



Cattle Health News

A Publication of the New Jersey Department of Agriculture, Division of Animal Health

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Foot and Mouth Disease

Contributed by Dr. Nancy Halpern, Assistant Director, NJDA,
Division of Animal Health

What is FMD?

Foot and Mouth Disease (FMD) is a fast-spreading viral infection of cloven-footed animals. Cloven-footed animals in New Jersey include cattle, sheep, goats, swine, deer, llama and alpaca.

What are FMD symptoms?

FMD virus causes blisters in the animal's mouth, on the snout or muzzle, on the teats, and on the feet, usually with an accompanying fever. When these blisters rupture, they can become very painful, resulting in slobbering, drooling, reluctance to eat or drink, mastitis, reduced milk production, and lameness. Occasionally, the heart

Due to its extremely contagious nature, lab tests for FMD are only permitted at the federal government's facility on Plum Island, NY.

muscle is damaged causing death. While there have been outbreaks with up to 50% mortality, FMD is not considered a particularly lethal disease with death rates rarely exceeding 2% in adults and 20% in young stock. However, its prolonged convalescence causes severe losses in production and health, cripples animal industries, and severely inhibits travel and tourism.

Are certain animals more susceptible?

The virus most seriously affects cattle and swine, but sheep and goats can become severely affected as well. Llamas and alpacas appear to be very resistant to infection by natural exposure (co-habitation) but have been infected with contaminated needles. The virus does not infect horses or people, but people can carry the virus in their respiratory systems or on their shoes and clothing, while horses can carry it on their hooves or coats.

How is FMD Diagnosed?

FMD can only be diagnosed by laboratory testing. Due to the extremely contagious nature of the FMD virus, laboratory tests for it are only permitted

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NEW JERSEY
DEPARTMENT OF AGRICULTURE

If you have any questions about FMD, visit our website: <http://www.state.nj.us/agriculture/footmouth.htm> or call 609-292-3965.

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at the federal government's facility on Plum Island, NY. There, extraordinary precautions are routinely followed to ensure that the virus does not escape into the environment.

How is FMD spread?

Outbreaks are often started when animals eat infected feed. The virus may be spread in a number of ways, but the most common is by direct contact with infected animals. **The virus spreads rapidly through a herd, then moves throughout the region or country on equipment, in trucks, on the wind (virus can travel 25-40 miles this way), or by contacting carrier animals or people.** Up to 50% of infected animals may remain as carriers of the disease for at least six months. Virus could be recovered from human nasal secretions for up to 36 hours after working with infected cattle. FMD spreads rapidly within a herd and usually 100% of susceptible animals succumb to the disease.

What about vaccination?

There are many strains and subtypes of the virus, making effective vaccination extremely difficult because little cross-protection exists between serotypes. This is one reason why slaughter, where practical, has been used to control and eradicate the disease. The existing vaccines are generally used in countries formerly free of FMD only after an outbreak has been declared out of control. Countries using FMD vaccines cannot export any livestock products for up to two years after the vaccines have been used. Because the vaccine does not prevent or control the virus, the vaccinated animals must still be destroyed once the outbreak is considered under control since they

can still shed the virus and expose other animals to FMD.

Are animals immune?

Cattle mount an effective immune response to FMD that lasts up to four years. Swine immunity persists for only 7 to 8 months. Immunity is relatively specific to the serotype involved in the exposure, and new outbreaks with different serotypes can occur at any time.

Where is FMD found?

FMD has occurred throughout the world for centuries. Currently only North America, Australia, New Zealand and the Antarctic are free of this virus.

Where does FMD come from?

There are a variety of species that allow the virus to persist or serve to spread the infection, including elephants, capybara, hedgehogs, rodents, birds, and wild ruminants such as deer and water buffalo. These animals may not show clinical signs of illness, but may harbor the virus to allow later spread of the infection to susceptible species. Fortunately, these species are not likely to play a major role in transmission because of lack of contact with susceptible species. Sheep may carry the virus for up to five months while African buffalo may harbor the virus for more than two years! Goats may also serve as carriers of the disease.

Can we kill the FMD virus?

FMD is a very stable virus under certain conditions. Because the virus only survives at a neutral pH, **extremely acidic or basic chemicals like vinegar, citric acid, lye, and soda ash are used to kill the virus.** Sunlight, boiling, and autoclaving also rapidly destroy the virus.

What can I do to help prevent the introduction of the FMD virus to this country?

If you travel to a farm or other infected area and have contact with FMD-animals or environments, use disposable coverings over your shoes and clothing (e.g., coveralls); shower well after the visit; expectorate (spit) after the visit and stay away from uninfected livestock for one week. Don't bring any prohibited material back from any foreign country — there are other diseases from which we want to remain free!

What are the global consequences of FMD?

The economic impact of an FMD outbreak is staggering. In addition to lost export markets for meat and animal products, FMD negatively impacts a country's tourism business. The costs for containing and eradicating an outbreak put additional strain on a nation's economy. **An FMD outbreak in the United States could potentially cost our livestock industry billions of dollars of losses in the first year.**

Suspected cases of FMD **MUST** be reported to federal or state authorities for investigation, and if a case is confirmed, immediate action must be taken to control its spread. These websites may be of further interest to you:

NJDA: www.state.nj.us/agriculture

USDA-APHIS: www.aphis.usda.gov/oa/fmd

United Kingdom Ministry of Agriculture, Fisheries, and Food: www.maff.gov.uk

Office International Des Epizooties (OIE): www.oie.int/eng/en_index.htm

Description of Foot and Mouth Disease: www.oie.int/eng/maladies/fiches/A_A010.htm

Beef Quality Assurance Begins on the Farm

Contributed by Bob Mickel, Rutgers Cooperative Extension of Hunterdon County

Producing a safe meat supply is not some other person's job. As producers of beef from both traditional beef breeds - about 75 % of the industry - and the dairy side, quality should be "job number one" for everyone along the live animal chain. You should be aware of all improperly performed production practices that could adversely impact the quality of the final product.

With America's meat industry estimated to be worth over \$100 billion per year, and the beef segment representing over \$42 billion of that total, we are not talking about small potatoes! As a producer you might ask, "What things affect quality assurance in beef production?" The answers are found in various components of the industry's best management practices (BMPs):

- **Proper nutrition** will have a direct impact on the quality of the final product. **It's really true that animals are what they eat.** Poorly fed or emaciated animals will certainly be discounted at harvest or even rejected. With today's economic pressures, packers cannot afford to pay the same for poor quality and top quality animals and are carefully pre-inspecting animals prior to delivery for slaughter. Adequate quality water supplies are part of this nutrition equation as well.
- **Adequate handling facilities** are a basic necessity for working or handling any cattle. Discounts for bruised carcasses can be easily avoided with proper working chutes, corrals, headgates, truck cattle bodies and trailers. **Policies regarding more humane cattle movement have been implemented at packing plants and at production facilities, reflecting the industry's response to animal welfare concerns.** Workers who

move live animals through the handling facilities are also a key factor. Excessive harsh or rough handling can add to damaged carcasses and



The emphasis today on beef quality assurance is constantly evolving and becoming more intense as the industry responds to consumer demands...

research has shown that overly excited cattle can be the major cause for discounted "dark cutters" after harvesting.

- **Proper use of health products** must be a priority. Improper use of them has been documented as one of the leading reasons for discounts at slaughter. All of the following directly impact final product quality: improper injection site location and injection methods (IM, SQ, IV, IP), failure to follow manufacturer's labeling instructions for drug withdrawal periods, needle tracts and lesions causing knots or even carcass abscesses, damaged hides, and other related tell-tale signs. **These problems occur much more often in the dairy industry than in the traditional beef industry because its management and production strategies are more intensive.**

Today beef quality assurance (QA) is constantly evolving and getting more demanding as the industry responds to consumer demands and the related economics of producing beef for domestic and world-wide consumption. Nationwide, stakeholders are coordinating efforts to implement many new requirements relating to QA programs, and food safety. Some of these agencies and programs are the USDA, FDA, Hazard Analysis and Critical Control Point (HACCP) programs; breed-related promotions; National Beef Cattlemen's Association (NBCA); the 48 individual state beef councils; Agricultural Research Service (ARS); and individual producers.

The Beef Quality Assurance program, started by the NBCA over 15 years ago with check-off dollars, provides an industry-driven campaign that has resulted in great improvements in overall quality of beef, while decreasing dollars lost due to condemned and discounted beef at slaughter. Another QA program is the "Mark of Quality

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Biosecurity Best Management Recommendations For Livestock Producers

Animal diseases, both foreign and domestic, can devastate livestock industries. To minimize disease introduction to and transport off the farm, biosecurity measures should be in place. **Biosecurity is the list of management practices that prevent the introduction or spread of diseases.** These preventive measures are crucial to safeguard New Jersey's animals. Due to our state's international ports, more than 9,500 visitors a day and their cargo pass through New Jersey from countries infected with animal diseases such as foot and mouth disease (FMD). With the risk of disease always present, here are some things that you, the livestock producer, can do to minimize your risk.

Prevent Introduction of Diseases

Viruses, bacteria, mycoplasma and pests can enter your livestock facility on a number of "carriers":

- Animals - livestock, wild animals, pets and insects
- Equipment of all types
- People - bodies, clothing, shoes and possessions
- Vehicles - tires, mud, floor-boards, dirt
- Animal feed, water, bedding, and waste
- Air - aerosols and dust

Develop a Biosecurity Plan

- Work with your veterinarian, farm advisor and nutritionist to develop a plan that will work for your farm.
- Do not allow meat or animal products from FMD-infected countries to enter your facilities. Know the origin of all meat and animal products.
- Educate all your employees about the importance of following the biosecurity plan and their important role in making the plan work.
- Provide farm personnel with ready access to toilet and hand-washing facilities.

ELEMENTS OF A BIOSECURITY PLAN

People

- Limit the number of visitors to your farm to essential personnel, such as AI techs, veterinarians, foot trimmers, etc.
- Do not allow visitors to enter any facilities on the farm where animals are kept unless they have a real need to do so.
- Provide clean protective clothing and footwear for visitors and require that they wear them when entering livestock facilities.
- Provide effective boot-washing and disinfectant facilities, solutions and brushes and keep them properly maintained. Insist that visitors remove manure from their boots and disinfect footwear upon arrival and departure from your farm.
- Restrict close contact or handling of animals by visitors.
- Ask foreign visitors to provide information about recent farm and animal contacts.
- Exclude foreign visitors from livestock facilities for at least five days after their arrival in the US.
- Do not permit clothing, shoes or other articles (such as luggage, cameras, jewelry, and watches) that have

been in FMD-affected countries to enter livestock facilities.

- If you travel to an FMD-affected country, wear protective clothing on livestock facilities and leave them there. Carefully wash and disinfect all clothing and shoes upon return to the US.
- Meet with all vendors providing services to your farm to work out procedures they will follow every time they come to your facility. This includes milk trucks, equipment service personnel, veterinarians, milk testing services, inspectors, animal haulers, and all sales people (e.g., feed, drugs, semen and equipment).
- Do not have close contact with animals or handle them yourself while visiting auction barns or sales, unless absolutely necessary (i.e., to check teeth, legs, etc.). Wash your hands carefully between necessary close handling of each animal and between each species.



Vehicle and Equipment

- Establish a routine protocol for cleaning and disinfecting other livestock facilities (such as milking parlors, milking trucks, feed trucks, or animal transporters) to prevent them from carrying livestock disease.
- Do not allow off-farm vehicles to drive into or through the barn.
- Establish parking areas away from any animals.
- Provide facilities for washing and disinfecting the tires of vehicles before they enter livestock areas.
- Consider investing in a disinfectant wheel bath, a "footbath" for vehicles - as farmers in other countries are doing.
- Clean livestock vehicles after visiting another livestock

facility (including a livestock auction barn) and/or transporting other animals before using them for your livestock.

- Do not mix livestock species in the vehicles when transporting animals.
- Have dead or down cows put in the renderer's truck as far away from the barn as possible.
- Meet with animal haulers or livestock dealers to work out a traffic plan and cleaning/disinfection plan to follow after they have made a delivery for you.
- Make sure equipment, such as hoof-trimming tables, is cleaned and disinfected thoroughly before it is brought into your facility.

Animals

- Whenever possible, bring livestock in from a source herd with a defined health history for diseases of concern, and insure that the animals are properly treated and/or vaccinated for certain diseases before purchase.
- Isolate incoming animals and animals returning from exhibits for a minimum of three to four weeks and use this time to monitor for diseases.
- Do not allow the new additions and animals returning from exhibits to share water, feed, facilities or bedding with your other animals.
- Instruct workers handling these isolated animals to shower, change clothes, wash and disinfect boots or change them before working with other animals on the farm.

- Provide as much distance between your animals and neighboring animals as possible. Consider double fencing the perimeters to minimize nose-to-nose contact.
- Isolate any sick animals and promptly seek veterinary care. Treat sick animals after handling all other animals and avoid contaminating your clothing, hands, and footwear.
- Isolate equipment that has been in contact with sick animals; thoroughly wash and disinfect equipment before re-using.
- Transport animals in cleaned and disinfected vehicles.
- After visiting another livestock facility or show, change your clothes and footwear before handling or feeding your animals.

Feed

- Create a system to ensure purchased feed ingredients are not contaminated with salmonella and other agents.
- Meet with your feed representative and inquire about quality control and rodent/pest control in their production facilities.
- Restrict wildlife, rodent and even pets' access to feeds or feed ingredients.

Manure

- Clean and disinfect anything that has come in contact with manure or animal secretions before it is used for another purpose, such as using a loader to move manure or dead animals and then using it to load a feed wagon.
- Clean or replace animal bedding regularly, scrape surfaces clean, and clean solid surfaces with high-pressure hot water and disinfectant.
- Prevent manure run-off from other facilities from entering your facility.

Recognize and Report Diseases

Report sudden, unexplained death loss; blistering around an animal's mouth, nose, teats, or hooves; staggering, falling, or other central nervous system disorders; or severe illness affecting many animals first to your local veterinarian, and then immediately to the New Jersey Department of Agriculture's Division of Animal Health, or the USDA/Veterinary Services office.

Report to:

NJDA Division of Animal Health Phone 609-292-3965 • Fax 609-777-8395
USDA Veterinary Services Phone 609-259-8387 • Fax 609-259-2477

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Other references used: Cornell University/NYS Department of Agriculture and Markets, NYSCHAP Core Module on "Biosecurity."
Elrod, Charles, Cornell University, "Herd Health: It's Not Just for Vets Anymore."

KNOW WHAT YOU'RE LOOKING FOR: FOOT AND MOUTH DISEASE



We've heard a great deal this year about foot and mouth disease (FMD) and seen news photos and video of the devastation it can cause. But would you know what to look for in your susceptible animals?

Livestock owners, fair management, and veterinarians should all be well aware of the symptoms of FMD. If you haven't already familiarized yourself with the symptoms of FMD, do so now.

Although FMD can mimic a number of other diseases, ALL BLISTER DISEASES MUST BE REPORTED PROMPTLY, so the first action you must take is to call your veterinarian as soon as you notice any of the symptoms described. Isolate the suspect animal at once and do not allow anyone who has been in contact with it to go near other susceptible livestock. Call NJDA or USDA. (See phone numbers on page 5).

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Beef Quality Assurance... *continued from page 3*

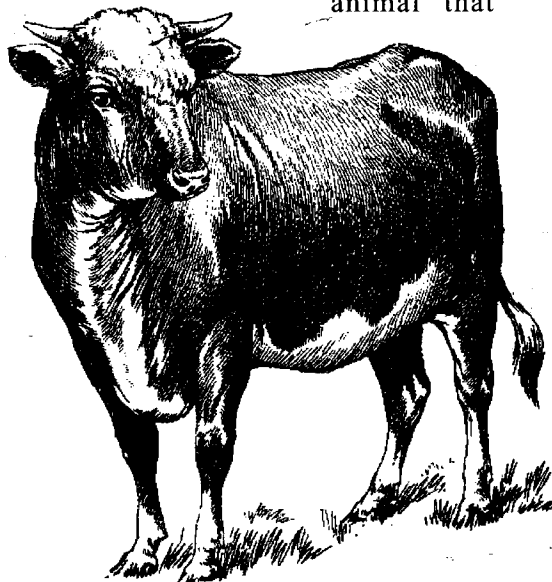
Beef" labelling system that identifies those state and regional cattle associations implementing even more stringent QA controls and practices in order to carry this label.

More recently, with the outbreak of "mad cow" disease in Europe, the European Union (EU) is developing a livestock passport program that will be required for all meat products being moved across national borders and into export markets. The program was initiated to prevent any breakdown in EU quality assurance programs and to establish a verifiable trace-back method of any product to its point of origin.

Meanwhile, in the United States, ARS, agricultural universities, and food corporations are developing programs and researching methods that improve the care given animals prior to slaughter, enhance animal well-being, and decrease stress. **Even though animal producers have raised livestock for years under accepted humane systems, consumers want all meat animals reared under the best of circumstances.** They want to know that the hamburger they are eating came from

humanely-treated animals and is of the highest possible quality.

As QA programs continue to evolve, we will see more scientifically-based developments and technological applications for the live animal that



will ultimately help assure higher quality products. Examples are genetic selection for specific traits that reduce stress, appetite and food stimulants in swine that reduce neonatal stress, and the use of GPS receivers (electronic collars) to aid in moving cattle and monitoring their

grazing patterns.

Understanding animal behavior also contributes to beef QA. A leader in animal behavioral science is Dr. Temple Grandin from Colorado State University. She advocates thinking, seeing, and hearing like the beef animal in order to improve upon a facility's design and to consider the animal's well-being. Her unorthodox methods and ideas have been successfully adopted across the country at slaughter facilities, feedlots, and ranches of all kinds.

As a beef or dairy producer you need to ask a simple question: "**Am I doing all I can to assure the highest quality product possible?**" If you are not, you need to examine what your production practices are and improve upon them. This will ultimately make you a better producer and, more importantly, improve your bottom line!

For more information about beef quality assurance, contact Bob Mickel at (908) 788-1339, or e-mail him at mickel@aesop.rutgers.edu.

SYMPTOMS IN CATTLE

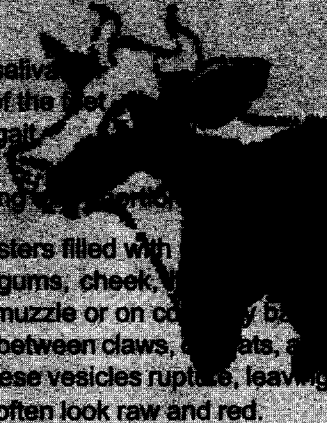
Cattle are known as the "indicator" hosts because their symptoms are often dramatic. Initial symptoms are:

- fever
- anorexia
- shivering
- reduction in milk production for two to three days

The next phase of symptoms includes:

- visual lesions
- smacking of lips
- grinding teeth
- drooling and stringy saliva
- stamping or kicking of the feet
- lameness or altered gait
- recumbency
- sudden death of young calves

Visual lesions are blisters filled with fluid. They appear on the tongue, dental pad, gums, cheek, palate, lips, nostrils and muzzle or on coronary band, corium of dewclaws, and between claws, hooves, and udders. After 24 hours these vesicles rupture, leaving obvious erosions, which often look raw and red.

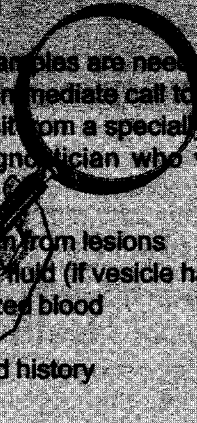


DISEASES THAT CAN LOOK LIKE FMD

- Vesicular stomatitis
- Swine vesicular disease
- Vesicular exanthema of swine
- Randipox
- Murine disease
- Infectious Bovine Rhinotracheitis (IBR)
- Bluetongue
- Bovine Mammillitis
- Bovine Papular Stomatitis
- Bovine Viral Diarrhea (BVD)
- Footrot

Tissue samples are needed for an accurate diagnosis. Your immediate call to NJDA or USDA/VS will result in a visit from a specially-trained foreign animal disease diagnostician who will take the following samples:

- epithelium from lesions
- vesicular fluid (if vesicle has not ruptured)
- heparinized blood
- serum
- a detailed history



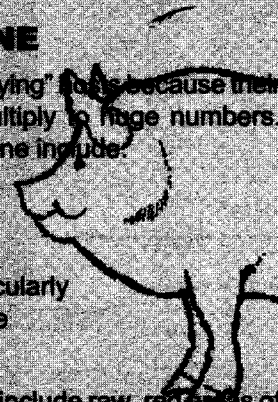
SYMPTOMS IN SWINE

Pigs are known as "amplifying" hosts because their bodies allow the virus to multiply to huge numbers. Symptoms to watch for in swine include:

- fever
- lameness
- recumbency
- severe foot lesions, particularly when housed on concrete
- high mortality in piglets

The visual lesions in pigs include raw, red areas of erosion or epithelial flaps appearing over the snout, and/or around the digits and dew claws.

When housed on concrete, foot lesions can be so advanced that the claws can start to slough off, putting the animals in extreme pain.



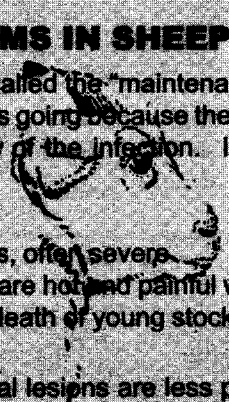
SYMPTOMS IN SHEEP AND GOATS

Sheep, called the "maintenance" host, and goats keep the virus going because they often do not exhibit clinical signs of the infection. In these animals, be alert for:

- fever
- lameness, often severe
- feet that are hot and painful when touched
- sudden death of young stock

The visual lesions are less pronounced in sheep and goats and, in fact, foot lesions may go unrecognized.

Vesicles in the dental pads of sheep, and reduced or total lack of milk production are often noted.



Suspect FMD when many animals are showing signs of lameness, are off feed, milk production has dropped, and death of young animals has occurred or when you see obvious mouth and foot lesions.

UPDATE

JOHNE'S PROGRAM

The Johne's Program has been very active this year

**REGIONAL DAIRY QUALITY
MANAGEMENT ALLIANCE**

Cattle Health News
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Division of Animal Health
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**BSE AND THE MAMMALIAN
PROTEIN FEEDING BAN**

The federal government is accelerating inspection of our feed mills, animal renderers and protein blenders to be sure that these establishments understand and comply with the US Dept. of Health and Human Services (HHS)...

WEST NILE VIRUS

This summer and fall we are bracing for more West Nile Virus (WNV), the mosquito-borne encephalitis disease that affects birds, horses, and humans. Last year, 28 horses from 11 counties in New Jersey developed signs of infection, and eight of them had...

UPDATE