Rabbit Hemorrhagic Disease Virus: Prevention, Biosecurity

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Rabbit Hemorrhagic Disease Virus

- Highly contagious, infectious disease
  - Does not affect human health
  - Does not affect other species
- Caused by a calicivirus
- High morbidity and mortality rate
- Two strains: RHDV and RHDV2
  - Current strain in Southwest U.S. is RHDV2
<table>
<thead>
<tr>
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<th>RHDV</th>
<th>RHDV2</th>
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<tbody>
<tr>
<td><strong>Incubation Period</strong></td>
<td>16 hours to 3 days</td>
<td>3 to 9 days</td>
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<td><strong>Ages Affected</strong></td>
<td>&gt; 8 weeks of age</td>
<td>&gt; 2 weeks of age</td>
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<td><strong>Mortality Rate</strong></td>
<td>80 – 90%</td>
<td>5 – 70% (avg. 20%)</td>
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| **Species Affected**      | European Rabbits (domestic in U.S.)       | • European rabbits (domestic in U.S.)  
                              |                            | • Wild rabbits (hares, jackrabbits, cottontails) |
Clinical Signs

- Collapse, sudden death
- Loss of appetite
- Lethargy
- High Fever
- Spasms, shaking or seizures
- Bleeding from the nose, mouth, rectum
- Some rabbits are asymptomatic
Clinical Signs

Infected rabbits that are asymptomatic or recover from the infection may shed the virus for 2 to 4 months post-infection.
Transmission

Very resistant to extreme temps

RHDV2 can survive for:

• 105 days in dried state on cloth at room temp
• 122° F heat for 1 hour
• 72° F heat for 22 – 35 days
• Freeze / thaw cycles
• 90+ days in decaying tissue or carcasses outdoors
Transmission

• Contact with infected rabbits (live or dead)

• Contact with secretions and excretions (saliva, eye and nose discharge, urine, feces)

• Contact with rabbit products (fur, wool, fresh or frozen meat)
Transmission

• Contact with inanimate objects contaminated by the virus (fomites)
  • Clothing, shoes
  • Dishes, water bottles
  • Cages, carriers
  • Contaminated feed, grass, hay
  • Contaminated bedding
Transmission

• Spread by insects, scavengers, birds, rodents
  • **Mechanical** transport from an infected source to another surface
  • If a carnivore eats a dead carcass, the virus can pass through the animal and be **viable in its feces**
  • Humans can transport the virus by **touching** an infected rabbit or surface, then touching other rabbits (fairs, exhibitions, within a colony)
Diagnosis and Treatment

• Foreign Animal Disease (FAD) in U.S.
  • Currently, no easy, reliable antemortem test
  • Contact BOAH if clinical signs are observed
  • Foreign Animal Disease Diagnostician will collect samples from potentially infected animals

• No known treatment for RHDV2

• Supportive care can be administered

BOAH Indiana State Board of Animal Health
RHDV-Positive Animal Response

• Handled on case-by-case basis
  • Quarantines, movement restrictions
  • Depopulation, if appropriate

• **Goal:**
  Mitigate disease transmission to other domestic and wild rabbits
Vaccination

• Currently NO licensed vaccine in U.S.
• Europe: Two killed vaccines currently produced
  • Filavac® – produced in France
    • effective against RHDV1 and RHDV2
  • Eravac® – produced in Spain
    • only effective against RHDV2
• Not licensed for use in U.S., must be approved by USDA Center for Veterinary Biologics (CVB)
• Approved for emergency use in affected states
Vaccination

- European vaccines are currently not available for use in **unaffected states**
  - Companies are unable to supply both European and U.S. markets
  - Companies lack the ability to increase production to meet U.S. market needs
  - USDA CVB working with U.S. companies to produce a licensed product
Current Situation in U.S.

- **Affected States**
  - New York
  - New Mexico
  - Arizona
  - Texas
  - Colorado
  - Nevada
  - California
  - Washington

- **Northern Mexico**
Prevention & Biosecurity
Before Attending a Show Consider:

• Origins of other exhibitors/rabbits?
• Will exhibitors/rabbits from affected states attend?
• What additional measures will be taken to reduce the spread of disease?

American Rabbit Breeders Association (ARBA) is asking all breeders in affected states to voluntarily recognize a herd quarantine until RHDV2 infections are effectively managed.
Prevention at Exhibitions

• Avoid touching other rabbits
• Wear gloves when handling other rabbits
• DO NOT share equipment, supplies, food or water with other exhibitors
• Ensure appropriate distancing / spacing between cages
  • Place a non-permeable barrier between your rabbits and others if spacing is not possible
Prevention at Exhibitions

• Disinfect common surfaces before allowing your animal to have contact

• Sanitize your hands frequently, especially after contact with shared equipment or surfaces
  • Restrooms
  • Gates
  • Concession stands
Prevention at Exhibitions

• Arrive at the show wearing clean clothing
• Sanitize footwear:
  • BEFORE entering show facility, and
  • BEFORE going home
Prevention: Additions

• Consider the source of a rabbit when making an addition to your colony
  • If from an affected state or if the breeder has purchased animals from an affected state, consider waiting until a vaccine is available
  • Inquire about the vaccine status of the animal
Don’t Bring Diseases Home!

Take simple steps EVERY DAY to keep germs away from your rabbits
Biosecurity

• Methods used to stop a disease or infection from spreading from one person, animal or place to others
  • Good biosecurity can prevent foreign animal diseases as well as domestic diseases and parasite transmission
Quarantine

- A strict isolation imposed on an animal to prevent the spread of disease
Quarantine

• Quarantine new additions and returning animals for a **minimum of 30 days**
• Quarantine area should be a **separate physical location**
• Quarantined animals should **not have contact** with other animals
Quarantine

• Quarantined animals should have their own equipment and supplies
• Sanitize hands or wear gloves before caring for rabbits in quarantine
• Wash or sanitize hands before leaving quarantine area
Quarantine

• Care for rabbits in quarantine **LAST**
• Wear clothing, shoes designated only for the quarantine area
• Clean, sanitize all cages and equipment after rabbits are moved out of this area
Cleaning & Disinfection

• Remove manure regularly
• All organic matter MUST be removed prior to disinfection (bedding, hair, hay, feces, urine)
Cleaning & Disinfection

- Products effective against RHDV2
  - Household bleach at a 1:10 dilution
  - One-Stroke Environ
  - Virkon-S
  - Accelerated Hydrogen Peroxide
    - Prevail, Rescue or Peroxigard
Cleaning & Disinfection

• Use approved disinfectants
• Clean, then disinfect all items in rabbitry
• Allow appropriate contact time
• Rinse surfaces to avoid corrosion
Cleaning & Disinfection

• Sanitize all equipment and cages before returning from a show
• Use materials / cages that can be effectively disinfected
• Clean, disinfect feeding, watering equipment regularly
Biosecurity at home

• Housing

  • House rabbits indoors if possible
  • If rabbits are housed outdoors
    • Double fence to avoid contact with wildlife
    • Prevent contact with wild rabbits
    • House rabbits in hutches or cages off the ground
Biosecurity at home

• **Husbandry**
  • Keep both indoor and outdoor footwear
  • Wash hands before and after handling rabbits and between groups of rabbits
  • Don’t allow visitors who also keep rabbits
  • Don’t handle other’s rabbits
  • Handle sick rabbits last
Biosecurity at home

• Quarantine new rabbits or rabbits returning to the colony

• Control Disease Vectors
  • Remember non-susceptible animals and insects can move the virus around on their feet or body
  • Be aware of scavengers and their ability to spread infection
Biosecurity at home

• Feeding
  • Do not allow rabbits to graze on the ground
  • Do not collect outdoor forage to feed rabbits
  • Source hay from unaffected areas
Work With A Veterinarian

• Monitor for signs of illness daily
• Establish a working relationship with a veterinarian
  • Assist when rabbits are showing signs of illness
  • Review biosecurity practices
  • Vaccination
Contact Information

• If you see multiple dead wild rabbits, DO NOT TOUCH THEM IF YOU OWN RABBITS
• Note the location
• Report to Indiana State Department of Natural Resources (DNR) Fish & Wildlife office
  • Phone: 812-334-1137
Contact Information

• REMEMBER any sudden rabbit death is suspicious—report to a veterinarian ASAP

• Contact BOAH with concerns about RHDV2
  • Phone: 317-544-2400
  • animalhealth@boah.in.gov
Proper Handling of Dead Rabbits

• Always wear disposable gloves when handling a dead rabbit
• Double bag the carcass in plastic bags and refrigerate until given more instruction
• Disinfect the outside of the bag with 10% bleach or 1% Virkon-S
• Contact appropriate agency to determine next steps
• Wash hands or use hand sanitizer when finished
QUESTIONS??????
Contact Information

• BOAH website:  www.in.gov/boah

• Email us at:  animalhealth@boah.in.gov

• BOAH phone number:  317-544-2400

• Wildlife concerns:  812-334-1137