

Response & Containment Guidelines

Interim Guidance for Animal Health and
Public Health Officials Managing
Farmed Mink and other Farmed
Mustelids with SARS-CoV-2

9-11-2020

Managing SARS-CoV-2 in Farmed Mink and Farmed Mustelids:

Responder's Interim Guidance

2020

Background

Strategy Components for Dealing with SARS-CoV-2

This document is for animal health and public health officials responding to SARS-CoV-2 outbreaks in farmed mink, and other farmed mustelids.

We are still learning about the SARS-CoV-2 virus, but it appears that it can spread from people to animals in some situations. There is no evidence that animals play a significant role in spreading the virus that causes COVID-19 to people, and the risk of animals spreading COVID-19 to people is considered to be low. More studies are needed to understand if and how different animals could be affected by COVID-19. In dealing with SARS-CoV-2 in animals in the United States, different strategies are being developed and implemented for different animal species. Strategies for dealing with SARS-CoV-2 in mink and other farmed mustelids may be designed with one of three outcomes in mind: 1) prevent the introduction of SARS-CoV-2 into animal agriculture facilities; 2) control losses by minimizing the negative economic and health impact of SARS-CoV-2 when present; or 3) total elimination of SARS-CoV-2 (eradication). Because the virus efficiently replicates in people and multiple animal species, total elimination may not be a realistic goal.

Strategies include:

- Education for farm workers to keep people and animals safe and healthy
- Biosecurity management procedures to prevent introduction or further spread of the SARS-CoV-2 virus
- Diagnostics and surveillance (detection of SARS-CoV-2 infections) in animals
- Elimination of SARS-CoV-2 infected animals

The success of any strategy is dependent on industry–government cooperation and collaboration. The zoonotic nature of SARS-CoV-2 requires One Health coordination among animal health officials, public health authorities, medical professionals, industry, and others to best protect the health of people and animals. This plan outlines procedures for prevention in both workers and mink, handling presumptive and confirmed cases in animals, monitoring infected premises, virus containment, and harvesting/pelting animals from farms that have been infected. This plan also discusses virus elimination on infected premises.

1. Public Awareness and Education Programs Regarding SARS-CoV-2

Education is an essential component of any SARS-CoV-2 prevention, control, or eradication strategy. This involves providing [up-to-date information to the industry](#) on what is currently known about SARS-CoV-2 in animals and people; how the virus can be introduced and spread on farms; application of methods and practices in biosecurity to prevent introduction of SARS-CoV-2 onto a farm; and biosecurity practices to prevent the SARS-CoV-2 virus from spreading between animals and between animals and farm workers.

The Centers for Disease Control and Prevention (CDC) has developed [guidance for agriculture workers and employers](#).

Education and outreach should be continuous and focused on the following people or groups:

- Mink producers
- Mink farm workers
- Veterinarians and veterinary staff working with mink farms
- Fur industry partners
- General public

2. Minimum Biosecurity Plan

Before an outbreak, animal health officials and public health officials should consider offering the following guidance on prevention to mink and farmed mustelid operations in their jurisdictions. All mink farms and other mustelid operations are strongly encouraged to develop farm-specific biosecurity plans that contain elements such as those listed below.

Farm Operators Should Screen Themselves, Workers, and Visitors for COVID-19

Recognizing that human-to-animal transmission is the most likely way that SARS-CoV-2 will enter a mink farm, everyone, including owners, should monitor themselves for signs of infection before entering the farm. People who operate, work on, or visit mink farms and who have [symptoms of SARS-CoV-2](#) when they arrive at work or become sick during the day should immediately be separated from other workers, animals, and other people and be sent home. Everyone who develops symptoms outside of work should avoid contact with animals and other farm personnel and stay home.

Help Farm Workers Follow Prevention Practices for COVID-19

Farms should consult with their state, tribal, local, or territorial health department to devise practices to minimize the risk of SARS-CoV-2 transmission between employees, visitors, other people, and animals. For example, farms should implement strategies and practices in work areas and common areas for people to maintain physical distances of at least 6 feet from other people and animals, where possible. Cloth masks should be worn when maintaining a physical distance of 6 feet from others is not feasible.

[Link to practices designed to protect workers from CDC.](#)

Farms Should Practice Good Hygiene and Sanitation

Close attention should be paid to employee facilities such as restrooms, break rooms, and other common areas to ensure appropriate hygiene and sanitation practices are in place. Implement proper

handwashing procedures and sanitation protocols for daily cleaning and disinfection of work and common areas. Configure communal areas so that workers, approved visitors, and others are spaced at least 6 feet apart, if possible. Provide hand washing facilities with soap, potable water, and clean, single-use towels.

Practice strict hygiene in areas where animal feed is prepared and clean and disinfect feeding equipment daily using an [EPA-approved disinfectant](#). Prevent excessive accumulation of animal waste.

Work with Farm Operators to Prevent the Introduction of SARS-CoV-2 into their Animal Facilities

Wherever feasible, consider requiring people who work with or near farmed mink to wear cloth masks and use [personal protective equipment \(PPE\)](#) such as dedicated footwear that can be cleaned and disinfected, dedicated farm clothing such as coveralls, gloves, and eye protection such as face shields or goggles. Work clothing should be laundered on-site and not taken home. Provide training in the proper care and use of PPE.

Information about PPE requirements for high-risk activities is found in [Section 10](#) of this document and additional guidance is provided under the appendix titled “Worker Safety and Monitoring”.

Urge Producers to Practice Enhanced Biosecurity

Access to farms should be limited to essential personnel and visitors. Exclude all domestic animals (dogs, cats, etc.), as well as rodents, birds, and other wildlife from farm buildings. Farm operators should restrict access to their property and their animal housing areas. They should use signage to provide guidance to visitors regarding their farm’s biosecurity requirements.

At a minimum:

- Use fences, gates, and other barriers to control access to animal housing.
- Require visitors to park their vehicles in designated areas away from animal housing.
- Use signage to advise visitors to remain in their vehicles until farm personnel assist them and provide a phone number visitors can call for entry instructions.
- Maintain a log of all personnel who enter the property (family, workers, visitors, etc.) including the date, contact information, and nature of their visit.
- [Provide and wear appropriate PPE depending on the activity being performed](#). For example, increased PPE for working closely with animals.

Teach Producers Not to Haul Disease Home

Car and truck tires, caging, and equipment can harbor viruses and other germs. Farm personnel traveling to locations where other animals are present should clean and disinfect these items before returning to their own farms. Sharing equipment, tools, or supplies with neighbors or other farms should be discouraged.

Producers Should Use Extreme Caution when Introducing New Mink to the Herd

New animals may introduce disease problems into a mink farm, including SARS-CoV-2. Producers should consult with their veterinarian to design an appropriate isolation plan for new arrivals to protect the rest of their herd. The following precautions are recommended:

- All mink destined to be brought into the herd should come from farms that are historically negative for SARS-CoV-2 and which have no signs of SARS-CoV-2 infection in people or animals involved with that farm.
- All mink in the shipment should be separated from the main herd and be managed separately at least 21 days before the shipment and tested for SARS-CoV-2 at the time of separation.
- All mink mortalities that occur during isolation should be tested for SARS-CoV-2.
- All the separated mink in the shipment should be tested a second time for SARS-CoV-2, at least 21 days after the first testing.
- All the mink in the shipment should test negative for SARS-CoV-2, for the shipment to move forward.
- Upon arrival, the destination farm should isolate the shipped mink from the main herd for at least 21 days.
- During the isolation period the mink should be observed for clinical signs of disease and then retested for SARS-CoV-2 at least 21 days after arrival.
- If all the mink are found to test negative for SARS-CoV-2, the shipment may be introduced into the main herd.

Educate Farm Operators to Report Sick Mink

Early detection is important to prevent the spread of disease. The farm operator and workers should be alert for signs of disease, recognizing that such signs may be subtle changes in animal health, feed consumption, or behavior.

The following signs are common but are not consistently seen in all cases of SARS-CoV-2 in mink.

- Increase in mink deaths
- Sneezing
- Coughing
- Nose discharge
- Eye discharge
- Gasping for air or shortness of breath
- Diarrhea
- Lack of energy
- Poor appetite

If there is suspicion of SARS-CoV-2 in animals, operators should call their [State Animal Health Official \(SAHO\)](#) or [United States Department of Agriculture \(USDA\) Animal and Plant Inspection Service \(APHIS\) Veterinary Services \(VS\)](#) office. Farm operators and their veterinarians should save suspicious mortalities for necropsy and testing. Biosecurity training resources should be made available for farm operators and employees in their preferred languages.

Diagnostic Resources

Veterinarians, animal health officials, and farm operators can consult with their state [veterinary diagnostic laboratory](#) or one of several private laboratories that are presently providing SARS-CoV-2 PCR and serology testing. North Dakota State University, the Utah State Veterinary Diagnostic Laboratory, the Washington Animal Disease Diagnostic Laboratory, and the Wisconsin Veterinary

Diagnostic Laboratory are recognized for their expertise in diseases of mink. USDA APHIS VS has helpful [FAQs on Animal Coronavirus Testing](#).

3. Procedures for initial handling and investigation of suspected animal cases of SARS-COV-2

- Animal health officials should quarantine affected farms, preventing animals or animal product movement on or off the farm. Using advice from your diagnostic lab, collect samples from suspected animals. In most cases, preferred samples will include oral-pharyngeal swabs or rectal swabs. Unless instructed otherwise by the receiving lab, the swabs should be Dacron-tipped, **not** cotton, and should be transported to the lab in tubes containing viral transport media (VTM), e.g. universal VTM or Brain-Heart Infusion broth (BHI). The mink industry is currently collaborating with diagnostic laboratories to develop effective ELISA serology, so serum samples should also be considered. Consult with your laboratory for advice.
- Start preliminary epidemiologic investigation.
- Quarantine may be instituted at trace-back or trace-forward sites at the discretion of the SAHO.
- Farm operators/managers and animal health officials should collaborate to decide how to manage the buildings housing mink on the farm and whether any should be managed as separate units.
- Determine surveillance sampling strategy for the affected farm, nearby farms, and any farms that appear to be connected epidemiologically.

4. Procedures for reporting animal test results to USDA-APHIS

SARS-CoV-2 is a reportable disease when found in animals. Positive test results should be reported immediately to the [SAHO](#) or [USDA APHIS VS](#). All samples that test as *presumptive positive* at state or private laboratories will be forwarded to and confirmed by the USDA APHIS National Veterinary Services Laboratories (NVSL).

5. Quarantine Measures for Presumptive and Confirmed Infected Farms

A mink premises is the location at which the animals are kept. It is a physical address and it will be assigned a premises identification number if it does not already have one.

Key elements for quarantine and monitoring of animals on infected farms include:

- Quarantine infected premises (IP) for all mink and mink products. Maintain the quarantine until the IP is clear of virus. The IP producer should notify the SAHO if morbidity or mortality increases. The IP is required to maintain maximum biosecurity.
- State animal health officials may choose to establish a control zone around an IP, but it is probably more useful to direct surveillance activities to farms found to be epidemiologically linked to an infected farm.
- Monitor surrounding farms, service providers such as renderers or feed suppliers, and movement of animals, equipment, and materials.

6. Provisions for Developing Farm Plans for Infected and Exposed Mink Farms

Three overarching goals should be kept in mind when handling SARS-CoV-2 on an infected or exposed farm:

- i. Contain the virus on the farm, preventing spread between animal housing units and to other farms.

- ii. Protect workers and visitors from exposure to the virus.
- iii. Develop a **farm plan**.

A **farm plan** is a written management agreement between the affected farm operator, USDA APHIS VS, SAHO, and public health authorities. A farm plan sets out the steps to be taken to protect farm workers and public health, prevent introduction of SARS-CoV-2 into other farms, and control SARS-COV-2 on the positive farm. A farm plan should include, but is not limited to, controls on mink and mink product movement, safe handling of conveyances, containers, and other associated materials that could serve as fomites, details plans for increased monitoring, detailed plans for disposal of dead animals, and detailed plans for cleaning and disinfection. Worker protection is crucial, and farms should consult with their state, tribal, local, or territorial health department to [implement practices to minimize the risk of SARS-CoV-2 transmission between farm operators, workers, visitors, and others](#).

7. Disposal Methods for Dead Animals

Always consult local and state authorities prior to disposal activities to assure compliance.

Possible methods include:

- Burial
- Trench burial (where water table is high)
- Incineration
- Composting
- Landfill
- Rendering
- Combination of above methods

Disposal options are discussed and described in depth by USDA APHIS VS at these sites:

- https://www.aphis.usda.gov/animal_health/emergency_management/downloads/naheems_guidelines/disposal_nahems.pdf
- <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/carcass-management/carcass>

8. Cleaning and Disinfection

All premises, conveyances, and materials that come into contact with mink infected with or exposed to SARS-CoV-2 should undergo virus elimination procedures before restocking with new animals. The majority of manure and bedding removal can be done before and during pelting. As weather allows, wet cleaning and disinfection may be considered but should be weighed against the possibility that weather conditions could make wet cleaning impractical e.g., freezing temperatures. Dry cleaning combined with a fallow period and the use of sentinel animals prior to full restocking may need to be considered. To accomplish cleaning and disinfection, complete the following procedures:

- **Disposal of manure, debris, and feed.** Clean up all manure, debris, and feed. Compost by windrowing on site if possible. If this is not possible, set up a system for hauling, in covered vehicles, to an approved site for burial, piling, or composting. Clean out the house or move or spread litter. After use, equipment should be cleaned, disinfected, and inspected at the site to which the manure and litter was transported. In the case of inclement weather, the

equipment may be cleaned, disinfected, and inspected at off-site wash stations at the discretion of the SAHO and APHIS.

- **Cleaning of premises and materials.** Cleaning and disinfection should be thorough to ensure that all materials or substances contaminated with SARS-CoV-2 virus, especially feces, dried blood, and other organic materials, are removed from all surfaces. Link to [CDC guidance on disinfecting facilities](#).

9. Provisions for Appropriate Monitoring and Movement Restrictions

Additional surveillance may be conducted at farms or facilities that are found to be epidemiologically linked to the infected premises. The SAHO may impose quarantine and movement restrictions for movement of live and dead animals, and equipment to and from affected facilities. Farm owners and animal health officials should work with public health authorities to provide SARS-CoV-2 health and safety guidance to farms and their workers. The SAHO should inform the state's wildlife agency about the infected farm, so wildlife officials can be alert for disease spread to surrounding wild animal populations. Provide cleaning and disinfection guidelines for people and equipment working with mink in the area.

Minimize the risk of virus spread into uncontaminated areas. Movement, biosecurity, and surveillance in the contaminated area may be modified by the SAHO as needed to contain a SARS-CoV-2 threat.

10. Worker Safety During High Risk Activities on Infected or Suspect Farms

Because mink processing procedures have the potential to spread SARS-CoV-2 and other zoonotic diseases to workers, the following PPE precautions should always be taken when handling carcasses or during pelting:

- [CDC resources on PPE](#)
- USDA in-depth discussion of [PPE use in animal disease incidents](#)
- Use eye protection (e.g., goggles or face shield) and a National Institute for Occupational Health and Safety (NIOSH)-approved N95 respirator, or higher level of [NIOSH-approved respirator](#) whenever splashes or sprays are likely to occur.
- For all PPE, follow manufacturer's directions on use, cleaning, storage, and disposal.
- Avoid aerosol-generating procedures when possible. When there is no alternative to participating in aerosol-generating procedures (e.g., whelping, pelting, rendering), wear a face shield or goggles, gloves, protective outerwear, and respiratory protection that is at least as protective as a fit-tested NIOSH-certified disposable N95 respirator.
 - If an N95 respirator is not available, either use a higher level of respiratory protection or a combination of a properly worn cloth mask or medical mask and a face shield that covers the entire front (that extends below the chin) and sides of the face.
 - Respirator use should be in the context of a complete respiratory protection program in accordance with the Occupational Safety and Health Administration (OSHA) Respiratory Protection standard (29 CFR 1910.134), which includes medical evaluations, training, and fit testing.
- When inside a structure, open as many doors, windows, etc. as possible to maximize natural ventilation.

- Wear gloves and other protective outerwear as needed to avoid bare-skinned contact with animal carcasses, organs, bodily fluids, and pelts.
- Always immediately wash your hands with soap and water for at least 20 seconds after:
 - Direct contact with animal carcasses, organs, or pelts;
 - Cleaning up after animals, including any body fluids or waste;
 - Removing PPE or cloth mask .
- Wearing PPE and certain clothing can often increase your risk for heat-related illnesses. Review CDC information for heat stress prevention for [employers](#) and [employees](#).
- Clean tools using an appropriate disinfectant. To disinfect, use products that meet [EPA's criteria for use against SARS-CoV-2](#), diluted household bleach solutions prepared according to the manufacturer's label for disinfection, or alcohol solutions with at least 60% alcohol, and are appropriate for the surface. Follow manufacturer's directions for use.
- PPE such as gloves, face and eye protection, and other types of PPE may be needed when cleaning and disinfecting tools, surfaces, and equipment.
- On farms where there has been a possible SARS-CoV-2 exposure or SARS-CoV-2 has been detected, all animals should be closely observed for signs of the disease, with the understanding that clinical signs are sometimes subtle.
- If possible, pelting should be delayed at least 14 days after the last signs of disease in the affected housing unit. This is particularly important if mink need to be transported off-site for pelting.

11. Surveillance and Monitoring

- All farms, whether pelting occurs on or off-site, should have mink mortalities sampled and tested, [at an approved laboratory](#), by reverse transcription polymerase chain reaction (RT-PCR) to detect SARS-CoV-2. RT-PCR tests need to be negative in the 14 days prior to the start of pelting or movement off-site.
- Mink mortalities should be sampled for testing with a minimum of 5 dead mink collected over more than one day if necessary.
- If there are more than 20 mink mortalities, they can be tested in batches of 20 to minimize costs. If SARS-CoV-2 is found in a batch and confirmed, the testing of the remaining mortalities is not necessary.
- If the minimum of 5 mink mortalities are tested, this sampling scheme provides 95% confidence in detecting at least 1 infected mink when there is a 50% SARS-CoV-2 infection prevalence amongst the dead. Higher mink mortality numbers and testing can detect a lower infection prevalence among the dead mink (Cannon, 2001. Sense and Sensitivity.)
- The actual type and number of specimens to be collected should be determined in collaboration with the testing laboratory and state animal health authority. Sample pooling may be considered if the laboratory and animal health authorities concur it is appropriate, with a minimum of 2 pooled samples to statistically meet 95% confidence in detections. An off-site pelting facility should only accept animals from an infected farm with permission from the state animal health authority.
- Off-site pelting facilities planning to accept animals from known positive farms must have adequate safeguards in place to protect their workers and to prevent the dissemination of SARS-CoV-2 virus from asymptomatic animals to neighboring farms and other farms served by the pelting facility.

Appendix: Worker Safety and Monitoring

CDC has a [Coronavirus Self-Checker](#) available online to help people make decisions on when to seek testing and appropriate medical care.

Self-screening: Farmers and farm workers, and family members of people who work on farms should self-screen for COVID-19, a relatively simple and inexpensive way to protect people and animals on the farm. People who work on the farm should do this each time before they come to the farm.

People should not attempt to enter the farm if they have any of the following:

- [Symptoms](#) of COVID-19
- Temperature equal to or higher than 100.4°F*
- Are under evaluation for COVID-19 (for example, waiting for the results of a SARS-CoV-2 test)
- Have been diagnosed with COVID-19 and not yet cleared to [discontinue isolation](#)

Screening and health checks are not a replacement for other protective measures such as social distancing, hand hygiene, and wearing a mask. Other prevention measures to protect people from COVID-19 should be followed as well.

Regular Monitoring: If the employee doesn't have a fever or symptoms, they should self-monitor under the supervision of their employer's occupational health program.

Wear a Mask: The employee should wear a mask at all times while in the workplace for 14 days after last exposure. Employers can issue masks or can approve employee-supplied masks in the event of shortages. Ensure that masks are always worn properly by following information at this site: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html>

Social Distance: The employee should maintain 6 feet and practice social distancing as work duties permit in the workplace.

Hand hygiene: Perform frequent hand hygiene using soap and water for at least 20 seconds. In addition, to increasing the frequency of hand washing, if hands aren't visibly soiled or dirty, workers can use hand sanitizer containing at least 60% alcohol, rubbing hands until they are dry. Ensure that access to handwashing and/or hand sanitizing is readily available.

Disinfect and Clean work spaces: Clean and disinfect all areas such as offices, bathrooms, common areas, shared electronic equipment at least daily. Clean and disinfect shared tools, equipment, and vehicles between employee use, if possible. Conduct targeted and more frequent cleaning and disinfecting of high-touch areas of shared spaces such as time clocks, bathroom fixtures, and door handles.

Return to work: If a farmer or farm worker develops a fever or symptoms of COVID-19 or is diagnosed with COVID-19, they should [isolate](#) and only return to work or enter the farm [when it is safe to do so](#). For a farmer or farm worker with symptoms of COVID-19, they should not return to work for at least 10 days since symptoms first appeared, at least 24 hours with no fever, and symptoms have improved. For a farmer or farm worker who tested positive but had no symptoms, they should not return to work for 10 days since the date of the positive test.

Acronyms Used in Interim Guidance and Linked Websites:

APHIS: Animal and Plant Health Inspection Service

AVIC: Area Veterinarian in Charge

BHI: Brain-Heart Infusion broth

CDC: Centers for Control and Prevention

FAQ: Frequently Asked Question

IP: infected premises

NAHLN: National Animal Health Laboratory Network

NIOSH: National Institute for Occupational Health and Safety

NVSL: National Veterinary Services Laboratories

OSHA: Occupational Safety and Health Administration

PPE: Personal Protective Equipment

RT-PCR: reverse transcription polymerase chain reaction

SAHO: State Animal Health Official

SPHV: State Public Health Veterinarian

VS: Veterinary Services

VTM: Viral Transport Media

USDA: United States Department of Agriculture

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Reference Materials

Interim SARS-CoV-2 Guidance and Recommendations for Farmed Mink and Other Mustelids:

https://www.aphis.usda.gov/animal_health/one_health/downloads/sars-cov-2-guidance-for-farmed-mink.pdf

CDC COVID-19 and Animals: <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/animals.html>

CDC COVID-19 and Animals Frequently Asked Questions:

<https://www.cdc.gov/coronavirus/2019-ncov/faq.html#Pets-and-Animals>

CDC Evaluation for SARS-CoV-2 Testing in Animals:

https://www.cdc.gov/coronavirus/2019-ncov/animals/animal-testing.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fphp%2Fanimal-testing.html

CDC COVID 19 Symptoms: <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>

Guidance on Preparing Workplaces for COVID-19: <https://www.osha.gov/Publications/OSHA3990.pdf>

[CDC/DOL Interim Guidance for Agriculture Workers and Employers](https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-agricultural-workers.html)

<https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-agricultural-workers.html> USDA FAQ

for State Animal and Public Health Officials on Animal Coronavirus Testing:

https://www.aphis.usda.gov/animal_health/one_health/downloads/faq-public-on-companion-animal-testing.pdf

USDA FAQ on Animal Coronavirus Testing:

https://www.aphis.usda.gov/animal_health/one_health/downloads/faq-public-on-companion-animal-testing.pdf

FDA SARS-CoV-2 Necropsy Resources: <https://www.fda.gov/animal-veterinary/science-research/vet-lirn-sars-cov-2-supplemental-necropsy-sample-inventory-checklist>

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