

Myxomatosis

What is Myxomatosis?

Myxomatosis is an important disease of rabbits caused by a poxvirus called the *Myxoma virus* (MV). MV causes a very mild disease in its original host native to South America, but in some species of rabbits and hares, especially the European rabbits it causes a severe disease with high mortality.

The word 'myxoma' derives from the Greek word for mucus and refers to a tumour of connective tissue which is usually embedded in mucus. The disease is characterised by the presence of tumours on the face and limbs of affected animals.

It is one of the two diseases of lagomorpha (the mammal family which includes rabbits, hares and pikas) listed in the OIE *Terrestrial Animal Health Code*, and Member Countries and Territories are required to report outbreaks of the disease according to the OIE *Terrestrial Animal Health Code*.



Where is the disease found?

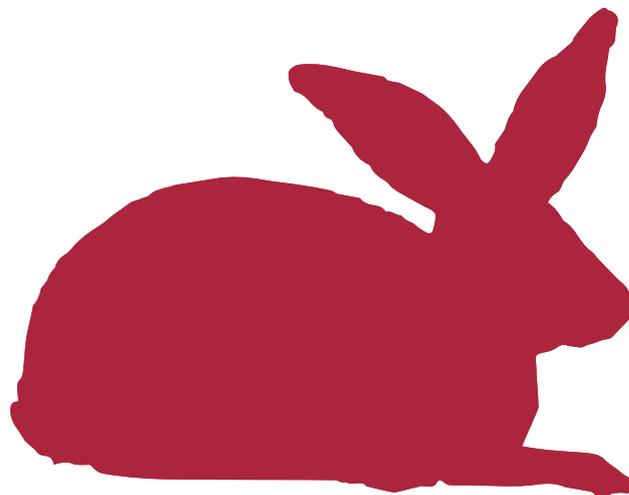
The virus originates in wild rabbits of South America and was first isolated in Uruguay in 1898. It has been found since in other South American countries and in the United States.

MV was deliberately introduced into France in 1952 and spread rapidly across continental Europe and into the United Kingdom. Myxomatosis was also deliberately introduced into Australia in 1950 in an effort to control the population of rabbits, a non-native species whose numbers exploded so as to threaten native mammals.

It has never been reported in Asia, in Southern Africa or New Zealand.

How is the disease transmitted and spread?

Spread mainly occurs through fleas and mosquitoes which ingest the virus while biting infected animals and then transmit the disease to other susceptible animals. It can also spread directly from animal to animal or by contact with fomites (contaminated inanimate objects).





What are the clinical signs of the disease?

Typical of pox viruses the disease produces skin nodules. These first appear at the site of infection, then there is swelling around the eyes (big head disease) and genitals, and secondary skin lesions develop. At the same time there can be severe immune suppression that allows secondary bacterial infections so signs of pneumonia are common.

As the disease progresses the animal becomes depressed, and death often from pneumonia usually occurs between the eighth and fifteenth days with the most pathogenic strains of MV.

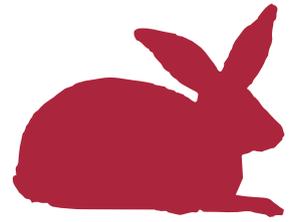
A respiratory form of the disease has also been reported where there are no skin lesions.

When introduced into Australia in order to control the population of rabbits, the disease reached a mortality rate of 90%, but natural selection left the most resistant animals alive and currently the mortality rate is below 50%.

How is the disease diagnosed?

Diagnosis is confirmed by isolation of the virus, or by serological methods. Virus isolation is usually performed by culturing the virus in suitable cell lines. Serologic tests will detect antibodies to the virus using immunological methods as outlined in the *OIE Manual of Diagnostic Tests and Vaccines*.

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What is being done to prevent or control the disease?

Since MV is spread by insects, mosquito protection is an important disease control measure for domestic rabbits. When infection occurs, isolation of the infected animals is necessary to prevent the disease from spreading to other susceptible animals.

There is an effective vaccine if it is produced according to the guidelines for vaccine production found in the *OIE Terrestrial Manual of Diagnostic Tests and Vaccines*.

The *Terrestrial Animal Health Code* gives guidelines for the trade in rabbits and products derived from them to avoid the spread of rabbit diseases.

What is the public health risk associated with this disease?

The virus only affects rabbits and poses no public health risk.



More Information?

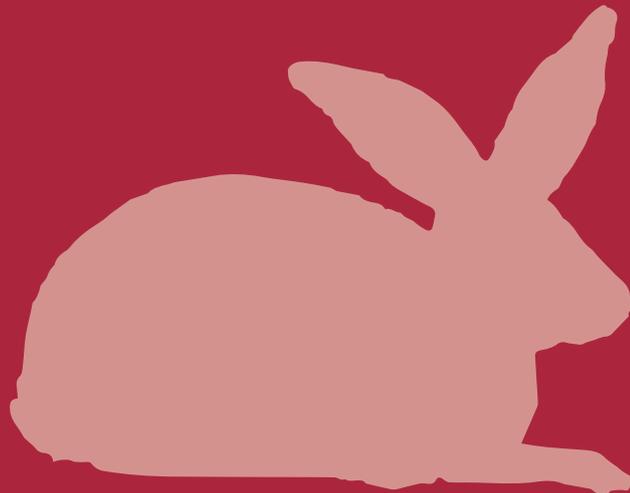
References:

1. OIE *Terrestrial Animal Health Code*:
www.oie.int/en/international-standard-setting/terrestrial-code/access-online/
2. OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animal*:
www.oie.int/en/international-standard-setting/terrestrial-manual/access-online/
3. OIE Technical Disease Card:
www.oie.int/en/animal-health-in-the-world/technical-disease-cards/
4. The Center for Food Security and Public Health, Iowa State University
www.cfsph.iastate.edu/
5. Merck Veterinary Manual:
www.merckvetmanual.com/mvm/index.jsp?cfile=htm/bc/toc_50000.htm
6. *Atlas of Transboundary Animal Diseases Animales Transfronterizas*
P. Fernandez, W. White;
Ed.: 2011

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Key Facts

- First isolated from laboratory rabbits in Uruguay in 1898, the virus was identified in 1927 as a poxvirus.
- Introduced to Australia in 1950 as an attempt to control the rabbit population, it reduced the rabbit population from 600 million to 100 million in a period of two years. Since then with natural selection of increasingly resistant animals, the mortality rate is below 50%, and the rabbit population in Australia has rebounded to 200 million.
- MV was deliberately introduced into France in 1952 by a bacteriologist who was trying to reduce the rabbit population on his estate, it quickly spread across continental Europe and into the United Kingdom. In Europe wild rabbit populations were reduced by 90 to 95 % in the years after its introduction.

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