

# Rinderpest

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## *A Disease Fact Sheet for Livestock Specialists*

*For more technical information,  
see the technical version  
of this fact sheet at  
[http://www.cfsph.iastate.edu/  
DiseaseInfo](http://www.cfsph.iastate.edu/DiseaseInfo)*

*For a more general format,  
see the Fast Facts version at  
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## Importance

Rinderpest is an acute (sudden), contagious disease of cattle, domestic buffalo, and some species of wildlife. It is characterized by fever, oral erosions, diarrhea, abscesses in lymph nodes, and high mortality (death).

## Etiology

Rinderpest is caused by a single-stranded RNA virus in the family Paramyxoviridae, genus Morbillivirus.

## Species affected

Most cloven-hooved animals are susceptible to the rinderpest virus to varying degrees. Domestic cattle, buffalo, and yaks are particularly susceptible. Sheep, goats, pigs, and wild ungulates can also be affected.

## Geographic distribution

In the past, rinderpest was found throughout Europe, Africa, Asia, and West Asia. It is still found in a few areas of Africa, and parts of central Asia, its original ancestral home. A Global Rinderpest Eradication Program (GREP) has been managed by the Food and Agriculture Organization of the United Nations (FAO) with the goal of completing the global eradication of rinderpest by 2010.

## Transmission

Transmission of the rinderpest virus occurs through direct or close indirect contact with infected animals. The virus is spread through nasal and eye secretions and feces. The most contagious period is from 1 to 2 days prior to the presence of clinical signs, to 8 to 9 days after the clinical signs are visible.

## Incubation period

The incubation period for rinderpest ranges from 3 to 15 days; usually 4 to 5 days is typical.

## Clinical signs

Rinderpest infections can be peracute, acute, or subacute depending on the virulence of the strain and resistance of the infected animal. In the peracute form, seen in highly susceptible and young animals, the typical signs are an acute high fever, reddened gums and eyes, and death within 2 to 3 days. Animals with the acute or classic form begin with signs of fever, depression, loss of appetite, and increased respiration and heart rate, which then progress to include reddened gums and eyes, clear to cloudy eyes and nasal discharge, and oral sores with salivation. After 2 to 3 days, the fever subsides and gastrointestinal signs appear. Animals may have profuse watery or bloody diarrhea containing mucus and dead tissue, straining during defecation, dehydration, abdominal pain, weakness, and are unable to rise. Death may occur within 8 to 12 days. Occasionally in the acute form, the clinical signs will regress by the tenth day and animals may recover within another 10 to 15 days. The subacute or mild form has a low death rate and only a few of the classic signs are present.

In sheep, goats and pigs, signs may include fever, anorexia, and sometimes diarrhea. Pigs may also show signs of reddened eyes, oral sores, and death.

## Post mortem lesions

Depending on the strain of virus, rinderpest will sometimes cause oral lesions that initially appear small, which then slough leaving red erosions. These lesions may be present on the gums, lips, hard and soft palate, cheeks, and base of the tongue. These erosions and areas of dead tissue as well as reddening, bleeding, and

swelling can extend into the gastrointestinal and upper respiratory tracts. The abomasum may be particularly affected. “Tiger” or “zebra” striping is often seen in the large intestines. The lymph nodes may be enlarged and swollen with fluid. The carcass will most likely be thin and dehydrated.

## Morbidity and mortality

The morbidity (illness) rate for rinderpest is high. The mortality (death) rate can be high but varies with the virus strain.

## Diagnosis

### *Clinical*

Rinderpest should be considered in cattle with any acute fever causing, highly contagious disease with oral erosions and/or gastrointestinal signs.

### *Differential diagnosis*

Differentials for rinderpest include bovine viral diarrhea–mucosal disease (BVD-MD), bovine herpesvirus-1 (BHV-1), malignant catarrhal fever (MCF), foot-and-mouth disease (FMD), vesicular stomatitis, salmonellosis, necrobacillosis, paratuberculosis (Johne’s), and arsenic poisoning. Bovine viral diarrhea–mucosal disease may be less likely in some cases because it affects primarily animals from 4 to 24 months of age; rinderpest can affect cattle of any age. In sheep and goats, peste des petits ruminants is a differential.

### *Laboratory tests*

Rinderpest is confirmed using specialized tests performed at a diagnostic laboratory.

### *Samples to collect*

Before collecting or sending any samples from animals with a suspected foreign animal disease, the proper authorities should be contacted. Samples should only be sent under secure conditions and to authorized laboratories to prevent the spread of the disease.

The best time to collect samples for rinderpest is when a high fever and oral lesions are present but before the onset of diarrhea. The types of samples the attending veterinarian will collect include blood, lacrimal fluid (tears), oral lesion tissue, lymph nodes, spleen, and tonsil.

## Recommended actions if rinderpest is suspected

### *Notification of authorities*

A quick response is important in containing an outbreak of rinderpest. If you suspect a case of rinderpest, consult a veterinarian, who will decide whether state and federal veterinarians should be alerted.

### *Quarantine and disinfection*

The affected area should be quarantined, exposed or infected animals may be slaughtered and the carcasses burned or buried. The rinderpest virus can be killed by most common disinfectants (phenol, cresol, sodium hydroxide 2% per 24 hours used at a rate of 1 liter/m<sup>2</sup>), but can survive for long periods of time in chilled or frozen tissues.

### *Vaccination*

If vaccination is required as determined by regulatory authorities, use vaccine only as directed.

## Public health

Rinderpest is not considered a public health problem.

## For More Information

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World Organization for Animal Health (OIE)  
<http://www.oie.int>

OIE Manual of Standards  
[http://www.oie.int/eng/normes/mmanual/a\\_summry.htm](http://www.oie.int/eng/normes/mmanual/a_summry.htm)

OIE International Animal Health Code  
[http://www.oie.int/eng/normes/mcode/A\\_summry.htm](http://www.oie.int/eng/normes/mcode/A_summry.htm)

USAHA Foreign Animal Diseases book  
[http://www.vet.uga.edu/vpp/gray\\_book/FAD/](http://www.vet.uga.edu/vpp/gray_book/FAD/)

## References

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“Rinderpest.” In *The Merck Veterinary Manual*, 8th ed. Edited by S.E. Aiello and A. Mays. Whitehouse Station, NJ: Merck and Co., 1998, pp. 542–544.

Mebus, C.A. “Rinderpest.” In *Foreign Animal Diseases*. Richmond, VA: United States Animal Health Association, 1998, pp. 362–371.

“Rinderpest.” 30 Aug. 2000 World Organization for Animal Health. 16 Oct. 2001 <[http://www.oie.int/eng/maladies/fiches/a\\_A040.htm](http://www.oie.int/eng/maladies/fiches/a_A040.htm)>