

FOOT-AND-MOUTH DISEASE

Factsheet



Foot-and-mouth disease (FMD) is a viral infection caused by an *aphthovirus* belonging to the family of *picornaviridae* which affects cloven-hoofed animals such as, cattle, pigs, sheep, goats, buffaloes, and deer. Horses are not affected. There are seven strains of the virus (A, O, C, SAT1, SAT2, SAT3, Asia1).

Characteristics

FMD is characterised by fever and blister-like sores on the tongue and lips, in the mouth, on the teats and between the hooves. Other direct physical effects are reduced milk production, hoof inflammation, weight loss and abortions. While the majority of affected animals recover, the disease often leaves animals weakened and debilitated. Young animals may die from the infection, due to the resulting weakening of the heart muscle.

Societal impact

FMD had been eradicated in Europe in the 1990s and the EU subsequently adopted a non-vaccination policy. However, with repeated outbreaks in some Eastern European and Asian countries the threat of reintroducing the virus to cattle and pig herds in the EU remained, with ensuing disastrous consequences for several Western European countries in 2001. 260,000 cattle and sheep were killed in the Netherlands, even though only 26 farms were affected, and in the UK over 4 million animals were slaughtered as part of the disease control efforts.

FMD does not affect humans, but it is highly contagious among cattle, buffalo, sheep and pigs and can seriously reduce milk and meat production. The widespread slaughter of potentially infected animals and the trade bans that result after outbreaks seriously affect national agricultural economies of exporting nations.

Where does it occur?

FMD is an **OIE listed disease** and is the first one for which the OIE established an official list of free countries and zones. The FMD situation has improved in recent years particularly in Europe and in some countries in South-East Asia and South America. However, it remains endemic in many countries in Africa, the Middle East, Asia and South America. Europe, North and Central America, Pacific nations and the Caribbean are now free of the disease.

Vaccines and vaccination

As FMD is a viral infection, the disease itself cannot be treated. Like most viral diseases however, it can easily be prevented by vaccination, supported by other prophylactic measures, such as sanitation measures, strict transport controls, quarantine, etc. Control measures in the EU are based on stamping-out of infected and in-contact herds, regional restrictions on the movement of susceptible animals and their products, and provisions for the use of emergency vaccination.

FMD vaccine development is complicated not only by the existence of seven serotypes of the FMD virus, which are not cross-protective, but also the variation that occurs within a serotype. Distinct antigenic variants exist in different geographic regions with implications for the control of the disease through preventative vaccination. The animal health industry has developed antigens tailored to the specific requirements of each FMD strain. These antigens are the active ingredients of vaccines and stocks of them are held in banks on behalf of various governments so that if an outbreak occurs companies can quickly turn antigens into active vaccines. The EU maintains one of the world's biggest antigen banks for rapid formulation of vaccines as part of its control measures for FMD.

Useful links:

- European Commission Directorate General Health and Consumers (DG SANCO):
http://ec.europa.eu/food/animal/diseases/controlmeasures/fmd_en.htm
- World Organisation for Animal Health (OIE):
<http://www.oie.int/en/animal-health-in-the-world/fmd-portal/about-fmd>
- Food and Agriculture Organisation (FAO) European Commission for the control of Foot-and-Mouth disease (EuFMD):
<http://www.fao.org/ag/againfo/commissions/en/eufmd/eufmd.html>
- DISease CONtrol TOOLS (DISCONTTOOLS) database:
http://www.discontools.eu/home/disease_detail/disease_id/29