

S
l
i
d
e
1

Animal Disease Emergencies

*Local Response
Preparedness and Planning*

Business



This presentation is titled “Animal Disease Emergencies – Local Response Preparedness and Planning” and is designed for a local business audience.

S
l
i
d
e
2

Note to Presenter

- *The following presentation provides an overview of animal disease emergency preparedness, prevention, response and recovery measures.*
- *Supplemental PowerPoints on each topic are available for inclusion into this presentation or for stand alone presentations, depending on time allotted and interest of the audience.*

Note to presenter.... The following presentation provides an overview of animal disease emergency preparedness, response and recovery measures. Additional PowerPoints on specific components (e.g., state response plan, specific disease information) are available for inclusion into this presentation, depending on time allotted and interest of the audience. **Please delete this slide prior to presentation!**

S
l
i
d
e
3

Overview

- What are animal disease emergencies
- Who may be involved
- What to expect
- Importance of preparing at the local level
- How you can prepare



Animal agriculture is an essential component of the U.S. and Iowa’s economy. The impact of an animal disease emergency or outbreak in livestock could be devastating. Response to such a situation will require interaction between local, state and often federal agencies and personnel. Preparedness efforts are essential for the prevention and control of such an event in Iowa and are necessary to protect animal health, our economy and even human health. During this presentation we will discuss the importance of agriculture to the U.S. and Iowa’s economy, what animal emergency diseases are, the impact they can have, the steps involved in detection and response, including the State and Federal agencies involved. Additionally, we will discuss the importance of preparing at the local level and how you can prepare.

S
l
i
d
e
4

Preparing and Responding to an Animal Disease Emergency

Prepare	<ul style="list-style-type: none"> • Identify stakeholders and resources in community • Local plan development • Practice: Table tops, functional exercises • Animal ID and Premises ID
Prevent	<ul style="list-style-type: none"> • Awareness and education • Biosecurity
Respond	<ul style="list-style-type: none"> • Detection/diagnosis; surveillance • Contain: Quarantine, isolation, stop movements; biosecurity • Control: Depopulation and disposal, vaccination, cleaning and disinfection
Recover	<ul style="list-style-type: none"> • Indemnity • Business continuity

ANY emergency or disaster, including animal disease emergencies, involve four phases of management – prepare, prevent, respond and recover. This training is designed to help us become aware of the different measures needed in each of these steps for animal disease emergencies. Listed are various steps for each phase for animal disease emergencies that are important for all members of the community to be aware of and implement. This presentation will address preparing, preventing, responding and recovering from an animal disease emergency at the local level.

S
l
i
d
e
5

Animal Disease Emergencies

- Affect large numbers of livestock
- Most highly contagious/easily spread
- Animal health impact
- Economic consequences
- Human health impact
- Often called foreign animal diseases (FAD) or high consequence pathogens

Animal disease emergencies involve any number of disease pathogens that may affect large numbers of livestock, resulting in severe economic consequences, including high death rates, high levels of illness, and loss of production. The occurrence of any of these diseases may have trade implications, including embargos and import restrictions. Human health can also be impacted by animal health emergencies. Some of the diseases are zoonotic (spread from animals to humans) and the loss of animals and livelihood can have severe mental health impacts for those raising or working with the animals. Disease listed as important concerns or emergencies are often referred to as FADs (foreign animal diseases) or high consequence pathogens.

S
I
d
e
6

Diseases of Concern

- High consequence animal diseases
- Exist in other countries
- Not in the U.S.
 - Rinderpest
 - Foot and-mouth disease
 - Classical swine fever
 - Glanders
- Concern: U.S. animals have no immunity to these diseases



There are several different lists of high consequence animal diseases but with overlap between them. Most of the listed disease agents have been successfully eradicated or controlled in the U.S. but still occur in other countries. While this is good for our livestock industry, it also means that the introduction of any of these agents, like the ones listed here, could have severe consequences since our animals have no natural immunity to the disease.

S
I
d
e
7

Means of Introduction

- Intentional or accidental introduction of foreign disease agents
- Emerging or re-emerging diseases



United States agriculture is very vulnerable to the intentional or accidental introduction of disease agents (foot-and-mouth disease or FMD), as well as emerging (Nipah virus in pigs and people) or re-emerging diseases (such as exotic Newcastle disease in poultry). Today we will talk more about those vulnerabilities and ways to minimize the United States' risk of a devastating disease entering our country. Introduction of these disease agents can occur in any number of ways from natural spread, emergence of diseases to new areas, accidental introduction or even the intentional use of agents in a terrorist type attack. Natural introduction can occur sporadically in given (endemic) areas like anthrax in cattle in the Dakotas. Emerging diseases are those that are expanding in distribution or found in new locations (e.g., Nipah virus, Exotic Newcastle disease). The accidental introduction of disease pathogens may occur through the transport of animals, animal products or persons coming from countries where the disease occurs, via contaminated clothing, shoes or other objects. These are often referred to as foreign animal diseases, as their presence in the U.S. is limited or non-existent. Disease pathogens of livestock may also be introduced intentionally. Defined as agroterrorism, this involves the use of biological agents or their toxins to adversely impact the agriculture industry, the economy, or the consuming public. Regardless of how a disease pathogen may be introduced, the detection, response and control measures needed are essentially the same, but may vary in scale (local vs. state vs. national), depending on the disease in question.

S
I
d
e
8

Importance of Agriculture



Next we will discuss the importance of agriculture to the nation and more specifically, Iowa.

S
I
d
e
9

Importance of Agriculture

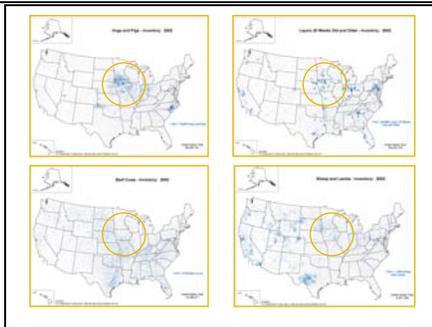
- 2004: Agriculture and related industries
 - 1 trillion dollars to GDP annually
 - Employs more than 15% of workforce
- \$56.2 billion in total agricultural exports, 2003
- Heavily tied to other industries and sectors



In the United States, agriculture and related industries contribute over 1 trillion dollars to our Gross Domestic Product (GDP) annually and employs more than 15% of our workforce. (Monke J. 2004. CRS Report for Congress 2004, Agroterrorism: Threats and preparedness.) Agriculture is also heavily tied to other industries (good and services), such as equipment manufacturers, feed suppliers, transportation, food retailers, restaurants, hotels, and tourism, to name a few. As you can see, a healthy agriculture economy is vital to the U.S. economy as a whole. Any significant disturbance in this smoothly operating system that subsequently affects the food supply and demand has the potential to: create higher prices domestically and abroad, increase unemployment, reduce trade, and result in a concurrent negative impact on reliant industries.

S
l
i
d
e

1
0



The food of America is now produced by fewer farmers located in more geographically defined parts of the country. Here in Iowa, pigs and layers are our top commodity, but we also have a large number of cattle, sheep and goats. This consolidation means that introduction of an animal disease could be used in a relatively focused region of the U.S. but have widespread national repercussions. (Maps from <http://www.nass.usda.gov/research/atlas02/>)

S
l
i
d
e

1
1

Value of Agricultural Products

Animal	U.S. (2005)		Iowa (2006)	
	Number	Value	Number	Value
Cattle	~95 million	~\$70.5 billion	~4 million	~\$2.5 billion
Pigs	~61 million	~\$4.5 billion	~17 million	~\$4 billion
Poultry (layers)	338 million	~\$1 billion	~55 million	\$407 million (eggs)
Sheep	6 million	~\$600 million	235,000	~\$33 million

When we look at the economics of livestock at the national level, we see it is of major value. From pigs and poultry to cattle and sheep, animal agriculture generates income for producers and the economy while supplying safe food to our tables. The economic importance and estimated numbers of livestock and poultry in our nation and Iowa are listed here. (2005 for U.S. and 2006 for Iowa). In 2006, Iowa led the nation in the production of pork, corn, soybeans and eggs and was second nationally in red meat production (6.5 billion pounds) and agricultural exports (\$4.02 billion). Data from www.usda.gov/nass/pubs/stathigh/2005/lvstkindex.htm and www.agriculture.state.ia.us/quickFacts2.htm

S
l
i
d
e

1
2

Animal Agriculture Iowa 2006

- #1 pork, eggs
 - 17.2 million pigs
 - 51.6 million chickens (layers)
- #2 red meat
 - 6.5 billion pounds
 - 3.9 million cattle
- Cash receipts
 - Turkeys - \$123 million
 - Dairy cows - \$530 million
 - Sheep, lambs - \$22.2 million

Here in Iowa, animal agriculture is a major component of our economy. In 2006, Iowa led the nation in the production of pork and eggs. Over 17 million swine are raised in the state (about 5-1/2 hogs for every person) with cash receipts of \$4.15 billion. There are over 51 million egg layers with 13.8 billion eggs produced and a gross income of \$407 million. Iowa was second nationally in red meat production (6.5 billion pounds) and cattle account for \$2.5 billion in cash receipts from almost 4 million head. Turkeys accounted for over 274 million pounds and \$123 million in turkey production. There was an average of 205,000 milk cows with 4.13 billion pounds of milk produced and dairy cash receipts of over \$530 million and over 235,000 head of sheep and lambs with cash receipts of \$22.2 million. [Source: State of Iowa, Department of Agriculture and Land Stewardship, Quick Facts about Iowa Agriculture, 2005 Livestock Summary. http://www.agriculture.state.ia.us/2006AgStats/06_76.pdf, www.agriculture.state.ia.us/quickFacts.htm and www.agriculture.state.ia.us/quickFacts2.htm. Accessed 01/02/08.] Photo sources: DB Weddle, ISU; Graphic illustration: Andrew Kingsbury, ISU

S
l
i
d
e

1
3

Food Production Changes

- Number of farms decreasing
- Animal numbers rising on some farms
- Opportunities
 - Increasing intensity/specialization
 - Efficient food source: U.S. and world
- Challenges
 - Disease control and eradication
 - Devastating economic effects

Despite the large numbers of animals in Iowa, each year the Census of Agriculture reports fewer farms. The changes in animal production (e.g., higher densities) and species specialization has allowed livestock farmers to efficiently provide food for America and the world, but presents opportunities and challenges that were not a part of raising animals only a few decades ago. The introduction of a disease into a facility can spread rapidly based on the high concentration of animals. This highlights the need to prevent disease introduction to continue to ensure the animal's well-being and a safe food source.

S
I
d
e
1
4

Impact of Animal Disease

- Animal Health
 - Death, illness, loss of production
- Economics
 - Loss or disruption of trade
 - Loss of consumer confidence
 - Movement restrictions
- Human Health
 - Zoonoses
 - Mental health

The effect of an animal disease emergency can impact animal health, economics and possibly even human health. The impact could be felt, in the case of a foreign animal disease discovery, in as quickly as 24 hrs. Exportation of livestock could be halted. Allied and reliant industries, such as restaurants, grocery retailers, food processors and distributors, and transporters have direct and indirect ties to agriculture and would be impacted significantly. Costs would also be generated due to the needed measures for eradication and control of the disease (e.g., disease surveillance, diagnostic testing, tracing of exposed animals and their movement, implementing and maintaining quarantines, depopulation costs, indemnity paid to the farmer), ... the list and impact could be extensive. Some losses due to a foreign animal disease may take years to fully realize.

S
I
d
e
1
5

Impact: Economics

- Loss or disruption of trade
 - U.S. exports \$70.9 billion in ag commodities (2006)
 - Food and fiber is ~ 16% of the Gross Domestic Product
- Impact on other industries and sectors
 - 24 million Americans involved with some aspect of agriculture
 - Restaurants, food suppliers, grain producers




A healthy agriculture economy is vital to the U.S. economy as a whole. The U.S. food and fiber system accounted for 16.4% GDP, and added \$1.5 trillion to the National GDP; the farm sector alone accounted for \$69.8 billion (Edmonson, 1999). Any significant disturbance in this system has the potential to create higher prices domestically and abroad, increase unemployment, reduce trade, and result in a concurrent negative impact on reliant industries. In 2006, the U.S. exported \$70.9 billion in agricultural commodities (<http://www.ers.usda.gov/data/FATUS/monthlysummary.htm>); \$12.2 billion came from animals and animal products. Some of the diseases on the USDA High Consequence Pathogens list are reportable to the OIE and could halt trade if an American animal is diagnosed with the disease. Loss of confidence by importing countries or consumers can also lead to major economic repercussions. The loss of exports can have a negative effect on the economy and livestock producers. Approximately 17% (24 million people) of the total U.S. workforce is involved the food and fiber system in some manner (1999). These allied and reliant industries (e.g., restaurants, grocery retailers, food processors, distributors and transporters) with direct and indirect ties to agriculture would also be impacted by an animal disease emergency; the unemployment rate and loss of business could increase. (USDA Outlook Report, Nov 25, 2003 <http://usda.mannlib.cornell.edu/reports/erssor/trade/aes-bb/2003/aes40.pdf>)

S
I
d
e
1
6

Vulnerabilities

- High density husbandry
- Mixing at auction markets or transport by vehicles
 - Over 5 million cattle each year
- Poor traceability of animals
- No immunity to foreign animal diseases
- Centralized feed supply and distribution




What makes U.S. and Iowa agriculture vulnerable? Animals are raised in high concentrations (cattle feedlots, swine confinement units, poultry barns) which can lead to the rapid spread of a FAD. Animals are often transported great distances, sometimes over 1,000 miles, and mixed at auction markets. Auction markets allow for mixing of animals from around the state or neighboring states, presenting the opportunity for the exchange of infectious diseases such as FMD or hog cholera, and exposing others in a crowded setting. The U.S. is currently very inefficient in our ability to trace animal movement, making the tracking of disease outbreaks difficult. The USDA National Animal Identification System (NAIS) has progressed to get animal owners to register their location or premises. However, it is voluntary and the second step, animal identification, is not as advanced. Most severe, highly contagious diseases of livestock have been eradicated from the U.S., and vaccines are not used for these diseases, livestock have no immunity to FADs. Another concern is our centralized feed supply and distribution; feed can be an ideal vehicle in which to distribute an agent or compound. One feed manufacturer can supply hundreds or thousands of farms, unknowingly distributing an infectious disease agent throughout the country.

S
l
i
d
e
1
7

Vulnerabilities

- Diseases widespread in other countries
- Expanded international trade and travel
- Border penetration:
 - People, wild birds, mammals
- Inadequate on-farm biosecurity and FAD awareness



We are a global society and our international trade and travel has greatly expanded in the last quarter century. With the widespread distribution of infectious disease agents in other countries, we are very vulnerable to the accidental or intentional introduction of these pathogens. Our mobile society leaves our borders open for trade, making us vulnerable to agents or contaminated equipment being smuggled in if inspections are not thorough. Another concern is the lack of biosecurity for our animals and plants, which will be further discussed. Finally, there is also a great need to improve foreign animal disease (FAD) awareness and education among veterinarians and producers. We all must be able to recognize the signs and know how to report them in order to decrease our vulnerability to disease spread. Today's presentation is designed to give you some of those tools.

S
l
i
d
e
1
8

Prepare

State and Federal Agencies

So, how do we prepare for an animal disease emergency? Preparedness involves advance planning. This starts with identification of stakeholders and agencies involved or needed for a response. It is important to know members of your community and understand the roles and responsibilities they may have or may contribute to in the event of an emergency at the local, State and Federal level. Familiarity should be established before the disaster strikes. We will discuss the State and Federal agencies involved in preventing and responding to animal disease emergencies, and the plans and programs that are in place for such an event.

S
l
i
d
e
1
9

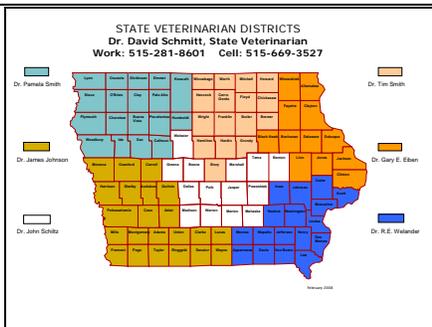
Iowa Department of Agriculture and Land Stewardship (IDALS)

- State Veterinarian: Dr. David Schmitt
 - Animal health and control issues
 - Animal movement and tracking
- State District Veterinarians (6)
 - Foreign Animal Disease Diagnosticians (FADD)
 - Specially trained veterinarian
- The Center for Agricultural Security
 - Iowa Veterinary Rapid Response Team (IVRRT)
 - 330 trained veterinarians and animal health professionals




In the event of an animal disease emergency, the lead agency involved is the Iowa Department of Agriculture and Land Stewardship (IDALS). Directed by the State Veterinarian, Dr. David Schmitt, the agency is responsible for animal health and disease control issues as well as determining actions and the scope of the response, overseeing field operations, animal movement and tracking, and more. Working under the State Veterinarians are six District veterinarians. These individuals are all Foreign Animal Disease Diagnosticians, or FADDs. This means that they have been specially trained to conduct investigations and collect samples for situations involving high consequence diseases, or foreign animal diseases (FAD). In Iowa, 25-50 suspected FAD are investigated each year. The Center for Agriculture Security is also part of IDALS. The Center trains and coordinates the Iowa Veterinary Rapid Response Team (IVRRT). This cadre of over 330 veterinary and animal health professionals is trained and ready to respond to an animal disease emergency in their community, county or in the state. These individuals are activated and directed by the State Veterinarian and the Iowa Secretary of Agriculture to assist in surveillance, euthanasia, diagnostics, premise cleaning and disinfection operations. They can also assist counties with animal sheltering issues during other types of disasters.

S
l
i
d
e
2
0



This map shows the areas covered by the six District veterinarians for the state of Iowa. All of these veterinarians are FADDs. They run surveillance and prevention programs in the state for diseases such as brucellosis, tuberculosis, pseudorabies, and avian influenza. Several have dual roles as USDA Veterinary Medical Officers (VMOs).

S I I d e 2 1	<p style="text-align: center;">Iowa Premises Identification Program</p> <ul style="list-style-type: none"> • Voluntary Participant in National Animal Identification System (NAIS) • Premise - any geographically unique location in which agricultural animals are raised, held or boarded • Complete application <ul style="list-style-type: none"> - www.agriculture.state.ia.us/premiseID.htm - Premise Identification Number (PIN) • Allied agricultural and non-producer participants can also be assigned PINs 	<p>The Iowa Department of Agriculture and Land Stewardship has been working with the U.S. Department of Agriculture on the voluntary implementation of the National Animal Identification System (NAIS). This national program is being developed to identify animals and track them as they move from one location to another. The database created will allow a rapid traceback in the event of a disease of concern. When fully operational, the NAIS will be capable of tracking an animal or group of animals back to the original premises within 48 hours. The first step in the process is to identify and register premises that house animals. Premise Identification Numbers (PINs) are necessary for any location involved in livestock commerce or the movement of animals or poultry. Allied agricultural operations and non-producer participants can also be assigned PINs. The PIN process begins with the completion of a Premises Identification Number Application.</p>
-------------------------------------	---	---

S I I d e 2 2	<p style="text-align: center;">Additional State Agencies Involved</p> <ul style="list-style-type: none"> • Iowa Homeland Security and Emergency Management Division (HSEMD) <ul style="list-style-type: none"> - Resource management • Department of Natural Resources (DNR) <ul style="list-style-type: none"> - Animal disposal issues - Livestock burial maps • Iowa Department of Public Health (IDPH) <ul style="list-style-type: none"> - Human health issues - State Public Health Veterinarian <ul style="list-style-type: none"> • Dr. Ann Garvey 	<p>Other state agencies may be involved in an animal disease emergency response and provide assistance and/or resources to IDALS. The Iowa Homeland Security and Emergency Management Division (HSEMD) would manage the needed resources for the emergency. In the event of depopulation on a farm(s), the Iowa Department of Natural Resources (DNR) would assist in animal disposal and environmental issues. An online livestock burial map database to determine safe and secure locations for burial of carcasses has been developed by the DNR. We will talk about this a bit later in the presentation. Some FADs can affect human health, including personnel on the farm. In these instances, the Iowa Department of Public Health would also be involved in an animal disease emergency. They may also be involved in assisting and addressing the mental health issues that could occur during or after an emergency response.</p>
-------------------------------------	--	---

S I I d e 2 3	<p style="text-align: center;">Additional Supporting Agencies</p> <ul style="list-style-type: none"> • Iowa Department of Public Safety • Iowa Department of Transportation • Iowa National Guard • Iowa State University Extension • Iowa State University College of Veterinary Medicine 	<p>Additional State agencies may be involved depending on the degree and nature of the animal disease emergency. These include the Iowa Department of Public Safety, Iowa Department of Transportation, Iowa Department of Public Health, Iowa National Guard. Additionally, support may come from Iowa State University Extension Service and Iowa State University College of Veterinary Medicine.</p>
-------------------------------------	--	--

S I I d e 2 4	<p style="text-align: center;">Iowa Emergency Response Plan</p> <ul style="list-style-type: none"> • The State plan outlines who is responsible for what and when <ul style="list-style-type: none"> - Each state agency is assigned responsibilities - Each agency determines how to meet their responsibilities • Iowa Comprehensive Plan <ul style="list-style-type: none"> - Iowa Emergency Response Plan <ul style="list-style-type: none"> • Annex W: Infectious Animal Disease - Iowa Hazard Mitigation Plan - Iowa Disaster Recovery Plan - Iowa Critical Asset Protection Plan 	<p>There is a State plan developed for the occurrence of an animal disease emergency. It describes the roles, responsibilities and actions needed for a variety of emergencies or disaster events. The Iowa Emergency Response Plan is part of the Iowa Comprehensive Plan, outlined in the Iowa Code, Section 605, Chapter 9 and Essential Support Function #11: The Agriculture and Natural Resources Plan, and Annex W: Infectious Animal Disease addresses the specifics for an animal disease emergency.</p>
-------------------------------------	--	---

S I I d e 2 5	<p style="text-align: center;">State Response Plan Format</p> <p style="text-align: center;">Basic Plan</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">A: Direction and Control</td> <td style="width: 50%;">M: Dam Failure</td> </tr> <tr> <td>B: Research, Analysis, Planning</td> <td>N: Fire Management</td> </tr> <tr> <td>C: Resource Management</td> <td>O: Hazardous Materials</td> </tr> <tr> <td>D: Finance and Administration</td> <td>P: Radiological</td> </tr> <tr> <td>E: Logistics</td> <td>Q: Law Enforcement</td> </tr> <tr> <td>F: Transportation</td> <td>R: Search & Rescue</td> </tr> <tr> <td>G: Public Works</td> <td>S: Public Health</td> </tr> <tr> <td>H: Communications, Warnings</td> <td>T: Medical Services</td> </tr> <tr> <td>I: Public Information</td> <td>U: Mass Fatalities</td> </tr> <tr> <td>J: Evacuation</td> <td>V: Terrorism</td> </tr> <tr> <td>K: Sheltering</td> <td>W: Infectious Animal Disease</td> </tr> <tr> <td>L: Human Services</td> <td></td> </tr> </table>	A: Direction and Control	M: Dam Failure	B: Research, Analysis, Planning	N: Fire Management	C: Resource Management	O: Hazardous Materials	D: Finance and Administration	P: Radiological	E: Logistics	Q: Law Enforcement	F: Transportation	R: Search & Rescue	G: Public Works	S: Public Health	H: Communications, Warnings	T: Medical Services	I: Public Information	U: Mass Fatalities	J: Evacuation	V: Terrorism	K: Sheltering	W: Infectious Animal Disease	L: Human Services		<p>This shows the various Annexes of the State Emergency Response Plan. Annex W addresses issues with animal disease emergencies.</p>
A: Direction and Control	M: Dam Failure																									
B: Research, Analysis, Planning	N: Fire Management																									
C: Resource Management	O: Hazardous Materials																									
D: Finance and Administration	P: Radiological																									
E: Logistics	Q: Law Enforcement																									
F: Transportation	R: Search & Rescue																									
G: Public Works	S: Public Health																									
H: Communications, Warnings	T: Medical Services																									
I: Public Information	U: Mass Fatalities																									
J: Evacuation	V: Terrorism																									
K: Sheltering	W: Infectious Animal Disease																									
L: Human Services																										

S
I
I
d
e
2
6

Annex W: Infectious Animal Disease

- Function
 - Address Iowa’s ability to respond and eliminate infectious animal diseases
 - Course of action for controlling and eradicating
 - To aid key state government decision-makers

Annex W addresses Iowa’s ability to respond and eliminate infectious animal diseases which are a threat to the agriculture industry of the state. It is designed to provide the Governor, the Iowa Secretary of Agriculture, and other key state government decision-makers with a prudent and well-reasoned course of action aimed at controlling and eradicating a serious infectious animal disease outbreak. This function is not activated for all animal disease outbreaks that occur in Iowa or that otherwise pose a threat to Iowa. Many such outbreaks are handled routinely by private practice veterinarians and/or the veterinarians employed by the State Veterinarian.

S
I
I
d
e
2
7

Federal Agencies

- U.S. Department of Agriculture
 - Animal and Plant Health Inspection Service (APHIS)
 - Veterinary Services (VS)
 - Emergency Management and Diagnostics
 - National Center for Animal Health Emergency Management
 - National Veterinary Diagnostic Laboratories



The lead federal agency for safeguarding American livestock and poultry health and for responding to a animal disease emergency is the U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS). There are several divisions of the agency which handle various aspects of surveillance, detection, diagnostics and response. The Veterinary Services division (VS) works to prevent, control and/or eliminating animal diseases, and monitoring and promoting animal health and productivity. The Emergency Management and Diagnostics Division prepares and trains personnel for response to animal health emergencies and oversees the National Center for Animal Health Emergency Management and the National Veterinary Diagnostic Laboratories.

S
I
I
d
e
2
8

Livestock Quarantine Stations

- Import quarantine of livestock and poultry
 - 4 facilities
 - 2002, livestock imports
 - 1.5 million cattle
 - 5.8 million pigs
- Personally owned birds
 - 6 quarantine facilities



Additional safeguards against the introduction of unwanted pests are government-owned import quarantine stations run by USDA. Livestock and poultry being imported into the U.S. must be accompanied by an official health certificate and must undergo quarantine at one of four facilities: Newburgh, NY; Miami, FL; Los Angeles, CA; Honolulu, HI. Exceptions are those animals coming from Mexico and Canada, which are inspected at the ports of entry. Personally owned pet birds must go through one of six USDA-operated bird quarantine facilities: New York, NY; Miami, FL; San Ysidro, CA; Hidalgo, TX; Los Angeles, CA; Honolulu, HI. Those birds coming from Canada may enter without quarantine due to similar health standards there. Importation of dogs, cats, turtles, and monkeys is overseen by the CDC’s Division of Global Migration and Quarantine. In 2002, the U.S. imported 1.5 million cattle and 5.8 million pigs.

S
I
I
d
e
2
9

USDA-APHIS-VS Diagnostic Laboratories

- Foreign Animal Disease Diagnostic Laboratory
 - Plum Island, NY
 - Provide diagnostic services and training
- National Veterinary Services Laboratories
 - Ames, IA
- National Animal Health Laboratory Network



Four USDA-APHIS laboratories comprise the National Veterinary Services Laboratories (NVSL) and provide services for the diagnosis of domestic or foreign animal diseases, import/export testing of animals, training, and testing for eradication or control programs. All suspected foreign animal disease (FAD) outbreaks must be investigated within 24 hours of notification. When a large-scale animal-disease outbreak occurs, tracking its progress and performing diagnostic tests on thousands of diagnostic samples is a big challenge. To get the job done, it is very important that all the parties involved--Federal agencies and laboratories managed by State governments and universities--communicate and collaborate effectively. The National Animal Health Laboratory Network (NAHLN) now forms part of a nationwide strategy to coordinate the work of all organizations providing animal disease surveillance and testing services. (Photo: National Animal Health Laboratory Network (NAHLN).

http://www.aphis.usda.gov/animal_health/nahln/downloads/NAHLNUpdateCurrent.pdf

S
I
I
d
e
3
0

USDA Personnel in Iowa

- Area Veterinarian In Charge (AVIC)
 - Dr. Kevin Petersburg
- 9-Federal Veterinary Medical Officers
 - All are Foreign Animal Disease Diagnosticians
- Area Emergency Coordinator
 - Dr. Stephen Goff
 - Iowa, Nebraska

There are several USDA personnel based in Iowa and responsible for federal activities in the State. All are trained FADDs.

S
I
I
d
e
3
1

USDA Federal Veterinary Medical Officers (VMO)
Dr. Kevin Petersburg, Area Veterinarian In Charge (AVIC)
Work: 515-284-4140

February 2008

Just as the state has District Veterinarians, on the Federal side, there are 9 regionally located Veterinary Medical Officers, or VMOs. These veterinarians are all FADDs and work to implement and monitor federal animal health surveillance and control programs. Some of these individuals have dual duties as State district veterinarians as well.

S
I
I
d
e
3
2

National Animal Identification System (NAIS)

- Voluntary
- Created to identify and trace livestock
- State-to-state consistency
- Goal: 48 hour trace of animals in disease outbreak
- Maintain contact information that can be accessed in case of an animal health emergency to speed notification
- Premises ID, animal ID, animal movement

The USDA also manages the National Animal Identification System (NAIS), a voluntary national program created to identify and track the movement of livestock. This will aid in determining animals in contact with or commingled with diseased or exposed animals during an outbreak investigation. Although most animal industries use some type of identification system for animal identification, the current systems are not consistent from state-to-state. In the event of a disease outbreak, the process of tracing an animal’s movement using the current forms of identification can be a time consuming event, especially if the animal has moved across state lines. Additionally, the maintenance of this information improves the ability to notify states and producers in the event of an animal health emergency. Once the program is fully implemented, a goal of NAIS is to be able to traceback or traceforward exposed animals in 48 hours or less. The first component of the program is premises identification, followed by animal identification and lastly, reporting animal movement.

S
I
I
d
e
3
3

U.S. Department of Homeland Security (DHS)

- Customs and Border Protection
 - 317 ports of entry into US
 - Imported animal and plant material
 - Over 40,000 employees
 - 3,000 agriculture specialists
 - 1 million conveyances
 - 83 million passengers
 - 3.6 million cargo inspections
 - Beagle Brigade
 - 75,000 interceptions annually

The Department of Homeland Security (DHS), through USDA-APHIS, has the difficult job of protecting our borders and keeping foreign animal and plant pests out of our country. Agriculture border controls were maintained by the USDA-APHIS-Plant Protection and Quarantine, prior to March 1, 2003, when responsibilities were transferred to the Department of Homeland Security (DHS), Customs and Border Protection (CBP). DHS CBP is responsible for monitoring 317 ports of entry into the US and are constantly on the lookout for imported animal and plant material. Under the CBP are the Customs Service, the Border Patrol, Immigration and Naturalization Service, and Agricultural Inspections; more than 40,000 employees working to safeguard our borders and ports. About 3,000 USDA-APHIS agriculture inspectors search baggage at airports and cargo at major ports of entry to ensure compliance with animal and plant import restrictions. In 2004, DHS CBP agriculture specialists inspected nearly 1 million conveyances; 83 million passengers/pedestrians and conducted nearly 3.6 million cargo inspections. An additional part of the CBP is the Beagle Brigade, a team of 141 detector dogs used to sniff out luggage, packages, mail and any other items brought in the U.S. Over 2 million interceptions of prohibited agricultural products made each year, detector dogs make 75,000 of them. This photo depicts a beagle sniffing baggage at an airport; the vest he is wearing says “Protecting American Agriculture”. (Photos by Danelle-Bickett Weddle, ISU)

S
I
d
e
3
4

Other Federal Agencies

- Department of Homeland Security
 - FEMA – Federal Emergency Management Agency
- Department of Justice
 - Law enforcement activities
- Department of State
 - International response activities
- Department of Defense
 - Authorizes Defense Support of Civil Authorities

A number of other Federal agencies may play a role in an animal health emergency depending on the response and personnel needed. The Department of Justice would coordinate law enforcement activities related to terrorist threats and incidents. **Department of Homeland Security (DHS):** Coordinates Federal operations within the United States to prepare for, respond to, and recover from terrorist attacks, major disasters, and other emergencies. **Department of State (DOS):** Coordinates international response activities relating to domestic incidents, and for the protection of U.S. citizens and U.S. interests overseas. **Department of Defense (DOD):** Authorizes Defense Support of Civil Authorities for domestic incidents. Other Federal departments or agencies may play primary, coordinating, and/or support roles based on their authorities and resources and the nature of the incident.

S
I
d
e
3
5

Veterinary Response Teams

- National Veterinary Response Teams (NVRT)
- Veterinary Medical Assistance Teams (VMAT)
- National Animal Health Emergency Response Corps (NAHERC)



There are also Federal and Regional veterinary medical assistance teams. National Veterinary Response Teams (NVRT) and Veterinary Medical Assistance Teams (VMATS) are groups of veterinarians and animal health professionals capability of setting up a full field hospital, and can provide medical care for pets, search and rescue dogs, livestock, wildlife and even zoo animals if the need arises. The USDA manages The National Animal Health Emergency Response Corps (NAHERC), a roster of private and state veterinarians and veterinary technicians that can be activated quickly to serve as temporary Federal personnel to help meet emergency staffing needs for the response and control of animal disease outbreaks. (Photo: VMAT members examining a dog. www.fema.gov/storm/charley/photos/h_c_s2_10.jpg)

S
I
d
e
3
6

National Veterinary Stockpile

- HSPD-9 (Jan 30, 2004)
 - National repository of critical veterinary supplies
 - Vaccine, antiviral, drugs
 - PPE kits
 - Deploy within 24 hours
 - Support response efforts for 40 days



The National Veterinary Stockpile (NVS) was established following release of Homeland Security Directive #9 (HSPD-9) on January 30, 2004. The NVS, much like the human version – Strategic National Stockpile, contains critical veterinary supplies in the event of an animal disease emergency. Items include vaccines, antiviral medications and other drugs needed for treating ill animals. It also includes PPE kits – Personal Protective Equipment – to ensure those working with animals have the proper gear so they aren’t exposed to disease agents. The shipment must be requested by the State; the State must then be prepared to receive, stage, store, and manage the inventory. It will be sent within 24 hours of request and is designed to support the response efforts for 40 days. A practice deployment and inventory management scenario was performed in Iowa in 2007.

S
I
d
e
3
7

National Response Framework

- Released January 2008
 - Successor of NRP
 - Effective March 22, 2008
- All-hazards approach
- Unified; All-discipline
- Flexible and scalable
- Best practices and procedures
- Allows Federal, State, local and tribal governments and the private sector to work together



The National Response Framework (NRF), successor to the National Response Plan (NRP), was released by the Department of Homeland Security in January 2008 and became effective March 22, 2008. This 90 page document specifies how Federal Government resources work with State, local, and tribal governments and the private sector to respond to emergency situations, especially when federal assistance is needed.

S
I
d
e
3
8

NRF Applicability and Scope

- Provides national operational/resource coordination framework for domestic incident management of national significance
- Details federal incident management structure/coordination processes
- Details overarching roles and responsibilities

The National Response Framework is the primary resource for domestic incident response. The NRF describes roles and responsibilities of Federal agencies incident management, Federal authority, Federal support to States, coordination between Federal agencies and the structure and coordination of responses.

S
I
D
E
3
9

National Response Framework

- A basic premise
 - Incidents are handled at the lowest jurisdictional level possible
- Emphasis on local response and identifying personnel responsible for incident management at the local level
 - E.g., police, fire, public health, medical or emergency management
 - Private sector is key partner

A basic premise of the National Response Framework is that all incidents are handled at the lowest jurisdictional level possible -- the emphasis is on local response. For animal disease emergencies, local responders such as veterinary and animal health professionals as well as police, fire, public health, medical or emergency management professionals may be called upon to assist in the response. Additionally, the private sector is a key partner, particularly for critical infrastructure protection and restoration of the community.

S
I
D
E
4
0

NRF Components

- Core document
 - Structure and process
- Emergency Support Function Annexes
 - Federal resources and capabilities
 - Functional Areas
- Support Annexes
 - Aspects common to all incidents
- Incident Annexes
 - Unique aspects of select incidents
- Partner Guides
 - Local, tribal, State, Federal and private sector response



The National Response Framework is divided into several sections. The Core Document describes the doctrines that guide our national response, roles and responsibilities, response actions, response organizations and planning requirements. The Emergency Support Function Annexes group Federal resources and capabilities into functional areas that are most frequently needed in a national response (e.g., Transportation, Firefighting, Agriculture and Natural Resources). Support Annexes describe essential supporting aspects that are common to all incidents (e.g., Financial Management, Volunteer and Donations Management, Private-Sector Coordination). Incident Annexes address the unique aspects of how we respond to broad incident categories (e.g., Biological, Nuclear/Radiological, Cyber, Mass Evacuation). Partner Guides provide ready references describing key roles and actions for local, tribal, State, Federal, and private-sector response partners. (<http://www.fema.gov/pdf/emergency/nrf/nrf-core.pdf>)

S
I
D
E
4
1

The 15 ESFs

1: Transportation Dept. of Transportation	6: Mass Care, Emergency Assistance, Housing and Homeless Assistance American Red Cross	11: Agriculture and Natural Resource US Dept. of Agriculture/ Dept. of the Interior
2: Communications National Communications System	7: Resource Support General Services Administration	12: Energy Dept. of Energy
3: Public Works and Engineering Dept. of Defense/ Army Corps of Engineers	8: Public Health and Medical Services Dept. of Health and Human Services	13: Public Safety and Security Dept. of Homeland Security/Justice
4: Firefighting Dept. of Agriculture/ Forest Service	9: Urban Search and Rescue Federal Emergency Management Agency	14: Long Term Community Recovery U.S. Small Business Administration
5: Emergency Management Federal Emergency Management Agency	10: Oil and Hazardous Materials Response Environmental Protection Agency	15: External Affairs Federal Emergency Management Agency

Slide used with permission from Dr. Dahna Batts, CDC/COCA.

Fifteen Emergency Support Functions (ESF) are included in the NRF. These documents describe the grouping of Federal resources and capabilities into functional areas needed in a national response (e.g., Transportation, Firefighting, Agriculture and Natural Resources). Each ESF lists the primary and support agencies involved in various emergency response situations, as well as the Federal resources, policies, concepts of operation, responsibilities and capabilities for a national response. ESF outlines how the Federal government will provide assistance to State, local and tribal governments. For animal disease emergency response, ESF 11: Agriculture and Natural Resource is followed. Depending on the scale of the incident, the response may also involve ESF 8: Public Health and Medical Services and ESF 13: Public Safety and Security. (Slide graphics used with permission from Dr. Dahna Batts, CDC, Clinician Outreach and Communication Activity (COCA). October 2007. www.bt.cdc.gov/coca/ppt/coca_Brief_052207_Final.ppt#264,11,Slide11; Updated ESF info from www.fema.gov/pdf/emergency/nrf/nrf-est-all.pdf.)

S
I
D
E
4
2

Local Roles and Responsibilities

- Private Sector Organizations
 - Welfare and protection of employees
 - Maintain essential services
 - Water, power, communications, transportation, medical care, security
 - Involved in local crisis decision making process
- NGO – Nongovernmental Organizations
 - Provide sheltering, emergency food supplies, counseling, etc.
 - Provide specialized services for those with special needs

Private sector organizations play a key role before, during, and after an incident. First, they must provide for the welfare and protection of their employees in the workplace. In addition, emergency managers must work seamlessly with businesses that provide water, power, communication networks, transportation, medical care, security, and numerous other services upon which both response and recovery are particularly dependent. Many private-sector organizations are responsible for operating and maintaining portions of the Nation’s critical infrastructure. During an incident, key private-sector partners should be involved in the local crisis decision making process or at least have a direct link to key local emergency managers.

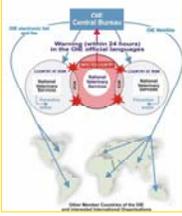
Nongovernmental Organizations (NGOs) play enormously important roles before, during, and after an incident. For example, NGOs provide sheltering, emergency food supplies, counseling services, and other vital support services to support response and promote the recovery of disaster victims. These groups often provide specialized services that help individuals with special needs, including those with disabilities. NGOs may also need government assistance, and when planning the allocation of local community emergency management resources and structures, some government organizations provide direct assistance to NGOs. NGOs collaborate with responders, governments at all levels, and other agencies and organizations. (Source: <http://www.fema.gov/pdf/emergency/nrf/nrf-core.pdf>)

S
l
i
d
e

4
7

World Organization for Animal Health (OIE)

- Early Warning System
- Disease reported within 24 hours
- Informs countries at risk
- Trade shut down until further notice



The detection of any of the listed high consequence livestock pathogens must be reported to the World Organization for Animal Health (called the OIE – Office International des Epizooties) within 24 hours. This international organization monitors the disease status of animal diseases of severe economic or public health consequences. The OIE immediately informs all other countries at risk, i.e. those countries receiving exports from the affected country. The result is often the swift implementation of a trade embargo by many countries against the affected animal species or their products. This was seen with the discovery of “mad cow” case (BSE, bovine spongiform encephalopathy) in the State of Washington. Once the infected cow was discovered, live cattle exports ceased to many countries. Borders did not reopen until an international investigation team deemed the disease investigation was handled appropriately and the disease had been eradicated. In the case of foot and mouth disease (FMD), trade could not resume until 3-months after the slaughter of the last positive animal, given ongoing testing and surveillance had occurred throughout the disease monitoring process.

S
l
i
d
e

4
8

Routes of Transmission

- Spread of disease agents
 - Animal ↔ animal
 - Animal ↔ human “zoonotic”
- Different modes of transmission
 - Aerosol
 - Direct contact
 - Fomite
 - Oral
 - Vector-borne
 - Zoonotic



Disease agents can be spread from animal to animal, or animal to human (known as zoonotic disease), through five main routes – aerosol, direct contact, fomite, oral and vector borne. Zoonotic diseases involve the transmission of disease pathogens from animals to humans. The disease agents entry into a person goes through the same five routes of transmission as in animals – aerosol, oral, etc. It should be noted that many infectious agents can be transmitted by more than one route of infection. (Photo courtesy of DB Weddle, DVM, Iowa State University)

NOTE TO PRESENTER: This would be the place to distribute the Transmission Routes Handout so participants can learn the definition of each of the routes of transmission. For brevity, here are quick explanations: aerosol – breathing in contaminated particles; direct contact – disease agent entering through blood, breeding, mucous membranes like eyes/gums/open wounds; fomite – contaminated inanimate object carries disease agents and enters animal directly or orally (example – needles, buckets, boots); oral – consumption of contaminated feed, water; vector-borne – insects acquire disease agent from one animal/human and spread to another animal/human

S
l
i
d
e

4
9

Environmental Contamination

- Disease organism in environment
 - Survive in soil, organic material
- Animals and humans can acquire agent(s) through:
 - Inhalation (aerosol)
 - Direct contact
 - Fomites
 - Oral consumption
 - Vectors



Many disease agents can survive for extended periods of time in soil or other organic material like bedding, manure, old feed, etc. Animals or humans can then acquire the disease agent from the environment through inhalation or aerosolization, oral consumption, direct contact, or via fomites as discussed in previous slides. Therefore, **environmental contamination** should not be ignored but recognize the routes it uses to get into the animal can be controlled. This photo demonstrates the wide realm of environmental contamination possibilities (photo source DB Weddle). Next we will discuss ways to prevent entry of disease onto a farm – carrying organic matter from the environment is one area that must be controlled.

S
l
i
d
e

5
0

Preventing Entry

- Some animal viruses can be carried by fomites
 - Truck tires, wheel wells, undercarriage, footwear, clothing
- Walking/driving through animal areas
- Pick up viruses/bacteria
- Deposit on the road, next farm
- Proper cleaning and disinfection is important

It is important to recognize that some animal pathogens may be carried on vehicles (truck tires, wheel wells, undercarriage) as well as footwear and clothing. These are all examples of fomites – contaminated inanimate objects that can carry disease from one place to another. Therefore walking or driving through animal areas can contaminate footwear or tires and spread the agent throughout the operation or to the next farm, if proper cleaning and disinfection steps are not taken. We will discuss specific prevention protocols you can put in place to minimize the risk of spreading disease.

S
I
I
d
e
5
1

Preventing Entry

- Park in designated area
- Carry equipment to the site
 - Inspect equipment before leaving vehicle
- Wash contaminated objects on farm
- Follow posted protocols, biosecurity plans



To limit introduction of disease pathogens, park in a designated on farm, away from animal traffic or contact. Then, only take the necessary equipment with you. Inspect your equipment before using on farm to make sure it is clean. If you need to drive your vehicle on farm, it imperative that the vehicle and tires are cleaned as they become contaminated. The same applies for any portable or towed equipment; wash, clean, and disinfect on the farm before leaving. Follow posted protocols on farm and ask about other biosecurity procedures. The sign pictured here is available as a resource (filename: farm_visitor_policy.pdf) Sign designed by: Danelle Bickett-Weddle and Clint May, ISU

S
I
I
d
e
5
2

Preventing Spread

- Limit contact with animals
- Wear protective clothing, footwear
- *Between* animal groups and *prior* to leaving operation
 - Change soiled protective clothing
 - Wash, disinfect soiled footwear
 - Clean, disinfect soiled equipment
- Leave trash on farm



In order to prevent disease spread on farm, awareness of where animals are located and minimizing contact with them is important. If animal contact is necessary, wear protective gear that can be removed and cleaned to minimize disease spread. When moving between animal groups, change any soiled protective clothing, especially if the health status of the groups are different (different age, different vaccination status), and wash and disinfect (or dispose of) protective footwear. Equipment used with different groups of animals should be treated the same way – clean/disinfect or dispose if appropriate. Trash that is generated on farm should be left on farm to minimize spread to other operations. If vehicles or equipment become soiled, wash and disinfect soiled surfaces before leaving the farm, again to minimize spread to other operations.

S
I
I
d
e
5
3

Preventing Zoonosis

- Protective outer clothing
 - Coveralls, water-resistant barriers
 - Footwear
 - Overshoes that can be cleaned, disinfected
 - Disposable
 - Gloves
 - Sick, unknown health status animals
- Remove soiled items before leaving
- Wash hands



Animals may carry disease organisms that can cause disease in humans – referred to as zoonotic diseases. It is important to protect yourself while working with animals, or in the environment of animals, to decrease the risk of becoming ill. Protective outer clothing (coveralls, water-resistant barriers), footwear (cleanable or disposable) and gloves will protect your skin from contacting disease organisms from an animal or the environment. Zoonotic disease organisms can be carried on clothing and footwear and should not be worn away from the animal facility to minimize the spread of disease to family members (especially children and the elderly). Gloves should be worn when working with sick animals or those that you are unaware of their health status (infected animals do not always appear sick). Wearing gloves does not replace good hand washing habits- wash hands in warm water and soap after removing gloves, soiled outerwear and footwear.

S
I
I
d
e
5
4

Response to an Animal Disease Emergency

The response needed for an animal disease emergency will be dependant on a number of factors. However, almost all disease outbreaks involving livestock or poultry will involve the State Veterinarian and usually the Federal Government (USDA-APHIS) to some extent. Those outbreaks that involve a foreign animal disease (one that is not found in the U.S.) will have international trade issues.

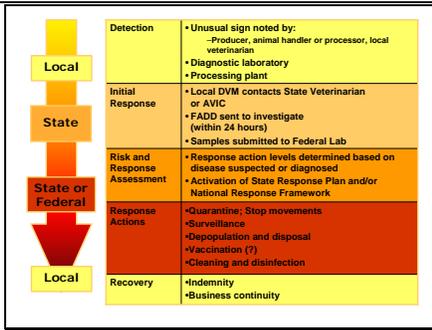
S
I
I
d
e
5
5

Response

- Preparedness plan in action
 - Expedient, safe, effective
- Level of response depends on:
 - Particular disease
 - Ability of disease to spread
 - Degree of spread
 - Resources available

Response is crucial for an emergency incident, including an animal health emergency. The goal is to put your preparedness plan into action expediently, safely and effectively. The level of response needed will vary on a number of factors. The disease suspected or confirmed, the number of animals or premises affected, the animal health and public health impact from the disease, the economic or trade implications of the disease. Actions taken will be made by the State Veterinarian (or in the case of a national emergency – in conjunction with the Federal AVIC). Some diseases may potentially bring a Presidential or a USDA declaration of emergency. Should the disease be one that spreads quickly, or can be transmitted to humans, other USDA or Federal teams, even FEMA teams, may be sent for assistance.

S
I
d
e
5
6



Diseases are detected at the local level, either by the producer or the local veterinarian. In some cases, the diagnostic laboratory or slaughter facility may make initial detection. Veterinarians are required to report animal disease of high consequence (listed in the Iowa Code, USDA or OIE lists) to the State Veterinarian or Federal AVIC. Once detected, the incident is typically handled at the State/Federal level first working with the local level. State Veterinarian has authority for and directs all response and treatment actions (in partnership with their Federal counterpart-AVIC). Once the animals are euthanized and disposed of, then the site or sites must be cleaned and disinfected. Likewise, some compensation (indemnity) may be provided to the owners of the animals. The state or federal indemnity funds will need to be made available. During and after an animal disease emergency, businesses must attempt to continue function. Recovery takes time.

S
I
d
e
5
7

FADD Investigation

- Foreign Animal Disease Diagnostician
 - Specially trained veterinarian
 - Over 500 FADD investigations in U.S. each year
 - In Iowa, 25-50 each year
 - Visits premises within 24 hours
 - Inspects animals and makes field diagnosis
 - Consults with State Veterinarian and AVIC on case priority and necessary actions
 - Submits sample to appropriate veterinary diagnostic laboratory
 - Ames, IA or Plum Island, NY

Upon suspecting a disease of high consequence, the local veterinarian is required to contact the State veterinarian or the Federal AVIC. At this point a FADD (foreign animal disease diagnostician) is sent out to investigate. A FADD, is a state or federal veterinarian who is specially trained to conduct investigations of high consequence animal diseases. Each year in the U.S. over 500 FADD investigations are conducted; most of which turn out to be negative for high consequence animal diseases. Here in Iowa, about 25-50 investigations are conducted each year. The FADD will investigate within 24 hours of the local veterinarians initial call. The FADD will assess the situation and examine the animal(s). Working in close collaboration with the State Veterinarian and the Federal AVIC, the FADD will obtain the appropriate samples and forward them to the appropriate National laboratory for testing. Depending on the level of suspicion of an FAD, the sample may be shipped overnight or hand carried to the laboratory. While the sample is being processed, the affected farm may be placed under a hold order to prevent the movement of animals off of or onto the premises. The level of response needed will vary on a number of factors. The disease suspected or confirmed, the number of animals or premises affected, the animal health and public health impact from the disease, the economic or trade implications of the disease. Actions taken will be made by the State Veterinarian (or in the case of a national emergency – in conjunction with the Federal AVIC). Some diseases may potentially bring a Presidential or a USDA declaration of emergency.

S
I
d
e
5
8

Containment

of an Animal Disease Emergency

There are various disease prevention and control methods that must be applied during and after an animal health event and these will be discussed next.

S
I
d
e
5
9

Prevention: State Level

- State Veterinarian
 - Under authority of Iowa Secretary of Ag
 - Embargo
 - Prohibits animal and/or product movement into Iowa
 - Voluntary hold order
 - Request that owners voluntarily cease all movement of animals and/or product
 - Quarantine
 - Mandatory order to cease animal and/or product movement

If a major animal disease is reported in Iowa, movement restrictions could be put in place to minimize spread until more information is known. The State Veterinarian, under the authority of the Iowa Secretary of Agriculture, may implement embargos, voluntary hold orders, or quarantines, depending on the needed response. Animals or their products may not be allowed to go to market or for further processing. People movement may also be limited initially until more is known about the disease and how it is spread. The only ones allowed on/off operations could be essential personnel or state authorities. Deliveries may be halted as well depending on the disease concern and how rapidly it can spread.

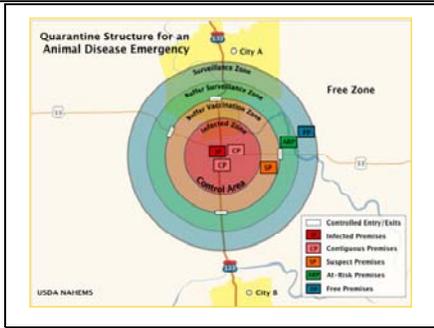
S
I
I
d
e
6
0

IDALS Authority:
Iowa Code 163.1(1)

- Grants IDALS power to “control an infectious disease affecting animals within this state” which may involve
 - Control and eradication of animal disease
 - Quarantine of diseased animals or premises
 - Regulation or prohibition of animal movement in, out and within the state
 - Entry to any premises where animals/ carcasses are or have been in the past
 - Condemnation and depopulation of animals
 - Disinfection of farm operations

The Iowa Code, Section 163, grants IDALS broad powers to “control an infectious disease affecting animals within the state”. Actions needed may include control and eradication of animal disease, quarantine of diseased animals or premises, regulation or prohibition of animal movement in, out and within the state, entry to any premises where animals/carcasses are or have been in the past, condemnation and depopulation of animals and/or disinfection of farm operations. Iowa Code Chapter 163: Infectious and Contagious Diseases Among Animals at <http://www.legis.state.ia.us/IACODE/2001/V.html>.

S
I
I
d
e
6
1



Once an Infected Premise with a high consequence animal disease is identified, the area surrounding that farm will be quarantined (Infected zone ~ approximately 6.2 miles in diameter). Neighboring farms, Contiguous Premises, may also be quarantined as would any farms that had received animals from the IP or were sources of animals to the IP (until surveillance is conducted). For some severely contagious diseases, such as foot-and-mouth disease, movement of animals and possibly traffic will be stopped. This will involve the implementation of various road block and entry and exit points in the Infected Zone. Depending on the location and number of roadways feeding into the area, this may be a high resource (personnel) demanding function. (Graphic by Andrew Kingsbury, CFSPH, ISU)

S
I
I
d
e
6
2

Single Premises Response

- One location
- FADD investigates
- Diagnosis
- Quarantine premises
- Most coordination at State level
- Treat or depopulate
- Federal authorities manage international issues

Single premises responses consist of one location where the FADD is called out to investigate the clinical signs or cause of death in animals. If the history and clinical signs are cause of concern, the FADD can discuss their findings with the State Veterinarian first and the quarantine can actually be put in place prior to definitive diagnosis as a safety measure. Once a diagnosis of a foreign animal disease is received, the State Veterinarian will put a quarantine on that premises. A single premises FAD will most likely be handled by State. They will decide to treat the animals or depopulate (euthanize and dispose of carcasses) depending on the disease diagnosis. The Federal authorities will handle the issues related to international concerns as a result of the disease diagnosis (OIE communication, embargos from other countries).

S
I
I
d
e
6
3

Multiple Premises, Confined Area Response

- All steps listed for single premises plus
- Increased quarantine area
- REGIONAL Involvement
 - State, Federal and industry agricultural authorities handle situation with or without State Declared Emergency
- USDA Secretary of Agriculture may issue Declaration of Emergency

Once you have considered the incident management of one location and some of the logistics and personnel issues, consider a multiple premises response. Although limited in geographic area, the control area needed would still be large and require increased resources. At this level, the Region gets very involved and there may or may not be a State Declaration of Emergency.

S
I
I
d
e
6
4

Multiple Premises, Multi-State Response

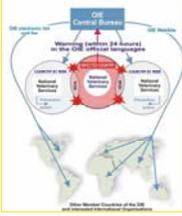
- Everything previous plus
- National movement controls
- State level emergency declared
- U.S. Secretary of Agriculture requests assistance from DHS
- National Response Framework and ESF 11 activated
- APHIS is lead agency

This is the worst case scenario. All of the previous response type actions are in place and now a State level emergency is declared. The U.S. Secretary of Agriculture will request assistance from Department of Homeland Security (DHS), thus turning on the National Response Framework, specifically Emergency Support Function (ESF) 11. APHIS will be the lead Agency and will support the States in their response efforts.

S
I
I
d
e
6
5

World Organization for Animal Health (OIE)

- Early Warning System
- Disease reported within 24 hours
- Informs countries at risk
- Trade shut down until further notice



The detection of the most high consequence livestock pathogens needs to be reported to the World Organization for Animal Health (the OIE) within 24 hours. The OIE immediately informs all other countries at risk, i.e. those countries receiving our exports. Our borders could, and would, be shut down, and preventative action would be taken by all countries at risk. As was the case with bovine spongiform encephalopathy (BSE) or “mad cow disease” in the state of Washington, once the infected cow was discovered, live cattle exports ceased to many countries. Borders will not reopen until an international investigation team deems the disease investigation was handled appropriately. If FMD were to occur in the U.S., trade could not resume until 3-months after the slaughter of the last positive animal, given ongoing surveillance through serological testing has occurred throughout the disease monitoring process.

S
I
I
d
e
6
6

Depopulation

- Control of FAD
- Determined by State or Federal Veterinarian
- Humane method
 - Cervical dislocation
 - Carbon dioxide
 - Captive bolt
 - Anesthetic overdose



Control of a diagnosed foreign animal disease on a livestock operation usually involves depopulation of all animals on the farm. This decision will be made by the State or Federal Veterinarian. Many different humane options exist for euthanizing animals and the method is determined by species. If animals are euthanized, then a disposal plan should be in place. (The photo shows carbon dioxide foam used to humanely euthanize floor reared poultry.)

S
I
I
d
e
6
7

Disposal

- Burial on-site
- Composting
- Incineration
- Rendering
- Alkaline hydrolysis
- Landfill
 - Biosecurity concerns
 - Disease characteristics
 - Quarantine zones
- Open burning (not allowed in Iowa)



Burial on-site and composting are the current options the Iowa Department of Natural Resources (IDNR) has in their plan for livestock disposal. Protocols have been developed to ensure proper composting or burial. One big advantage of these methods is that animal carcasses are not moved off the premises thereby decreasing the risk of disease spread. Rendering may be a consideration depending on proximity to one of five rendering businesses in Iowa. Landfill of dead animals raises biosecurity concerns depending on the disease and where the quarantine zone is located. Open burning of carcasses is not allowed in Iowa; incineration methods may be allowed. In some cases alkaline hydrolysis may also be used.

S
I
I
d
e
6
8

Disposal Options

- Disposal restricted by:
 - Disease characteristics
 - Ease of transmission
 - Method of transmission
 - Zoonotic potential
 - Quarantine zones
 - Other restrictions per the State Veterinarian

Some of the considerations that go into determining a disposal option include the characteristics of the disease pathogen (e.g. ability to spread or infect people), the establishment and breach of quarantine zone designations.

S
I
I
d
e
6
9

IDNR: Carcass Disposal Maps

- www.iowadnr.gov
 - Site considerations of burial locations
 - Environmental: Water tables
 - Proximity to habitation
 - Disease transmission
- GIS Mapping - Interactive
 - 3 tiered approach
 - Red – restricted zones
 - Multiple colors – cautionary zones
 - Green – no known restrictions

The Iowa Department of Natural Resources (IDNR) has developed Carcass Disposal Maps using GIS technology. These maps are online and interactive. Site considerations for livestock burial include proximity to water tables, habitation and the possibility of disease transmission. A 3-tiered approach is used for the maps with red indicating burial restricted zones, multiple colors are cautionary and green are no known restrictions.

S
I
D
E
7
0



This is a sample livestock burial map from the Iowa DNR website. Red – restricted zones, Multiple colors – cautionary zones, Green – No known restrictions.

S
I
D
E
7
1

Prevention: On the Farm

- Restrict access to farm
- Clean vehicles only
- Record ALL traffic, visitors
- Monitor animals frequently
 - Contact your herd veterinarian

In the event of an animal disease emergency, strict biosecurity measures should be implemented and will serve as a means of preventing the further spread of the disease. Access to the farm should be restricted to only those personnel necessary for the function of the farm. Signs (like the one shown) should be posted at the farm entrance restricting access (Graphic design by Clint May, CFSPH). Any traffic (vehicle, people) allowed should be CLEAN, closely monitored and recorded in a log book. Animals should be closely and frequently monitored for signs of illness or unusual behavior. If identified, the herd veterinarian should be contacted immediately. **Note to presenter:** Do Not Enter Sign is available in your resources.

S
I
D
E
7
2

Prevention: On the Farm

- Cleaning
 - Remove all organic matter
 - Manure, dirt, feed, etc.
- Disinfection
 - Use proper concentration
 - Allow proper contact time
- Vehicles, equipment, footwear, housing

In order to control disease, proper cleaning and disinfection of all vehicles on and off the farm, plus animal housing areas may be necessary. An essential step is cleaning - removing all organic matter (manure, feed, dirt, etc.) prior to application of any disinfectants. Most disinfectants are inactivated by organic material. Additionally, this debris can allow microorganisms “hiding” from the action of disinfectants. Always read the label instructions to determine to concentration needed. More is not always better. Another often overlooked step is to allow for proper contact time after application of the disinfection solution. The chemicals need time to do their job. In the event of a disease outbreak, the best disinfectant of choice will likely be determined by animal health officials. Photo courtesy of: Danelle Bickett-Weddle, DVM, ISU

S
I
D
E
7
3

Safety: On the Farm

- Injuries
- Slips, trips and falls
- Mental health
 - Producers loss of herd/flocks, livelihood
 - Responders stress
- Environmental stress
 - Heat, cold, rain
- Physical stress

Safety is also a concern when assisting with a response to an animal disease emergency. Physical stress and injuries may occur from interactions with animals or heavy equipment used on the site. Inclement weather conditions as well as wet disinfection and decontamination areas can lead to slips, trips or falls. Mental health issues are also a concern. Not only for the producer, who may lose the entire herd/flock and possibly their livelihood, but also the responders working with or euthanizing the animals. Depending on weather conditions, environmental stress such as heat, cold, rain, snow, etc. can contribute to the physical and psychological stress.

S
I
D
E
7
4

Response Coordination

NIMS and ICS

Next we will overview the coordination mechanisms of any animal disease emergencies. These include NIMS, the National Incident Management System and ICS, the Incident Command Structure.

S
I
d
e
7
5

National Incident Management System (NIMS)

- February 2003
 - Draft revision Aug 2007
- Homeland Security Presidential Directive–5
- Nationwide template
 - Enables all government, private-sector, and NGOs to work together during domestic incidents



In February 2003, Homeland Security Presidential Directive–5 (HSPD-5) was created to “enhance the ability of the United States to manage domestic incidents by establishing a single, comprehensive national incident management system”. This led to the creation of NIMS, the National Incident Management System, a nationwide template that standardized incident management processes, protocols and procedures for all responders whether governmental, private-sector or non-governmental organizations (NGO). NIMS also mandates the use of the Incident Command System, which we will talk about later.

S
I
d
e
7
6

NIMS Key Concepts

- Standardizes incident management for all responders
 - A core set of principles, terminology and organizational processes
- Flexible, adaptable
 - Applicable regardless of incident cause, size, location, or complexity
- Enables government and private entities work together

NIMS consists of a core set of principles, terminology and organizational processes that establish standardization of the management of an incident. The system is flexible and adaptable and can be used regardless of the cause, size, location or complexity of the hazard. This allows government and private entities to work together.

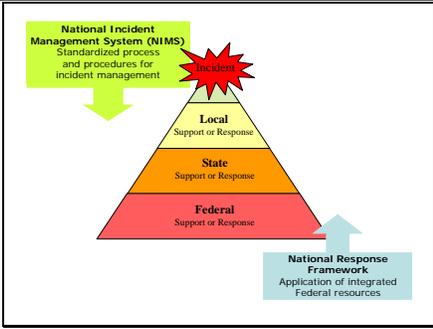
S
I
d
e
7
7

NIMS Components

- Command and management
- Preparedness
- Resource management
- Communications and information
- Supporting technologies
- Ongoing management and maintenance

This is a brief summary of the major components of the NIMS. 1) Command and Management: There are three organizational systems for command and management in NIMS. They are Incident Command System, Multiagency Coordination Systems and Public Information System. 2) Preparedness activities are done prior to events and include planning, training, exercises, and determining qualifications and certification. 3) Resource Management is important for describing, inventorying, mobilizing, dispatching, tracking, and recovering resources. 4) Communications and Information Management serves to standardize communications processes, procedures, and systems across all agencies and jurisdictions. Information must flow efficiently through a commonly accepted architecture. 5) Supporting Technologies provide voice and data communication systems, information management systems (record keeping and resource tracking), and data display systems. 6) Ongoing Management and Maintenance provides strategic direction and oversight of the NIMS.

S
I
d
e
7
8



NIMS aligns command & control, organization structure, terminology, communication protocols, resources and resource typing to enable synchronization of efforts in response to an incident at all levels of government. Resources, knowledge, and abilities from the various Federal Departments and Agencies are outlined in the National Response Framework.

S
I
I
d
e
7
9

Incident Command System (ICS)

- Standardized on-scene emergency management tool
 - To coordinate and combine independent efforts
- Integrated organizational structure
 - Can have officials and responders from Federal, State, local and tribal agencies, private sector and non-governmental organizations
- Not hindered by jurisdictional boundaries

The Incident Command System (ICS) is mandated by NIMS. It is a standardized on-scene emergency management tool that allows responders to coordinate their efforts. ICS has an integrated organizational structure with which incorporates the needed officials and responders from Federal, State, local and tribal agencies as well as the private sector and non-governmental organizations. The system allows function without hindering jurisdictional boundaries.

S
I
d
e
8
0

Incident Command Post

- Modular Format
 - Top down structure
 - Five key functional areas

```

    graph TD
      Command[Command] --> Safety[Safety Officer]
      Command --> Information[Information Officer]
      Command --> Liaison[Liaison Officer]
      Command --> Operations[Operations]
      Command --> Planning[Planning]
      Command --> Logistics[Logistics]
      Command --> Finance[Finance/Administration]
    
```

ICS is adjustable depending on the complexity or demands of the incident. The organization structure can be adapted for a variety of situations, including single jurisdiction/single agency events, single jurisdiction with multi-agency involvement, and multi-jurisdictional or multi-agency operations. The structure of the ICS is a modular format. It is a top down structure with five key functional areas. The Command Post, the Operations, Planning, Logistics and Finance/Administration functions.

S
I
d
e
8
1

Incident Command

Coordination of information and resources to support local incident management activities

Management of multiple incidents - each handled by an ICS organization

Primary tactical-level, on-scene incident command functions

This slide shows the organization of a larger scale incident. Area command is established to oversee the management of the various Incident Command Posts (ICP). The ICPs are the field locations at which the primary tactical-level, on-scene incident command functions are performed. The EOC (local, state, national) is a physical location at which the coordination of information and resources to support local incident management activities normally takes place.

S
I
d
e
8
2

Animal Health Incident Command System Organization

```

    graph TD
      IM[Incident Management] --> ICS[Incident Command System]
      ICS --> Support[Support]
      ICS --> Ops[Operations]
      ICS --> Plan[Planning]
      Support --> Info[Information Management]
      Support --> Liaison[Liaison]
      Support --> Safety[Safety Officer]
      Support --> Training[Operations & Training]
      Ops --> Logistics
      Ops --> Operations
      Ops --> Planning
      Logistics --> Admin[Administration & Support]
      Logistics --> Finance[Finance & Logistics]
      Logistics --> Support[Support]
      Operations --> Diagnostic[Diagnostic]
      Operations --> Epidemiology[Epidemiology]
      Operations --> Surveillance[Surveillance]
      Operations --> Euthanasia[Euthanasia]
      Operations --> Cleaning[Cleaning and Disinfection]
      Planning --> Incident[Incident Management]
      Planning --> Response[Response]
      Planning --> Recovery[Recovery]
      Planning --> Support[Support]
    
```

This is a more detailed view of the various sections in an Animal Health Incident Command. Operations (field) organization is grouped by task (e.g., diagnostics, epidemiology, surveillance, euthanasia, cleaning and disinfection).

S
I
d
e
8
3

Each Location Will be a LOCAL Incident

- Requires local planning
- Initial response will be a local one
- After State and Federal agencies leave – it is still a local incident
- Address long term recovery
 - Producers
 - Local jurisdiction
 - Economic effects

It is important to remember that each incident will be LOCAL. Therefore local planning is needed to best prepare for an event. Although State and Federal agencies will respond, once the situation is controlled, the long term recovery process is locally based.

S I D E 8 4	<h3 style="margin: 0;">Recovery</h3>	<p>The final step in an animal disease emergency is recovery – what can be done to restore livestock production, continue with business, and ensure Iowa’s agriculture industry rebuilds.</p>
--------------------------------	--------------------------------------	---

S I D E 8 5	<div style="text-align: center; margin-bottom: 10px;"> <h3 style="margin: 0;">Recovery</h3> </div> <ul style="list-style-type: none"> • Restore confidence • Requires time, money, effort <ul style="list-style-type: none"> – Cleaning and disinfection – Indemnity for livestock owners – Restocking • Business continuity 	<p>Recovery involves restoring confidence that the situation is contained and the danger is over. A great deal of time, money, and effort is required to recover from an agricultural incident. Once the animals are disposed of, then the site(s) must be cleaned and disinfected. Following an animal disease emergency, Federal and State governments would work together on a possible compensation plan (indemnity) for producers for some or all of the loss of value of animals destroyed, dependent upon availability of State or Federal indemnity funds. Typically a farm will not be allowed to restock for a set period of time, dependant on the disease (e.g., for avian influenza the wait time is a minimum of 30 days). Finally, business continuity is an important consideration in recovery efforts. Recovery is smoother if a business or county has a continuity plan to implement. These plans are developed to keep people safe and employed during a disaster and to keep the business running during and after a disaster, which history tells us requires planning. More details related to business continuity are discussed next.</p>
--------------------------------	---	--

S I D E 8 6	<div style="text-align: center; margin-bottom: 10px;"> <h3 style="margin: 0;">Impact of Animal Disease</h3> </div> <ul style="list-style-type: none"> • How will you or you business be impacted by an animal disease outbreak in your state, your county, within 5 miles? • Are you prepared to handle the impact an animal disease outbreak could have both financially and mentally? 	<p>If an animal disease were to occur in your state, your county or within 5 miles of your business, how will your business be affected? Are you prepared to handle the financial and mental impacts an animal disease outbreak could have on your business?</p>
--------------------------------	---	--

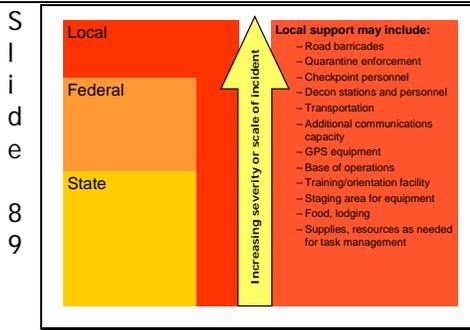
S I D E 8 7	<div style="text-align: center; margin-bottom: 10px;"> <h3 style="margin: 0;">Impact of Animal Disease</h3> </div> <ul style="list-style-type: none"> • Would stop movement and road blocks impact your business? • Are animal owners your customers or suppliers? • Does the agriculture market impact your business? • Even if you don't have animals, are you located in close proximity that you would be in a control zone? <div style="text-align: right; margin-top: 10px;">  </div>	<p>Some other considerations in the event of an animal disease outbreak include, would stop movement orders and road blocks impact your business? Often times these steps are put in place until more is known about the disease and how it is spread. Even if it is temporary, it could impact your financial bottom line. Are animal owners your customers or suppliers? How long can you continue earning an income if their business is halted? Does the agriculture market impact your business? Even if you are not a livestock owner, do you live close enough to animal operations that might be in a control zone? How will that affect your business? Will your customers be able to reach you? These are all valid concerns and real situations that have occurred in disease outbreaks. Prior to a disaster, it may be hard to comprehend the impact. (Photo source: http://oneyearbible.blogs.com/photos/uncategorized/road_block.jpg)</p>
--------------------------------	--	---

Prior to Disaster

- “It will never happen to me”
- “It won’t be that bad”
- “I have insurance”
- “The government will take care of me”
- Preparation and planning are essential for businesses to survive a disaster



Prior to a disaster, some of the thoughts business owners may think include “It will never happen to me”, “If disaster strikes, it won’t be that bad”, “I have insurance in case anything bad occurs” and “The government will take care of me if a disaster occurs”. As we know, disasters can and do happen and the only thing we can predict is that disasters are unpredictable. The definition of disaster contains words like catastrophe, calamity, great loss and destruction, an uncontrolled crisis. That alone means it will be bad and preparation and planning is imperative for businesses to survive. Insurance and the government are not always going to be able to assist in the capacity that is needed. Take responsibility for the success of your business by establishing a business continuity plan. (Photo source: http://www.cherookeeia.com/images/photos/larrabee_feed_mill.jpg)



Local resources will be needed at all levels of response. Depending on the severity or scale of the incident, State and Federal resources will be available. As the severity and scale escalates, these resources will be strained and a greater demand for local resources will occur. This is often referred to as the YOYO (Your On Your Own) philosophy. The list on the right indicates local resources that may be requested throughout a response to an animal health emergency.

Planning for YOYO Phase

- Protect your family, employees
- Protect pets and livestock
- Protect your property, business
- Critical community resources for:
 - Those with special needs
 - Most severely impacted
- Be part of the solution
 - Not part of the problem

In order to get through the YOYO phase, having a plan is important for many reasons. Planning is a way to protect your family and/or employees, your pets and/or livestock, your property/business, and allow critical community resources to more readily help those who have special needs or are most severely impacted. This allows you to be part of the solution rather than part of the problem.



The basic elements in developing business continuity plans involve analyzing your risks by identifying the hazards that might impact you (foreign animal diseases), determine what the consequences will be to you and/or your business if there is an outbreak of that disease, and evaluate you or your businesses vulnerabilities to the disease. Using this information along with the resources and plans you have, you develop an emergency operations plan and mitigation strategies.

Business Continuity

- Establish a planning team
 - Analyze capabilities and hazards
 - Internal plans, local government, codes and regulations
 - Identify critical products, services, operations
 - Facilities, equipment, supply needs, water, electricity, essential personnel, internal resources, insurance policies
 - Conduct a vulnerability analysis
 - Develop the plan



How do you get started and make a business continuity plan? The Federal Emergency Management Agency (FEMA) has outlined the process to help you accomplish this important task. Businesses small and large should have a plan because animal agriculture’s impact is widespread and deep. The first step is to establish a planning team. This team will analyze capabilities and hazards by looking at internal plans and policies in place, meet and understand the people and plans of local government in your area, and identify government codes and regulations that will influence your plans. The planning team will also identify critical products, services and operations such as facilities and equipment, supply needs – especially those from a sole source, lifeline services – water, electric, etc, essential personnel for a facility to function, identify internal resources and capabilities – personnel, equipment, back up systems and review insurance policies. Some of these will not be impacted by an animal disease outbreak but it is good to plan for all kinds of disasters. The planning team will also conduct a

vulnerability analysis. They must determine and evaluate what emergencies could occur in your facility and in your community, how might disease enter, how much customer base would be impacted by a bovine disease, poultry disease, swine disease... What has happened in other places and what were the vulnerabilities. Using this information, a plan can be developed and that is discussed next. Source: Emergency Management Guide for Business and Industry: A step-by-step approach to emergency planning. Pictured is a gas powered generator, something that may be needed in the event of an emergency (source: <http://kidsonroll.com/admin/images/5000welectricstartgenerator.gif>)

S
I
D
E
9
3

<p>Business Continuity Plan</p> <ul style="list-style-type: none"> • Direction and control • Communications • Life safety • Property protection • Community involvement • Administration and logistics 	
---	---

FEMA has outlined the important components of a business continuity plan. The planning team should go through each component and address the issues. Source: Emergency Management Guide for Business and Industry: A step-by-step approach to emergency planning.

Direction and control – this part of the plan outlines who is in charge and what system they will use to help manage the resources and make decisions. Depending on the size of the business, this can be simple or more sophisticated. This should include the plan to be followed, the duties of personnel, and what information needs to be gathered to make decisions.

Communications – this part of the plan outlines how employees and others will be educated and trained about the plan, how each employee will know what their role is in the plan, and how employees will be notified of a disaster. Communications should also be prepared to discuss expectations.

Life safety – this is directly related to communication and identifies someone in charge of safety. This person must be prepared to communicate about the safety of employees regarding the disease outbreak. Employees and their families will need to know what the risks are to them and their pets. Protecting the health and safety of all people and animals is a first priority. Photo depicts training people about avian influenza – what it is, how birds are affected, how people can protect themselves. (Source: DB Weddle, DVM, Iowa State University)

Property protection – this part should address biosecurity, specifically, what will be the process for restricting movement on and off a property?

Community involvement – it is important to be involved with the planning for response in the community. If your business is going to be impacted by an outbreak, participating as a responder to aid in the response and recovery helps get business back together as quickly as possible. Plan ahead and have employees participate in the responder training. How could your business make adjustments to help in the response since you are not functioning in a normal manner? For example, if you run a warehouse with agricultural products and there is a stop movement order placed on trucks, you could offer to serve as a location for supplies or stockpiled goods. Get to know local and state officials that will be making decisions about movement and restoration of business. Discuss your business capabilities with them so they understand what role or risk you pose to the disaster.

Administration and logistics – ensure you have complete and accurate records for review by officials or the insurance company if needed. Other things to think about **before** an event include the overall plan, training and exercising, pre-approved purchase requisitions for emergencies, stockpiling key supplies, and how you will access back-up power and maintain communications. **During** and **after** an event make sure you keep telephone logs, detailed record of events, record any injuries, be able to account for personnel, notify family, prepare press releases, and pre-approved purchase requisitions are still needed. The final part of the plan relates to recovery and restoration and will be discussed next.

S
I
I
d
e
9
4

Business Continuity Plan

- Recovery and restoration
 - Planning considerations
 - Continuity of management
 - Insurance
 - Employee support
 - Resuming operations



Some things to consider in planning for recovery and restoration includes how will your business be impacted in the long run. Are there important contacts and plans that should be made with customers, suppliers, etc. prior to an event that will help in the recovery period? Are there contractual arrangements with vendors, equipment needs or facility needs that should be made before a disaster? What will the management flow be in a disaster are there options for people to work from other locations Is your insurance adequate and appropriate? What services do you have for your employees to support them through a disaster and following a disaster? Employees are the most important asset. Planning for support of mental and emotional health before, during and after an animal disaster is important. FEMA has a list of important operations for resuming business – some of which apply to an animal disease outbreak and others apply to a disaster like a flood, hurricane, earthquake, etc. Begin by establishing a recovery team, ensure the safety of personnel, conduct employee briefings, keep detailed records (record all key decisions, take pictures), establish notification procedures – families, insurance, government agencies, repair/restore property, conduct investigation – include appropriate gov’t agencies, salvage operations – damaged or undamaged, insurance adjuster information retained, inventory damaged goods, repair equipment, assess value of damages and impact on business interruption, and contact customers and suppliers. Source: Emergency Management Guide for Business and Industry: A step-by-step approach to emergency planning. (Photo source: DB Weddle, DVM, Iowa State University)

S
I
I
d
e
9
5

Planning Pays Off

- No or poor plan can result in losses
- In the event of a major disaster
 - 43% never reopen
 - 16.5% reopen but close in 2 years
- ~60% attrition due to a disaster
- For every \$1 spent on planning, \$7 saved from disaster loss (FEMA)

In summary, it is your choice of whether or not to invest the time and energy into creating a business continuity plan. If you choose not to make a plan or make a poor plan, your risk tremendous loss. According to Small Business Administration and FEMA study of small business impacted by federally declared disasters, 43% of businesses never reopen and of the 57% that reopen, 29% of these go out of business in two years (for a total of 16.5%). In all, that is an attrition of 59.5% of all business that existed prior to a disaster. Take time to establish a plan so your business can recover – the investment is worth it. FEMA’s estimate is for every dollar spent on planning, \$7 are saved from disaster loss. Make a good plan and practice it. It greatly increases your chances of recovery with a functioning business. Well established plans may even grow your business post-disaster.

S
I
I
d
e
9
6

Animal Disease Emergency Example

Foot and Mouth Disease

To demonstrate the impact an animal disease can have, and highlight the need for a prompt response to control the spread, we will discuss Foot and Mouth Disease and its implications should it be accidentally or intentionally introduced into the U.S.

S
I
I
d
e
9
7

Foot and Mouth Disease (FMD)

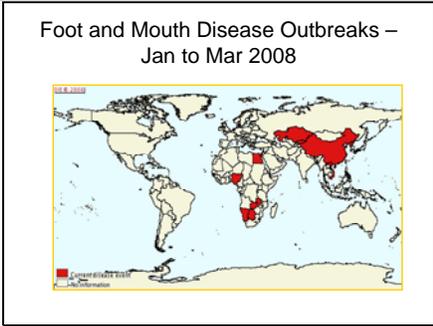
- Highly contagious virus
- Considered to be the most important livestock disease in the world
- Not in U.S. since 1929
- Affects cloven-hoofed animals
- Spread between animals, by contaminated objects or aerosol



Foot and mouth disease is a highly contagious viral disease that affects cloven-hoofed (two-toed) animals. [This includes cattle, pigs, sheep, goats, deer but NOT horses]. Foot and mouth disease is considered one of the most important livestock disease in the world. the world today. It is highly contagious, causing fever and blister formation in the mouth, on the tongue or muzzle, the feet or teats of affected animals. These result in great production losses, as animals have excessive salivation, difficulty walking and eating; death may occur in young animals. Sheep and goats that have the virus often have very mild signs of disease and cases may be missed if not examined closely. The FMD virus is found in the saliva and lesions of affected animals. It is spread rapidly between animals by contact, respiratory aerosol, or by objects (feed, coveralls, shoes, instruments, etc) contaminated with saliva or lesion fluids. Any case of FMD discovered in the U.S. (or in any country) must be reported to the World Organization for Animal Health

(formerly the Office International des Épizooties (OIE) created in 1924) within 24 hours. The OIE then reports the outbreak to other nations, often this results in embargos or bans on animals or animal products from the affected country. The photos depicts excessive salivation (cow-top) and ruptured vesicles on leg and coronary band (pig-bottom) due to FMD.

S
l
i
d
e
9
8



Foot and Mouth Disease (FMD) once occurred in the U.S., but was eradicated in 1929. No new cases have occurred since that time. However, the disease does still occur in other areas of the world, including parts of Asia, Africa and South America. With the ease of world trade in animals and animal products, the threat of the introduction of FMD into the U.S. is a real one. Photo: The map show outbreaks of FMD worldwide from January-March 2008. Map from the World Organization for Animal Health (called the OIE- Office of International Epizootics), accessed 27 March 2008.

S
l
i
d
e
9
9

U.K. FMD Outbreak, 2001

- Total costs over £10 billion
 - Ag industry, compensation, sports
- 6 million animals slaughtered
 - FMD free in less than 1 year
- Public perception
 - Animal welfare
 - Smoke pollution

FMD is an economical devastating disease, as seen by the effects during and following an FMD outbreak in the U.K. in 2001. Estimates. put overall economic losses over £10 billion due to the total economic strain placed on the agriculture and food industry (£3.1 billion), compensation to farmers (£1.1 billion), tourism (£4.5 to £5.3 billion by 2005) and sports (£750 million). While it is known that 6 million animals were slaughtered in the U.K. to control this disease, resulting in them reaching FMD free status in less than one year, the true costs will likely never be known. The public witnessed something few had ever seen. Mass slaughter was called into question, as were animal welfare and animal rights. Pollution from pyres of burning carcasses was intense in some areas and also impacted public health.

S
l
i
d
e
1
0
0

Conclusion

S
l
i
d
e
1
0
1

What Have We Learned?

- Threats need to be taken seriously
- Framework for response and coordination
- Adequate resources and expertise
 - Determine extent of attack
 - Prevent disease spread and associated losses
 - Prevent any public health implications

Throughout this presentation, we hope you have learned that threats to agriculture and livestock need to be taken very seriously. A local plan needs to be established for proper response and coordination in large events. Adequate resources and expertise will be needed to determine the extent of the attack, prevent disease spread and the losses that accompany it, prevent any public health implications.

S
I
I
d
e

1
0
2

Why is Local Planning needed?

- Early detection and response are critical to limit impact
 - Know what to look for and who to call for assistance
- Cooperation with local, state, and federal authorities is essential
- Everyone plays an important role in protecting U.S. agriculture

In the event of an animal disease emergency, it is important for producers and the community to understand what steps government agencies will take to respond to or resolve the situation. It is equally as important for government agencies and local response groups to understand what industry resources are available to assist in the response and recovery process and how to work together to ensure consumer confidence in our food product and food safety systems. Today’s presentation emphasized the importance of early detection and response, which is critical to limiting the overall impact of the emergency. Veterinarians, and producers should know what signs to look for and who to call for assistance.

S
I
I
d
e

1
0
3

What can you do?

- Be involved in local response plan development process
- Develop a business continuity plan
- Make others aware of your resources
- Awareness of steps in an outbreak and where you fit in
- Participate and practice your plan

Emergency preparedness is the responsibility of all members of the community. As members of the business community, get involved and encourage other community members to participate with local response plan development. Develop a business continuity plan – know what resources you may have that could help contribute to the solution of the animal disease emergency. One of the most burdensome tasks in preparing for an animal emergency is the identification of locally available resources. The efficiency and effectiveness of our response to any animal emergency will be directly influenced by knowledge of readily available local resources. Hopefully this presentation has increased your awareness of the State and Federal agencies involved in an animal disease emergency response, as well as the necessary steps that must be taken to control an outbreak. Participate in state and local exercises to practice the plan and prepare.

S
I
I
d
e

1
0
4

Contacts

- Phone numbers to know
 - County Emergency Manager
 - Sheriff’s Office
 - Mayor
 - County Board of Health Supervisor
 - Medical professionals



A handout with the phone numbers of the State Veterinarian for Iowa, State Public Health Veterinarian, APHIS Area-Veterinarian-in-Charge and County Emergency Managers is provided. When presenting this to colleagues in your area, you may want to look up and include the specific name and phone number on this slide for reference for the county emergency manager, sheriff’s office, mayor and the county board of health supervisor or other medical professionals in your area. It is important to keep these numbers handy because in the event of an emergency, these officials will be kept informed of any movement restrictions, road closures, and if the animal disease poses a public health risk.

S
I
I
d
e

1
0
5

Resources

- ICS-100: Introduction to Incident Command
- ICS-200: Single Resources and Initial Action Incidents
- ICS-700: NIMS: An Introduction
 - <http://training.fema.gov/EMIWeb/IS/is700.asp>
- ICS for Executives
 - www.nemaweb.org/
- National Incident Management System
 - <http://www.fema.gov/pdf/emergency/nims/>

There are a number of on-line courses pertaining to ICS or NIMS that can be taken.

S
I
I
d
e

1
0
6

Resources

- Emergency Management Guide for Business & Industry
 - www.fema.gov/business/guide/index.shtml
- Small Business Administration
 - Disaster preparedness and recovery information for businesses
 - www.sba.gov/services/disasterassistance/index.html
- Association of Contingency Planners
 - 1-800-445-4ACP
 - www.ACP-International.com

Resources for business continuity planning

S
I
D
E

1
0
7

Acknowledgments

Development of this presentation was funded by a grant from the Iowa Homeland Security and Emergency Management and the Iowa Department of Agriculture and Land Stewardship to the Center for Food Security and Public Health at Iowa State University.

Contributing Authors: Glenda Dvorak, DVM, MPH, DACVPM; Danielle Bickett-Weddle, DVM, MPH, DACVPM; Gayle Brown, DVM, PhD; Reviewer: Kevan Fleming, DVM, PhD