Foot and Mouth Disease (FMD)

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Foot-and-mouth disease (FMD) is an acute, highly contagious viral disease of domestic and wild cloven-hoofed animals. FMD can cause serious production losses and is a major constraint for international trade in livestock and livestock products.

WHAT IS FMD?

Foot-and-mouth disease (FMD) is a highly contagious viral disease of all cloven-hoofed animals, caused by a picornavirus. Although not lethal in adult animals, it causes serious production losses.

FMD is a World Organisation for Animal Health (OIE) listed disease and represents the greatest disease threat t o Australia's livestock industries and export markets. It has the potential for rapid and extensive spread, and an outbreak would jeopardise the export of all cloven-hoofed animals and their products, at least in the short term.

FMD is endemic throughout the Middle East, Africa, Asia and most of South America.

Indonesia confirmed infection in April 2022 despite having previously eradicated FMD in 1986. An intensive vaccination campaign is underway in an attempt to prevent further spread.

Several of Australia's closest neighbours, including Singapore, New Zealand, the Philippines, the Pacific Islands and parts of Malaysia are free from FMD.

In Australia, minor outbreaks of possible FMD occurred in the 1800's. The last incident in 1872 occurred in Victoria following importation of a bull from England. Two farms were involved before the disease was eradicated. FMD has not been diagnosed in Australia since.

HOW IS THE VIRUS SPREAD?

FMD is one of the most contagious animal diseases.

The most significant risk of entry of FMD into Australia is through illegal entry of meat and dairy products infected with the FMD virus and subsequent illegal feeding of these products (swill) to pigs.

Infected animals excrete virus in the fluid from ruptured vesicles ('blisters'), exhaled air, saliva, milk, semen, faeces and urine. Virus transmission can begin up to 4 days before the appearance of vesicles. The primary means of transmission within herds and flocks is by direct contact, via respiratory aerosols. Pigs are potent excretors of airborne virus, excreting about 1000–3000 times more virus in expired air than ruminants.

Infected, preclinical animals can excrete large amounts of virus. As such, infected animals may be moved, sold and/or slaughtered before clinical disease develops — this has been important in outbreaks overseas and may be the primary cause of disease spread once FMD has been introduced into a country.

Clinically affected animals also shed large quantities of virus. Most excretion of virus ceases within 6 days of the vesicles appearing.

Spread of infection between properties and areas is frequently due to movement of infected animals and/or contaminated vehicles, equipment, people and products.

Under suitable conditions, and dependent upon the strain and concentration of virus, windborne spread could be involved in the transmission of FMD over several kilometres.

FMD may remain infective in the environment for several weeks. Low temperatures and high humidity increase virus survival times.

WHAT SPECIES ARE AFFECTED?

Cloven-hoofed animals are the natural domestic and wild hosts of FMD. They include cattle, pigs, sheep, goats, camelids (camels, llamas and alpacas), bison, water buffalo (*Bubalus bubalis*), deer, and other wild species, (antelopes, moose, giraffe, wildebeest, warthog and elephants).

Australia has large populations of domestic and feral animals that are fully susceptible to infection with FMD, and capable of transmitting the disease. These populations include intensively managed animals in dairies and piggeries; animals in more extensive cattle, sheep and deer enterprises; animals in zoos; and feral pigs, cattle, goats and buffalo.

Studies have concluded that Australian fauna could spread FMD in the field under exceptional conditions. Close contact would be required between livestock and fauna, e.g. at watering holes in droughts.

WHAT ARE THE CLINICAL SIGNS IN ANIMALS?

FMD is generally not lethal to adult animals, but it can kill young animals and cause serious production losses.

Clinical disease commences with fever followed by the appearance of vesicles (fluid-filled blisters) between the toes and on the heels, on mammary glands and particularly on the lips, tongue and palate. Over time, these may join to form large ulcers which usually heal over a period of ~10 days.

Foot lesions cause lameness and mouth lesions can impair animals from normal eating and drinking.

Adults usually begin eating again after a few days, but young animals may weaken and die, or be left with foot deformities or permanent damage to the mammary glands.

CAN THE VIRUS SPREAD TO HUMANS?

FMD is not considered a public health problem as infection of people with FMD is extremely rare and any symptoms are temporary and mild, only very occasionally resulting in clinical disease (fever, vesicles on the hands or feet or in the mouth).

FMD can be confused with Hand, Foot and Mouth disease which is present in Australia and affects primarily young children with signs of fever, mouth sores and a skin rash. This is caused by a different virus and is **NOT** related to or associated with Foot and Mouth Disease.

People can be infected with FMD through open skin wounds by handling diseased animals or the virus in the laboratory, or through the mouth lining by drinking infected milk.

Infection cannot occur by eating meat from infected animals.

Although FMD has no direct public health implications with regard to infection, an outbreak in Australia will have a devastating impact on affected livestock owners, rural workers and communities. Serious social stresses and impacts would be expected.

HOW TO ENSURE I DON'T SPREAD FMD?

Whilst human infection with FMD is extremely rare, people can carry the virus in the nasopharynx and potentially transmit disease between animals.

Increased biosecurity measures and standards must be immediately implemented by the relevant animal industries across Australia when an FMD outbreak is declared.

All vehicles and drivers entering premises with susceptible animals will be required to comply with biosecurity protocols to prevent transmission.

Vehicle movements between farms should be kept to a minimum. Regular, routine vehicle movements onto farms, such as those for fodder deliveries and milk pick-ups, require particular attention due to the essential nature of these movements and their frequency.

Agents that destroy FMD include sunlight, and acid and alkaline disinfectants such as citric acid, sodium hydroxide and sodium carbonate (washing soda).

A public awareness program for FMD will provide risk-based and specific instruction on disinfection requirements at the onset of an outbreak.

WHAT ARE THE IMPACTS OF AN OUTBREAK OF FMD?

The economic effects of an outbreak of FMD, even on a small scale, would be enormous to individuals, the farming industry as a whole, and subsidiary and support industries.

Direct effects on Australia's major livestock industries would stem from export market closures and the disruption to production associated with the disease and response activities.

There would be significant flow-on losses to many rural and regional businesses that rely on livestock industry revenue — for example, from the impact of movement restrictions on the routine movement of livestock in Australia.

In addition, it is expected that there would be indirect effects on sectors such as tourism as a result of customer perceptions and the general downturn of the rural economy.

There would also be significant social costs. At the individual and family level, the social impacts could range from emotional strains on family relationships to severe mental disorders. At the community level, impacts could range from a breakdown of normal community activities, in the midst of quarantine and movement restrictions, to changes in interpersonal relationships, affecting longer term community cohesion.

WHAT TO DO IF I SUSPECT FMD?

FMD is a notifiable exotic disease and any suspected or confirmed cases must be reported to Agriculture Victoria on the Emergency Animal Disease Hotline 1800 675 888 (24/7) or to your local Agriculture Victoria Animal Health and Welfare staff.

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WHAT IS THE GOVERNMENT'S RESPONSE TO FMD?

The government's response to FMD will aim to quickly eradicate the disease through a combination of strategies including:

- quarantine and movement controls,
- destruction and disposal of infected animals,
- decontamination of infected premises
- tracing and surveillance, and
- a public awareness program
- other strategies,(if required), i.e. vaccination

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