

# Factsheet

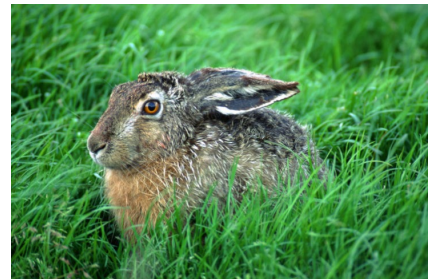
## Rabbit Hemorrhagic Disease

Rabbit hemorrhagic disease is a fatal disease in rabbits and is considered a foreign animal disease in the United States. This disease is caused by several virus strains. Animal health officials detected one of these strains, Rabbit Hemorrhagic Disease Virus Serotype 2 or RHDV2, in North America in the past few years. **RHDV2 does not impact human health.**

### Cases of RHDV2 in North America

RHDV2 is highly contagious and, unlike other rabbit hemorrhagic disease viruses, it affects both domestic and wild rabbits, including hares, jackrabbits and cottontails. Many times, the only signs of the disease are sudden death and blood stained noses caused by internal bleeding. Infected rabbits may also develop a fever, be hesitant to eat, or show respiratory or nervous signs.

The first detection of RHDV2 in North America was on Delta and Vancouver Island, Canada in feral rabbits in February 2018. The disease was later confirmed in a pet rabbit in Ohio in September 2018. More recently, RHDV2 was detected in a pet rabbit and feral rabbits on Orcas Island in San Juan County, Washington. The Canadian detections are within 20 miles of Orcas Island, Washington.



*Photo Courtesy of Canva*

### How RHDV2 Spreads

The RHDV2 virus is very resistant to extreme temperatures. It can be spread through direct contact or exposure to an infected rabbit's excretions or blood. The virus can also survive and spread from carcasses, food, water, and any contaminated materials. People can spread the virus indirectly by carrying it on their clothing and shoes.

### Protect Your Rabbits with Biosecurity

A vaccine for RHDV2 is not currently available in the U.S. Instead, it will be up to you as the owner to protect your rabbits by practicing good biosecurity. Biosecurity means taking simple steps every day to keep germs and viruses away from your animals. These actions will significantly reduce the chance of RHDV2 or other contagious diseases affecting your rabbits.

Follow these recommended biosecurity practices:

- Do not allow pet, feral, or wild rabbits to have contact with your rabbits or gain entry to the facility or home.
- Do not allow visitors in rabbitries or let them handle pet rabbits without protective clothing (including coveralls, shoe covers, hair covering, and gloves).
- Always wash hands with warm soapy water before entering your rabbit area, after removing protective clothing and before leaving the rabbit area.

- Do not introduce new rabbits from unknown or untrusted sources. Do not add rabbits to your rabbitry from animal shelters or other types of rescue operations.
- If you bring outside rabbits into your facility or home, keep them separated from your existing rabbits. Use separate equipment for newly acquired or sick rabbits to avoid spreading disease.
- Sanitize all equipment and cages moved on or off premises before they are returned to the rabbitry. We recommend disinfecting with 10% bleach or 10% sodium hydroxide mixed with water.
- Establish a working relationship with a veterinarian to review biosecurity practices for identification and closure of possible gaps.

If you are a breeder or grower who purchases live rabbits, even if you have existing biosecurity measures in place, you should review your practices and take steps to address potential gaps.

### **Other Steps to Prevent Disease Spread**

The goal is to prevent this disease from impacting domestic and wild rabbit populations. To minimize the risk, here are some actions you can take to help:

- If you live near or visit an area where this disease was confirmed, do not touch any dead wild rabbits you may see. You may contact your local veterinarian, state and federal animal health officials to learn if RHDV2 has been detected in your area.
- If you see multiple dead wild rabbits, report it to [state wildlife officials](#).
- If you own domestic rabbits, do not release them into the wild. If your rabbits appear ill or die suddenly, contact your veterinarian.
- If you volunteer at animal shelters or wildlife rescue facilities, be aware that this disease has been found in feral rabbits. If rabbits appear ill or die suddenly, contact the facility's veterinarian.
- Anyone working with rabbits should always practice good biosecurity. This includes basic steps like washing your hands before and after working with rabbits and not sharing equipment with other owners.

### **Report Suspicious Cases**

Rabbit owners who have questions about this disease should contact their veterinarians. Rabbit hemorrhagic disease is a reportable disease. When detected this disease should be immediately reported to USDA local office as the USA has an obligation to report all detections to the World Organization for Animal Health. Veterinarians should immediately contact the [USDA APHIS Area Veterinarian in Charge](#) of your state and/or the [state veterinarian](#) if a case is suspected.

### **For more information, contact the emerging issues team at:**

U.S. Department of Agriculture  
 Animal and Plant Health Inspection Service  
 Veterinary Services  
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## General Guidance for Cleaning and Disinfection of Rabbit Hemorrhagic Disease Virus (RHDV) Contaminated Premises

April 2020

(These instructions are general guidance and are not to supersede cleaning and disinfection requirements from the State Animal Health Official (SAHO))

### Environmental Persistence of Rabbit Hemorrhagic Disease Calicivirus

- Rabbit Hemorrhagic Disease (RHD) calicivirus is spread by oral, nasal and parenteral transmission
- The virus is present in urine and feces from infected rabbits, thus contaminated bedding can be a source of infection
- Contaminated foods can be a source of infection
- The virus survives at pH 3.0, is stable at pH 4.5-10.5, but is inactivated at pH>12
- The virus can survive for long periods outside the host. For example:
  - Viable virus has been detected for as long as 105 days in its dried state on a fomite (cloth) at room temperature.
- Environmental temperature and protection by organic material are important factors in the survival of the virus
  - Virus may persist in chilled or frozen rabbit meat and the lengthy persistence of infective virus in carcasses may provide a reservoir of disease after outbreaks in the wild, as viable virus has been found in decaying tissue after 90 days outdoors
  - At 50C (122F) the virus survives for 1 hour



Photo by Canva.com

- It can remain viable for 22-35 days at 22C (72F) but only for 3-7 days at 37C (99F). It also survives freeze-thaw cycles.

### Disinfectants

- The RHD calicivirus is inactivated by sodium hypochlorite (dilution of ½ cup of 6% or 8.25% household bleach concentrate in 1 gallon of water to create a approximately 2300 ppm solution of sodium hypochlorite) and 1% potassium peroxymonosulfate (e.g. Virkon S).

### Practical Cleaning and Disinfection Recommendations

#### Preparation: Disinfectants Household Bleach

- A diluted solution of sodium hypochlorite, household bleach, is the most accessible disinfectant available to rabbit owners. To prepare the correct dilution add ½ cup of 6% or 8.25% sodium hypochlorite bleach concentrate to one gallon of potable water. Contact time needed is 5 minutes. Wear nitrile, silicon or rubber gloves and eye protection and work in a well ventilated area when mixing and handling the bleach or bleach solution. Wear protective clothing to avoid contact with the skin.

- Bleach concentrates lose potency over time. Be sure to store bleach concentrates in a cool, dark, place and use recently purchased bleach concentrates to mix solution to be used for disinfecting purposes. New dilute bleach solutions should be mixed every 24 hours to maintain effectiveness.
- Follow the link for information on what to do if you have accidental exposure <https://www.thecloroxcompany.com/wp-content/uploads/2020/04/Clorox%C2%AE-Germicidal-Bleach3.pdf>.

### Virkon S

- Virkon S is a disinfectant often used by Animal Health Officials. A 1% solution is effective for disinfection for RHDV-2. To achieve a 1% use dilution, add Virkon S (depending on formulation type, either 1 sachet, 8 tablets, or 1.3 ounces of powder (or 1 Virkon S scoop)) to 1 gallon of water. Stir thoroughly until fully dissolved, then use per label. Contact time needed is 10 minutes.
- Wear protective gloves and eye/face protection. Use only in a well-ventilated area. Avoid breathing dust. Wash hands thoroughly after handling. Wear protective clothing to avoid contact with skin. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink. Dispose of contents and container in accordance with all local, regional, national and international regulations
- Follow the link for information on what to do if you have accidental exposure <http://virkon.us/wp-content/uploads/sites/15/2017/11/Virkon-TM-S-USA.pdf>

### Pre-Cleaning (Dry Cleaning)

Because of the hardy nature of the virus, removal of all organic material (bedding, feces, fur, material on hutches or cages etc) via scraping, brushing, sweeping or digging before cleaning and disinfection is critical for cleaning and disinfection to be effective.

- Remove all visible debris from items to be disinfected (cages, hutches, feeding equipment, waterers, etc.).
- Remove all bedding from cages, hutches, or ground and safely discard by deep burial or double bagging in plastic bags, disinfecting the outer bag by spraying with disinfectant solution, and disposing of in a licensed landfill or as otherwise directed by your SAHO. Items made of wood are best burned, safely discarded either by deep burial, or by double bagging in plastic bags, disinfecting the outer bag by spraying with disinfectant solution, and disposing of in a licensed landfill or as otherwise directed by your SAHO.
- For wood that cannot be discarded, remove organic material and then clean and disinfect as instructed below.
- Rabbit feces should be removed and safely discarded by deep burial or double bagging in plastic bags, disinfecting the outer bag by spraying with the disinfectant solution and disposing of in a licensed landfill or as otherwise directed by your SAHO.
- Soil beneath rabbit hutches that has been contaminated with rabbit urine, feces, or bedding should be removed to a depth beyond visible contamination and buried.
- Any feed that has the possibility of being contaminated should be safely discarded by deep burial or double bagging in plastic bags, disinfecting the outer bag by spraying with disinfectant solution, and disposing of in a licensed landfill or as otherwise directed by your SAHO.

### Cleaning and Disinfection (C&D):

- Once organic material has been removed by dry cleaning, wash items or structures thoroughly with soap and potable water; rinse well with potable water and let dry.
- Then, submerge or saturate items or structures with spray with the proper dilution of one of the two disinfectants provided above. Allow the appropriate contact time for the disinfectant used (5 minutes for diluted bleach and 10 minutes for 1% Virkon S). Contact time means leaving the item saturated with disinfectant for the specified time. If the item dries before the specified time the disinfectant solution should be reapplied. After the contact time has been achieved, rinse with potable water and let dry before further contact.

### Further Virus Elimination

- After cleaning, disinfection and drying of all hutches, water, feed containers, other rabbit equipment or materials is completed, a fallow period during which no rabbits are introduced is recommended. The fallow period timeframe will be specified by the SAHO. In situations where C&D is complicated by the conditions (such as large amounts of organic material, wooden structures, a large number of infected animals, etc), a 90 day fallow period is recommended.

### References

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