 1.

4.5 Feedlot Operator's Role during an Outbreak

In the event of an animal disease outbreak, feedlot operators may be called upon to help mitigate or control the disease outbreak. Critical roles producers may be asked to fill during an animal health emergency may include:

- Assisting with communication and information flow to neighboring producers;
- Serving as local Subject Matter Experts and assisting in the identification of needs and development of IAPs; and,
- Providing labor, feed and/or equipment resource to help meet the immediate needs of an emergency response.

Upon confirmation of a presumptive positive or NVSL confirmed positive of a highly contagious animal disease, cattle producers in the area of the outbreak will be notified of the situation and may at that time be asked to assist the CDA's response by fulfilling one of the above roles.

5.0 Disease Containment -- Quarantine Infected and Exposed Premises and Control Movement of Animals

Upon confirmation of a suspected or confirmed case of a highly infectious animal disease, the State Veterinarian will implement a series of response actions to control the spread of disease and minimize the impact of an outbreak. Though actions will vary based on the disease agent, the following section presents a series of possible control activities that may be utilized to contain a highly infectious disease outbreak in a feedlot.

5.1 Movement Restrictions

Movement restrictions for cattle, lambs or other affected species and animal products, vehicles and possibly people may be used to prevent the further spread of disease. Once an outbreak has been confirmed, the Infected Premises will be placed under quarantine (see Section 4.3 for additional information on livestock quarantines). Diseased or disease exposed animals will need to remain on the premises until the necessary control or mitigation measures are determined by the State Veterinarian. A control zone, which includes any contact premises (farms or areas with a connection to the Infected Premises), will be established. Road blocks and/or check points and possibly decontamination stations may be needed at ingress and egress locations in the control zone. Additional zones may be designated to control and monitor the disease. Personnel within the Brands Division of CDA will be called upon to establish and enforce animal movement check point or like restrictions. The Colorado Department of Public Safety- Homeland Security Section will aid in coordination of stop movement orders upon roadways within the state. Descriptions and a diagram of Premises, Zones and Area designations follow.

5.2 Premises, Zones and Area Designations

The designation of Control Areas and Zones is essential to successful quarantine and movement control activities. The State Veterinarian shall determine premises classification in the event of a presumptive positive or confirmed case of a highly contagious livestock disease. He/she shall work with the AVIC and FADD veterinarians, emergency responder teams, and the SEOC to establish area and zone designations that will allow for the targeting, implementation and enforcement of quarantine and movement controls.

Control Area – The Control Area consists of the Infected Zone, a Buffer-Surveillance Zone, and when vaccination is used, a Buffer Vaccination Zone.

Buffer Vaccination Zone – Emergency vaccination (if available) may be used to contain or slow the spread of the highly contagious animal disease. The area where vaccination is being – or has been – practiced will be known as the Buffer Vaccination Zone.

Buffer Surveillance Zone – The Buffer Surveillance Zone immediately surrounds both the Infected Zone and if established, the Buffer Vaccination Zone.

Infected Zone – The Infected Zone encompasses the perimeter of all suspect and infected premises. The Infected Zone also includes contact premises as required by the situation.

Surveillance Zone – The Surveillance Zone is established within the Free Zone, along its border with the Buffer-Surveillance within a Control Area. Surveillance in the Surveillance Zone will focus on premises determined to be at the highest risk of infection.

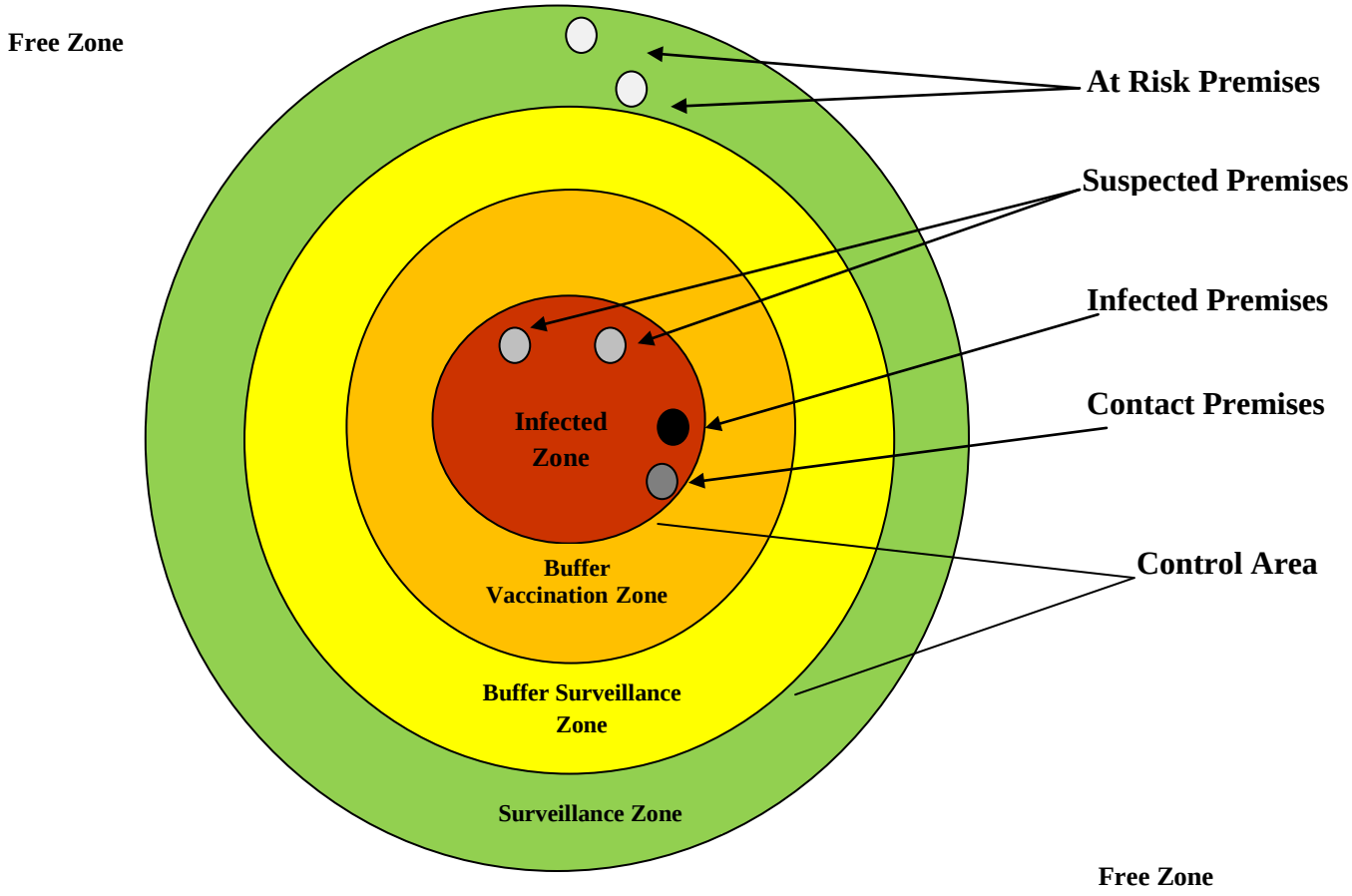
At-Risk Premises – Premises within the Buffer-Surveillance Zone that have clinically normal susceptible cattle/sheep are known as At-Risk Premises. Surveillance on the At-Risk Premises will be appropriate to detect the presence and/or to prove the absence of the disease on the premises.

Contact Premises – Contact premises are those premises with susceptible animals that have been determined to have been exposed directly or indirectly the FAD agent, but on which a highly contagious FAD has not been diagnosed**.**

Infected Premises – Infected premises are premises with the presumed or confirmed animal disease based on clinical signs and/or laboratory results.

Suspect Premises – A suspect premises is a premises on which it is reasonable, by virtue of clinical signs of illness, morbidity or mortality to believe that some risk of a highly contagious cattle or sheep disease may exist.

Figure 1. Premises, Zones and Area Designations



5.3 Biosecurity and Disease Control Measures

USDA APHIS defines biosecurity as the use of certain management practices designed to prevent the introduction and spread of disease. Also, biosecurity helps to mitigate the effects of the disease once it has been introduced into a herd or area. Feedlot producers incorporate biosecurity measures into their daily operations as part of livestock health and management practices. Biosecurity measures for routine operations in a feedlot are located in Appendix K.

CAFOs consists of feed yards (ranging from 1000 to 100,000 + head capacity), induction and handling yards, feed preparations an storage areas, water storage facilities, manure storage areas, waste management systems and administration facilities (see Figure 4, Feedlot Schematic). Entry of livestock, vehicles and equipment, feed and people into a feedlot present a risk of transmitting a highly contagious disease. In the same light, objects and materials exiting a feedlot also present a risk of spreading a highly contagious disease to other premises. Feedlot outputs include, livestock, manure, effluent, diagnostic specimens, and livestock carcasses. Specifically, highly contagious diseases can spread between feedlot operations by:

- The introduction of diseased cattle/lambs or healthy cattle/lambs incubating disease

- Introduction of healthy cattle/lambs who have recovered from disease but are now carriers
- Vehicles, equipment, clothing and shoes of vendors, visitors or employees who move between herds
- Contact with inanimate objects that are contaminated with disease organisms
- Carcasses of dead cattle/lambs that have not been disposed of properly
- Feedstuff
- Contaminated water (surface drainage water, etc)
- Manure handling and aerosolized manure and dust
- Non-livestock vectors (dogs, cats, coyotes, other wildlife, rodents, birds and insects).

To minimize the risk of a disease outbreak, biosecurity target areas for livestock operations are site security and traffic control, isolation of animals, and sanitation. During a health emergency on a feedlot the State Veterinarian may prescribe additional biosecurity measures for premises located in defined zones for each of the target areas. Biosecurity measures will be dependent upon the disease and its mode(s) of transmission.

5.3.1 Site Security

Any site that is under investigation as an infected premises, a suspect premises, or a contact premises shall take steps to prevent all non-essential traffic from entering the premises. All traffic should be prohibited unless directly involved in the care and feeding of livestock or involved in the emergency response. Additional site security procedures that may be recommended include:

- Establish one ingress and one egress location into and from the facility. All other access points must be blocked or gates locked and monitored to prevent unregulated entry or exit from the facility. If possible, the ingress and egress location(s) should be located on a level and solid surface with access to water (by hose or tanker truck) for cleaning and disinfection purposes. Vehicles transporting workers or supplies may need to park at the access gate and shuttle people and supplies in through a safe corridor system or transport on foot – exceptions would be large truck transport vehicles.

- All non-essential work on the farm shall cease and access to the facility will be restricted to essential personnel only. Essential personnel are defined as having a direct role in the care of the animals or in response. All vehicles and equipment on the premises may be prohibited from leaving the premises unless approved by the State Veterinarian. Cleaning and disinfection may be required of such vehicles.

- All essential personnel are required to wear PPE determined necessary to protect or prevent the spread of disease and to mitigate any zoonotic disease potential. Personnel entering the premises will be required to wear disposable or adequately cleaned and disinfected boots, coveralls, gloves, head/hair covering and possibly masks. The level of protection will be determined by the specific diseases, area and nature of work individuals are to engage in. These items must be put on prior to entry onto the

premises, or a specified area therein, and must be removed and thoroughly disinfected or disposed of prior to leaving.

- Verify premises log book is complete. Deliveries for farm essentials shall be by appointment only.

5.3.2 Cleaning & Disinfection Procedures

Cleaning and disinfection is a means to control the spread of disease by attempting to eliminate targeted disease causing microorganisms and prepare the premises for the reintroduction of livestock. Cleaning and disinfection procedures are essential both during and after an animal disease event. Cleaning and disinfection materials that should be available at an designated entry/exit point on the infected premises includes: brushes, buckets, hoses, water, disinfectant and a pressure washer. Cleaning and disinfection must be performed on all personnel, equipment, and vehicles leaving the infected premises or control area. Recommendations for cleaning and disinfecting a livestock trailer are provided in Appendix J. Appendix I lists disinfectants approved by EPA for specific diseases. Cleaning and disinfection procedures that may be required by the State Veterinarian include:

- Establishing a designated decontamination area / corridor on the premises. This is an area where personnel, vehicles, and equipment will undergo cleaning and decontamination before leaving the premises. This area should be close to the entry / exit point, on a hard surface and have access to water.
- Establishing a designated area for personnel to don and doff personal protective equipment and protocols for disposing of or treating contaminated personal protective gear.
- Implementing a shower in/shower out policy for all essential personnel coming in direct contact with cattle/lambs and areas where cattle/lambs are housed.
- Establishing a pest, especially rodent, control program.

5.3.3 Cleaning and Disinfecting Specific to Feedlot Operations

Recommendations for cleaning and disinfecting a feedlot operation as a result of a disease outbreak will be based on the nature of the disease agent, its mode of transmission and its persistence in the environment. Cleaning and disinfecting considerations specific to a feedlot operation are noted below.

<u>Manure & Effluent</u>

Careful consideration on managing the large amounts of manure and effluent produced by a feedlot operation during a disease outbreak will be necessary to reduce the risk of spreading the disease agent. For FADs transmitted in manure, burial or composting should be considered as possible disposal options for contaminated manure. Depending on the number of livestock on the premises and other factors such as topography and weather, it may be possible to contain the effluent for the duration of any quarantine period. Additional methods to manage manure during an outbreak include:

- Dilution of effluent is an important means of reducing risk depending on water availability.
- Decontamination of effluent is possible depending on the scale. However, treatment of all manure and effluent over a time is likely to be expensive and logistically impracticable.
- Fencing off areas containing manure and /or effluent. Management of wild birds and insects or other vermin in fenced off areas will need to be addressed.

Some FADs cannot be transmitted through manure. Under such circumstances, decontamination of manure is unnecessary.

Vehicles

During a disease outbreak, there will be a need for movement of vehicles into and out of the infected or contact premises to care for feeder cattle and lambs. Such vehicles will include grain carriers, feed trucks, cattle trucks, personal vehicles, excavators and front end loaders. Depending on the mode of disease transmission, passage of vehicles should be kept to a minimum. When the disease in question can be spread by fomites, a stringent procedure for disinfection of vehicles exiting the premises may be required.

Equipment and Materials

Feed handling and processing equipment may need to be cleaned and disinfected depending on the circumstances of the outbreak. The equipment involved will include a wide-range of items such as storage bins, chutes, augers, electrical equipment amongst others.

Livestock Pens and Structures

Steel, concrete, plastic and some wood structures such as feed and water troughs, posts, rails and wire or cable can be cleaned and disinfected manually. Where cleaning and disinfection of earthen areas is required, prior removal of manure down to and including the manure / soil interface should be undertaken. It should be noted, however, that this interface acts an impervious seal preventing saturation of the underlying soil and muddy conditions. Its removal is not normally recommended. The top layer of remaining soil may be decontaminated using sodium hydroxide or sodium carbonate. Sentinel animals can be used to verify the adequacy of disinfection of soil.

Feed Preparation Area

Disinfection of equipment as previously stated will need to be addressed. Additionally, disinfection of floors, especially those used by feed delivery vehicles and feed storage areas is an important consideration because of the capacity for widespread contamination from this source.

5.3.4 Wildlife Management

If an animal disease outbreak has potential wildlife impacts or can be spread by wildlife, the Colorado Division of Wildlife (DOW) will collaborate and lead all appropriate wildlife response activities. Appendix J provides additional information on the DOW role in an animal disease

outbreak. An important question to ask would be: “Are there wildlife on or near the premises and are they affected by the disease?”

5.3.5 Public Health Involvement

If an animal disease outbreak is identified as a zoonotic disease and has potential public health impacts, the State Veterinarian or the CDA will contact the Colorado Department of Public Health and Environment (CDPHE) to seek assistance in the response to protect affected livestock personnel and the public’s health. Appendix J provides additional information on the CDPHE’s role in an animal disease outbreak. An important question to ask would be “Are there sick people?” If so,CDPHE will be involved with their epidemiological investigation.

6.0 Surveillance -- Develop Surveillance Plan Based on Epidemiological Investigation

Animal disease surveillance activities involve collecting and interpreting data from animal populations to determine their health status regarding diseases of concern. Surveillance programs are currently in place to assist in rapid detection of an animal disease incursion. Surveillance techniques are also used in an animal disease response to determine the extent of a disease known to be present, and during the recovery phase of a response to provide the necessary evidence for the elimination of the disease.

Surveillance methods that may be used during a disease outbreak include assessing animals for clinical signs of the disease and clinical testing. Assessment of animals for clinical signs involves observing animals for any clinical presentation of the disease. For example, cattle infected with contagious bovine pleuropneumonia (CBPP) show signs of a high fever, decreased appetite, and painful and difficult breathing. Surveillance information is also obtained through the collection and testing of animal blood (serological testing), tissue, or skin scrapings. The speed at which these actions occur will have a direct effect on the extent and thus the outcome of an outbreak. Once control areas, zones and premises are identified, a surveillance plan for each area or zone will be developed by the State Veterinarian. The surveillance plan will include information on methods to collect, manage, and analyze animal health data. Since each animal disease outbreak is unique, the surveillance plan will be tailored to the disease agent. OIE surveillance recommendations for animal diseases are located in Appendix B.

7.0 Epidemiology -- Determine the Extent of the Outbreak and / or Confirm Non-Infected Status

To respond quickly and effectively to an animal disease event, the CDA animal health officials need to know which animals are involved, where they are located, and what other animals might have been exposed. The sooner reliable data is available, affected animals can be located, appropriate response measures can be established, and disease spread can be halted.

7.1 Trace-forward and Trace-backs

An important component of an animal disease outbreak investigation is to establish trace-forward and trace-backs from premises to determine both the source of the disease and the risk for disease transmission to other premises with susceptible species. Trace-backs are conducted to assist in identifying the source of the virus and to help determine how the disease was introduced to the facility. Trace-back procedures include collecting information from producers on the origins of all feeder cattle and lambs (and possibly other animals), animal products, feed, equipment and vehicles, (livestock trucks, feed trucks, veterinary trucks) and people (sales and feed representatives, visitors, veterinarians and brand inspectors) that have visited the farm prior to the outbreak. Trace-backs are usually applied for a minimum of 2 times the maximum incubation period before the onset of clinical signs.

Trace-forward procedures gather similar information on animal, people, and equipment movements off the farm to identify other premises that possibly received infected animals, animal products or contaminated equipment or personnel. Trace-forward is usually applied up to the time quarantine is imposed. OIE tracing recommendations for FADs significant to cattle and sheep are located in Appendix B.

Proper routine recording of movements in and out of the premises of animals, feed ingredients, and equipment is essential when investigating a suspected disease outbreak. In the event of a disease outbreak adequate records of inputs and outputs may well enable more rapid return to normal business operations than would be in their absence. The following are types of records that may be traced during a disease investigation.

- **Herd Inventory**
  Herd information, specifically: animal ID, breed, age, species and, origin. Animals that die or are culled from the herd should be identified.

- **Herd Movement**
  Animal movement to-and-from the feedlot logs, such as: date of movement, animal identification, origin, destination, reason, driver, vehicle used, previous owner name and contact information. Cull animals, brand inspection, health certificates, sold number, date, and location.

- **Farm Services**
  Visitor logs with names, phone number, reason for visit, time since last contact with livestock, and facilities entered. Visitors include all non-employees (veterinarians, brand inspectors, health inspection personnel, feed salesman, inseminators, livestock dealers, repairmen, neighbors, etc.) Records on farm services may also include equipment, feed, movement logs (dates origin, application site, volume, and application method. Effluent disposal information if moved off-site may also be traced.

- **Animal Health Information**
  Vaccination and treatment records including animal ID, date, reason for treatment / vaccination, and medication (product used). Records of any postmortem examination and / or testing of any dead stock by the producer or veterinarian should be maintained and made available for review.

- **Feedlot Employees**
  Employee record (name, address phone number, does the employee have contact with other livestock?)

- **Pets and Animals**
  Pets and other animals located on the premises.

Additionally, it may be required that producers participate in an animal identification system. Descriptions of two programs available to Colorado feedlot operators follow.

7.2 Colorado Livestock Security System

The CLSS is currently under development by the CDA. The CLSS is a repository of Colorado livestock facility locations and ownership data that can be accessed and utilized during an animal disease outbreak to assist in the tracing of animals and premises. Data for the CLSS are derived from existing data sources and integrated into one system that can be accessed by CDA animal health officials during an animal emergency. CLSS enables CDA to inform producers quickly when a disease or natural disaster event may impact their area or the species of animals that they own or house.

7.3 USDA Animal Disease Traceability Databases

The USDA holds some information on livestock disease traceability due to its different state-federal cooperative disease programs. USDA uses this data to locate premises, animals, or group of animals to: (1) increase the United States' disease response capabilities; (2) limit the spread of animal diseases; (3) minimize animal losses and economic impact; (4) protect producers' livelihoods; and, (5) maintain market access.

8.0 Stabilization -- Control, Prevent Spread of, and as Possible, Eradicate Animal Disease

Elimination, if possible, of a highly contagious disease involves a series of activities that will be implemented by the State Veterinarian in collaboration with the USDA AVIC. Actions taken will be based on the particular circumstances of the outbreak including: the disease agent, epidemiology of the disease, magnitude of the outbreak, vaccine and resource availability. Descriptions of possible response actions to eliminate an animal disease are described in the following section.

8.1 Appraisal & Indemnity

According to the U.S. Code of Federal Regulations 9CFR53.3 a percentage of fair market value will be paid to the owners for livestock that must be depopulated or materials that must be destroyed to prevent the spread of an animal disease.

Additionally, CRS 35-50-113 grants the CDA Commissioner the authority under certain circumstances and upon the recommendation of the State Veterinarian, to authorize the payment of indemnity to any livestock owner whose herd is depopulated due to exposure or diagnosis with an infectious or contagious disease.

With qualifying events, appraisal and indemnification process outlined in 9CFR53.3 is the most efficient appraisal process for livestock owners. The process outlined in CRS 35-50-113 is a cumbersome and often time-consuming procedure used in situations where depopulation of livestock is deemed necessary by the Commissioner and the State Veterinarian. For both processes, fair market value of livestock must be mutually agreed upon by the owner and state or federal officials prior to depopulation. Valuation is generally based upon prevailing market value of the class of livestock and their stage or production. Under certain situations, such as with genetic seedstock animals, a physical appraisal may be required to establish value.

In previous highly infectious disease outbreaks, the cost of euthanasia, carcass disposal and decontamination were paid for by the USDA. Colorado will follow USDA procedures to request assistance with indemnification of feedlot operators in response to an eligible disease event.

8.2 Depopulation

CRS 35-50-113 authorizes the State Veterinarian to order euthanasia, mass depopulation and carcass disposal to mitigate an animal disease in Colorado and is an integral part of a comprehensive response plan. In the event that a highly contagious animal disease in feeder cattle and lambs is confirmed in the state of Colorado, livestock depopulation and carcass disposal may represent the most effective means of disease control and eradication. If deemed necessary by the State Veterinarian to contain a disease outbreak, the CDA will take every measure to ensure rapid and humane depopulation of all cattle and lambs affected by the disease outbreak. The State Veterinarian will develop a comprehensive depopulation and disposal plan based on guidance from the American Veterinary Medical Association (AVMA) Guidelines on Euthanasia, National Agricultural Biosecurity Center, Kansas State University, or other resources.

The State Veterinarian's depopulation plan will be dependent upon the type, number, and size of cattle and lambs to be depopulated. Table 3 provides an overview of the approved methods of Euthanasia appropriate for feeder cattle and lambs, Table 4 provides an overview of the advantages, disadvantages and considerations for human safety for depopulation methods appropriate for ruminates. Carcass disposal will be carried out in collaboration with the CDPHE as defined in the CDA/CDPHE joint Interagency Agreement (IA) state statute, and state rule/regulations. Additional information on carcass disposal is located in Section 8.3.

8.2.1 Gunshot

Gunshot to the brain is an AVMA approved method to euthanize cattle. The caliber, projectile, and propellant load should be appropriate for the species. Full metal jacket ammunition should never be used. Muzzle energy charts should be used to determine the appropriate caliber and type of ammunition for the type of animal. Appropriate muzzle energy is three hundred foot-pounds of force for animals up to 400 pounds and 1000 foot-pounds of force for animals over 400 pounds.

8.2.2 Penetrating Captive Bolt

The AVMA has approved the penetrating captive bolt as a possible form of euthanasia for cattle and sheep. This is a gun like device that is placed against the skull of the animal and when fired a rod (bolt) in the gun is forced through the skull and into the brain tissue. The rod is attached to the gun and taken out when the skull is penetrated. This is usually fatal, but it is strongly recommended that an adjunct measure such as exsanguinations or "pithing" be administered to ensure death. This method is practical for numerous animals, and is especially useful for animals over 200 pounds.

Table 3. Methods of Depopulation Appropriate for Cattle & Sheep [1,2]

	Calf	**Heifer**	**Lamb**	**Sheep**
Gun Shot	Yes	Yes	Yes	Yes
Penetrating Captive Bolt	Yes	Yes	Yes	Yes
Electrocution (Head to Heart)	Yes	Yes	Yes	Yes
Barbiturates	Yes	Yes	Yes	Yes
Carbon Dioxide	No	No	Yes	Yes

[1] National Animal Health Emergency Management System Guidelines, *Operational Guidelines Euthanasia*, 2004
[2] American Veterinary Medical Association. *AVMA Guidelines on Euthanasia*, 2007.
[3] American Association of Bovine Practitioners, *Practical Euthanasia of Cattle: Considerations for the Producer, Livestock Market Operator, Livestock Transporter, and Veterinarian*, 1999.

8.2.3 Electrocution

This is a two-step process that passes electricity through the brain and stuns the animal. The second step passes electricity through the body and stops the heart. This method is very dangerous to personnel, requires special equipment, and an electrically safe environment in which to conduct such activity. For cattle and sheep, electrocution as a depopulation method should only be applied using specialized slaughter plant equipment that applies a minimum of

2.5 amps across the brain. A 120 volt electrical cord does **not** apply sufficient amperage to induce unconsciousness.

8.2.4 Barbiturates

Barbiturates and pentobarbital combinations are used to depress the central nervous system, causing deep anesthesia that progresses to respiratory and cardiac arrest. This method is considered to be very humane but it does require intravenous injection into the animal and would render the carcasses useless for any potential by-products.

8.2.5 Carbon Dioxide

Carbon Dioxide (CO_2) gas is an acceptable agent for euthanasia for sheep. CO_2 replaces oxygen in the body and causes rapid onset of anesthesia with subsequent death due to respiratory arrest.

Table 4. Considerations for Approved Depopulation Methods for Cattle & Sheep [1,2,3]

Depopulation Method	Human Safety Risk	Advantages	Disadvantages	Equipment
Gun Shot	Bullet poses considerable risk	Recommended for animals that cannot be restrained or are difficult to handle.	- May not kill animal - May present biosecurity risk from leaking body fluids - May preclude evaluation of brain if damaged by shooting	- Skilled and licensed operator - Appropriate firearm and ammunition for cattle - .22 caliber long rifle" for calves & lambs
Penetrating Captive Bolt	Moderate	- Safer for operator than free bullet method - Reduces the need to move animals	- May be a two-step process based on size - Misplaced captive bolt gun may compromise animal welfare - Captive bolt gun must be maintained, cleaned - Several must be used to reduce over heating	- Different sizes of captive bolt guns for different size livestock.
Electrocution	High – requires considerable operator knowledge	- No tissue or blood exposure - physically demanding for operator - Requires monitoring to ensure	- Restrain is necessary - Two-step process for large animals	- Electrical supply - Electrodes
Barbiturates	Low	- Humane & rapid killing of animals	- Animals must be restrained - Administered by a trained professional - Limited access to drugs	- Syringes & needles - Drug to be injected
Carbon Dioxide	- Gases present potential hazardous aspects for humans	- Non-invasive - No tissue or blood exposure - Minimizes stress	- Not appropriate for cattle - Requires excellent ventilation systems to disseminate gas after ventilation systems to	- Suitable Chamber - Compress CO_2

[1] **American Veterinary Medical Association.** ***AVMA Guidelines on Euthanasia,*** **2007.**
[2] **American Association of Bovine Practitioners,** ***Practical Euthanasia of Cattle: Considerations for the Producer, Livestock Market Operator, Livestock Transporter, and Veterinarian,*** **1999.**
[3] **United States Animal Health Association,** ***Foreign Animal Disease*** **, 2008**

8.3 Disposal

An essential component in eradicating a disease is the proper disposal of livestock carcasses. The goal of carcass disposal is to facilitate the decomposition of carcasses and the destruction of any pathogenic disease agent present. Methods utilized should limit the potential for the spread of the disease or exposure of susceptible species to disease and limit any potential adverse environmental impact. Commonly used disposal methods include: burial, composting, incineration, alkaline digestion and rendering. When applicable, livestock carcasses will be

disposed of on the infected premises to limit the potential spread of disease. However, factors such as the number, size and species of livestock, the location of the infected premises, the soil types and groundwater locations, and the particular disease agent will determine the most appropriate method of carcass disposal. The State Veterinarian will collaborate with the AVIC and the CDPHE Solid and Hazardous Waste Program personnel to determine the location and type of disposal method. Possible methods of carcass disposal are outlined below. Additional information on each option is located in Table 5. Ruminant Disposal Methods: Considerations.

8.3.1 Rendering

Rendering is a process of both physical and chemical transformation resulting in three end products, carcass meal, melted fat, and water. The main carcass rendering processes include size reduction followed by cooking and separation of fat, water, and protein materials. The resulting carcass meal can often be used as an animal feed ingredient.

8.3.2 Composting

Composting involves a phased decomposition of animal carcasses over a period of time. The process involves the breakdown of organic materials by microorganisms such as bacteria and fungi which results in the release of heat, water, CO_2 and other gases. The process can be complex and requires an appropriate site, proper management and a carbon source such as, wood chips, straw, cornstalks or similar products.

Windrow composting technique takes place in a static pile. The site is usually built in open spaces with no walls or roofs and not protected from weather. Windrow composting is often used for disposal of large animals.

Bin composting is the simplest form of a contained composting method, where carcasses and composting material are confined within a structure built from any materials that are structurally adequate to confine the compost pile material.

8.3.3 On-Site Burial

Burial of deceased livestock can take place onsite or in an approved landfill. Both burial methods are subjected to Code of Colorado Regulation (CCR) 6 1007 Parts 2-3, which lists the following requirements:

- Every part of all dead animals must be buried by at least two feet of soil.
- No dead animals shall be placed in any body of water or seasonal creek or pond.
- Surface water should be diverted from the pit utilizing an up gradient diversion berm or other method.
- All dead animals must be buried at least 150 feet down gradient from any groundwater supply source.
- In no case should the bottom of the burial pit be closer than five feet to the ground water table.
- Burial sites should be located more than one mile from any residence.

8.3.4 Landfill Burial

The use of permitted landfills for carcass and material disposal may be an option. The necessary equipment, personnel, procedures and containment systems are already in place. Transport of the carcasses to the landfill can pose some risk of disease spread.

8.3.5 Incineration

There are three broad categories of incineration: open-air, fixed facility, and air-curtain. Open air includes burning carcasses in an open field. Examples of fixed facilities are crematoria, small carcass incinerators at veterinary colleges, large waste incineration plants, on- site incinerators, and power plants. Air-curtain incineration involves a machine that fan-forces a mass of air through a manifold that accelerates the incineration process generally conducted in an earthen trench. Air-curtain incineration has been used in Colorado to dispose of animals infected with a prion that causes chronic wasting disease.

Human safety precautions must be addressed when choosing incineration as a disposal option for sheep since burning of wool will release some Cyanide gas. Cyanide is a colorless, volatile, and an extremely poisonous gas.

8.3.6 Alkaline Hydrolysis

Alkaline Hydrolysis is a process that uses a caustic agent, such as sodium hydroxide and heat to hydrolyze carcasses into a sterile solution and calcium products. The process requires expensive equipment and provides only low volume capacity; therefore, this method has limited application in a disease outbreak situation.

Table 5. Ruminant Disposal Methods: Considerations[1,2]

Disposal Method	Advantages	Disadvantages	Required Resources
Mass Burial On Site	-- Removal of large amounts of biomass -- Facilities can be decontaminated immediately upon removal of livestock -- Risk of disease spreading is reduced upon burial of livestock.	-- May serve as a containment site rather than decomposing livestock -- Requires multi-agency approval -- Significant site planning -- Public opposition -- Potential environmental contamination -- Safe management of fluids from decay process	-- Excavation equipment -- Cover material -- Appropriate landscape
Landfill	-- Cost /ton is manageable in many instances -- Infrastructure is in place to accept large quantities of materials quickly. -- Back up safety and compliance teams exist -- Subtitle D liner systems for containment are in place	-- Requires transporting carcasses off-site -- Permitting process may lead to delay in burial -- Operator may refuse to accept materials -- Safe management of fluids from decay process -- Standard practices are different for each site	-- Approved landfill site
Composting	-- Removal of large amounts of biomass -- Produces a humus-like product containing nutrients and organic matter that can be recycled onto cropland -- Cost effective	-- Slow carcass decay -- Poor odor retention -- Leachate production	-- Carbon source ie- sawdust, straw, corn stover -- Appropriate composting site -- Tractor or skid loader -- Long stem composting thermometer
Incineration* **Fixed Facility**	-- Biosecure	-- Fixed capacity -- Public Opposition -- Expensive to operate -- Incinerators are incapable of handling large volumes of carcasses	-- Fuel -- Incineration facility
Air-Curtain	-- Mobile	-- Fuel intensive -- Logistically challenging	-- Fuel -- Air-curtain incineration facility
Alkaline Hydrolysis	-- Combine sterilization and digestion into one process -- reduction of waste volume and weight by as much 97%. -- Complete destruction of pathogens including prions.	-- Currently limited capacity for destruction of large volumes of carcasses in US -- Potential issues regarding disposal of effluent	-- Jacketed stainless steel pressure vessel. -- Sodium hydroxide or potassium hydroxide -- Water, energy for steam generation generation
Rendering	-- Good biosecurity at rendering plants -- High rendering temperatures destroy disease pathogens -- Environmentally sound	-- Requires transporting carcasses off-site -- Cost of transportation to rendering plant -- Capacity constraints in handling surges -- Some geographic area not served	-- Rendering Plant

*** Burning of wool will produce some Cyanide gas, an extremely poisonous gas. Appropriate human safety precautions must be addresses prior to implementing this disposal option for sheep.**

1 National Agricultural Biosecurity Center, Kansas State University, *Carcass Disposal: A Comprehensive Review* (2004)

2 Council for Agricultural Science and Technology, *Ruminant Carcass Disposal Options for Routine and Catastrophic Mortality* (2009)

8.4 Alternatives to Depopulation

In most disease outbreaks, depopulation will be the primary method utilized to stop transmission and spread of the disease agent within affected animals on diseased premises. However, under certain circumstances, additional methods may need to be implemented to achieve full eradication of the disease or when stamping out is not possible. At this point, alternatives such as vaccination and controlled animal movements may be implemented by the State Veterinarian in collaboration with the AVIC.

8.5.1 Vaccination

Vaccination is a tool that can be utilized in conjunction with other emergency management controls to alleviate a disease outbreak. Policy frameworks for the use of vaccines during an outbreak include:

- Using vaccines as a primary disease control strategy without stamping out.
- Using vaccines in conjunction with a stamping out strategy to assist in eliminating a disease agent.
- Using vaccines during a long-term campaign to eradicate a well established disease.
- Not using a vaccine in disease response efforts due to: 1) unavailability; 2) does not meet safety standards; and, 3) additional reasons involving trade and marketing.

New technology in vaccine development has resulted in some 'marker' vaccines. This type of vaccine allows, via serological testing, animal health officials to distinguish vaccinated animals from naturally infected animals. Such a distinction is critical when providing proof to world animal health organizations which regulate disease free status that has implications for world trade of livestock and livestock products.

8.5.2 Vaccination Strategies

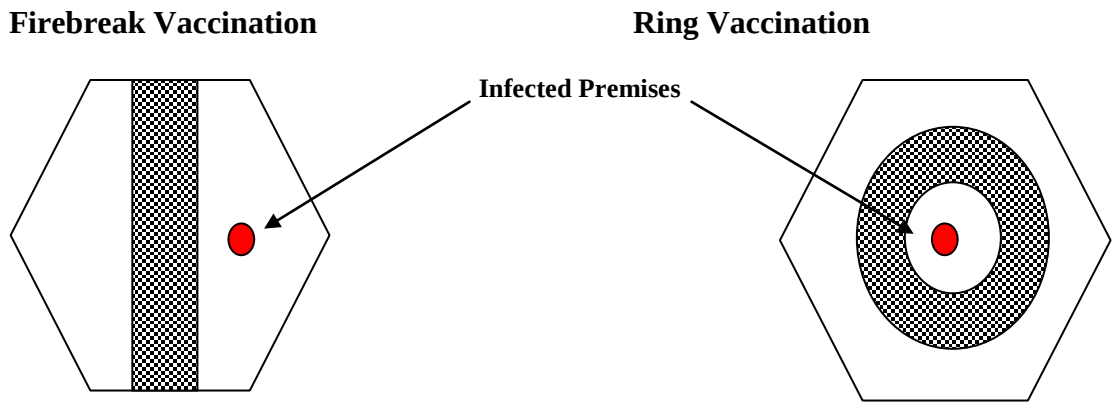
Vaccines can be utilized for different purposes during an animal health emergency. Strategies for vaccine use are described below.

A suppressive vaccination strategy is used as a disease control measure to reduce the viral shedding of livestock that have been exposed to the disease agent. This type of strategy is more commonly used in situations of intensive farming, usually due to resource constraints, such as constraints on carcass disposal.

A preventive vaccination strategy is used for high- risk animals not included in the control area but in close proximity to the infected premises to be considered at risk for exposure. This strategy is an alternative to the traditional stamping-out policy. Numerous factors should be considered prior to implementing this strategy such as: the effectiveness of the vaccine, efforts upon domestic and foreign trade, and general international acceptance of the vaccine. A preventive vaccination is also an option for threatened or endangered species that may be considered at risk due to exposure the disease agent.

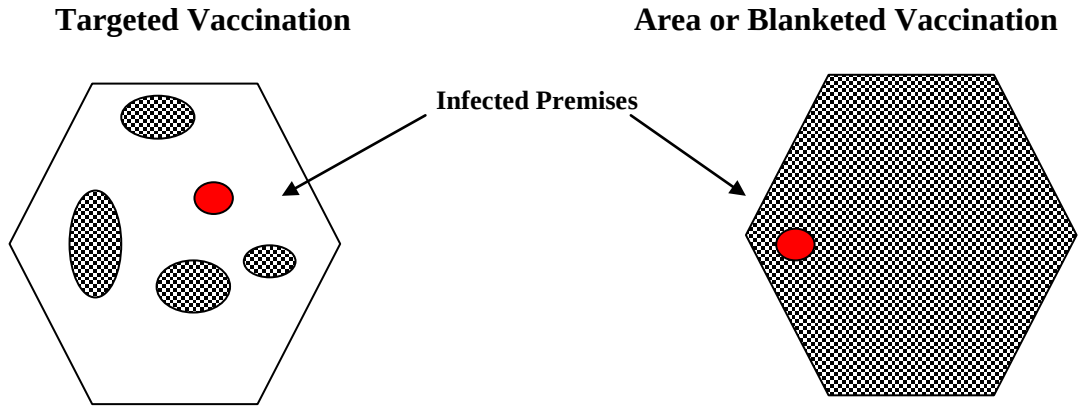
A barrier vaccination policy can be used to implement a preventive vaccination strategy. This policy is based on a spatial pattern developed to create a barrier between the infected premises and at risk premises. The intent of a barrier vaccination is to inhibit the disease transmission rate by vaccinating all suspected livestock. Common types of vaccination barriers are illustrated below. The area of the barrier will be dependent upon the epidemiology of the pathogen, livestock density, and available resources-see Figure 2. Barrier Vaccination Examples.

Figure 2. Barrier Vaccination Examples



A targeted vaccination policy can also be used preemptively. The targeted vaccination is commonly used to vaccinate livestock in facilities with a high animal density. Targeted vaccination may also be used to protect threaten and endangered species see Figure 3. Targeted and Area Vaccination Diagram.

Figure 3. Targeted and Area Vaccination Diagram



Area or Blanketed Vaccination also known as a mass vaccination entails vaccinating all livestock within a delineated geographical area. The defined area may be an isolated area, a large region or state. Often area vaccinations are used when traditional stamping out methods

are not meeting disease control objectives (see Figure 3. Targeted and Area Vaccination Diagram).

8.5.3 National Veterinary Stockpile

The National Veterinary Stockpile (NVS) is the Nation's repository of vaccines and other critical veterinary supplies and equipment. The NVS is designed to augment state and local resources in the fight against dangerous animal diseases that could potentially devastate American agriculture, seriously affect the economy, and threaten the public's health. Homeland Security Presidential Directive 9 (HSPD-9) established the NVS in 2004. The Directive requires APHIS to be able to deploy the NVS to the site of a dangerous animal disease outbreak within 24 hours.

To accomplish this critical mandate, the NVS defined agents of greatest interest to animal health and has prioritized its resources accordingly. The NVS currently holds or has systems in place to provide:

- Personal protective equipment (PPE) for 310 responders for 10 days in a high-risk environment.
- Further PPE to protect 3,000 responders for 40 days
- Anti-viral medications for 3,000 responders for 6 weeks
- Satellite data and voice transmission equipment that is portable and capable of establishing temporary command posts
- C & D equipment
- Vaccines and other supplies.

9.0 Business Continuity -- Protect Economic Viability and Continuity of Operations

Maintaining business continuity and the movement of livestock and animal food products that are unaffected by a disease outbreak is a critical component of the CDA *Feedlot Emergency Disease Response Plan*. The movement of livestock and animal food products will be at the discretion of the State Veterinarian in collaboration with the USDA AVIC and will be based on the epidemiology of the disease agent. Guidance on the movement of feeder cattle and lambs during a disease outbreak is described in Sections 9.3 and 9.4.

9.1 Cattle Feedlot Movements

Cattle entering a feedlot are approximately 6-18 months of age. Upon arrival at the feedlot, cattle usually stay for approximately three to seven months during which they are fed a high concentrate grain based diet. When cattle reach a weight between 1,100 to 1,400 pounds they are transported to packing plants. Throughout the calendar year, cattle are continuous entering and exiting feedlot operations.

9.2 Lamb Feedlot Movements

Feeder lambs are light-weight lambs that are sold to feedlots for further finishing. Feeder lambs are purchased at a pre-market weight and fed a moderate concentrate grain based diet until they

reach a desirable market weight. When purchased, lambs can range in weight from 35 lbs to 90 lbs and are usually sold to market when they reach a body weight of 120 – 150 lbs.

Similar to a cattle feedlot, lambs are fed grain for a period time, on average of two to three months. However, unlike cattle feedlot operations, the US lamb market is more seasonal and generally increases prior to various religious observances. Lamb consumption is concentrated on the East and West Coast and in major metropolitan areas and in ethnic and religious markets throughout the US. The type of lamb and manner in which it is to be slaughtered depends upon the ethnic/religious group and the holiday. A list of religious / ethnic holidays for 2010 is listed below as an example of annual higher consumption events:

- Western or Roman Easter – April 4
- Easter or Greek Easter – April 4
- Passover – March 30 – April 6
- Start of Ramadan – August 11
- Rosh Hashanah – Sept 8-9
- Id al Fitr – September 11
- Id al Adha – November 17-20
- Hanukah – December 1-9th
- Christmas – December 25

9.3 Controlled Animal Movement

During a disease outbreak, the State Veterinarian may issue an official permit for movement of animals and animal products that would allow their movement from a premises or geographic area within a quarantine order. Permits to move livestock or other affected animals from premises to premises within a control area can be issued if the follow criteria are met. Types of permits that maybe authorized are listed below.

- No livestock on that premises have shown clinical signs of the disease agent for a determined amount of days and disease free status has been verified within 24 hours prior to movement.
- No susceptible species were added to the premises of origin for an appropriate amount of time as determined by the State Veterinarian.
- The premises of origin is not an infected premises, contact premises, or suspect premises and there is no detectable evidence of the disease agent.
- Transport conveyances for cattle and livestock product meet acceptable biosecurity standards.

9.3.1 Movement to Slaughter within a Control Area

Permits to move to slaughter (for human food use) or processing can be issued if the livestock are eligible for a permit for movement from premises to premises or for movement directly to slaughter.

9.3.2 Movement Out of an Infected Zone

No susceptible livestock species or products posing a risk of disease transmission may leave the infected zone unless they are going directly to slaughter at an approved slaughter facility established in the buffer surveillance zone or meet the criteria described on a permit. No materials posing risk of disease transmission may leave the infected zone except by permit.

9.3.3 Movement within an Infected Zone

During the initial phase of an incident, cattle or lambs entering a feedlot operation should not be allowed to move within an infected zone except at the discretion of the State Veterinarian.

9.3.4 Movement within the Buffer Surveillance Zone

Susceptible animal species or products posing a risk, may be moved within the buffer surveillance zone under permit if they are known not to be infected with or exposed to the disease agent and animals show no signs of other communicable diseases.

9.3.5 Movement Out of the Buffer Surveillance Zone

Susceptible animal species or products may be allowed to leave the control area if a risk assessment deems such movement to be appropriate. Movement will require a permit as prescribed by the State Veterinarian. Decontamination of such animals may be required.

9.3.6 Movement of Non-Susceptible Livestock

Movement of non-susceptible livestock out of the control area requires a permit as prescribed by the State Veterinarian. Decontamination of such animals may be required.

9.4 Bio-secure Transportation Corridors

As mentioned, allowing unaffected animals and animal food products to move within commerce during an animal disease outbreak is essential to maintaining industry business continuity. Thus, movement of cattle, lambs, and other livestock that are deemed disease-free will take place along bio-secure corridors. Bio-secure corridors are transportation routes located outside of the quarantine area that will allow livestock and animal food products to travel safely without risk of exposure to an animal disease. Identifying bio-secure corridors will be the responsibility of the CDA with assistance from the Colorado State Patrol and local law enforcement agencies.

9.5 Risk Reduction and Contingency Planning

Feedlot contingency planning is necessary for emergency diseases but also has additional benefits in respect of unexpected endemic disease losses. Each feedlot should develop emergency response plans, which may be useful in the event of a disease emergency to prevent the spread of disease and effect a more rapid response. Appendix K provides additional information on developing an emergency disease action plan for feedlots. Components to be considered for a feedlot emergency disease response plan include:

<u>Internal Quarantine</u>

An internal quarantine should be planned in advance and maintained as far as possible in accordance with the perceived risks. Opportunities for physical division of different areas of the

feedlot as well as separation of livestock handlers, feed trucks and other potential sources of infection should be considered.

Any introduced animals to the feedlot should be isolated for a minimum of seven days to detect any major disease introduction (Figure 4. Feedlot Schematic). Individual sick animals should also be removed to an isolated 'hospital' pen. Mixing of animal groups and adding introductions to other pens should be minimized as far as possible. Internal quarantine areas should:

- have no direct contact with other animals, equipment and vehicles
- not be exposed to effluent or run-off from other parts of the premises
- have facilities arranged so that animals can be handled and fed last
- be handled by dedicated staff, or have staff undertake a decontamination procedure before handling other livestock
- allow sick livestock to be separated by 165-650 feet (50-200 meters).

Receiving Area and Hospital Pens

The receiving area should be physically separated from feeding pens. Hospital pens should also be separated, preferably from both the receiving and feeding pens, see Figure 4 Feedlot Schematic.

Disposal Sites for Carcasses

A single postmortem site should be selected for disposal of carcasses although it may be necessary to prepare a new site from time to time. The site should be secure so as to prevent any chance of disease spread. Contingency plans should exist for the disposal of large numbers of animals and possibly the entire feedlot population. This will require knowledge of the soil type and profile, the water table characteristics, and any other potential environmental concerns in the immediate vicinity of the feedlot. It is likely a permit from an appropriate local and /or state agency will be required for such an activity.

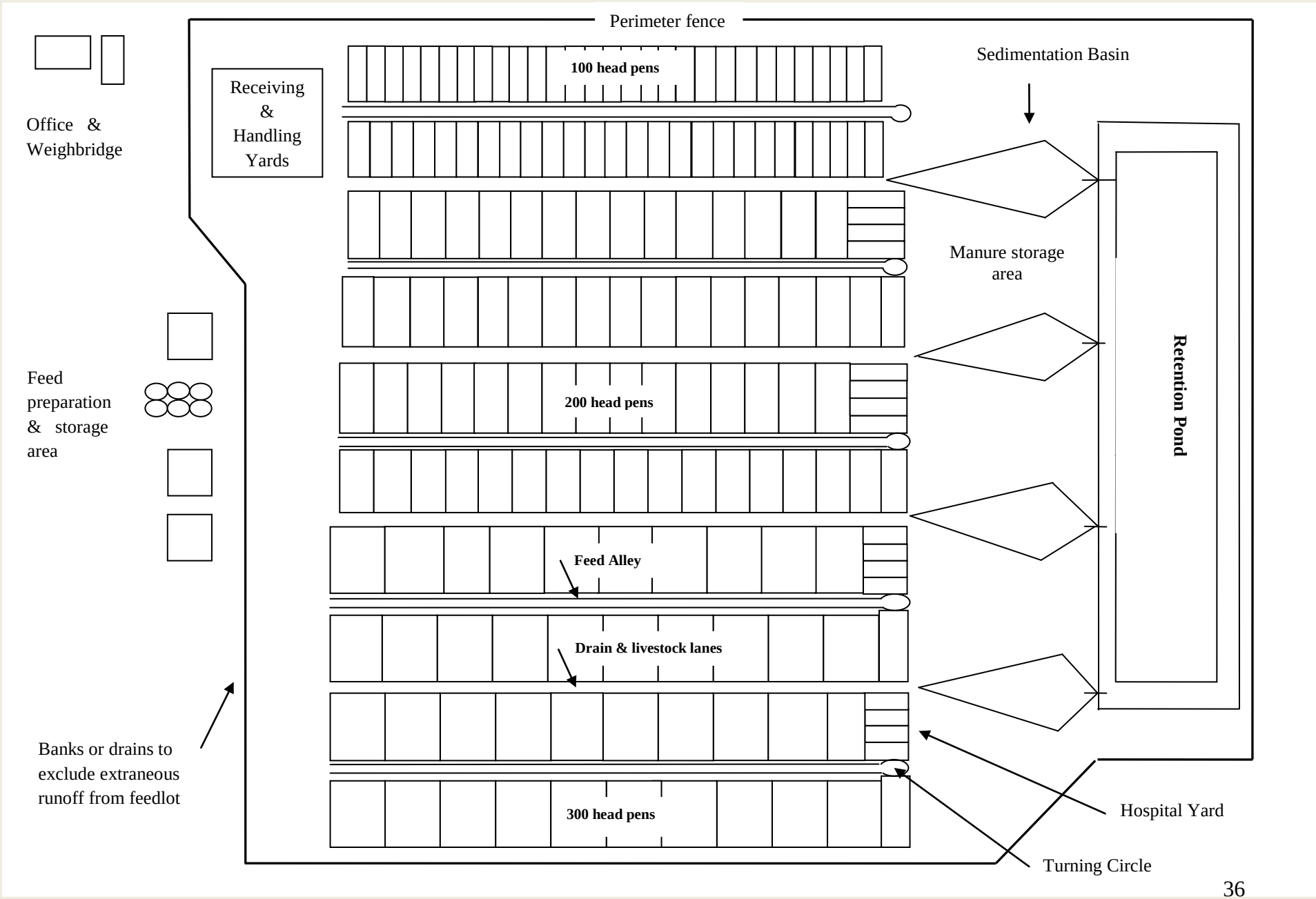
Record Keeping

Routine recording of movements in and out of animals, feed ingredients, and equipment is essential when investigating a suspected disease outbreak. In the event of a disease outbreak adequate records of inputs and outputs may well enable more rapid return to normal business operations than would be in their absence. See Section 7.1 for additional information on record keeping.

Water Supply

In the event of decontamination of vehicles and equipment being necessary, extra water may be required for the purpose. A supply of water adequate only for normal operations of the feedlot is not sufficient. The supply must be capable or giving significantly more than normal requirement if needed. Whereas the use of power hoses is not recommended because the process may release contaminated aerosols of the disease agent significantly more water may be required for cleaning and disinfection.

Figure 4. Feedlot Schematic



10.0 Recovery -- Returning Affected Premises to Normal Business Operations

The actions taken during the recovery period are focused on restoring the situation to normal or near normal as quickly as possible. Issues to consider are repopulation of production facilities, financial considerations, re-establishing public trust and consumer confidence, and review of risk reduction measures. It is important to note that the recovery phase of an incident may last an extended period of time.

10.1 Surveillance and Monitoring

Once the mandatory down time requirements are met, serologically negative sentinel cattle/lambs may be introduced to determine if pathogens are still present and viable. This is typically a gradual process and may involve bringing a few sentinel animals to the feedlot first and they are inspected and monitored for signs of illness. Sentinel cattle may be retained for at least two specific pathogen incubation periods (to be determined by the State Veterinarian) and monitored for clinical signs of the disease. In the event that a sentinel becomes infected or tests serologically positive for the disease, the sentinel will be depopulated and the cleaning and disinfection process will be repeated. Once the premises is determined to be free of disease it is released and cattle or lambs are bought to repopulate the feedlot.

10.2 Restocking

Once all premises affected by the outbreak are cleaned and disinfected and there are no new reports of the disease agent, restocking will be permitted by the State Veterinarian. A moratorium on restocking will be in place for a minimum of 30 days or other appropriate time period determined by the State Veterinarian after depopulation and after the completion of an approved cleaning and disinfection process of the entire premises. OIE recommendations for restocking by disease agent are listed in Appendix B.

Purchasing restock cattle or sheep from herds of known health status is strongly recommended, Additional recommendations include isolating stock for a minimum of 30 days before introduction to the herd addition, holding veterinarian-to-veterinarian pre-conferences and testing animals before purchase, on arrival and before exiting isolation.

11.0 Roles and Responsibilities

Sections 11.1 and 11.2 outline the roles and responsibilities of agencies and producers when responding to an animal disease outbreak.

11.1 Agencies Roles and Responsibilities

Responding to an outbreak of a highly contagious animal disease outbreak will require the coordination of multiple agencies. A list of local, state, and federal agencies and their possible role in an outbreak response are listed in Appendix J.

11.2 Industry's Role in a Disease Outbreak

Industry will play an important role both in preventing a disease outbreak and in response and recovery efforts of such an event. Appendix K offers recommendations and actions to improve Continuity of Operations plans for the feedlot industry.

Appendices

A List of Acronyms	**A-1**
B Animal Diseases Significant to Cattle & Sheep	**B-1**
C Incident Command System Organization Structure Chart	**C-1**
D Incident Complexity Analysis Worksheet	**D-1**
E PPE Guidance for Zoonotic and Non-Zoonotic Diseases	**E-1**
F Regulatory Communications Network	**F-1**
G Colorado VMO Territories	**G-1**
H FADI Collection Data Form Sample	**H-1**
I EPA Approved Disinfectants for Highly Pathogenic Diseases	**I-1**
J Local, State, and Federal Agencies Roles and Responsibilities	**J-1**
K Industry's Role in Emergency Response	**K-1**

Appendix A Acronyms

AVMA	American Veterinary Med. Association
APHIS	Animal and Plant Health Inspection Service
CAFO	Concentrated Animal Feeding Operation
CCR	Code of Colorado Regulations
CDA	Colorado Department of Agriculture
CDC	Centers for Disease Control and Prevention
CDEM	Colorado Department of Emergency Management
	Colorado Department of Transportation
CFR	Code of Federal Regulations
CIAC	Colorado Information Analysis Center
CLSS	Colorado Livestock Security System
CO_2	Carbon Dioxide
CO AERO	Colorado Animal Emergency Response Organization
CRS	Colorado Revised Statutes
CSP	Colorado Safety Patrol
CSU	Colorado State University
CVMBS	College of Veterinary Medicine and Biomedical Sciences
ECIMT	Eastern Colorado Incident Management Team
EOC	Emergency Operation Center
EPA	Environmental Protection Agency
ESF	Emergency Support Function
FAD	Foreign Animal Disease
FADD	Foreign Animal Disease Diagnostician
FADDL	Foreign Animal Disease Diagnostic Lab
FADI	Foreign Animal Disease Investigation
FBI	Federal Bureau of Investigation
FDA	Food and Drug Agency
FSIS	Food Safety Inspection Service
GPS	Global Positioning System
HSPD	Homeland Security Presidential Directive
IA	Interagency Agreement
IAP	Incident Action Plan
ICS	Incident Command System
IMT	Incident Management Team
JTTF	Joint Terrorism Task Force (within FBI)
OSHA	Occupational Safety and Health Association
PIO	Public Information Officer
PPE	Personal Protective Equipment
SEOC	State Emergency Operations Center
USDA	United States Department of Agriculture
VMO	Veterinarian Medical Officer

Appendix B Animal Diseases Significant to Cattle & Sheep

Animal Diseases Significant to Cattle Table I

Animal Disease / Classification[1,2]	Mode of Transmission[1,5]	Recommended Quarantine and Movement Controls[1,3,4]	Treatment Options and Vaccine Availability[5]
Contagious Bovine Pleuropneumonia (CBPP) 6 months incubation period	**Aerosol** - Cough from infected cow **Direct Contact** - Cattle-to-Cattle (saliva, urine or (reproductive tissues or fluids)	- Infected zone should extend (3 km) from Infected premises - Suspected premises should be placed in quarantine for six months - Stop movement for all suspected animals except official approval to slaughter	- Vaccine is available (only in countries with endemic CBPP) - No effective treatment available - Depopulation of all infected and in-contact cattle - Regular serological testing of at-risk cattle, slaughter cattle that test positive
Foot and Mouth Disease	**Aerosol** **Direct Contact** - Cattle-to-Cattle (saliva, milk, urine, reproductive tissues or fluids, tears, blood and feces) **Oral** - Ingesting infected product Fomites	- Strict quarantine controls - Infected zone should extend a minimum of 6.2 miles (10km) beyond the presumptive or confirmed infected premises.	- Depopulation of all infected and in contact Animals - Vaccine is available, must be repeated in intervals - Barrier or ring vaccination is recommended with stamping out infected and at risk cattle
Rift Valley Fever (RVF) 30 days infective period	**Vector** - Mosquito	- RVF virus has been found in raw milk and semen - Infection zone should extend a minimum of 10 km from infected premises. Other factors determining infection zone include livestock concentrations, the weather and prevailing winds - Suspected cattle should be quarantine until trace backs are completed	- Vaccine is available (only in countries with endemic CBPP) - No effective treatment available - Destruction of all susceptible animals on an IP is likely only on the index farm.
Rinderpest 21 days incubation period	**Direct Contact** - Cattle-to-Cattle (saliva, milk, urine, reproductive tissues or fluids, tears, blood and feces) **Fomites** (Limited) - i.e. Feed troughs and watering tanks	- A control area CA will form a buffer zone of at least 6.2 miles (10 km) between the infected and free areas, and movement into and out of the area will be controlled	- No effective treatment available - Depopulation of all infected and in contact Animals - Vaccine is available, must be repeated in intervals - Barrier or ring vaccination is recommended with stamping out infected and at risk cattle

[1] Center for Food Security and Public Health, Iowa State University, *Animal Disease Index*, 2008.
[2] The World Organization for Animal Health, *Terrestrial Animal Health Code*, 20098. http://www.oie.int/eng/normes/Mcode/en_sommaire.htm
[3] AUSVETPLAN Australian Veterinary Emergency Plan, Disease Strategies, http://www.animalhealthaustralia.com.au/aahc/programs/eadp/ausvetplan/disease-strategies.cfm.
[4] United States Animal Health Association, Committee on Foreign and Emerging Diseases. *Foreign Animal Diseases*, 2008.
[5] USDA, APHIS *Publications* http://www.aphis.usda.gov/publications/animal_health/index_ah_c.shtml.

Appendix B Animal Diseases Significant to Cattle & Sheep

Animal Diseases Significant to Cattle Table II				
Animal Disease [2]	**Tracing Recommendations**[1]	**Decontamination Recommendations**[1,2] **(See Appendix I for Approved Disinfectants)**	**Restocking / Surveillance Recommendations**	**Wildlife / Vector Control**
Contagious Bovine Pleuropneumonia (CBPP) 6 months incubation period	- Trace backs should extend back 6 months from first signs of disease - All suspected cattle one year or older should be individually identified	- Building used to house livestock, dairies, yards should be decontaminated. - Household bleach is an effective disinfectant CBPP. - All surfaces should be cleaned. - Remove manure, bedding and feed.	- Suspected species serological tested on two occasions at 2 and 8 weeks - Slaughter cattle that test positive	N/A
Foot and Mouth Disease 14 days incubation period	- Trace-backs minimum of 14 days from first appearance of clinical signs - Trace-forward 21 days before first case to time of quarantine.	- Premises equipment, materials & buildings Should be cleaned and disinfected. - Road surfaces and yards adjacent and within The infected premises should be sprayed - If decontamination can't occur quickly and effectively, then equipment, materials should be destroyed. - Steps should be taken to prevent generation and dispersal of infective dusts and aerosols.	- Sentinel cattle restocked 30 days after decontamination, contact with all parts of premises and objects. Inspected by Vet every 3 days. - Sentinel cattle maintained on Premises for 60 days	Rodent Controls Feral Pigs
Rift Valley Fever (RVF) 30 days infective period	- Trace backs should extend back 30 days - Tracing should include: cattle products- milk, semen, blood and embryos, and people.	- Building used to house livestock, dairies, yards should be decontaminated - Fumigation of enclosed premises with paraformaldehyde. - Particular care should be taken to decontaminate blood-contaminated areas.	- Use of sentinel animals is dependent on Transovarial transmission of vector- in absence of this, 6 weeks after decontamination should be sufficient. - Once restocking occurs, serological Monitoring at monthly intervals for 1 year and quarterly for the next 2 years.	Vector Control
Rinderpest 21 days incubation period	- Trace-back of animals, people and equipment should extend back 21 days before detection of first clinical case on the IP. - Trace-forward 21 days before first case to time of quarantine.	- Premises, equipment and clothing be cleaned on infected premises. - Decontaminated follows using sodium or calcium hypochlorite, or sodium hydroxide or sodium carbonate. - Feces and effluents should be treated with sodium carbonate, before they are burned or or buried.	- Restocking of cattle 150 days after decontamination and cleaning of IP. - Random sampling of IP 1 month after restocked and then 2 months later.	If found in feral animals, a policy of search and depopulation will be recommended.

[1] Center for Food Security and Public Health, Iowa State University, *Animal Disease Index*, 2008.
[2] The World Organization for Animal Health, *Terrestrial Animal Health Code*, 2008. http://www.oie.int/eng/normes/Mcode/en_sommaire.htm
[3] AUSVETPLAN Australian Veterinary Emergency Plan, Disease Strategies, http://www.animalhealthaustralia.com.au/aahc/programs/eadp/ausvetplan/disease-strategies.cfm
[4] United States Animal Health Association, Committee on Foreign and Emerging Diseases. *Foreign Animal Diseases*, 2008.
[5] USDA, APHIS *Publications* http://www.aphis.usda.gov/publications/animal_health/index_ah_c.shtml

Appendix B Animal Diseases Significant to Cattle & Sheep

Animal Diseases Significant to Sheep Table II			
Animal Disease [2]	**Mode of Transmission[1,5]**	**Recommended Quarantine and Movement Controls[1,3,4]**	**Treatment Options and Vaccine Availability[5]**
Foot and Mouth Disease	**Aerosol** **Direct Contact** - Sheep- to-Sheep (saliva, milk, urine, tears, blood and feces) **Oral** - Ingesting infected product Fomites	- Strict quarantine controls - Infected zone should extend a minimum of 6.2 miles (10km) beyond the presumptive or confirmed infected premises.	- Depopulation of all infected and in contact Animals - Vaccine is available, must be repeated in intervals - Barrier or ring vaccination is recommended with stamping out infected and at risk sheep
Peste des Petits Ruminants 2 to 10 days incubation period	**Aerosol** - Cough from infected animal **Direct Contact** - Sheep-to-Sheep (saliva, milk, urine, tears, blood and feces) **Fomites** (for a short time) - Water troughs, bedding	- Strict quarantine controls - Infected zone should include all or part of property where sheep existed. - 30 days quarantine and movement controls for suspected premises.	- Depopulation of all infected and in contact Animals - Vaccine is available - Barrier or ring vaccination is recommended with stamping out infected and at risk sheep
Rift Valley Fever (RVF) 30 days infective period	**Vector** - Mosquito	- RVF virus has been found in raw milk and semen - Infection zone should extend a minimum of 10 km from infected premises. Other factors determining infection zone include livestock concentrations, the weather and prevailing winds - Suspected cattle should be quarantine until trace backs are completed	- Vaccine is available (only in countries with endemic CBPP) - No effective treatment available - Destruction of all susceptible animals on an IP is likely only on the index farm.
Sheep & Goat Pox 4 to 14 day incubation period	**Aerosol (short distance)** - Nasal secretions and saliva from infected animal **Direct Contact** Sheep-to-Sheep (saliva, milk, urine, tears, blood and feces) **Fomites** **Vector** - Insects (over short distances)	- Strict quarantine controls - Infected zone should include extend a minimum of 6.2 miles (10km) beyond the presumptive or confirmed infected premises. - 21 days quarantine and movement controls for infected premises.	- Depopulation of all infected and in contact Animals - Vaccine is available - Barrier or ring vaccination is recommended with stamping out infected and at risk sheep

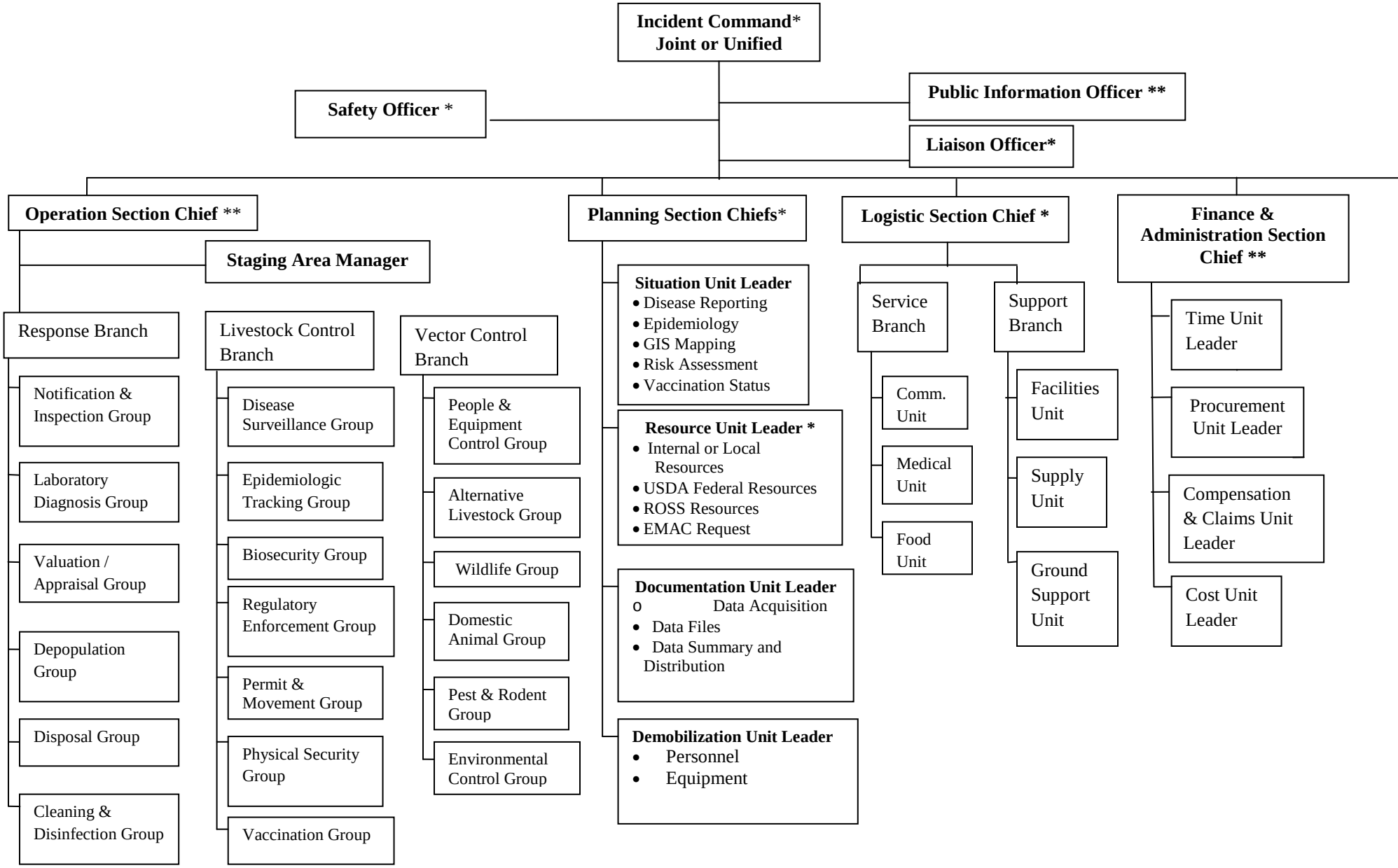
[1] Center for Food Security and Public Health, Iowa State University, *Animal Disease Index*, 2008.
[2] The World Organization for Animal Health, *Terrestrial Animal Health Code*, 2008. http://www.oie.int/eng/normes/Mcode/en_sommaire.htm
[3] AUSVETPLAN Australian Veterinary Emergency Plan, Disease Strategies, http://www.animalhealthaustralia.com.au/aahc/programs/eadp/ausvetplan/disease-strategies.cfm
[4] United States Animal Health Association, Committee on Foreign and Emerging Diseases. *Foreign Animal Diseases*, 2008.
[5] USDA, APHIS *Publications* http://www.aphis.usda.gov/publications/animal_health/index_ah_c.shtml

Appendix B Animal Diseases Significant to Cattle & Sheep

Animal Diseases Significant to Sheep Table II				
Animal Disease [2]	**Tracing Recommendations**[1]	**Decontamination Recommendations**[1,2] **(See Appendix I for Approved Disinfectants)**	**Restocking / Surveillance Recommendations**	**Wildlife / Vector Control**
Foot and Mouth Disease 14 days incubation period	- Trace-backs minimum of 14 days from first appearance of clinical signs - Trace-forward 21 days before first case to time of quarantine.	- Premises equipment, materials & buildings should be cleaned and disinfected. - Road surfaces and yards adjacent and within the infected premises should be sprayed - If decontamination can't occur quickly and effectively, then equipment, materials should be destroyed. - Steps should be taken to prevent generation and dispersal of infective dusts and aerosols.	- Sentinel sheep restocked 30 days after decontamination, contact with all parts of premises and objects. Inspected by Vet every 3 days. - Sentinel sheep maintained on premises for 60 days	Rodent Controls Feral Pigs
Peste des Petits Ruminants 2 to 10 day incubation period	- - Trace-forward 30 days before first case	- Vehicles hauling infected and/or suspected animals will be disinfected - Persons leaving the infected premises will be decontaminated - Equipment, buildings, pens and other fomites will be disinfected and cleaned.	- Sentinel restocking is unnecessary because the virus will survive for only a short period in the environment. - Restocking can occur safely 15 days after destruction and disposal of the last clinical case.	N/A
Rift Valley Fever (RVF) 30 days infective period	- Trace backs should extend back 30 days - Tracing should include: sheep products- milk, semen, blood and embryos, and people.	- Building used to house livestock, dairies, yards should be decontaminated - Fumigation of enclosed premises with paraformaldehyde. - Particular care should be taken to decontaminate blood-contaminated areas.	- Use of sentinel animals is dependent on transovarial transmission of vector in a absence of this, 6 weeks after decontamination should be sufficient. - Once restocking occurs, serological monitoring at monthly intervals for 1 year and quarterly for the next 2 years.	Vector Control
Sheep & Goat Pox 4 to 14 day incubation period	- Trace-backs minimum of 21 days from first appearance of clinical signs - Tracing must be thorough and detailed, because the SGP viruses may persist on inanimate materials and survive outside the host for some time.	- All potentially contaminated fleeces and woolpacks must be destroyed preferably buried. - Vehicles hauling infected and/or suspected animals will be disinfected - Persons leaving the infected premises will be decontaminated - Equipment, buildings, pens and other fomites will be disinfected and cleaned. - Disposal of contaminated materials (ie feedstuffs) & carcasses should be prompt	- Sentinel sheep restocked after depopulation and disinfection of premises - Animals to be examined weekly for six weeks. - Repopulation may occur if testing of sentinel animals is negative after six weeks. .	Vector Control

[1] Center for Food Security and Public Health, Iowa State University, *Animal Disease Index*, 2008.
[2] The World Organization for Animal Health, *Terrestrial Animal Health Code*, 2008. http://www.oie.int/eng/normes/Mcode/en_sommaire.htm
[3] AUSVETPLAN Australian Veterinary Emergency Plan, Disease Strategies, http://www.animalhealthaustralia.com.au/aahc/programs/eadp/ausvetplan/disease-strategies.cfm
[4] United States Animal Health Association, Committee on Foreign and Emerging Diseases. *Foreign Animal Diseases*, 2008. [5] USDA, APHIS *Publications* http://www.aphis.usda.gov/publications/animal_health/index_ah_c.shtml

Appendix C ICS Incident Organization Chart for Animal Disease Response



*** Denotes positions to be filed by ECIMT members when the incident's complexity exceeds CDA's capability to manage the incident effectively. Additional positions may be filled by ECIMT as the complexity of an incident increases.**

Appendix D Incident Complexity Worksheet

All-Hazard Incident Complexity Analysis

Incident Name:	**Date:**
Incident Number:	**Time:**

This Complexity Analysis is weighed based on the relevance to Life Safety, Incident Stabilization, and Property Conservation.

Complexity Factors	Check if Pertinent
Impacts to Life, Property, and the Economy	
Urban interface; structures, developments, recreational facilities, or potential for evacuation.	☐
Community and Responder Safety	
Performance of public safety resources affected by cumulative fatigue	☐
Overhead overextended mentally and/or physically	☐
Communication ineffective with tactical resources or dispatch	☐
Incident action plans, briefings, etc. missing or poorly prepared	☐
Resources unfamiliar with local conditions and tactics	☐
Potential Hazardous Materials	
Potential of Hazardous Materials	☐
Weather and other Environmental Influences	
Unique natural resources, special-designation areas, critical municipal watershed, protected species habitat, cultural value sites	☐
Likelihood of Cascading Events	
Variety of specialized operations, support personnel or equipment	☐
Potential Crime Scene (including Terrorism)	
Potential crime scene	☐
Potential of terrorism	☐
Political Sensitivity, External Influences, and Media Relations	
Sensitive political concerns, media involvement, or controversial policy issues	☐
Organizational Performance Values and Product Development	
Non-IAP Products not being developed or deficient.	☐
Area Involved, Jurisdictional Boundaries	
Incident threatening more than one jurisdiction and potential for unified command with different conflicting management objectives.	☐
Availability of Resources	
Operations are at the limit of span of control.	☐
Unable to property staff air operations.	☐
Limited local resources available for initial attack/response	☐
Heavy commitment of local resources to logistical support.	☐
Existing forces worked 12 hours without success.	☐
Percentage Score	**%**
If 10% or lower look at going to or staying at Type 4 Team.	
If 10 % to 20% maintain or go to Type 3 Team	
If greater than 20% increase to Type 2 Team or additional overhead	

Prepared By	**Date:**	**Time:**

Source: Todd Manns, Planning Chief, Eastern Colorado Incident Management Team

Appendix E PPE Guidance for Zoonotic and Non-Zoonotic Diseases

Personal Protective Equipment Guidelines for Colorado Department of Agriculture Employees																
Environment	Zoonotic Disease not Diagnosed in the U.S.		Zoonotic Disease Diagnosed in the United States													
			Suspect Disease Outbreak Investigation			Confirmed Zoonotic Disease Diagnosis – Emergency Response Activities										
						General Operations Areas Surveillance		Near or Contact Premises Surveillance		Biological Control Area Surveillance		Biological Control Area Activity				
Equipment	Routine Surveil-lance	Suspect Disease Outbreak Investiga-tion	Routine Surveillance	Outdoor Environ-ment	Indoor Environ-ment	Outdoor Environ-ment	Indoor Environ-ment	Outdoor Environ-ment	Indoor Environ-ment	Outdoor Environ-ment	Indoor Environ-ment	Indoor Depopulation Preparation	Indoor Depopulation Re-Entry CO2 & CO2 Level Testing	Routine Surveillance Operations	Outdoor Environ-ment	Any Cleaning and/or Disinfection Activity
Coveralls, Work Uniforms, etc.	X															
Tyvek Coveralls		X	X			X		X		X		X	X			
Tychem Coveralls														X	X	X
Exam gloves (heavy Disposable)	X	X	X	X	X	X	X	X	X	01	X plus	X plus	X plus	X plus	X plus	X plus
Rubber Glovers (heavy duty)											X	X	X	X	X	X
N-95 or N-100 Filtering Face		X	X	X	X plus	X	X	X plus	X plus	X plus					X plus	
Goggles (indirect vented)**				+/-	X or		+/-	X or	X or	X or					X or	
Full-face APR w/ N-100 Canister					X			X	X	X	X	X		X	X	X
Self-contained breathing apparatus SCBA ***													X			
Boot Covers (Disposable)	+/- OR	+/- OR	+/- OR			+/- OR	+/- OR									
Rubber Boots	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

* Examples of zoonotic disease with higher transmission risk would include influenza in swine or other non-avian species, anthrax, plague and tularemia, among others.

** A separate table has been developed for avian influenza. See HPAI PPE Guidelines.

Appendix E PPE Guidance for Zoonotic and Non-Zoonotic Diseases

Personal Protective Equipment Guidelines for Colorado Department of Agriculture Employees Non- Zoonotic Animal Disease Incident										
Environment	Suspect Disease not Diagnosed in the U.S.		Suspect Disease Diagnosed in the United States							
			Suspect Disease Outbreak Investigation	Confirmed Diagnosis of Suspect Disease – Emergency Response Activities						
				General Operations Areas Surveillance	Near or Contact Premises Surveillance	Biological Control Area Surveillance	Biological Control Area Activity			
Equipment	Routine Surveillance	Suspect Disease Outbreak Investigation	Routine Surveillance	Routine Surveillance Operations	Routine Surveillance Operations	Routine Surveillance Operations	Indoor Depopulation Preparation	Indoor Depopulation Re-Entry CO2 & CO2 Level Testing	Routine Surveillance Operations	Any Cleaning and/or Disinfection Activity
Coveralls, Work Uniforms, etc.	**X**									
Tyvek Coveralls		**X**	X	X	X	X	X	X		
Tychem Coveralls									X	**X**
Exam gloves (heavy Disposable)	**X**	**X**	X	X	X	X plus	X plus	X plus	X plus	**X plus**
Rubber Glovers (heavy duty)						X	X	X	X	**X**
N-95 or N-100 Filtering Face piece*		**X**	X	X	X	X	X		X	**X plus**
Goggles (indirect vented)**										**X or**
Full-face APR with N-100 Canister										**X**
Self-contained breathing apparatus SCBA ***								X		+/-
Boot Covers (Disposable)	**+/- or**	**+/- or**	**+/- or**	**+/- or**						
Rubber Boots	**X**	**X**	X	X	X	X	X	X	X	**X**

***** Filtering face pieces are recommended to avoid transmission of a disease agent to other physical locations via the responders respiratory system as can occur with agents such as the Foot and Mouth virus.

**Goggles /full race piece maybe considered for dust control in any location /activity and should routinely be used in cleaning and disinfection activities.

*** SCBA should be used in altered environments such as gas euthanasia or ihigh risk confined space such as manure pits.

Appendix F Regulatory Communication Network

County Emergency Managers of Colorado Current as of January 2011				
Colorado County	**Emergency Manager**	**Phone Number (24-Hour)**	**Fax Number**	**Email**
Adams	Heather McDermott	720-322-1400	720-322-1404	hmcdermott@co.adams.co.us
Alamosa	Pet Magee	719-589-5807	719-587-0264	pete_magee@qwestoffice.net
Arapahoe	Lt. Greg Palmer	303-795-4711	720-874-4158	GPalmer@co.arapahoe.co.us
Archuleta	Drew Petersen	970-263-2131	970-731-4800	dpetersen@archuletacounty.org
Baca	Riley Frazee	719-523-4511	719-523-6584	riley.frazee@seregion.com
Bent	Randy Freed	719-456-1363	719-456-0476	randyf@bentcounty.net
Boulder	Mike Chard	303-441-4444	303-441-3884	mchard@bouldercounty.org
Broomfield	Kent Davies	303-438-6400	720-887-2001	kdavies@ci.broomfield.co.us
Chaffee	Lisa Ortega	719-539-2596	719-539-7442	lortega@chaffeecounty.org
Cheyenne	Darcy Janssen	719-767-5633	719-346-8542	janssen@wildblue.net
Clear Creek	Kathleen Krebs	303-679-2393	303-679-2440	kkrebs@co.clear-creek.co.us
Conejos	Rodney King	719-589-5804	719-376-5661	rodneykk@hotmail.com
Costilla	Matthew Valdez	719-672-3302	719-672-3003	Mathew.Valdez@costillacounty.net
Crowley	Larry Reeves	719-267-5555 x1	719-267-3114	lreeves@crowleycounty.net
Custer	Christe Feldmann	719-783-2270	719-783-9085	ccoem@centurytel.com
Delta	Rob Fiedler	303-640-9999	970-874-2014	fiedler@deltacounty.com
Denver	Daniel Alexander	303-640-9999	720-865-7691	daniel.alexander@denvergov.org
Dolores	Todd Parisi	970-677-2500	970-677-2880	dcoem@yahoo.com
Douglas	Fran Santagata	303-660-7500	303-814-8790	fsantagata@dcsheriff.net
Eagle	Barry Smith	970-479-2201	970-328-8694	barry.smith@eaglecounty.us
Elbert	LaRiea Thompson	303-805-6131	303-805-6159	LaRiea.Thompson@elbertcounty-co.gov
El Paso	Jim Reid	719-390-5555	719-575-8591	
Fremont	Steve Morrisey	719-276-5555	719-276-7304	steve.morrisey@fremontco.com
Colorado Department of Emergency Management. http://www.dola.state.co.us/dem/localem.htm. Jan 2011.				

County Emergency Managers of Colorado (Cont.) Current as of January 2011				
Colorado County	**Emergency Manager**	**Phone Number (24-Hour)**	**Fax Number**	**Email**
Garfield	Chris Bornholdt	970-625-8095	970-945-6430	cbornholdt@garfield-county.com
Gilpin	George Weidler	303-582-5500		gweidler@co.gilpin.co.us
Grand	Trevor W. Denney	970-887-2732		tdenney@co.grand.co.us
Gunnison	Scott Morrill	970-641-8000	970-641-7693	smorrill@gunnisoncounty.org
Hinsdale	Jerry Gray	970-641-8000	970-944-2630	grayj@lakecity.net
Huerfano	Diego A. Bobian	719-989-8220		dbobian@huerfano.us
Jackson	Kent Crowder	970-723-4242	970-723-4706	
Jefferson	James (Tim) McSherry	303-277-0211	303-271-4905	jmcsherr@jeffco.co.us
Kiowa	Chris Sorensen	719-438-5411	719-438-5503	chris@kiowaoem.com
Kit Carson	Darcy Janssen	719-346-8538	719-349-8542	janssen@wildblue.net
Lake	Mike McHargue	719-486-1249	719-486-0139	mikemchargue@hotmail.com
La Plata	Butch Knowlton	970-385-2900	970-382-6272	knowltonbk@co.laplata.co.us
Larimer	Erik Nilsson	970-416-1985	970-498-9203	nilssoed@co.larimer.co.us.
Las Animas	Bill Cordova	719-846-2211	719-845-2598	bcordova@amigo.net
Lincoln	Kenneth Morrison	719-743-2426	719-743-2280	lcadmin@lincolncountyco.us
Logan	Bob Owens	970-522-3512	(970) 521-0632	Owens@sterlingcolo.com
Mesa	Andrew Martsolf	970-250-1279		andrew.martsolf@mesacounty.us
Mineral	William Fairchild	719-658-2600	719-658-2764	mincosheriff@centurytel.net
Moffat	Tom Soos	970-824-6501	970-826-2423	tom.soos@thmcraig.org
Montezuma	Doug Parker	970-565-8441	970-565-3991	dparker@so.montezuma.co.us
Montrose	Ike Holland	970-252-4010	970-249-7761	iholland@montrosecounty.net
Morgan	Steve Enfante	970-867-8531	970-867-7344	senfante@co.morgan.co.us
Otero	Chris Johnson	719-384-5941	719-384-2272	cjohnson@oterogov.org
Colorado Department of Emergency Management. http://www.dola.state.co.us/dem/localem.htm. Jan 2011.				

County Emergency Managers of Colorado (Cont.) Current as of January 2011				
Colorado County	**Emergency Manager**	**Phone Number (24-Hour)**	**Fax Number**	**Email**
Ouray	Alan Staehle	970-252-4020		awsouray@aol.com
Park	Brain Foltz	719-836-4121	719-836-4156	bfoltz@parkco.us
Phillips	Randy Schafer	970-854-3144	970-854-3811	rschafer@pctc.net
Pitkin	Ellen Anderson	970-920-5300	970-920-5307	ellena@co.pitkin.co.us
Prowers	Staffon Warn	719-336-3977	719-336-4883	staffon.warn@prowerscounty.net
Pueblo	Karen Ashcraft	719-583-6250	719-583-6218	ashcraft@co.pueblo.co.us
Rio Blanco	John Hutchins	970-878-9620	970-878-3127	rbcem@co.rio-blanco.co.us
Rio Grande	Vic Webb	719-657-4000		rgcoem@riograndecounty.org
Routt	Bob Struble	970-846-1552		bstruble@co.route.co.us
Saguache	Jim Felmlee	719-655-2525		jfelmlee@amigo.net
San Juan	Kristina Maxfield	970-387-5531	970-387-0251	sanjcoem@yahoo.com
San Miguel	Jennifer Dinsmore	970-728-1911	970-728-9206	jenniferd@sanmiguelcounty.org
Sedgwick	Mark Turner	970-474-3355	970-474-2607	ptsports57@yahoo.com
Southern Ute Indian Tribe	Kathie Gurule	970-563-4401	970-563-0215	kgurule@southern-ute.nsn.us
Summit	Joel Cochran	970-453-2232 ext 336	970-453-7329	jcochran@co.summit.co.us
Teller	Steve Steed	719-687-9652	719-687-1202	steeds@co.teller.co.us
Ute Mountain Ute Indian Tribe	John Trocheck	970-565-3706	970-564-5443	Jtrocheck@utemountain.org
Washington	Mike McCaleb	970-345-2244	970-345-2701	mmccaleb@co.washington.co.us
Weld	Roy Rudisill	970-304-4015 x2700	970-304-6543	rrudisill@co.weld.co.us
Yuma	Roger Brown	970-848-0464	970-848-0160	yumaoem@wycomm.org
Colorado Department of Emergency Management. http://www.dola.state.co.us/dem/localem.htm. Jan 2011				

County Sheriffs of Colorado (Cont.)

Current as of January 2011

Colorado County	Sherriff	Phone Number
Adams	Doug Darr	303-655-3216
Alamosa	David Stong	719-589-6608
Arapahoe	J. Grayson Robinson	720-874-4165
Archuleta	Peter Gonzales	970-264-2131
Baca	David Campbell	719-523-4511
Bent	David Encinias	719-456-0795
Boulder	Joseph Pelle	303-441-4605
Broomfield*	Chief Tom Deland	303-438-6400
Chaffee	William Palmer Jr.	719-539-2814
Cheyenne	Ken Putman	719-767-5633
Clear Creek	Don Krueger	303-569-3251 ext. 376
Conejos	Robert Gurule	719-376-2196
Costilla	Amos Medina	719-672-3302
Crowley	Miles Clark	719-267-5555
Custer	Fred Jobe	719-783-2270
Delta	Fred McKee	970-874-2000
Denver*	Chief William Lovingier	720-913-2000
Dolores	Jerry Martin	970-677-2257
Douglas	David Weaver	303-660-7541
Eagle	Joseph D. Hoy	970-328-6611
Elbert	Shayne Heap	303-621-2027
El Paso	Terry Maketa	719-520-7204
Fremont	Jim Beicker	719-276-5555
Garfield	Lou Vallario	970-945-0453

County Sheriffs of Colorado. **http://www.csoc.org/counties.asp**. **Jan 2011**
*Chief of Police for Bloomberg and Denver Counties.

County Sheriffs of Colorado (Cont.)		
Current as of January 2011		
Colorado County	**Sheriff**	**Phone Number**
Gilpin	Bruce Hartman	303-582-1060
Grand	Rodney Johnson	970-725-3344
Gunnison	Rickard Bescker	970-641-1113
Hinsdale	Ronald Bruce	970-944-2291
Huerfano	Bruce Newman	719-738-1600
Jackson	Scott Fischer	970-723-4242
Jefferson	Ted Mink	303-271-5305
Kiowa	Forrest Frazee	719-438-5306
Kit Carson	Tom Ridnour	719-346-8934
Lake	Ed Holte	719-486-1249
La Plata	Duke Schirard	970-247-1157
Larimer	Justin Smith	970-498-5100
Las Animas	James Casias	719-846-2211
Lincoln	Tom Nestor	719-743-2426
Logan	Brett Powell	970-522-2578
Mesa	Stan Hilkey	970-244-3500
Mineral	Ronald Bruce	719-658-2600
Moffat	Tim Jantz	970-824-4495
Montezuma	Dennis Spruell	970-565-8452 x303
Montrose	Rick Dunlap	970-249-6606
Morgan	James E. Crone	970-867-2461
Otero	James Casias	719-384-5941
Ouray	Dominic Mattivi	970-325-7272
Park	Fred Wegener	719-836-2494
Phillips	Charles Urbach	970-854-3644

County Sheriffs of Colorado. **http://www.csoc.org/counties.asp**. **Jan 2011.**

County Sheriffs of Colorado (Cont.)

Current as of January 2011

Colorado County	Sheriff	Phone Number
Pitkin	Joe Disalvo	970-920-5300
Prowers	James Faull	719-336-8050
Pueblo	Kirk Taylor	719-583-6125
Rio Blanco	Si H. Woodruff	970-878-5023
Routt	Garrett Wiggins	970-879-1090
Saguache	Mike Norris	719-655-2544
San Juan	Sue Kurtz	970-728-4442
Sedgwick	Randy Peck	970-474-3355
Summit	Sheriff John Minor	970-453-2232
Teller	Mike Ensminger	719-687-9652
Washington	Larry Kuntz	970-345-2244
Weld	John Cooke	970-356-4015 x2801
Yuma	Chad Day	970-332-4805

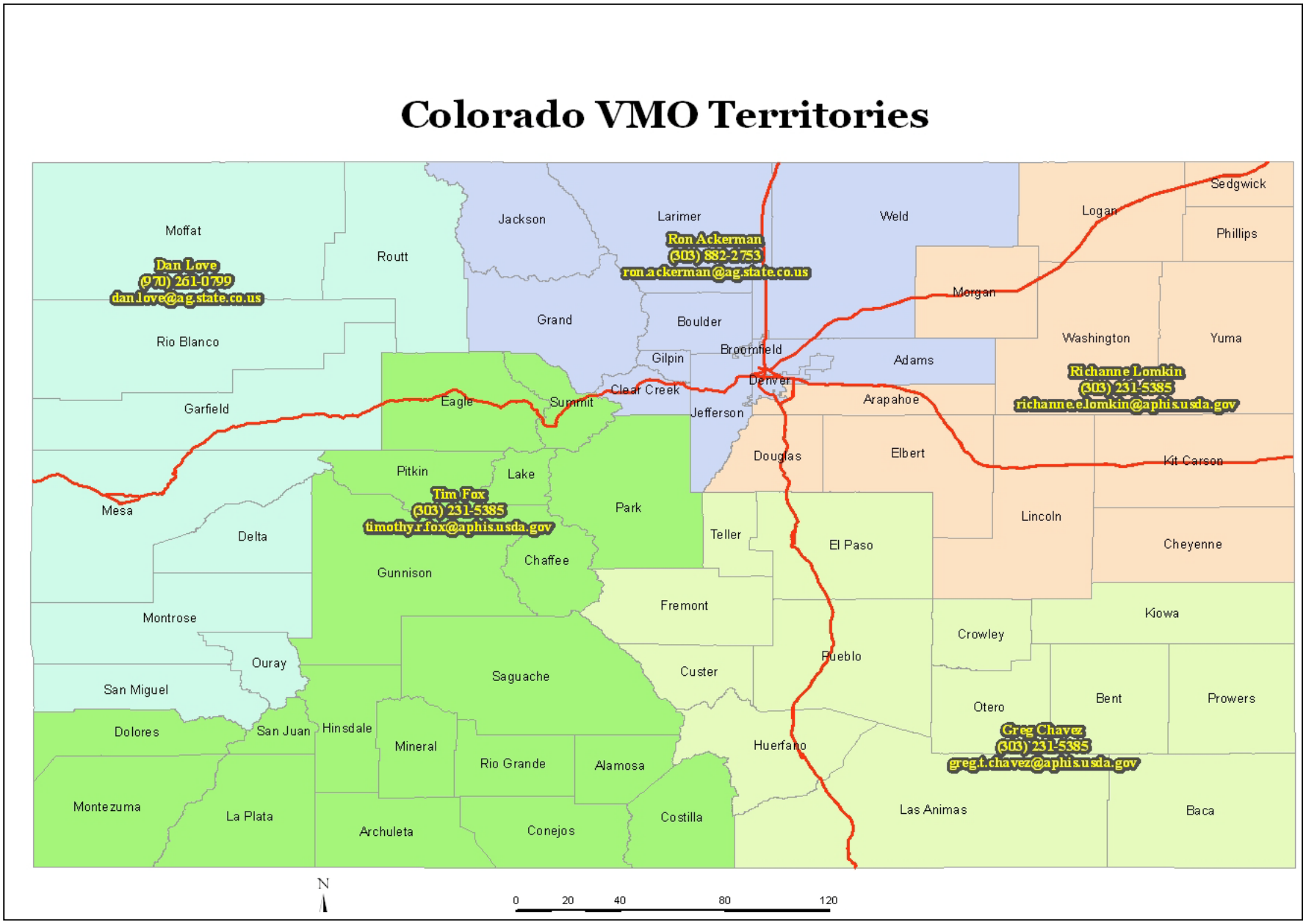
County Sheriffs of Colorado. **http://www.csoc.org/counties.asp**. **Jan 2011**

Colorado County Extension Offices Current as of October 2009		
Colorado County	**Phone Number**	**Address**
Adams	(303) 637-8100	9755 Henderson Road, Brighton, CO 80601
Alamosa	(719) 852-7381	1899 E. Hwy 160, Monte Vista, CO 81144
Arapahoe	(303) 730-1920	5804 South Datura, St. Littleton, CO 80120
Archuleta	(970) 264-5931	344 Highway 84, Pagosa Springs, CO 81147
Baca	(719) 523-6971	772 Colorado St., Springfield, CO 81073
Bent	(719) 456-0764	1499 Ambassador Thompson BLVD, Las Animas, CO 81054
Boulder	(303) 678-6238	9595 Nelson Road, Longmont, CO 80501
Broomfield	(720) 887-2286	6650 W. 120th Ave., Broomfield, CO 80020
Chaffee	(719) 539-6447	10165 County Road 120, Salida, CO 81201
Cheyenne	(719) 767-5716	425 South 7th W., Cheyenne Wells, CO 80810
Conejos	(719) 852-7381	1899 E. Hwy 160, Monte Vista, CO 81144
Costilla	(719) 852-7381	1899 E. Hwy 160, Monte Vista, CO 81144
Crowley	(719) 267-5243	601 North Main Street, Ordway, CO 81063
Custer	(719) 783-2514	205 South 6th, Westcliffe, CO 81252
Delta	(970) 874-2195	525 Dodge Street, Delta, CO 81416
Denver	(720) 913-5270	888 E. Iliff Avenue, Denver, CO 80210
Dolores	(970) 677-2283	409 North Main Street, Dove Creek, CO 81324
Douglas	(720) 733-6930	410 Fairgrounds Road, Castle Rock, CO 80104
Eagle	(970) 328-8630	441 Broadway, Eagle CO 81631
El Paso	(719) 520-7675	305 S. Union Blvd., Colorado Springs, CO 80910
Elbert	(719) 541-2361	325 Pueblo, Simla, CO 80835
Elbert Branch Office	(303) 621-3162	P.O. Box 189, Kiowa, CO 80117
Fremont	(719) 276-7390	615 Macon Avenue, Canon City, CO 81212
Garfield	(970) 625-3969	1001 Railroad Avenue, Rifle, CO 81650
Colorado State University Extension, http://www.ext.colostate.edu/cedirectory/countylist.cfm Oct. 2009		

Colorado County Extension Offices Current as of October 2009		
Colorado County	**Phone Number**	**Address**
Gilpin	(303) 582-9106	230 Norton Drive, Blackhawk, CO 80422
Grand	(970) 724-3436	210 11th Street, Extension Hall, Kremmling, CO 80459
Gunnison	(970) 641-1260	275 South Spruce, Gunnison, CO 81230
Huerfano	(719) 738-2170	928 Russell Ave, Walsenburg, CO 81089
Jackson	(970) 723-4298	312 5th Street, Walden, CO 80480
Jefferson	(303) 271-6620	15200 West Sixth Avenue, Golden, CO 80401
Kiowa	(719) 438-5321	County Courthouse - 1305 Goff, Eads, CO 81036
Kit Carson	(719) 346-5571	251 16th Street, Burlington, CO 80807
La Plata	(970) 247-4355	2500 Main Ave., Durango CO 81301
Larimer	(970) 498-6000	1525 Blue Spruce Drive, Fort Collins, CO 80524
Las Animas	(719) 846-6881	2200 North Linden Ave, Trinidad, CO 81082
Lincoln	(719) 743-2542	326 8th St., Hugo, CO 80821
Logan	(970) 522-3200	508 South 10th Ave, Sterling, CO 80751
Mesa	(970) 244-1834	2775 Highway 50, Grand Junction, CO 81502
Mineral	(719) 852-7381	1899 E. Hwy 160, Monte Vista, CO 81144
Moffat	(970) 824-9180	539 Barclay Street, Craig CO 81625
Montezuma	(970) 565-3123	109 West Main Street, Cortez, CO 81324
Montrose	(970) 249-3935	1001 North 2nd, St. Montrose, CO 81401
Morgan	(970) 542-35	914 E. Railroad, Ave, Fort Morgan, CO 80701
Otero	(719) 836-42	411 North 10th St. Rocky Ford, CO 81067
Park	(719) 836-4293	880 Bogue St. Fairplay, CO 80440
Phillips	(970) 854-3616	127 East Denver, Holyoke, CO 80734
Prowers	(719) 336-7734	1001 S. Main St., Pueblo, CO 81003
Pueblo	(719) 583-6566	212 W. 12th St. Pueblo, CO 81003
Colorado State University Extension, http://www.ext.colostate.edu/cedirectory/countylist.cfm Oct. 2009		

Colorado County Extension Offices Current as of October 2009		
Colorado County	**Phone Number**	**Address**
Rio Blanco	(970) 878-9490	779 Sulphur Creek Road, Meeker, CO 81641
Rio Blanco Branch Office	(970) 675-2417	17497 Highway 64, Rangely, CO 81648
Rio Grande-Saguache	(719) 852-7381	1899 E. Hwy 160, Monte Vista CO 81144
Routt	(970) 879-0825	136 6th St. Steamboat Springs, CO 80477
San Miguel	(970) 327-4393	1120 Summit, Norwood CO 81423
Sedgwick	(970) 474-3479	315 Cedar, Julesburg, CO 80737
SLV Area Office	(719) 852-7381	1899 E. Hwy 160 Monte Vista, CO 81144
Summit	(970) 668-3595	37 Peak One Dr., CR1005, Frisco, CO 80443
Teller	(719) 689-2552	112 North A St. Cripple Creek, CO 80813
Washington	(970) 345-2287	181 Birch Avenue Akron, CO 80720
Weld	(970) 304-6535	525 North 15th Ave., Greeley CO 80631
Yuma	(970) 332-4151	310 Ash Street, Wray, CO 80758
Colorado State University Extension, http://www.ext.colostate.edu/cedirectory/countylist.cfm Oct. 2009		

Appendix G Colorado VMO Territories



Source: Colorado Department of Agriculture, Animal Industry Division

Appendix H FADI Collection Data Form Sample

Foreign Animal Investigation Form

FADD Name and Phone: _____ Date: _____ FAD Control #: _____

Owner Information	Premises Information
Name: _____	Address: _____
Address: _____	City: _____
City, State, Zip: _____	State, Zip: _____
Type of Operation: _____	County: _____
Phone: _____	Latitude: _____
County: _____	Longitude: _____

Primary Species on Premises Initiating compliant: _____

Primary Species on Premises if different from above: _____

Number of animals showing lesions by species: (use separate page for additional animals or use comments lines)

Species:	# Animals:	# Sick	Description/ID:	Samples Submitted:
1. _____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____

Please describe any movements of affected animals from the premises over the past month _____
_____

Number & type of other susceptible species on premises: _____

Private Practitioner: _____ Clinic Name: _____

Phone: _____ Cell Phone: _____

Has practitioner collected samples? ___Yes_____No If yes, what type? _____

Has FADD collected Samples: ____Yes ____ No If yes, what type? _____

FedEx Tracking #: _____

What lab were samples sent to? ____ FADDL ____ NVSL Date Shipped: _____

Onset date: _____ Follow-up Date: _____

Quarantine date: _____ Quarantine number: _____

Count down date: _____ Quarantine release date: _____

Comments: _____
_____
_____
_____
_____
_____

Appendix I EPA Approved Disinfectants for Highly Pathogenic Diseases

Environmental Protection Agency (EPA) Approved Disinfectants for Highly Pathogenic Diseases[1]				
Disease	**Product**	**EPA Regulatory No.**	**Manufacturer**	**Active Ingredient(s)**
Bovine spongiform encephalopathy -- No Products Registered				
Contagious Bovine Pleuropneumonia --- No Products Registered				
Foot and Mouth Disease				
	Low PH Phenolic 256	211-62	Central Solutions, Inc	2-Benzyl-4-chlorophenol o-Phenylphenol
	2-Benzyl-4-chlorophenol o-Phenylphenol	1677-129	Ecolab Inc.	Ethaneperoxoic acid Hydrogen peroxide
	Oxysept LDI	1677-203	Ecolab Inc.	Ethaneperoxoic acid Hydrogen peroxide
	Lonza DC 101	6836-86	Lonza, Inc.	Alkyl dimethyl benzyl ammonium chloride 1-Decanaminium, Ndecyl-N,N-dimethyl-,chloride 1-Decanaminium, N,Ndimethyl-N-octyl-,chloride 1-Octanaminium, N,Ndimethyl-N-octyl-,chloride
	Aseptrol S10-TAB	70060-19	BASF Catalysts, LLC	Sodium chlorite Sodium dichloroisocyanurate dehydrate
	Virkon S	71654-6	DuPont Chemical Solutions Enterprise	Sodium chloride Potassium peroxymonosulfate
Peste des Petits Ruminates – No Products Registered				
Rift Valley Fever – No Products Registered				
Rinderpest – No Products Registered				
Sheep & Goat Pox – No Products Registered				

1 United States Animal Health Association, Committee on Foreign and Emerging Diseases. *Foreign Animal Diseases*, 2008.

Appendix J Local, State and Federal Agencies Roles and Responsibilities

LEAD AGENCY

Colorado Department of Agriculture

The CDA, Animal Industry Division is the lead agency in any livestock health related emergency occurring in Colorado. CDA will respond by using the NIMS protocol. The specific components will be under the joint command of the State Veterinarian and the APHIS AVIC. Their overall responsibility will encompass command and management of the disease event, overseeing the management and dissemination of resources, establishing a communication and information management system and securing supporting technologies. The State Veterinarian and AVIC may use any or all of the following action steps to control and/or eradicate the disease encountered in the event.

- Establish and name incident command.
- In consultation with the APHIS AVIC, determine the scope and level of initial response and initiate a task force.
- Frequently conduct a complexity analysis to assure appropriate command type is in place.
- In consultation with the APHIS AVIC, determine the location and size of hold / quarantine areas.
- Establish quarantine area(s) and issue quarantine orders as needed.
- In consultation with the APHIS AVIC and other agency personnel, strategically assign duties and areas of responsibility to state, deputy-state and federal veterinarians, members of the Colorado veterinary response team, livestock inspectors and animal health technicians.
- Determine appropriate movement restrictions for animals, people, equipment, feed, commodities, and conveyances.
- In collaboration with the CDA, USDA – APHIS, VS, and/or the Incident Management Team and the Public Information Officer(s), prepare information for dissemination to the public, producers, processors and other concerned groups through a Joint Information System or Center.
- CDA will notify Colorado Division of Emergency Management (CDEM) when a livestock disease sample is being sent to the Foreign Animal Disease Diagnostic Lab (FADDL, Plum Island, NY) for analysis and is likely to be a highly contagious or infectious disease or agent of concern.
- Coordinate any 'out-of-state' resource request for equipment and/or personnel through the SEOC utilizing the Emergency Management Assistance Compact (EMAC) system.
- CDA will coordinate with CDEM, USDA, Colorado Department of Transportation (CDOT), Colorado State Patrol (CSP), local jurisdiction emergency managers, law enforcement, and other agencies as needed in enforcing stop movement orders.
- Conduct livestock disease assessments at the site of the event to determine needs and priorities.
- Coordinate state-level livestock disease emergency response and recovery activities.
- Prioritize activities and areas of greatest urgency for state response and recovery personnel in the field.
- CDA will coordinate with USDA, APHIS, VS, Emergency Programs Staff and provide liaison between other federal, state and local organizations when required.

- CDA will develop protocols for state employee worker protection related to incident-specific health and site safety plans, risk (hazard/exposure) assessments and PPE. Such protocols can further serve as guidance to other responders.
- Direct disease investigations, epidemiological investigations and trace outs to determine source of disease and scope of disease outbreak.
- Identify contaminated feed and agricultural products that must be destroyed and disposed of or decontaminated.
- Identify and approve, in collaboration with CDPHE, animal carcass disposal methods & sites.
- Identify and approve, in collaboration with CDPHE, sites for disposal of, contaminated feed, or other items that are contaminated.
- Identify and approve, in collaboration with CDPHE, temporary waste disposal sites for effluent from cleaning and disinfecting stations.
- Coordinate with appropriate organizations for the deployment of inspectors and veterinarians for agricultural response and recovery.
- Establish and/or coordinate appropriate regulatory controls.
- In collaboration with the IC & PIO provide advisories and related public information.
- CDA will coordinate with CSP, county and local law enforcement for site security and related issues.
- Maintain ongoing animal agriculture surveillance of affected communities in order to rapidly identify and address disease-related problems.
- Notify DOW of any wildlife disease threat or involvement.
- Work in close collaboration with the Colorado Brand Board and livestock industry groups as well as major feedlot producers.
- Define clearance and training requirements for temporary employees or support agencies involved in eradication operations.

SUPPORT AGENCIES

Local Government

Since all emergency response begins at the local level, local emergency management officials will be actively involved in the response and will be a key provider of resources for operational missions. Each county has a comprehensive emergency management plan which provides the framework for the jurisdiction's response to emergencies and disasters. Counties, through their assets of County Commissioners, County Extension Offices, county agencies, and other county networks, will utilize their resources and provide an additional line of communication with local farmers, industry groups and the community. Additionally, as part of a coordinated response, local law enforcement officers with assistance from Brand Inspectors and Bureau of Animal Protection Agents may:

- Assist in identifying clean transportations corridors' for moving unaffected livestock and animal food products safely during an animal health incident.
- Provide security in implementing a hold or quarantine order for the infected area.

- Assist in the conduct of a criminal investigation
- Provide Site security and conflict resolution as needed to ensure the safety of veterinarians, inspectors, and all other responders should any conflicts arise.

State Agencies

Colorado Division of Emergency Management may:

- Activate the State Emergency Management Plan and SEOC to support CDA.
- Support CDA by providing statewide coordination among any and all agencies impacted by the event. Assist unit leaders within incident command in acquiring needed resources to include carrying out ROSS and EMAC requests and in general stand in support to the IMT as needed.

Colorado State Patrol (CSP) may:

- Provide law enforcement support and coordination to conduct stop movement orders, traffic checkpoints and roadblocks, enforce stop movement orders and secure quarantined areas and related sites during livestock disease emergencies.
  - Coordinate with local law enforcement agencies to support response and recovery with all available resources.

Colorado Department of Public Health and Environment may:

- Coordinate with CDA if a zoonotic condition exists.
- Support public information efforts.
- Consult with CDA and USDA regarding bio-security issues related to zoonotic diseases.
- Provide veterinary and epizootiologic support to a CDA emergency.
- Assist and collaborate with CDA on subjects such as carcass disposal, cleaning and disinfection and other issues that may influence soil, water, and air quality.
- Liaison with Environmental Protection Agency to mitigate issues that may arise.
- Provide laboratory emergency response and/or surge support.
- Colorado Human Services Department may provide or coordinate mental health staff to assist in crisis counseling efforts.

Colorado Division of Wildlife may:

- Provide disease surveillance and management in free-ranging wildlife and wildlife in zoos, parks, and other natural areas.
- Survey for and/or dispose of contaminated items and wild animals.
- Conduct wild animal inventories in the area of a disease event to identify susceptible species.
- In collaboration with the State Veterinarian, collect wildlife specimens and samples for disease testing to determine presence or absence of disease or transmission of the disease agent or impact of disease on wildlife.

Colorado Department of Transportation may:

- Assist in the movement of state resources during livestock disease emergencies.
- Provide traffic control and routing assistance, barricades, and road monitoring.
- Provide equipment and operators to assist with animal disposal.

Colorado State University (CSU) may:

The College of Veterinary Medicine and Biomedical Sciences (CVMBS) may provide veterinary support and expertise throughout the emergency as requested by CDA. Colorado State University Veterinary Diagnostic Laboratory may provide appropriate diagnostic support services as requested by CDA. Colorado State University Extension may provide, communication and liaison between Incident Command, affected industry groups and local communities during emergencies. Extension Disaster Emergency Network (EDEN) will also be an important resource to enhance CSU Extension's involvement in the response and recovery phase of the incident.

Federal Agencies

Untied States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) may:

- Assist in disease eradication activities including quarantine, investigation, indemnification, slaughter, disposal, cleaning and disinfecting, epidemiology, trace-back, vector control and transportation permitting arrangements and /or in acquiring appropriate contractors to conduct such activities.
- Consult with state and local authorities regarding eradication proceedings.
- Collect, analyze, and disseminate technical and logistical information.
- Issue a declaration of extraordinary emergency.
- Coordinate with state and local agencies to define quarantine and buffer zones.
- Prepare information for dissemination to the public, producers, processors and other concerned groups through the Joint Information Center.
- Allocate funding for indemnifying to the owner(s) of depopulated animals or related property loss.
- Financially support response operations.
- Define restrictions on interstate commerce.

USDA, Food Safety Inspection Service (FSIS)

The FSIS is charged with protecting the Nation's food supply by providing inspectors and veterinarians in meat, poultry, and egg product plants and at ports-of-entry to prevent, detect, and act in response to food safety emergencies. FSIS has developed the infrastructure needed to confront new biosecurity challenges. FSIS may assist state and local authorities in disease eradication activities and/or food-borne illness emergency investigations.

Food and Drug Administration (FDA)

One of FDA's mandates is to protect the public health by assuring the safety of our nation's food supply. FDA also has an important role in prevention and control of contaminated animal feed. FDA may assist state

and local authorities in disease eradication activities and/or food or feed-borne illness emergency investigations.

Federal Bureau of Investigation (FBI)

The FBI is the agency responsible for investigating cases of bio-terrorism or agro-terrorism as a part of the mission of a Joint Terrorism Task Force (JTTF). When food animals are the target of a terrorists attack and evidence suggests a foreign animal disease may have been intentionally introduced or threatened, CDA will notify the CIAC who in turn will coordinate activities with the JTFF within the Denver Office of the FBI.

Environmental Protection Agency (EPA)

The federal agency that may collaborate with CDPHE & CDA on decisions of carcass disposal, cleaning and disinfection and their effect on soil, air and water or the environment in general.

Local Livestock Industry Groups

Serve as liaison on matters relating to livestock industries affected by an animal disease outbreak.

- Identify individuals who may be qualified to assist in disease control efforts.
- Develop a list of qualified appraisers.
- Provide assistance to families affected by an animal disease outbreak.
- Provide support for disease control and eradication activities.
- Provide appropriate information for dissemination to industries and public (through close coordination with CDA and the Public Information Officer).
- Support response and recovery with all available resources.

Appendix K Industry's Role in Emergency Response

Industry will play an important role both in preventing a disease outbreak and in response and recovery efforts of such an event. The following Appendix offers recommendations and actions to improve Continuity of Operations plans for the feedlot industry. In addition, information presented in this Appendix provides producers supplementary information on steps taken in a Foreign Animal Disease Investigation (FADI), information that will be collected during an FADI and clinical signs of FADs significant to cattle and sheep. Specific material provided in this section includes the following.

Foreign Animal Disease Investigation Action Steps / Check list of FAD Information

Flow Chart of a Foreign Animal Disease Investigation

Developing a Site Plan

Biosecurity Plan for Feedlots

Feedlot Biosecurity Best Management Practices Checklist

Feedlot Emergency Animal Disease Action Plan

Livestock Trailer Cleaning and Disinfecting Recommendations

List of FADs Diseases Significant to Cattle

List of FADs Diseases Significant to Sheep

Foreign Animal Disease Investigation Action Steps

1. Contact the State Veterinarian's Office or the USDA Area Veterinarian in Charge

Colorado State Veterinarian:	**Keith Roehr, *DVM***	**(303) 239 - 4161**
Area Veterinarian – in– Charge:	**Roger Perkins, *DVM***	**(303) 231 – 5385**

2. The Colorado State Veterinarian or AVIC will dispatch a Foreign Animal Disease Diagnostician (FADD) to initiate an investigation within 24 hours of the initial notification.

3. The FADD will set up an appointment to visit the premises, assess the disease situation, collect and submit laboratory samples, execute disease control actions if necessary, and file a report with the State Veterinarian and AVIC. See section 4.1 Foreign Animal Disease Investigation for specific FAD protocols.

4. The State Veterinarian and AVIC will assign a priority level to the laboratory submissions which will govern the response of the federal lab(s).

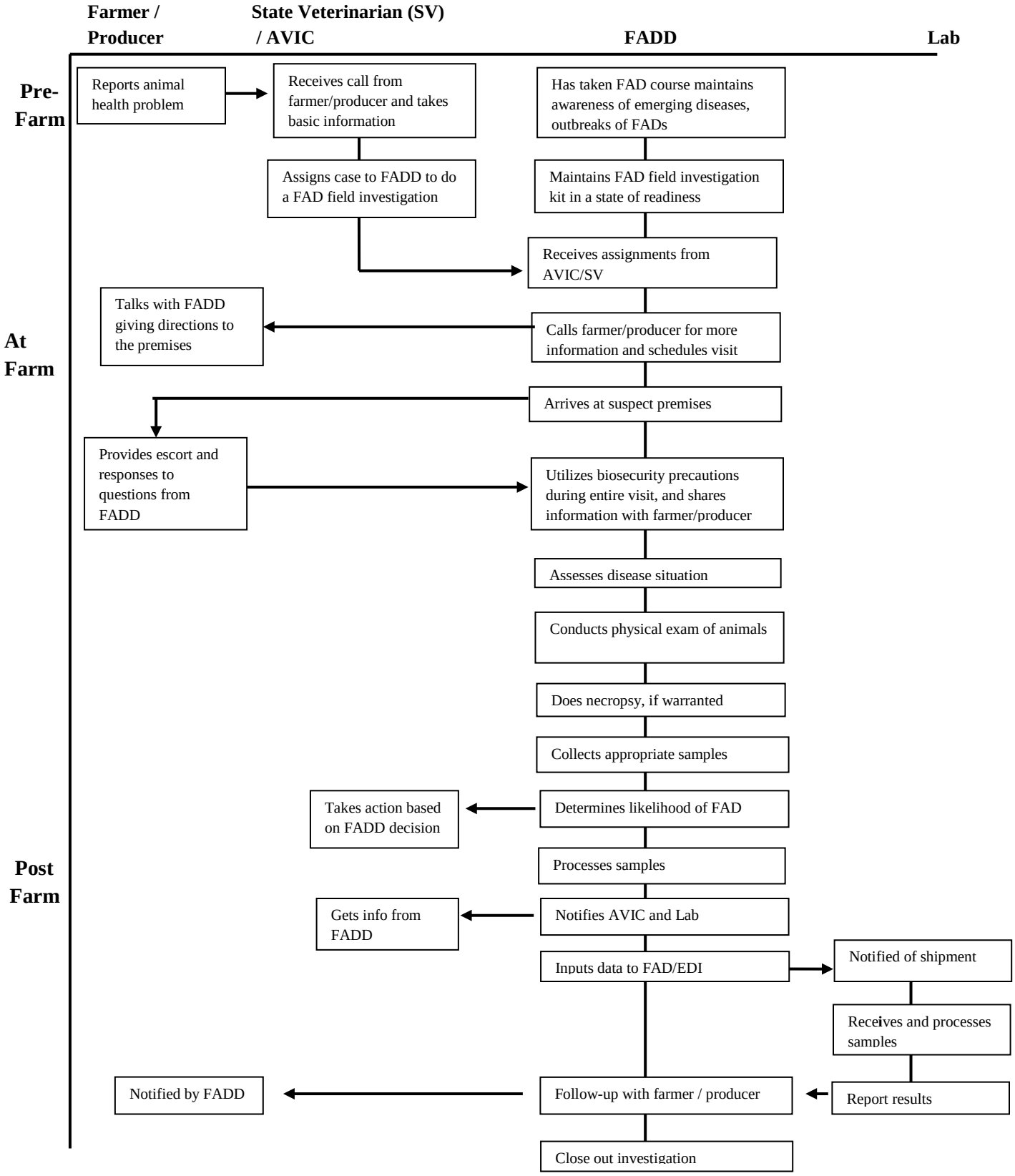
5. Further actions may be taken at the discretion of the State Veterinarian in collaboration with the AVIC and in consultation with the FADD.

6. Laboratory results will be reported to the State Veterinarian who will notify the AVIC and FADD. The FADD will then notify the practitioner and the owner.
   Source: American Association of Swine Veterinarians

Information collected during a Foreign Animal Disease Investigation

- ✓ Name and Address of Owner / Manager
- ✓ Type of operation being investigated
- ✓ Number and type of animals on premises
- ✓ Movement of animals on and off premises and date of movement
- ✓ Location of animals prior to arriving on premises
- ✓ Location of animals after leaving premises
- ✓ Number of sick and dead animals
- ✓ Physical examinations of the affected animals
- ✓ Results of postmortem examinations
- ✓ Number and types of samples taken
- ✓ Name of suspected disease

Flow Chart of Foreign Animal Disease Investigation



Source: USDA National Animal Health Emergency Management System Guidelines

Developing a Site Plan

In the event of a disease outbreak, the State Veterinarian will recommend biosecurity measures to assist in containing the spread of the disease agent for all premises in or near the control area. Identifying the infrastructure on your premises prior to an outbreak will assist Colorado animal health officials in developing a biosecurity plan to protect the premises. Instructions for developing a site plan are listed below. The following guidance may also be used to update and reevaluate existing site plans.

A. Indicate geographic directionality (north, south east and west) on the Site Plan.
B. Sketch an outline of all structures on the premises.
C. Identify structure's purpose—(ie. Residential house, feed storage, feedlot).
D. For structures housing animals, identify type and number of animals.
E. Sketch and identify water sources for livestock and humans on premises.
F. Outline all yards and pastures that animals have access to.
G. Identify all premises' ingresses and egresses.
H. Identify all roads, streams or ponds on the premises.
I. Indicate the acreage of premises.
J. Attach aerial photos of property to sketched site plan. Area photos can be obtained for many locations at www.maps.google.com.

Site Plan Template

Biosecurity Plan for Feedlots

Introduction

Biosecurity refers to the measures put in place to protect livestock against exposure to endemic and emergency diseases and to limit the spread of such diseases within the livestock population. The following feedlot biosecurity plan, developed by the Australian Lot Feeding Industry, serves as an example that details measures to mitigate the risk of an emergency animal disease entering into a feedlot, spreading within the feedlot cattle population and being passed to other livestock operations.

This biosecurity plan outlines elements of best management practices that should be followed wherever possible and practicable to protect feedlot operations against the likelihood of an emergency disease entering into and spreading through the feedlot livestock population. By implementing the measures outlined in the Biosecurity Plan feedlot operators benefit by reducing the likelihood of entry into and spread of disease in the feedlot.

Livestock Purchases

- Where practicable, purchases feeder stock from preferred suppliers who maintain a quality assurance program that includes a biosecurity component.
- Whenever possible, inspect cattle prior to purchase to assess animal health status.
- Ensure that the vendor provides a fully completed animal health record detailing the property of origin of the consigned livestock.
- Be aware of the presence of best practice guidelines for specific disease and request appropriate declarations regarding the health status of the consigned livestock.

On Arrival

- Inspect cattle on arrival to assess animal health status.
- Identify all cattle as soon as practicable after arrival, ensuring that their identification can be cross-referenced to the property of origin for trace back purposes.
- Where possible, minimize the mixing of newly arrived cattle with other stock during the introductory period.
- Ensure feedlot internal fences are adequately maintained to minimize accidental mixing of livestock within the feedlot.
- Ensure perimeter fences are adequately maintained to minimize exposure of livestock at the feedlot to stock in adjoining areas.

Livestock Monitoring

- Ensure that all staff, involved in the daily monitoring and handling of livestock, are aware of the importance of early detection of emergency diseases and know what to do if they suspect an animal may be exhibiting symptoms of such a disease.

- Undertake routine monitoring of livestock in the feedlot for signs of sickness.
- Report cases of unusual sickness or death in the feedlot to the feedlot veterinarian or the State Veterinarian and/or VMO.

Manure and Effluent Management

- Be aware that manure and effluent pose a potential biosecurity risk.
- Record dates, areas of manure and effluent application and application rates in accordance with the requirements of US EPA and CDPHE.
- Record movements of manure and / or compost removed from the feedlot site
- Wherever possible, do not use the same equipment for handling feed and manure and ensure that manure does not contaminate feed commodities.
- Be aware that for some emergency disease outbreaks there may be a requirement under the Feedlot Emergency Disease Response Plan for the mass de-contamination and disposal of manure and effluent.

Livestock Disposal Management

- Dispose of dead livestock in accordance with documented procedures set out to address the requirements of the Colorado Department of Public Health Environment.
- Ship for rendering/disposal or place and cover dead livestock in a pit as soon as possible to eliminate potential problems with feral animal activity.
- Develop a management plan for mass disposal for livestock.

Livestock Feed

- Where practicable, purchase feed commodities from preferred suppliers who maintain a quality assurance program that includes a biosecurity component.
- Ensure livestock do not contaminate feed commodities.
- Ensure feed commodities are fit for intended purpose.

Vehicle Movements

- Be aware of the potential for introduction and transmission of an emergency disease by visiting vehicles, machinery and equipment.
- Ensure that all vehicles, machinery and equipment entering the feedlot area are directed to specified locations and delivery areas within the feedlot.
- Limit the movement of non-feedlot vehicles, machinery and equipment to areas of the feedlot beyond the specified delivery points.

People Movements

- Be aware of the potential for introduction and transmission of an emergency disease by visitors.

- Limit visitation as best as possible. Assure foreign visitors are not from nor have passed through disease endemic areas within a minimum of the past 30 days.
- Ensure that all visitors entering the feedlot are directed to a designated meeting place away from the main feedlot area, preferably the office, before access is allowed to the main feedlot area.
- Whenever possible, control the access of visitors to the designated feedlot area.
- Maintain a register of visitors and vehicles to the feedlot.

Feral Animals and Wildlife

- Be aware of the potential for introduction and transmission of an emergency disease by feral animals and wildlife.

Feedlot Biosecurity Best Management Practices Checklist

Establish goals and objectives by targeting all ideas that could allow cross-contamination between infected cattle and healthy cattle. Adopt as many of these practices as is reasonable, prudent and economically feasible.

Biosecurity Action	Date Completed
Personnel Training	
Start-up biosecurity training for all new personnel.	
All personnel training targeting a thorough understanding of disease transmission.	
Personnel taught security threat identification	
Personnel taught proper security response procedures	
Personnel taught proper biosecurity containment procedures	
Personnel taught to identify biosecurity threats specific to their working area	
Communication for biosecurity threats established and taught.	
Conduct training on a regular basis.	
Premise Security	
All locks regularly check- twice a day.	
Perimeter buffer zone effectiveness regularly evaluated.	
Posted security signs regularly checked and appropriateness re-evaluated.	
Segregated parking areas for visitors and for personnel in each area.	
Visitor log cross checked / validated with personnel assigned to visitors.	
Intruder prevention / control procedures and training in place.	
Isolation Procedures	
Valid health papers required for all incoming cattle or lambs.	
Seller, source, and trucker tracking information filed on all incoming cattle or lambs.	
New livestock isolated for one week and evaluated for disease symptoms	
Prevent cross-contamination between new arrivals and established groups.	
Evaluate all livestock daily for signs of disease	
Incoming feedstuffs inspected before receiving.	
Pesticides and medications stored in a secured area to prevent cross-contamination.	

Feedlot Biosecurity Best Management Practices Checklist Cont.

Biosecurity Action	Date Completed
Traffic Control Procedures	
All visitors and customers travel only in operation vehicles.	
All support professionals travel only in operation vehicles.	
All deliveries supervised by operation personnel.	
All shipping and pick-ups supervised by operation personnel	
Dead animal removal traffic pattern controlled to prevent cross-contamination.	
Traffic controlled around livestock handling and housing areas.	
Specific traffic control of hospitalized livestock to minimize cross – contamination.	
Traffic controlled around feedstuffs processing and storage areas.	
Traffic controlled around medication and pesticide storage areas.	
Traffic controlled around truck scales.	
Restrict personnel and visitor movement to prevent cross-contamination.	
Water supply protected and secure (fenced and locked) and checked daily.	
Pest Control- Rodents, Birds, Carnivores (coyotes, dogs, cats, etc.) and wildlife.	
Sanitation Procedures (Cleanliness Stressed)	
Clean and sanitize receiving and processing area between new livestock groups.	
Clean and sanitize hospital handling equipment between all sets of sick livestock.	
Clean all other livestock handling equipment between each group of livestock.	
Hospital use scheduled to minimize contact between each group of livestock.	
Waterers examined daily for contamination (feces, etc.)	
Feed bunks examined daily for contamination (feces, etc.)	
Prevent contamination of feeding equipment	
Clean and sanitize feeding equipment that becomes contaminated.	
Protect feedstuffs from ALL contamination.	

Feedlot Biosecurity Best Management Practices Checklist Cont.

Biosecurity Action	Date Completed
Sanitation Procedures (Cleanliness Stressed)	
Clean truck scale surface before feed deliveries (if manure contaminated)	
Clean pens between sets of livestock.	
Remove loose, dry, manure (sponge layer) in pens monthly.	

Feedlot Emergency Animal Disease Action Plan

This document details the possible actions and responsibilities that may be performed in the event of a suspected emergency disease outbreak within the feedlot.

A. Important Contact Details

	Name	Contact Number
Feedlot Name		
Feedlot Manager		
Position responsible for the EAD Action Plan		
Feedlot Veterinarian		
Colorado Veterinarian Medical Officer		
Colorado State Veterinarian		**(303) 239 - 4161**

B. Management Commitment

Feedlot management commits that unfamiliar diseases will be investigated and the following actions will be implemented without delay if an emergency disease is suspected.

C. Action Plan

Develop an action plan allocating responsibilities to relevant personnel.

1. Contact feedlot veterinarian and the designated VMO or call the State Veterinarian Office.
   Responsibility _____
2. Do not dispatch livestock from the feedlot site until authorized by the VMO or State Veterinarian.
   Responsibility _____
3. Ensure suspected livestock are isolated within the Feedlot.
   Responsibility _____
4. Ensure companion animals of the suspect cattle are segregated from other livestock.
   Responsibility _____
5. Ensure movement of all other livestock within the feedlot complex is restricted.
   Responsibility _____
6. Delay or halt the shipment of livestock onto the feedlot site.
   Responsibility _____
7. Delay or halt delivery of all non-essential commodities.
   Responsibility _____
8. Secure the feedlot perimeter limiting access to the feedlot site ensuring that all vehicles and visitors only enter the feedlot under controlled conditions.
   Responsibility _____
9. Remove unnecessary personnel and machinery from the cattle feeding and holding areas.
   Responsibility _____
10. Ensure that any personnel, equipment or machinery do not leave the feedlot site until authorized by the VMO or State Veterinarian.
    Responsibility _____
11. Compile a list of all cattle (number of head, Identification, and location), personnel machinery movement over the past seven days. Prepare a site plan that details current pen allocations.
    Responsibility _____
12. Ensure all staff are made aware of the actions being taken (staff meeting) and their individual responsibilities in regards to complying with this action plan.
    Responsibility _____
13. Ensure that customers are advised if they are immediately affected by the delay in supplying cattle.
    Responsibility _____
14. If a disease causing high mortality or morbidity is identified, the feedlot staff will work with the State Veterinarian and the VMO in meeting the needs of the incident.
    Responsibility _____

Livestock Trailer Cleaning and Disinfecting Recommendations

The following cleaning and disinfecting recommendations can be applied to any vehicle known to have carried livestock exposed to a FAD, the principles of vehicle and trailer decontamination are the same.

- √ Remove all solid debris, fecal matter and bedding.
- √ All water, feedstuff and litter carried in the vehicle must be disinfected and burned or buried.
- √ The vehicle should then be soaked in disinfectant using a detergent, and scrubbed down to bare metal or wood.
- √ All fixtures and fittings must be dismantled to ensure that infected material is removed.
- √ All surfaces must be cleaned down to metal and then disinfected. Wooden surfaces must be cleaned and disinfected, where appropriate, or valued before removal and destruction.
- √ The wheels, wheel arches, bodywork and undercarriage must be cleaned of small particles and disinfected.
- √ The driver's cabin and sleeping compartment, if fitted, also need to be cleaned and disinfected.
- √ When the crate structure of a trailer has been decontaminated, the stock crate should be lifted free from the body. The underside of the stock crate and the parts of the trailer on which it rests should be decontaminated.
- √ The vehicle must be closely inspected to determine if there is a double layer. If this is so, the top layer of metal tread plate or wood must be removed to reach areas where contaminated material could be trapped.
- √ Any metal flooring that appears solid must be weight tested to ensure that welds are not cracked and that there is no rubbish under the flooring. Some trailers may carry extra equipment under the body; if so, this must be treated.
- √ The outside dual wheels and spare wheels must be removed to ensure adequate decontamination of the wheel hubs and to allow inspection of the spare wheel hangers, which can be hollow and therefore could hold contaminated material.
- √ The driver should be asked to identify the clothing and boots they were wearing when in contact with suspect livestock; articles must be decontaminated, where applicable.

Appendix K Industry's Role in Emergency Response

The following table presents information on FADs that are considered highly contagious and would cause high morbidity or mortality in cattle. Information presented in this table is intended to assist producers in recognizing a potential FAD agent in cattle populations.

Foreign Animal Disease Significant to Cattle			
Disease Agent[1]	**Clinical Signs[5]**	**Mode of Transmission**	**Zoonotic Disease**
Bovine spongiform encephalopathy[3,4]	- Nervousness - Persistent kicking when milked - Difficulty in coordination and rising - Hesitation at doors, gates and barriers - Loss of body weight despite continued appetite	**For Cattle:** Oral - Ingestion at a young age of BSE-contaminated feed **For Humans:** Oral - Ingestion of BSE-contaminated beef	**Yes**
Contagious bovine pleuropneumonia[2,4] (CBPP)	- Loss of milk production - Painful and difficult breathing - Initial dry cough that becomes moist - Loss of appetite - Fever - Moaning while exhaling - Elbows turned out, head lowered, back arched to ease breathing	Aerosol - Cough from infected cow Direct Contact - Cattle-to-Cattle (saliva, urine or (reproductive tissues or fluids)	**No**
Foot and Mouth Disease[2,3]	- Loss of milk production - Lameness - Blisters on top of foot, between claws and on heels. - Lesions on muzzle - Oral lesions less commonly seen - Production of sticky, foamy, stringy saliva	Aerosol Direct Contact - Cattle-to-Cattle (saliva, milk, urine, reproductive tissues or fluids, tears, blood and feces) Oral - Ingesting infected product Fomites	**No**

[1] **Listed by USDA as a FAD, FADD must conduct an investigation.**
[2] **Ausvetplan Disease Strategy 2008**
[3] **United States Animal Health Association, Committee on Foreign and Emerging Diseases. *Foreign Animal Diseases*, 2008.**
[4] **Iowa State University, The Center for Food Security and Public Health, Animal Disease Information, http://www.cfsph.iastate.edu/DiseaseInfo/default.htm**
[5] **USDA, APHIS *Publications*** http://www.aphis.usda.gov/publications/animal_health/index_ah_c.shtml.

Foreign Animal Disease Significant to Cattle (Cont.)			
Disease Agent[1]	**Clinical Signs**	**Mode of Transmission**	**Biosecurity measures to prevent Disease Agent**	**Zoonotic Disease**
Rift Valley Fever[2,3]	- Depression - Loss of appetite - Decrease in milk production - Abortion	**For Cattle:** Vector - Mosquito and possibly ticks and biting mites **For Humans:** Vector -- Mosquito Aerosol -- Infected animal tissue or fluids	**Yes**
Rinderpest[2,3]	**Peracute** - High fever - Congested mucous membranes - Death within 2–3 days **Acute** - Onset of a rapidly mounting fever - Depression - Loss of appetite and milk production - Watery discharges from the eyes and nose - Constipation - Mouth lesions **Subacute** - Mild form of disease, usually in endemic area	Aerosol (limited) Direct Contact - Cattle-to-Cattle (saliva, milk, urine, reproductive fluids, tears, blood and feces) Oral - Ingesting infected product Fomites (limited)	**No**

[1] **Listed by USDA as a FAD, FADD must conduct an investigation.**
[2] **Ausvetplan Disease Strategy 2006**
[3] **United States Animal Health Association, Committee on Foreign and Emerging Diseases. *Foreign Animal Diseases*, 2008.**
[4] **Iowa State University, The Center for Food Security and Public Health, Animal Disease Information, http://www.cfsph.iastate.edu/DiseaseInfo/default.htm**
[5] **USDA, APHIS *Publications*** http://www.aphis.usda.gov/publications/animal_health/index_ah_c.shtml

Appendix K Industry's Role in Emergency Response

The following table presents information on FADs that are considered highly contagious and would cause high morbidity or mortality in sheep. Information presented in this table is intended to assist producers in recognizing a potential FAD agent in sheep populations.

Foreign Animal Disease Significant to Sheep			
Disease Agent[1]	**Clinical Signs[5]**	**Mode of Transmission**	**Zoonotic Disease**
Foot and Mouth Disease[2,3]	**Usually mild in Sheep with only few lesions** **Severely affected sheep** - Sudden, severe lameness in one or more feet - Blisters form on top of foot and between claws - Sheep look sick and reluctant to stand - Significant mortality can occur in lambs.	Aerosol Direct Contact - Sheep-to-Sheep (saliva, milk, urine, reproductive tissues or fluids, tears, blood and feces) Oral - Ingesting infected product Fomites	**No**
Peste des Petits Ruminants[2,4]	**Peracute** - High fever - Severe depression - Death **Acute** - High Fever - Depression - Serious nasal and ocular discharge - Matting around eyes - Oral lesions	Aerosol (short distance) - Cough from infected animal Direct Contact - Sheep-to-Sheep (saliva, milk, urine, reproductive tissues or fluids, tears, blood and feces) Fomites (for a short time) - Water troughs, bedding	**No**

[1] **Listed by USDA as a FAD, FADD must conduct an investigation.**
[2] **Ausvetplan Disease Strategy 2008**
[3] **United States Animal Health Association, Committee on Foreign and Emerging Diseases. *Foreign Animal Diseases*, 2008.**
[4] **Iowa State University, The Center for Food Security and Public Health, Animal Disease Information, http://www.cfsph.iastate.edu/DiseaseInfo/default.htm**
[5] **USDA, APHIS *Publications*** http://www.aphis.usda.gov/publications/animal_health/index_ah_c.shtml.

Foreign Animal Disease Significant to Sheep (Cont.)			
Disease Agent[1]	**Clinical Signs[3]**	**Mode of Transmission**	**Zoonotic Disease**
Rift Valley Fever [2,4]	**Lambs** - High mortalities - Reluctant to stand - May exhibit a bloody diarrhea **Sheep** - Fever - Unsteady gait - Bloody diarrhea - Nasal discharge - Vomiting - Abortion	**For Sheep:** Vector - Mosquito and possibly ticks and biting mites **For Humans:** Vector -- Mosquito Aerosol -- Infected animal tissue or fluids	**Yes**
Sheep & Goat Pox [2,4]	- Sudden onset of fever - Discharge from nose and eyes - Excessive salivation - Pox lesions erupt 1-2 days and extend over all skin	Aerosol (short distance) - Nasal Secretions and Saliva from infected animal - Direct Contact Sheep-to-Sheep (saliva, milk, urine, tears, blood and feces) Fomites Vector - Insects (over short distances)	**No**

[1] Listed by USDA as a FAD, FADD must conduct an investigation.
[2] Ausvetplan Disease Strategy 2008
[3] Iowa State University, The Center for Food Security and Public Health, Animal Disease Information, http://www.cfsph.iastate.edu/DiseaseInfo/default.htm