

# Foot and mouth disease – the key facts and global situation

Foot and mouth disease, often shortened to FMD, is a very important, highly contagious disease of livestock that has a severe impact on affected animals and in the trade of animals and animal products. FMD affects cloven hoofed animals and, globally, the four most important species affected are cattle, sheep, goats and pigs.

As a result of its importance FMD is a notifiable disease and all countries must notify the OIE (the global animal health organisation) of any occurrences of FMD in their country.

FMD was the first disease for which OIE created an official list of free countries and zones with or without vaccination.

## Seven strains of virus

The aphthovirus which causes FMD has seven strains. These are known as A, O, C, SAT 1, SAT2, SAT3 and Asia and when vaccination is employed the vaccine must be strain specific if adequate immunity is to be provided.

FMD is endemic in certain parts of Asia, Africa and the Middle East.

Australia, New Zealand, Indonesia, Central and North America and continental Western Europe are currently free of FMD, but the disease can occasionally occur sporadically in areas that are typically considered to be free of FMD.

In a non-vaccinated, susceptible population morbidity usually reaches 100% and intensively reared animals appear to be more susceptible to FMD than traditional breeds.

Adult animals rarely die but young animals often die due to a myocarditis or, if they are suckling, a lack of milk from an infected mother.

Clinical signs depend on the strain of virus involved and the age and species of animal and can range from mild to severe in terms of severity.

Typically vesicles (blisters) are seen on the nose, tongue, lips, mouth linings, teats and in the interdigital cleft on of the hooves and on the rim between the hoof and lower leg. Vesicles normally heal within a week or slightly longer.

Ruptured vesicles can be very painful

## Transmission and spread of FMD

FMD virus is found in all the excretions of an infected animal and can be in their milk and semen four days before they show any symptoms of infection, therefore, it is wrong to assume a 'healthy' animal presents no risks.

In addition, animals that have recovered from infection can be carriers of FMD virus.

FMD can be spread through any or all of the following:

- New animals being introduced into a herd.
- Contaminated pens, buildings or vehicles.
- Contaminated materials, such as straw, feed, water, milk or biological products.
- People wearing contaminated clothing and/or footwear.
- Meat or animal products, raw or improperly cooked food fed to susceptible animals.
- Aerosol spray from infected premises carried via the wind.

resulting in lameness and a reluctance to eat. The ruptured vesicles can succumb to secondary bacterial infections.

FMD causes major production losses and, even though the majority of the affected animals recover, they are often left debilitated and weakened.

## Global control strategy

The global strategy for FMD control is to detect the disease early and remove the focus of infection by a stamping out policy based on herd slaughter.

The best scenario is not to get the disease at all and FMD free countries endeavour to protect their free status with stringent import and cross border animal movement and controls surveillance.

Control measures that can be implemented at farm level include:

- Control of access by people and equipment to your pigs.
- Prohibiting staff eating food in livestock areas.
- Control of the introduction of new pigs to your herd.
- Maintaining standards for the sanitisation of pens, buildings, equipment and vehicles.
- Monitoring and reporting illness in the herd.

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**Table 1. FMD free countries where vaccination is not practised.**

Albania	El Salvador	Latvia	Portugal
Australia	Estonia	Lithuania	Romania
Austria	Finland	Luxembourg	San Marino
Belarus	France	Macedonia	Serbia (Excl. Kosovo)
Belgium	Germany	Madagascar	Singapore
Belize	Greece	Malta	Slovakia
Bosnia & Herzegovina	Guatemala	Mauritius	Slovenia
Brunei	Guyana	Mexico	Swaziland
Canada	Haiti	Montenegro	Sweden
Chile	Honduras	Netherlands	Switzerland
Costa Rica	Hungary	New Caledonia	Ukraine
Croatia	Iceland	New Zealand	United Kingdom
Cuba	Indonesia	Nicaragua	USA
Czech Republic	Ireland	Norway	Vanuatu
Denmark	Italy	Panama	
Dominican Republic	Japan	Poland	

According to international provisions only Uruguay is recognised as 'FMD free where vaccination is practised'.



**Fig. 1. The current (January 2012) international picture of porcine outbreaks.**

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- Appropriate disposal of manure and carcasses.

Should FMD occur, eradication and control will need to consider:

- The humane destruction of all infected and susceptible contact animals.
- The appropriate disposal of carcasses and animal products, for example, faeces/manure and milk.
- Surveillance and tracing of potentially infected or exposed pigs.
- Strict quarantine and controls on the movement of pigs, people, vehicles and equipment.

- Thorough disinfection of premises and all infected materials including cars, clothes and tools.

In an endemic area culling may be combined with vaccination of susceptible animals with an approved vaccine.

If a country wishes to claim a disease free status the OIE has defined categories on which this is based.

A country can have one of the three following statuses:

- FMD free without using vaccination (see Table 1).
- FMD free with the use of vaccination.
- Infected. ■



**Fig. 2. A summary of the porcine outbreaks situation in 2011.**

**Fig. 3. A summary of the porcine outbreaks situation from 1st January 2005 to today.**

