

Rabbit Hemorrhagic Disease

Peter A. Sojka, DVM, DABVP (Avian Practice)

Avian & Exotic Veterinarian

Pieper Veterinary

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Rabbit Hemorrhagic Disease

- ▶ Rabbit hemorrhagic disease virus (RHDV)
 - ▶ First outbreak reported in rabbits shipped from Germany to China in 1984
 - ▶ Only affects European rabbits (*Oryctolagus cuniculus*) AKA rabbits kept as pets
 - ▶ By late 1990s, had been seen in 40 different countries
 - ▶ Also used as a bioagent to control populations of non-native European rabbits in Australia



Background



- Rabbit hemorrhagic disease virus-2 (RHDV2)
 - Emerged in 2010 in Europe
 - Unclear how it came to North America
 - Contrary to RHDV, this virus causes disease in European rabbits, hares, wild cottontail rabbits, and jackrabbits, making control more difficult and allowing it to gain a foothold in North America
 - In some countries, it has become more prevalent than RHDV
 - No antibody protection between RHDV and RHDV2, so rabbits vaccinated against RHDV are NOT protected

How It Spreads

- Direct:
 - Oral, nasal, or conjunctival (ocular) routes with oral being the most common
 - Urine, feces, and respiratory secretions can contain virus



How It Spreads



➤ Indirect

- 105 days on fabric at 68 °F
- 225 days at 39 °F
- Survives freeze/thaw cycles
- 1 hour at 122 °F
- Blood-feeding insects
- Feces of predators

Clinical Signs of Disease

- ▶ Fever and death within 12-36 hours of contraction of virus with no outward signs
- ▶ Bloody secretions from nose, mouth, and eyes
 - ▶ Death from inability to clot blood
- ▶ Rabbits that survive initial infection most likely will die of liver failure within 1-2 weeks
 - ▶ Primary organs affected are the liver, trachea, and lungs
- ▶ Some rabbits affected with current strain are living long enough to develop icterus, high fever, and/or neurologic signs



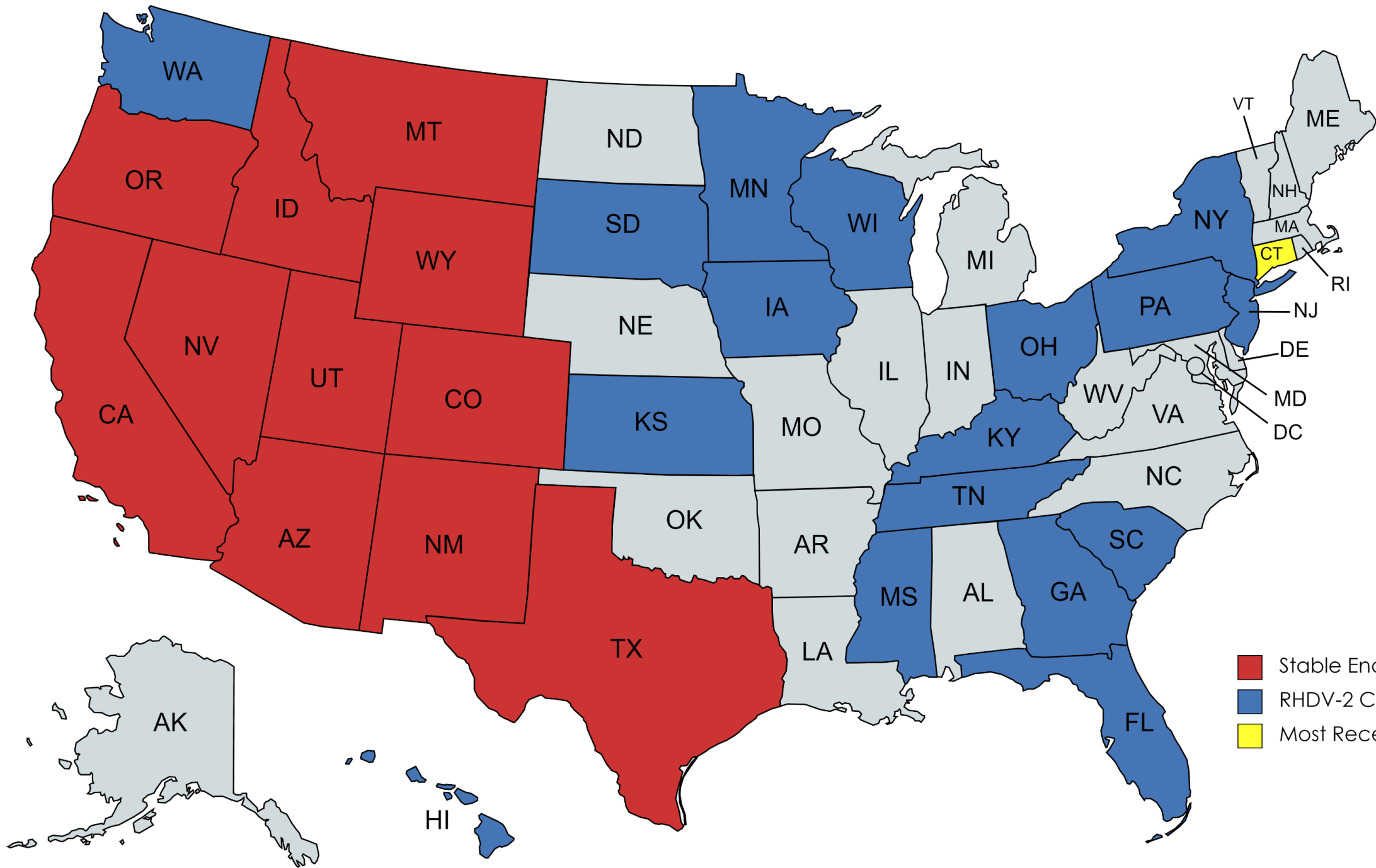
Treatment

- There are currently no known effective antiviral drugs or treatments available
- There is no known cure for RHDV2
- Death rate of 90% in current outbreak
- The best option is prevention



Prevention/Precautions

- Keep a closed rabbit household
- Exclude wild and feral rabbits from the household
- Control flies and biting insects
- Clean and disinfect equipment, tools, footwear, feed and water containers and cages.
- Recommended disinfectants include those in the phenol class or 10% bleach
 - Clean thoroughly with soap and water first and apply disinfectant for recommended contact time. Rinse well and allow to dry before allowing animal contact
- House rabbits indoors if possible
- Do not share equipment with others who raise rabbits
- Contact your veterinarian if sick or dead rabbits are observed and submit bodies for examination and prompt sampling
- Do not transport rabbits into or out of RHDV quarantine areas
- Separate new rabbits or those returning from shows for one month



- Stable Endemic Area
- RHDV-2 Cases Reported
- Most Recent Case

Vaccination

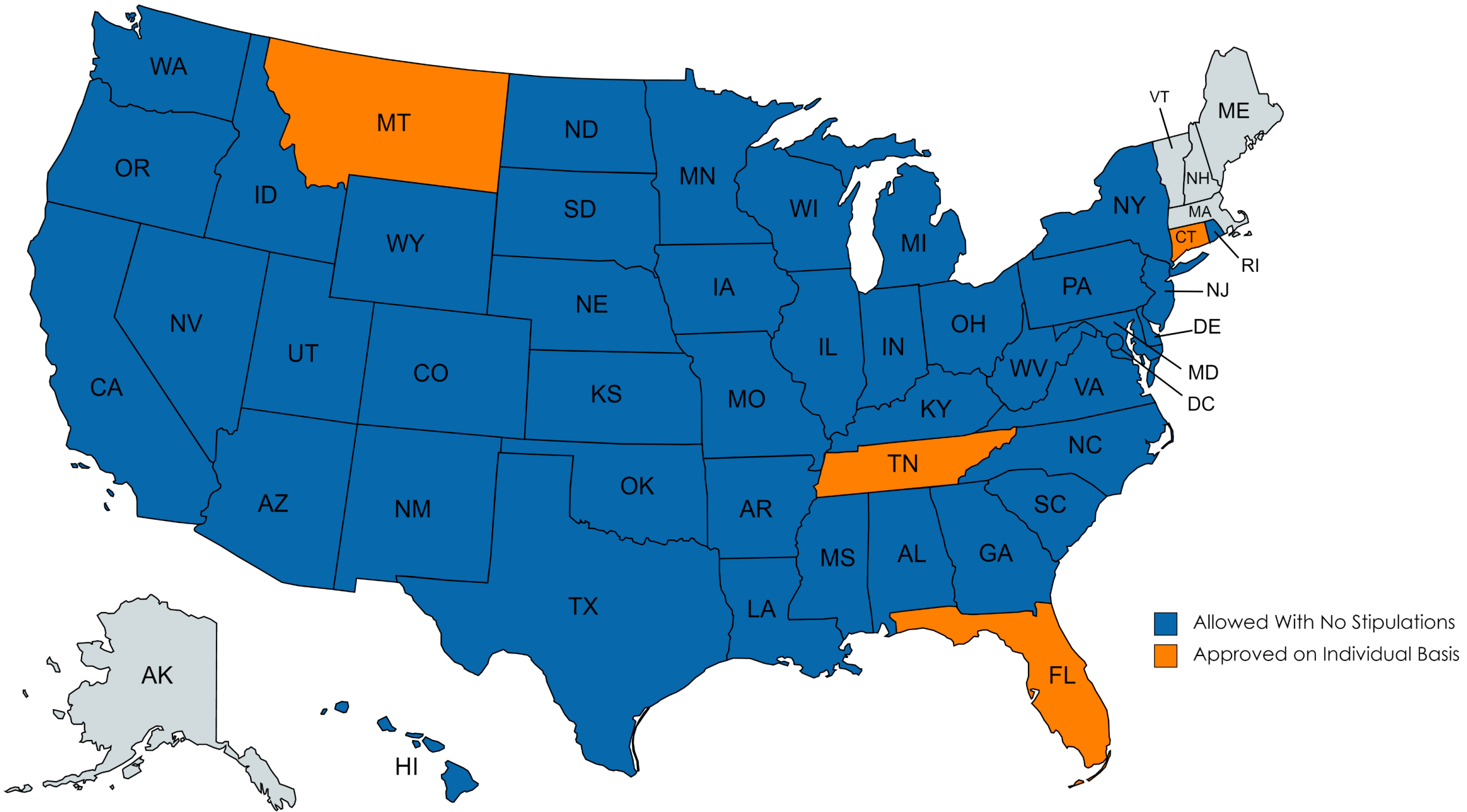
- Filavac VHD K C+V Suspension or Eravac
 - Vaccines produced in Europe
 - Protection against RHDV and RHDV2 (Filavac) or just RHDV2 (Eravac)
 - Can be given to rabbits ≥ 10 weeks of age
 - Booster required annually
 - **Requires special permission from USDA and state veterinarian to import into the USA**
 - **Very expensive**



Vaccination



- RHDV2 vaccine
 - Subunit (part of virus) vaccine in baculovirus vector
 - No transmission of live virus
- Determined to be safe and effective in clinical trials so far as early as 4 weeks old
- Emergency use authorization by USDA
 - Clinical trials ongoing
- Annual booster vaccination recommended



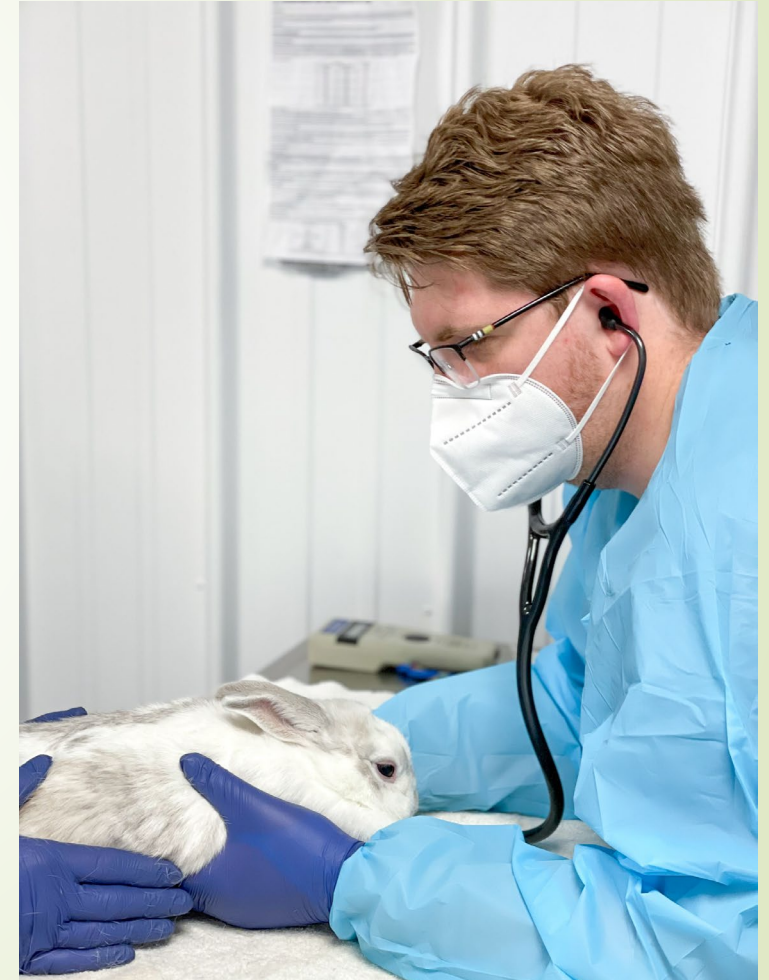
Vaccination

➤ Medgene Labs

- Regimen is 2 doses 21 days apart with full protection starting 14 days after 2nd dose
- Each state has different stipulations for administration
 - CT allows vaccination on individual veterinarian basis with some form of identification, e.g. microchip or tattoo
 - MA, NH, ME, HI, AK do NOT currently authorize vaccination

Staying Safe During Vaccination Clinics

- Concern with having a large number of rabbits in one place
- Curbside only
- Disposable gowns and gloves between each household
- Perform TPR to rule out obvious issues that may be of concern
 - NOT a complete physical exam, and we make that clear to clients
 - If an issue is noted or we feel that a rabbit should not be vaccinated for some reason, we recommend assessment by their PDVM
- Recommend owners wait for 25 minutes in case there is an immediate anaphylactic reaction



How To Get Involved

- If you live in Maine, New Hampshire, Vermont, or Massachusetts, the best option to get access to the RHDV-2 vaccine for your clients who own rabbits is to contact your state veterinarian
- Each state has their own stipulations in authorizing use of the vaccine
- We make sure that all clients have a CT, RI, or other accepted state address and will not vaccinate rabbits that live in MA or other NE states that have not authorized vaccination

Take Aways

- ▶ Rabbit hemorrhagic disease virus-2 (RHDV-2) is a deadly, highly contagious virus affecting domestic, feral, and wild rabbits around the world including the United States
- ▶ Prevention is the best way to help rabbits
 - ▶ Practice good biosecurity
- ▶ Vaccination is another tool in our arsenal of prevention to help reduce the impact of RHDV-2 on the rabbit population in the United States

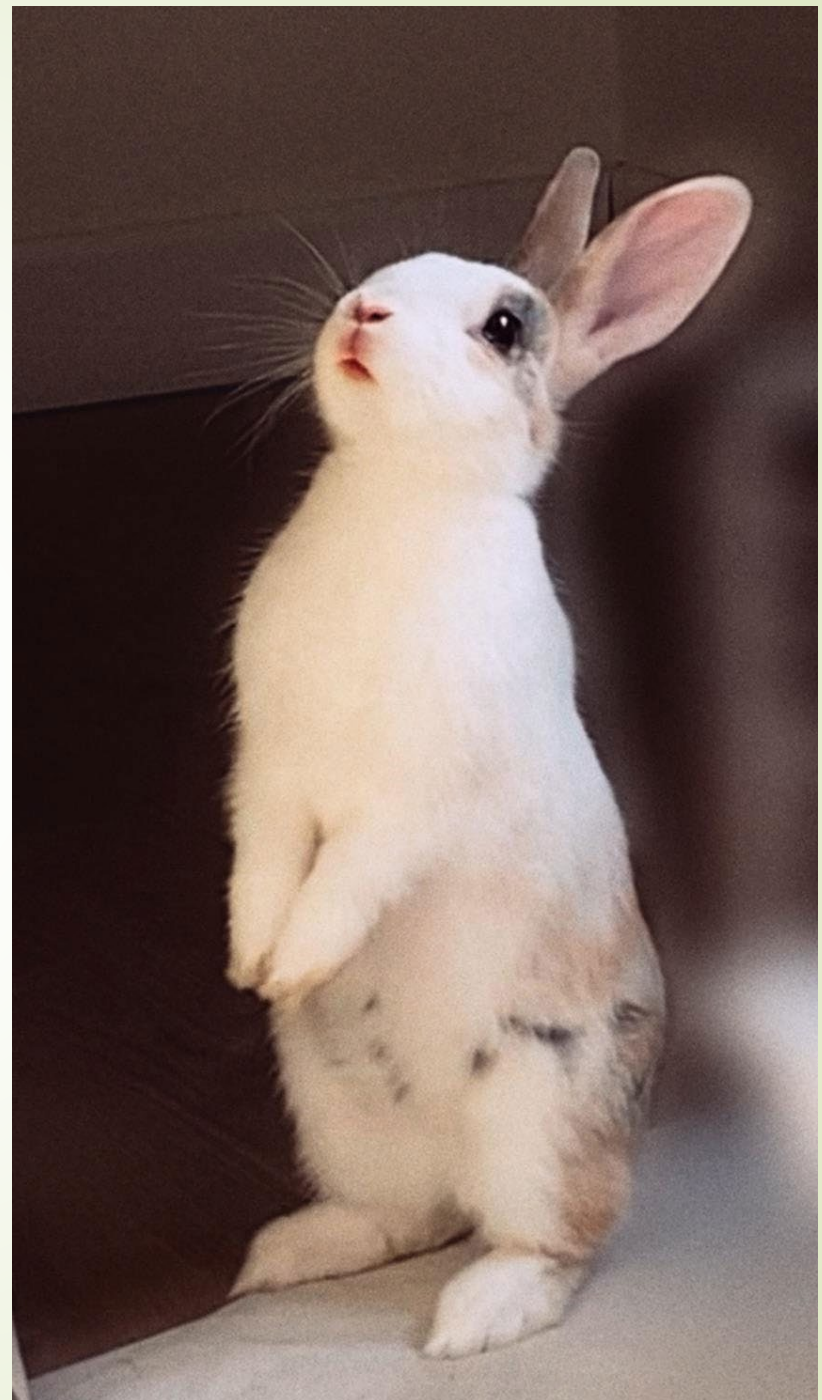
References

- International Society for Infectious Diseases. Rabbit hemorrhagic disease – USA. 2022. Updated regularly.
- The Center for Food Security and Public Health. Rabbit hemorrhagic disease and other lagoviruses. 2020.
- USDA Animal and Plant Health Inspection Service. Rabbit hemorrhagic disease factsheet. 2020.



Questions?

- ➔ Contact us any time at:
- ➔ avianexotics@piepervet.com



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