

# FOREIGN ANIMAL DISEASE FIELD GUIDE

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The Center for  
Food Security  
& Public Health

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IOWA STATE UNIVERSITY®  
College of Veterinary Medicine



# INTRODUCTION

## WHAT ARE FOREIGN ANIMAL DISEASES (FADs)?

Diseases of livestock and poultry that do not normally occur in the United States are called foreign animal diseases or FADs. These diseases can spread rapidly and pose a significant threat to animal agriculture, human health, and the economy. If a FAD is found in the United States, it must be controlled and contained as soon as possible to prevent further spread and minimize the financial impact to producers.

Producers like you have a key role in preventing FADs. This field guide will help you recognize early signs of FADs and learn how to report them to your veterinarian and animal health officials. While FADs are generally uncommon, they should always be considered when people or animals on the farm have recently traveled to a foreign country.

Observe your animals daily for signs of illness. Many FADs can look like common animal diseases. Be suspicious of a FAD when you see:

- Increase in dead animals
- Abortion storms
- Severe breathing problems
- Unusual skin lesions
- Nervous system problems
- Unusual parasites
- Other unusual or unexplained illness

This field guide lists examples of FADs. It is not an exhaustive list. To learn more about FADs, visit the United States Department of Agriculture's [Notifiable Diseases and Conditions](#) website.

Your State may require reporting of additional diseases or conditions. Contact your [State Animal Health Official \(SAHO\)](#) for more information.

This guide should not be used for diagnostic purposes.

# INCREASE IN DEAD ANIMALS

## WHAT WOULD AN INCREASE IN DEAD ANIMALS LOOK LIKE?

- Higher than expected number of dead animals
- Sudden death in one or more animals with no signs of being sick

## WHAT SHOULD I DO IF DEAD ANIMALS ARE FOUND IN MY HERD OR FLOCK?

You cannot determine the cause of death by looking at a dead animal. Laboratory testing is needed to make a diagnosis.

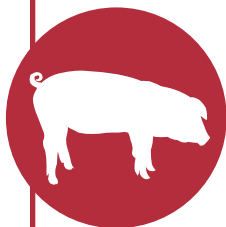
**Call your veterinarian right away if multiple animals have died suddenly or unexpectedly in your herd or flock.** Contact your [State Animal Health Official \(SAHO\)](#) if you do not have a veterinarian.

## WHAT ARE SOME CAUSES OF SUDDEN DEATH IN LIVESTOCK AND POULTRY?

FADs can look similar to other causes of sudden death, like common infections, parasites, poisoning, nutritional deficiency, and physical injury. Some examples of FADs that cause sudden death are:



## African Swine Fever

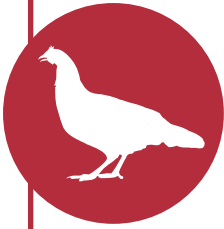


*Where it occurs: Africa, Asia, Europe, Caribbean*

African swine fever causes severe illness and high death rates in **pigs** of all ages. Other signs of African swine fever include high fever, loss of appetite, weakness, blotchy skin (especially on the ears, tail, and lower legs), vomiting, diarrhea, abortion, cough, and runny nose. Classical swine fever, another FAD, causes many signs similar to African swine fever. To learn more, visit [African Swine Fever Disease Information](#).



## Avian Influenza



*Where it occurs: Worldwide*

Severe strains of avian influenza cause sudden death in **poultry** and **wild birds**. Signs of illness include loss of appetite, ruffled feathers, coughing, sneezing, and diarrhea. Nervous system problems can also occur. The comb, wattles, eyes, and neck may become blue and swollen. Egg production usually stops. **People, pigs, and cattle** can become ill with avian influenza if they have close contact with infected birds. To learn more, visit [Avian Influenza Disease Information](#).

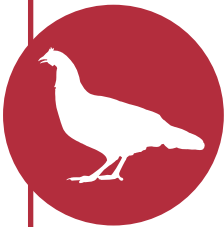
## Anthrax



*Where it occurs: Worldwide*

Anthrax is most common in **cattle, sheep, and goats** but most mammals can become ill and die, including **horses, pigs, and people**. Animals get anthrax after grazing on soil that contains the bacteria. Anthrax often causes sudden death but some animals develop a fever, muscle tremors, and difficulty breathing. After death, animals may bleed from the mouth, nose, or anus. People should not touch or butcher animals that die from anthrax. *Anthrax is not considered a FAD in the United States, but animal health officials must be notified of any cases.* To learn more, visit [Anthrax Disease Information](#).

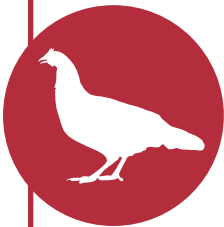
## Newcastle Disease



*Where it occurs: Africa, Asia, North America, South America*

Newcastle disease affects **chickens** and **turkeys**. Chickens are the most likely to show signs of disease. Birds with severe disease often die suddenly. Other signs of infection include swelling in the head and neck, bleeding around the eyes, open mouth breathing, coughing and sneezing, decreased egg production, diarrhea, and nervous system problems. **People** can become sick after working with infected birds, but this is rare. To learn more, visit [Newcastle Disease Information](#).

## Fowl Typhoid



*Where it occurs: Africa, Asia, South America*

Fowl typhoid affects **chickens, turkeys, and wild birds**. The disease causes death in chicks and poults from hatching to about four weeks of age. Loss of appetite, ruffled feathers, diarrhea, and dehydration are common in older birds. Birds may also have trouble breathing, and egg production may decrease. Infection in **people** is very rare but can occur if in close contact with infected birds. To learn more, visit [Fowl Typhoid and Pullorum Disease](#).

# ABORTION STORMS

## WHAT WOULD AN ABORTION STORM LOOK LIKE?

- More abortions than expected in a herd in a given period of time
- Many animals aborting around the same time

## WHAT SHOULD I DO IF AN ABORTION STORM OCCURS IN MY HERD?

Increased abortions are easier to identify when animals are housed indoors. When animals are kept outside, fetuses may be hard to see in grassy or wooded areas, and predators can consume fetuses before they are found.

You cannot determine the cause of abortion by looking at the fetus. Laboratory testing is needed to make a diagnosis.

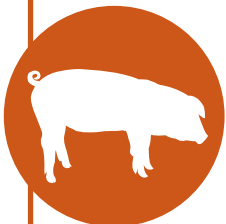
**Call your veterinarian right away if an abortion storm occurs in your herd.** Contact your [State Animal Health Official \(SAHO\)](#) if you do not have a veterinarian.



## WHAT ARE SOME CAUSES OF ABORTION IN LIVESTOCK?

FADs can look similar to common reproductive diseases, genetic problems, and nutritional deficiencies. Some examples of FADs that cause abortion are:

### African Swine Fever



*Where it occurs: Africa, Asia, Europe, Caribbean*

Abortion in pregnant sows can be the first sign of African swine fever. **Pigs** also develop a high fever, loss of appetite, weakness, blotchy or reddened/purplish skin, vomiting, diarrhea, abortion, cough, and nasal discharge. Classical swine fever, another FAD, looks very similar to African swine fever. It causes abortion and the birth of mummified, malformed, weak, or dead piglets. To learn more, visit [African Swine Fever Disease Information](#).

## Brucellosis



*Where it occurs: Worldwide*

Brucellosis affects **cattle, goats, sheep, and pigs**. In female animals, brucellosis causes abortion, stillbirth, and decreased litter size. Newborn animals may die and testicular swelling can occur in males. **People** can get brucellosis by drinking raw milk or contact with infected animals. *Brucellosis is not considered a FAD in the United States, but animal health officials must be notified of any cases.* To learn more, visit [Brucellosis Disease Information](#).

## Contagious Equine Metritis



*Where it occurs: Africa, Asia, Europe, South America, North America*

Contagious equine metritis affects **horses** and is spread during breeding. Infected stallions can carry the virus for years, but they do not become ill. Carrier stallions can pass the virus to mares. Signs of infection include gray-white vaginal discharge and infertility. Abortion can also occur. To learn more, visit [Contagious Equine Metritis Disease Information](#).

## Japanese Encephalitis



*Where it occurs: Asia, Australia*

**Pigs** are most often affected. Pregnant sows may abort or deliver stillborn or mummified fetuses at term. Infected piglets often have nervous system problems and die soon after birth. **Horses** and **people** can also be infected with Japanese encephalitis, but most infections are mild. Japanese encephalitis is transmitted to animals and humans from the bite of an infected mosquito. To learn more, visit [Japanese Encephalitis Disease Information](#).

## Pseudorabies (Aujeszky's Disease)



*Where it occurs: Asia, Europe, South America*

Pseudorabies mostly affects **pigs**, although **cattle, sheep, and goats** can also be infected. Abortion is a sign of pseudorabies in pregnant sows. Piglets often die suddenly, and older animals develop breathing problems. *Pseudorabies is not considered a FAD in the United States, but animal health officials must be notified of any cases.* To learn more, visit [Aujeszky's Disease Information](#).

# SEVERE BREATHING PROBLEMS

## WHAT WOULD SEVERE BREATHING PROBLEMS LOOK LIKE?

- Difficulty breathing, such as noisy or rapid breathing, stretched out head and neck, or breathing with the mouth open
- Coughing, sneezing, runny nose or eyes

## WHAT SHOULD I DO IF SEVERE BREATHING PROBLEMS OCCUR IN MY HERD OR FLOCK?

Stressful events like transport can make animals more likely to get sick. Be concerned when multiple animals are affected. Animals can die quickly when they have trouble breathing.

You cannot determine the cause of breathing problems by looking at the animal. Laboratory testing is needed to make a diagnosis.

**Call your veterinarian right away if there are severe breathing problems in your herd or flock**

Contact your [State Animal Health Official \(SAHO\)](#) if you do not have a veterinarian.

## WHAT ARE SOME CAUSES OF SEVERE BREATHING PROBLEMS IN LIVESTOCK AND POULTRY?

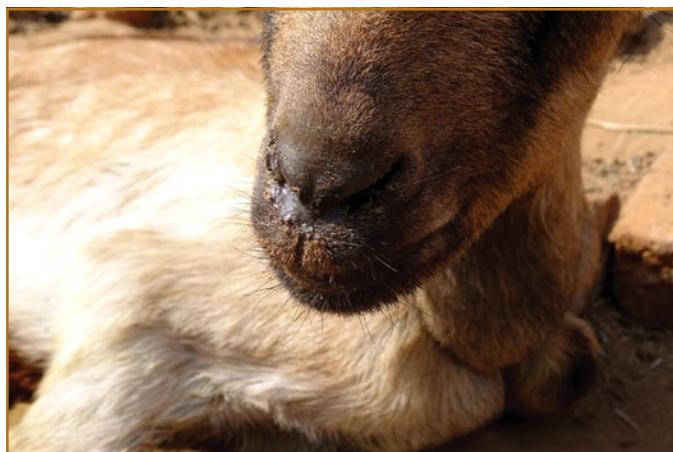
FADs can look similar to common respiratory diseases, allergies, parasites, or a blocked airway. Some examples of FADs that cause severe breathing problems are:

### Avian Influenza



*Where it occurs: Worldwide*

Infected **poultry** cough, sneeze, and develop purple discoloration and swelling of the comb, wattles, eyes, and neck. They may have ruffled feathers and refuse to eat. Diarrhea and nervous system problems are also seen. Egg production usually stops. **People, pigs, and cattle** can get avian influenza if they have close contact with infected birds. To learn more, visit [Avian Influenza Disease Information](#).





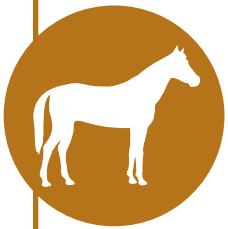
## Bovine Tuberculosis



*Where it occurs: Africa, Asia, Europe, North America, South America*

Tuberculosis in **cattle** is usually a disease that worsens over time. Animals lose weight and become weak, with difficulty breathing and a wet cough that is most severe in the morning or during cold weather or exercise. Enlarged lymph nodes can rupture and drain. **People** can get sick after drinking raw milk or contact with infected cattle. However, most cases of tuberculosis in humans are caused by a different but related bacterium. *Bovine tuberculosis is not considered a FAD in the United States, but animal health officials must be notified of any cases.* To learn more, visit [Bovine Tuberculosis Disease Information](#).

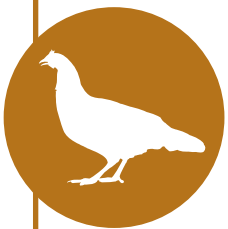
## Hendra Virus Infection



*Where it occurs: Australia*

Hendra virus is carried by bats. In **horses**, infection with Hendra virus can lead to rapid, shallow, and labored breathing. The face and lips may be swollen. Frothy nasal discharge develops before death. Horses can also develop nervous system problems. **People** can be infected with Hendra virus after contact with sick horses. To learn more, visit [Hendra Disease Information](#).

## Newcastle Disease



*Where it occurs: Africa, Asia, North America, South America*

In **chickens** and **turkeys**, Newcastle disease causes swelling in the head and neck, coughing and sneezing, decreased egg production, and diarrhea. Birds with the severe form of Newcastle disease often die suddenly. **People** can be infected after close contact with sick chickens, but this is rare. To learn more, visit [Newcastle Disease Information](#).

## Nipah Virus Infection



*Where it occurs: Asia*

Breathing problems are most common in young **pigs** (one to six months of age). A runny nose and rapid, open-mouth breathing can be seen. Nervous system signs are more common in piglets and sows. Fruit bats carry the virus but do not become sick. **People** can be infected with Nipah virus after contact with infected pigs. To learn more, visit [Nipah Disease Information](#).



# UNUSUAL SKIN LESIONS

## WHAT WOULD UNUSUAL SKIN LESIONS LOOK LIKE?

- Blisters or erosions in or on the mouth, tongue, nose, feet, and teats
- Round, raised “lumpy skin” areas filled with pus or crusted over
- Dark red or purple blotches on the skin



## WHAT SHOULD I DO IF UNUSUAL SKIN LESIONS ARE SEEN IN MY HERD?

You cannot determine the cause of unusual skin lesions by looking at the animal. Laboratory testing is needed to make a diagnosis.

**Call your veterinarian right away if you see unusual skin lesions in your herd.** Contact your [State Animal Health Official \(SAHO\)](#) if you do not have a veterinarian.



## WHAT ARE SOME CAUSES OF UNUSUAL SKIN LESIONS IN LIVESTOCK?

Blisters or erosions caused by different FADs look identical. Not all diseases that cause skin lesions are FADs. The animal species affected can provide a clue to the type of disease. Some examples of FADs that cause skin lesions are:

### African Swine Fever



*Where it occurs: Africa, Asia, Europe, South America, Caribbean*

African swine fever infects **pigs** only. Dark red/purple blotches can appear on the ears, tail, lower legs, and hams. Other signs of African swine fever include sudden death, high fever, loss of appetite, weakness, vomiting, diarrhea, abortion, cough, and runny nose. Classical swine fever, another FAD of swine, causes similar signs in pigs. To learn more, visit [African Swine Fever Disease Information](#).

## Foot and Mouth Disease



*Where it occurs: Africa, Asia, South America*

FMD mainly affects **cattle**, but **pigs**, **sheep**, and **goats** are also susceptible. The main signs of FMD are blisters on the mouth, tongue, nose, feet, and teats. Affected animals may be lame and unwilling to eat. Nasal discharge and drooling can also be seen. Diseases that cause lesions similar to FMD include swine vesicular disease, vesicular exanthema of swine, vesicular stomatitis, and Senecavirus A. To learn more, visit [Foot and Mouth Disease Information](#).

## Glanders



*Where it occurs: Africa, Asia, South America*

**Horses** are the main species affected by glanders. Glanders causes runny nose, ulcers on the face, and ropey nodules under the skin. Coughing can also occur. Donkeys and mules can die from glanders. Goats can also get sick. **People** can get glanders from infected animals. To learn more, visit [Glanders Disease Information](#).

## Lumpy Skin Disease



*Where it occurs: Africa*

Lumpy skin disease in **cattle** can be mild to severe. Skin lesions may be firm, round, and slightly raised. They are most common on the head, neck, udder, genitals, perineum, and legs but can occur anywhere. Over time, skin in the center of the nodules can die, leaving behind an open ulcer. Animals often lose condition. Abortion and infertility also occur. To learn more, visit [Lumpy Skin Disease Information](#).

## Sheep and Goat Pox



*Where it occurs: Africa, Asia*

Signs of **sheep** and **goat** pox include fever, runny eyes and nose, and lesions that erupt mainly on non-haired skin like the muzzle, eyelids, ears, and udder. Sometimes, they can be felt under hair or wool. Severely affected animals may die or recover slowly. To learn more, visit [Sheep and Goat Pox Disease Information](#).

# NERVOUS SYSTEM PROBLEMS

## WHAT WOULD NERVOUS SYSTEM PROBLEMS LOOK LIKE?

- Head pressing, wandering, turning in circles, tripping, bumping into objects, seizures, vocalization, or aggression
- Wide stance, head or neck turned or arched back (“stargazing”), head tilt
- High-stepping, staggering, or leaning
- Drooling, tongue out, or food in nostrils



## WHAT SHOULD I DO IF NERVOUS SYSTEM PROBLEMS OCCUR IN MY HERD OR FLOCK?

Recognizing signs of nervous system disease is essential since affected animals can hurt themselves or others.

You cannot determine the cause of nervous system problems just by looking at the animal. Laboratory testing is needed to make a diagnosis.



**Call your veterinarian right away if you see nervous system problems in your herd or flock.** Contact your [State Animal Health Official \(SAHO\)](#) if you do not have a veterinarian.

## WHAT ARE SOME CAUSES OF NERVOUS SYSTEM PROBLEMS IN LIVESTOCK?

FADs can appear similar to common nervous system diseases, metabolic diseases (like low blood calcium), lead poisoning, and vitamin or mineral excesses or deficiencies related to feed. Some examples of FADs that cause nervous system problems are:

### Bovine Spongiform Encephalopathy



*Where it occurs: Asia, Europe, North America*

Also known as “mad cow disease,” signs occur in **cattle** over three years old. Once animals develop nervous system problems, they worsen over time and eventually die. Very rarely, **people** have been infected with this disease after eating tissues from an infected animal. To learn more, visit [Bovine Spongiform Encephalopathy Disease Information](#).



## Caprine Arthritis Encephalitis/Maedi Visna



*Where it occurs: Worldwide*

Many infected **goats** and **sheep** do not show signs of disease. However, nervous system problems most often occur in lambs and kids. Animals worsen over time and eventually become paralyzed. Joint problems and breathing problems can also occur, usually in older animals. To learn more, visit [Caprine Arthritis and Encephalitis Disease Information](#).

## Heartwater



*Where it occurs: Africa*

This disease is spread by *Amblyomma* ticks and affects ruminants including **cattle**, **sheep**, and **goats**. Animals with nervous system problems often die within a week. Heartwater also causes sudden death, breathing problems, and diarrhea. To learn more, visit [Heartwater Disease Information](#).

## Pseudorabies (Aujeszky's Disease)



*Where it occurs: Asia, Europe, South America*

**Pigs**, **cattle**, **sheep**, and **goats** are most often affected. Infected piglets usually have a fever, stop eating, and develop nervous system problems, while older animals develop breathing problems. Pregnant sows may abort. *Pseudorabies is not considered a FAD in the United States, but animal health officials must be notified of any cases.* To learn more, visit [Aujeszky's Disease Information](#).

## Scrapie



*Where it occurs: Worldwide*

Scrapie causes nervous system problems that get worse over time and eventually lead to death. **Sheep**, in particular, become very itchy and may rub, scrape, or chew hair off body parts. Animals also lose weight, and death occurs within a few months. *Scrapie is not considered a FAD in the United States, but animal health officials should be notified of any cases.* To learn more, visit [Scrapie Disease Information](#).

## Rabies



*Where it occurs: Worldwide*

**All mammals**, including humans, can be infected with rabies. The virus is usually spread by the bite of an infected animal. Within months of infection, affected animals die. *Rabies is not considered a FAD in the United States, but animal health officials must be notified of any cases.* To learn more, visit [Rabies Disease Information](#).

# UNUSUAL PARASITES

## WHAT WOULD UNUSUAL PARASITES LOOK LIKE?

- Ticks with unfamiliar colors or markings
- Mites with strange colors or markings in or on skin or feathers
- Unfamiliar looking flies or maggots that feed on living flesh, not wounds



## WHAT SHOULD I DO IF UNUSUAL PARASITES ARE SEEN IN MY HERD OR FLOCK?

You cannot identify foreign parasites by looking at them. Laboratory testing is needed to make a diagnosis.

**Call your veterinarian right away if unusual parasites are found in your herd or flock.**

Contact your [State Animal Health Official \(SAHO\)](#) if you do not have a veterinarian.



## WHAT ARE SOME UNUSUAL PARASITES OF LIVESTOCK?

Foreign parasites can look similar to those found in the United States, with clinical signs that mimic other causes of itching and rashes, such as fungal infections or allergies. Some parasites foreign to the United States are:

### Exotic Ticks

*Where it occurs: Worldwide*



Exotic ticks are not native to the United States and can spread FADs. **Mammals** and **birds** can be infested. Tick bites can be irritating and painful, and heavy infestations can damage hides and cause anemia. Some exotic ticks prefer one animal type, while others bite different hosts including humans. Exotic ticks are not always easy to identify. Important exotic ticks include [Asian longhorned ticks](#), [cattle fever ticks](#), [tropical bont ticks](#), and the [red sheep tick](#). To learn more, visit [Exotic Ticks Disease Information](#).

## Screwworm



*Where it occurs: Africa, Asia, South America*

Screwworms are fly larvae (maggots) that feed on the living flesh of **cattle, horses, sheep, and goats**. **Birds** and **people** can also be infested. Screwworm larvae can be found within cuts, dehorning wounds, navels of newborns, and the vulva of dams. As larvae feed, wounds become bigger and deeper. Larvae burrow inside and do not crawl on the skin's surface, although a small opening may be visible. Infestations can become severe and untreated animals usually die in a few weeks. To learn more, visit [Screwworm Myiasis Disease Information](#).

## Sheep Scab Mite (Mange)



*Where it occurs: Africa, Asia, Europe, South America*

Affected **sheep** develop large, yellow, crusted scabs that are very itchy and painful. Damage to the wool and hide is typical. Weight loss and death can occur, especially in lambs. Most adult animals recover and the wool regrows. To learn more, visit [Sheep Scab Disease Information](#).



# FAD PREVENTION

Farm biosecurity actions taken every day can help prevent FADs.

Practice good biosecurity by doing the following:

- Limit entry onto your farm; allow only essential people, vehicles, and equipment access
- Keep new or returning animals separate (i.e., quarantined) from the home herd or flock upon arrival
- Isolate sick animals away from the herd or flock
- Clean and disinfect any equipment or tools that are shared between farms
- Keep animal areas clean and dry
- Keep animals up to date on vaccines and parasite control
- Work with your veterinarian to dispose of dead animals safely
- Keep wildlife, rodents, and pets out of animal areas
- Secure animal feed and clean up spills immediately

[Learn more about farm biosecurity](#)

Some FADs spread between animals and people; these are called zoonotic diseases. People more likely to get sick include those who work closely with animals, young children, older adults and those with a weakened immune system. Simple precautions can minimize disease risk.

When working with animals:

- Wear gloves when handling sick animals
- Wash your hands with warm water and soap after handling sick animals
- Do not touch your eyes, nose, or mouth
- Cover cuts, scrapes, and wounds with a bandage
- Do not eat or drink in animal areas

[Learn more about zoonotic diseases](#)

## ACKNOWLEDGMENTS

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