



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

Comparison of RHDV and RHDV2

	RHDV	RHDV2
Incubation Period	16 hours to 3 days	3 to 9 days
Ages Affected	> 8 weeks of age	> 2 weeks of age
Mortality Rate	80 – 90%	5 – 70% (avg. 20%)
Species Affected	European Rabbits (domestic in U.S.)	<ul style="list-style-type: none">• 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

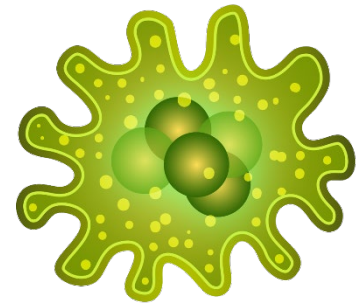


Transmission

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

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

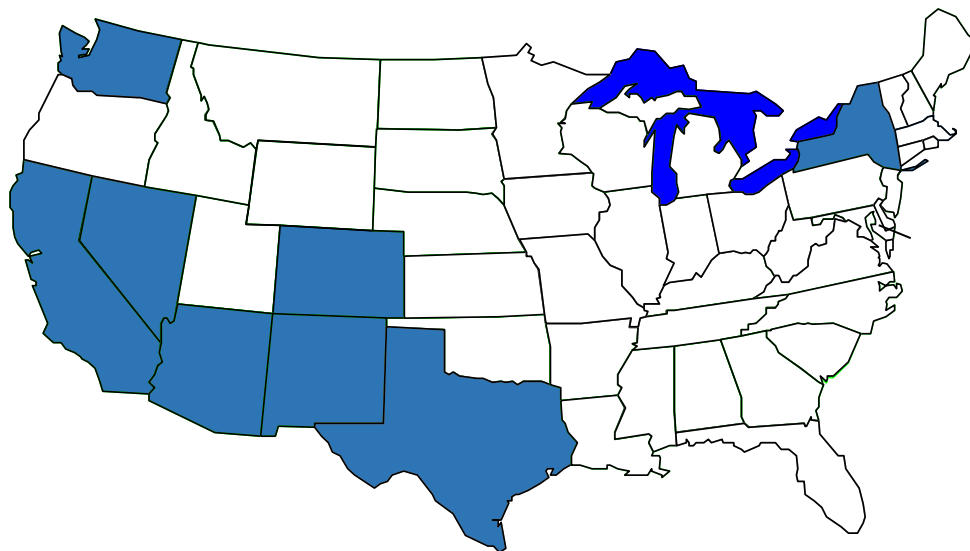
Vaccination

- 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



2020 Rabbit Hemorrhagic Disease -- Affected Counties as of 6/1/2020

Find address or place



Legend

County with feral domestic rabbit case(s)



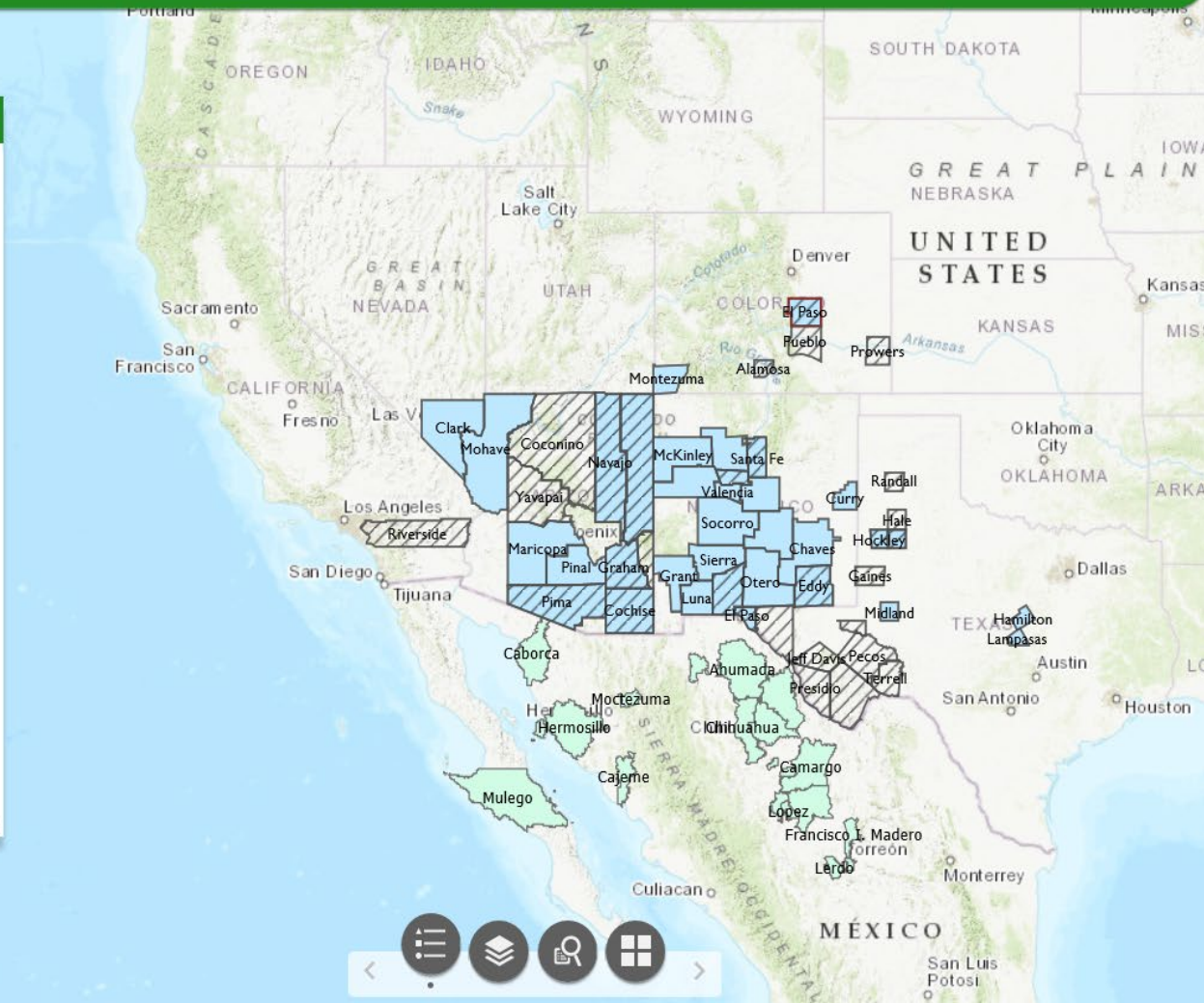
County with wild rabbit case(s)



County with domestic rabbit case(s)



Mexican municipalities with wild/domestic case(s)



-119.684 46.797 Degrees

300mi



Indiana State Board of Animal Health



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



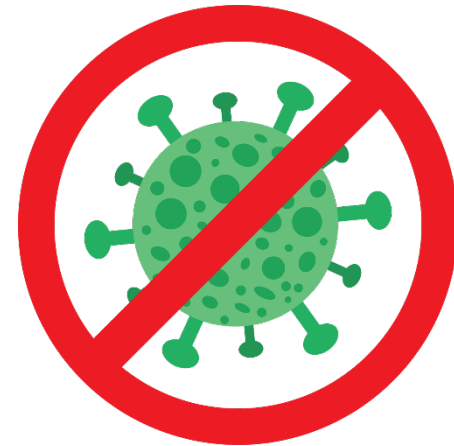
Prevention: Additions

- 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



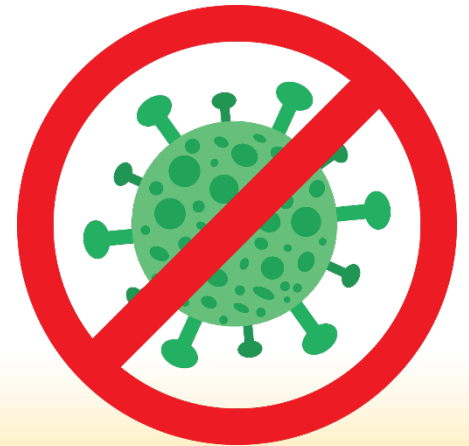
Don't Bring Diseases Home!

*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