



## Case Definition

### Rift Valley Fever (Notifiable)

November 2023

#### 1. Disease Information

**1.1 General Disease and Pathogen Information:** Rift Valley fever (RVF) is a peracute or acute vector-borne [zoonotic](#) viral disease important in wild and domestic ruminants (sheep, goats, cattle, water buffalo and camels) caused by the RVF virus (RVFV), an RNA virus in the genus *Phlebovirus* and family *Phenuiviridae*. Vector species include mosquitoes of the genera *Aedes*, *Anopheles*, *Culex*, and *Mansonia*. RVFV has a predilection for liver tissue resulting in severe hepatic necrosis. Neonatal mortality and abortion rates in pregnant ruminants may reach 100 percent. The incubation period is 12 to 72 hours in newborn lambs, kids, and calves and 24 to 72 hours in adult sheep, goats, and cattle. The greatest susceptibility to RVFV infection occurs in breeds of domestic ruminants that are exotic to Africa. RVFV is endemic in many countries of sub-Saharan Africa.

**1.2 Clinical Signs:** In live animals, clinical signs are related to consequences of severe hepatic necrosis, i.e., fever, anorexia, weakness, tachypnea (with blood-tinged, mucopurulent nasal discharge), icterus, melena, and fetid diarrhea. In aborted fetuses, hepatic necrosis (enlarged, friable, soft, and red to yellow-brown liver) is also the most prominent finding. The following ruminant species exhibit clinical signs and amplify the virus to concentrations high enough to infect an arthropod vector during a blood meal:

**1.2.1 Sheep and goats:** Onset of disease in newborn lambs and kids is marked by high fever that declines sharply before death. Newborn lambs rarely survive more than 24 to 36 hours after the onset of the first clinical signs. Ninety to 100 percent mortality may occur. Lambs and kids older than 2 weeks develop fever, anorexia, weakness, listlessness, and an increased respiratory rate. Death may occur 2 to 8 days after infection, with up to 20 percent mortality. Some adults develop fever, mucopurulent nasal discharge, and may regurgitate. Abortion rates (any stage of gestation) approach 100 percent, and mortality following abortion can reach 20 to 30 percent. RVF in goats is like that in sheep but less severe.

**1.2.2 Cattle:** Fever and depression are seen in calves with mortality rates from 10 to 70 percent. Adult cattle may have subclinical infection, but abortion rates up to 85 percent may be seen at all stages of gestation. Some cattle develop acute disease characterized by fever, anorexia, lacrimation, salivation, nasal discharge, and bloody or fetid diarrhea. The course of the disease in cattle is 10 to 20 days and mortality rates are less than 10 percent.

**1.2.3 African buffalo (*Syncerus caffer*):** Transient viremia (2 days) with possible abortions in pregnant females.



**1.2.4 Camel (*Camelus spp.*):** Brief viremia followed by high rates of abortion with illness and some deaths in neonates.

**1.2.5 Other domestic species:** Horses, donkeys, and pigs can become transiently infected with RVFV, but these species do not serve as an amplifying host of this virus and clinical signs of disease are typically absent. Viremia without severe disease may be seen in adult cats and dogs, but severe disease can occur in newborn puppies and kittens. These species also do not serve as an amplifying host of RVFV.

## 2. Laboratory Criteria

**2.1 Agent Isolation and Identification:** Collect blood (whole blood preferred) during the febrile period; or liver, spleen, placenta, and brain tissue from deceased animals and aborted fetuses. Tests include virus isolation, antigen enzyme-linked immunosorbent assay (Ag-ELISA), reverse transcriptase polymerase chain reaction (PCR), and immunohistochemistry.

**2.2 Agent Characterization:** Differential PCR for specific lineages can be used. Further characterization is conducted by whole genome sequencing.

**2.3 Serology:** ELISA (IgM and IgG ELISA) is the most used serologic test for RVF. The plaque reduction neutralization test can also be utilized.

## 3. Case Classification

**3.1 Suspect Case:** An animal with

**3.1.1** Clinical signs consistent with RVF; **OR**

**3.1.2** Epidemiology consistent with RVF infection.

**3.2 Presumptive Positive Case:** A suspect case with a

**3.2.1** Non-negative PCR test result; **OR**

**3.2.2** Non-negative ELISA test result; **OR**

**3.2.3** Non-negative virus neutralization test result.

**3.3 Confirmed Positive Case:** An animal from which RVFV has been isolated and identified at the National Veterinary Services Laboratories.

**4. Reporting Criteria:** RVF is a U.S. foreign animal disease (FAD) that is immediately reportable under the APHIS [National List of Reportable Animal Diseases \(NLRAD\)](#).

**4.1** NLRAD reporting in accordance with the [NLRAD Standards](#) for notifiable diseases; and by APHIS to the [World Organisation for Animal Health \(WOAH\)](#); **AND**

**4.2** For FAD or Emerging Disease Incidents also follow standard procedures according to the [Policy for the Investigation of Potential Foreign Animal Disease/Emerging Disease Incidents](#).