

Foot and Mouth Disease

Foot and mouth disease (FMD) is one of the most important contagious diseases of cloven footed animals (cattle, pigs, sheep, goats, and buffalo) and cloven-hoofed wild animals. It has a great potential for causing severe economic loss. The disease is characterized by fever and vesicles with subsequent erosions in the mouth, nose, muzzle, feet, or teats. There is low mortality rate in adult animals, but often high mortality in young due to myocarditis .

Aetiology : The FMD virus (FMDV) is a member of the genus *Aphthovirus* in the family Picornaviridae. There are seven serotypes of FMDV: A, O, C, Asia 1 and Southern African Territories (SAT) 1, 2 and 3.

Sheep act as maintenance hosts, Pigs act as amplifiers, Cattle act as indicators.

Transmission: Disease transmitted by Direct or indirect contact with infected animals. Contact with contaminated objects ,contaminated feed and water, vehicles. Movement of personnels from affected farm/animals are the main sources of transmission of disease.

Clinical Findings: The morbidity rate is essentially 100 percent in a susceptible population of domestic animals. Mortality is usually less than 1 percent, but in young animals and with certain isolates mortality can be high. The main clinical symptoms are

- Initial signs are fever of 103-105° F
- Dullness, anorexia, and fall in milk production for 2-3 days .
- Excessive salivation; drooling smacking of the lips ,
- Grinding of the teeth serous nasal discharge;
- Shaking, kicking of the feet or lameness; and vesicle (blister) formation.
- Sites of predilection for vesicles are the tongue dental pad, gums, soft palate, nostrils, muzzle, interdigital space and teats .



Blister and lesions on oral mucosa and teat

Diagnosis: Field diagnosis is usually based on clinical symptoms exhibited by the animal .In laboratory it can be done by Sandwich ELISA and isolation of virus in Cell culture.

Material for laboratory Confirmation :

- Vesicular fluid on Ice .
- Tongue Epithelium covering a vesicles and
- epithelium of inter digital space in 50%GPB

PREVENTION AND CONTROL

Vaccination - When vaccinating animals, it is important that the vaccine contain the same subtype of virus as is in the area. Normally Trivalent vaccine containing “O”, “A” and “ASIA 1” subtypes are used for prophylactic vaccination in animals . Vaccination should be done as per the manufacturers instructions.

❖ **Biosecurity** : Although most animals don't die from FMD, it is of major concern because of high communicability of the disease. If one animal on a farm contacts the disease, it is likely that other animals in the herd, and animals in neighboring herds would contact the disease, rapidly spreading an outbreak. If an outbreak were to occur, the livelihood of many farmers is at risk from economic losses due to decreases in milk and meat production (most cattle don't regain their weight and don't produce milk at their normal rates for the remainder of their lactation). Therefore following bisecurity measures should be followed strictly.

- ❖ Disinfection of premises and all infected material (implements, cars, clothes, etc.).
- ❖ Isolate infected animals from the healthy.
- ❖ Regulate animal movements and keep to an absolute minimum.

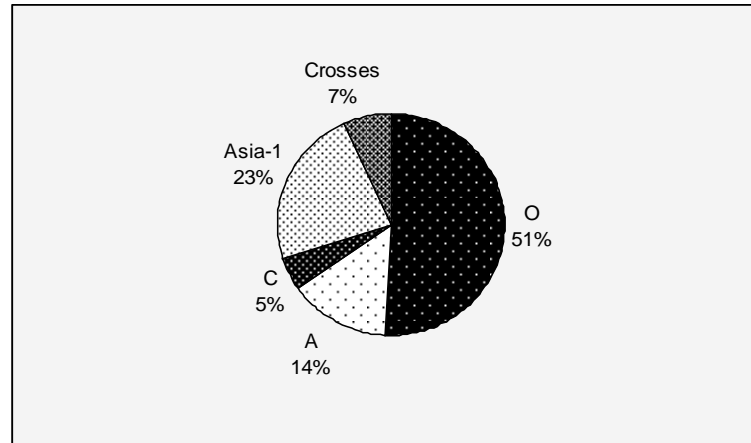
- ❖ People and Vehicles are a potential source of contamination.
- ❖ Only allow essential visitors on to the farm and provide your own boots and clothing at the entrance.
- ❖ Limit the movement of people between buildings as much as possible.
- ❖ Place foot dips at all entrances, service and feed delivery points. Use proper disinfectant at the correct dilution.
- ❖ Adopt special precautions at loading ramps. Disinfect all loading areas before and after use. Check drainage is away from the farm.
- ❖ Dusting of lime powder or 4% caustic soda or 2% Sod. Hydroxide is advocated.

Treatment : Mouth / foot Lesions should be washed thoroughly with 4% solution of potassium permanganate or 2 – 4 % solution of soda bi carb. And then apply boro-glycerine over the mouth lesions. Otherwise turmeric powder with oil can also be applied. Due to lesions in mouth animals are off feed. Hence feed such animals with palatable green fodder. ex. Lucern, green grass etc.

In order to avoid secondary bacterial infection in ailing animals , broad-spectrum antibiotics along with antistress medicines should be given.

Prevalence of FMD in Maharashtra :

In Maharashtra state since inception of the All India Coordinated Project on Epidemiological Studies on Foot & Mouth Disease, Regional Centre at Pune 4131 samples consisting of Mouth and Foot Lesions, Tissues, Saliva etc were



tested by Compliment Fixation Test and S-ELISA as per the approved protocol provided by the Project Directorate on FMD, I.V.R.I. Mukteshwar. The distribution of FMD virus types in the Maharashtra State since inception indicate that the disease occurs mostly because of “O” subtype followed by “Asia-1” and “A” type. There is no occurrence of disease due to Type “C” since 1992.



For more details please contact :

JOINT COMMISSIONER OF ANIMAL HUSBANDRY
WESTERN REGIONAL DISEASE DIAGNOSTIC
LABORATORY
DISEASE INVESTIGATION SECTION
AUNDH, PUNE-411 007. M.S. INDIA.

PH. 020-25692135, FAX. 020-25691474
E-mail : jcahdis@hotmail.com

Compiled by : Dr.S.S.Rautmare,
Dr.A.M.Potekar, Dr.A.M.Kulkarni



FOOT AND MOUTH DISEASE (FMD)



**Regional Disease Diagnostic Laboratory
(Western zone)
Disease Investigation Section,
Aundh, Pune – 411007**