Guidance to Wildlife Rehabilitation Facilities Regarding the Intake and Release of Birds during a Highly Pathogenic Avian Influenza Outbreak

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Intent

This document provides guidance for the intake and release of birds to wildlife rehabilitation facilities in a province/territory with an active Highly Pathogenic Avian Influenza (HPAI) outbreak. For the purpose of this guidance, an active HPAI outbreak begins with the confirmation of a HPAI virus (HPAIV) positive in any wild or domestic bird within a given province/territory. The outbreak status will remain for 90 days following the last confirmed case. In provinces/territories without an active HPAI outbreak, rehabilitators should be vigilant in monitoring for HPAI and should consider adopting this guidance as a precaution in addition to their established biosecurity protocols.

Scope

The Canadian Wildlife Service (ECCC-CWS hereafter) has the lead responsibility for implementing the *Migratory Birds Convention Act, 1994* (MBCA) and associated regulations. The purpose of the MBCA is to conserve and protect Migratory Birds as populations and individuals. Many wildlife rehabilitation facilities are authorized by ECCC-CWS under the *Migratory Birds Regulations* (MBRs, 2022) (Section 75) to possess Migratory Birds. Wildlife rehabilitation facilities may also require authorization from provincial authorities.

This guidance pertains to all facilities that are authorized by ECCC-CWS to hold Migratory Birds, but it is relevant to any facilities that take in wild birds of any species. HPAI has also been detected in sick or dead mammals in Canada, typically scavenging carnivores. Thus, all rehabilitation facilities should be aware of the current HPAI outbreak status in their area and consider adopting relevant biosecurity measures as appropriate.

Occurrence of avian influenza in poultry and other domestic animals falls under the mandate of the Canadian Food Inspection Agency (CFIA). Public Health Agency of Canada (PHAC) addresses human health considerations. Contingencies for such events are discussed in this plan only as far as they relate to reduction of risk factors associated with disease transmission to or by wild birds.

Definitions

Avian Influenza: Avian influenza is a contagious type A influenza virus that affects a wide variety of domestic and wild birds, as well as some mammal species. Type A avian influenza viruses are classified based on the severity of disease (pathogenicity) they cause to infected chickens and are categorized as being either low pathogenicity (LPAI; mild symptoms) or high pathogenicity (HPAI; severe symptoms and death). It is important to note that wild birds may be infected with HPAIV and remain asymptomatic, or they may also experience symptoms or death.

Migratory Bird: As defined in the *Migratory Birds Convention Act, 1994*, a Migratory Bird referred to in the Convention, and includes the sperm, eggs, embryos, tissue cultures, and parts of the bird of species listed under Article 1 of the Convention.

Quarantine: Physical separation between new intakes and a facility's general animal population. See **Appendix 1** for guiding principles for quarantine.

Rationale

HPAIV is highly transmissible and poses a threat to domestic poultry, wild bird health, and in rare cases human health. Wild birds play a key role in the epidemiology and spread of HPAIV (both locally and over long distances).

HPAIV can infect all avian species and some mammal species, although infections are particularly common among the avian orders Anseriformes (e.g., ducks, geese, swans), Charadriiformes (e.g., gulls and shorebirds), raptors, and scavenging birds. Among wild bird species, the severity of disease can be extremely variable. It is important to note that some species of birds may be infected with HPAIV and remain asymptomatic.

Any wildlife rehabilitation facility serving to hold, rehabilitate, or house birds should be aware that the H5N1 strain of HPAIV circulating in wild birds at the beginning of 2023 has been confirmed in all continents except Australia and Antarctica. General information about avian influenza in wild birds can be found here. Furthermore, any rehabilitation facility looking to continue to intake birds during a HPAI outbreak in their province/territory, must be made aware of the potential health risk to staff and volunteers, the existing flock at their facility, and the risk of potential amplification and spread of HPAIV to other wild or domestic animal populations, facilitated by wild birds (see Relevant Resources section below).

To minimize risks to both wild and domestic animals, personnel of rehabilitation facilities should avoid visiting poultry operations and properties with backyard flocks of domestic poultry. If unavoidable, personnel must decontaminate prior to visiting such a property. Individuals should be cautious when in close contact with wild birds or when accessing a facility housing wild birds and adhere to public health guidance regarding appropriate personal protective equipment (PPE) and additional personal safety measures. Wildlife handling guidelines to mitigate human health risks from avian influenza can be found here. For more details on PPE, please refer to Chapter 12 of the Food and Agriculture Organization of the United Nations (FAO) HPAI surveillance manual (here), in addition to consultation with public health guidance on precautions with wild birds and avian influenza for your region.

Intake Guidance

ECCC-CWS is making the following recommendations to rehabilitation facilities authorized under the MBRs, 2022 (S.75) to possess Migratory Birds for rehabilitation purposes in a province/territory with confirmed HPAI (**Figure 1** provides a chart outlining the intake guidance below).

- Any bird that has clinical signs suggestive of HPAI (**Figure 2**) must be immediately euthanized without being admitted to the facility, unless initial diagnostic tests suggest toxicity or trauma as the probable cause of clinical symptoms. Quarantine guiding principles provided in **Appendix 1** must be followed during any initial assessment.
- Note that birds may be asymptomatic carriers of HPAIV, and biosecurity precautions should still be observed even if other causes for the presenting clinical symptoms are suspected. In live bird testing, mallards (MALL) and American black ducks (ABDU), along with several other species of waterbirds, shorebirds, and seabirds, have been shown to be carriers of HPAIV despite appearing outwardly healthy.
- Guiding principles for quarantine should be followed and any wild bird should immediately begin a 30-day quarantine period upon admission.

- Any facility that cannot adhere to quarantine guiding principles should recommend alternative facilities, consider suspending new intakes of birds, and/or euthanize individuals that cannot be cared for until the threat of HPAI is reduced.
- If any bird dies or is euthanized due to clinical signs suggestive of HPAI, the supervising veterinarian for the facility and regional authorities must be contacted immediately for further guidance.
- Any individual(s) quarantined as part of a cohort of two or more birds must complete the 30-day quarantine, starting on the date the last bird is admitted to the cohort, before they can be released. Individuals requiring further rehabilitation upon completion of the 30-day quarantine may be moved into the general animal population at the facility's discretion.

Release guidance

- Wild birds should not be released at sites with poultry or other captive birds on those properties or adjacent properties (properties that share property lines) or where there is an obvious potential for interaction between released birds and poultry or other captive birds.
- When possible, birds should not be transported through or released into CFIA control zones. See the CFIA websites (here) for the latest information on current CFIA response to HPAIV detections and (here) for up-to-date maps of control zones prior to moving birds.
- Rehabilitated birds should not be released in areas that have had recent evidence of sick/dead birds that have tested positive for HPAIV. When feasible, release sites should be visited 7 days prior to relocation to look for evidence of sick or dead birds at release sites. If releasing onto private property, it is recommended to ask the property owner if sick/dead birds have been observed.
- Upon release, relocated birds should be monitored to the extent possible. If there are any mortalities among released birds or within the local population at the release site, they should be reported immediately. When possible, rehabilitators are encouraged to follow up with the owners of private property where rehabilitated birds have been released to determine if any mortalities have been observed. Alternatively, as part of the release site assessment, rehabilitators can encourage members of the public to monitor and report any sick/dead birds in the area.
- To a reasonable extent, potential risks to other migratory birds (including species at risk) or other wild species at release sites should be considered on a case-by-case basis when considering the suitability of the release site.

Updates on HPAI in your province/territory can be found here (Wild Birds and Domestic Poultry).

It is important to note that due to the high-risk of transmission and threat that HPAIV poses to domestic poultry and other wild birds, confirmed cases of HPAI within rehabilitation facilities will require euthanasia of the affected animal(s) under the *Health of Animals Act*. Furthermore, decontamination, in consultation with CFIA and provincial veterinary authorities, will be required following a confirmed case. De-population of the entire facility, including susceptible non-avian species, may be required pending investigation by CFIA, provincial veterinary authorities, ECCC-CWS, and the Canadian Wildlife Health Cooperative (CWHC). Decisions regarding de-population will be made on a case-by-case basis in consultation with the facility. Criteria include, but are not limited to, adherence to guiding principles for quarantine and established biosecurity protocols as well as risks to nearby commercial poultry operations and the conservation status of the birds involved.

***Based on the recent outbreak, there may be new or additional reporting requirements established by the CFIA. Information will be made available accordingly.**

HPAI Updates

HPAI Update for Wild Birds in your Region
https://cfia-ncr.maps.arcgis.com/apps/dashboards/89c779e98cdf492c899df23e1c38fdbc

http://www.cwhc-rcsf.ca/avian_influenza_biweekly_reports.php. (Automatic avian influenza updates can also be requested by email from info@cwhc-rcsf.ca)

HPAI Updates for Domestic Poultry in your Region
https://inspection.canada.ca/animal-health/terrestrial-animals/diseases/reportable/avian-influenza/eng/1323990856863/1323991018946

Contact Information

Canadian Wildlife Health Cooperative (CWHC) – Reporting Website and Regional Contacts
http://www.cwhc-rcsf.ca/report_and_submit.php

Environment and Climate Change Canada, Canadian Wildlife Service (ECCC-CWS) - Regional Permit Contacts
https://www.canada.ca/en/environment-climate-change/services/migratory-bird-permits/application-forms.html#toc1

Canadian Food Inspection Agency (CFIA) – Contacts Information
https://inspection.canada.ca/about-cfia/contact-us/eng/1546627816321/1546627838025

Relevant Resources

Environment and Climate Change Canada – Avian influenza in wild birds
https://www.canada.ca/en/environment-climate-change/services/migratory-game-bird-hunting/avian-influenza-wild-birds.html

Public Health Agency of Canada (PHAC) – Wild birds and avian influenza – Handling guidelines
https://www.canada.ca/en/public-health/services/flu-influenza/fact-sheet-guidance-on-precautions-handling-wild-birds.html

Public Health Agency of Canada (PHAC) - Avian influenza Information
https://www.canada.ca/en/public-health/services/diseases/avian-influenza-h5n1.html

Food and Agriculture Organization of the United Nations (FAO) – Wild bird highly pathogenic avian influenza surveillance https://www.fao.org/3/a0960e/a0960e.pdf

Canadian Food Inspection Agency (CFIA)- How to prevent and detect disease in backyard flocks and pet birds, CFIA response to HPAI H5N1
https://inspection.canada.ca/animal-health/terrestrial-animals/diseases/backyard-flocks-and-pet-birds/eng/1323643634523/1323644740109

https://inspection.canada.ca/animal-health/terrestrial-animals/diseases/reportable/avian-influenza/hpai-in-canada/eng/1651075538411/1651075538958

Canadian Food Inspection Agency (CFIA) – National Biosecurity Standards and Biosecurity Principles
https://inspection.canada.ca/animal-health/terrestrial-animals/biosecurity/standards-and-principles/eng/1344707905203/1344707981478

Canadian Wildlife Health Cooperative- Shipping and Handling Instructions
http://www.cwhc-rcsf.ca/docs/CWHC%20Shipping%20and%20Handling%20Instructions.pdf

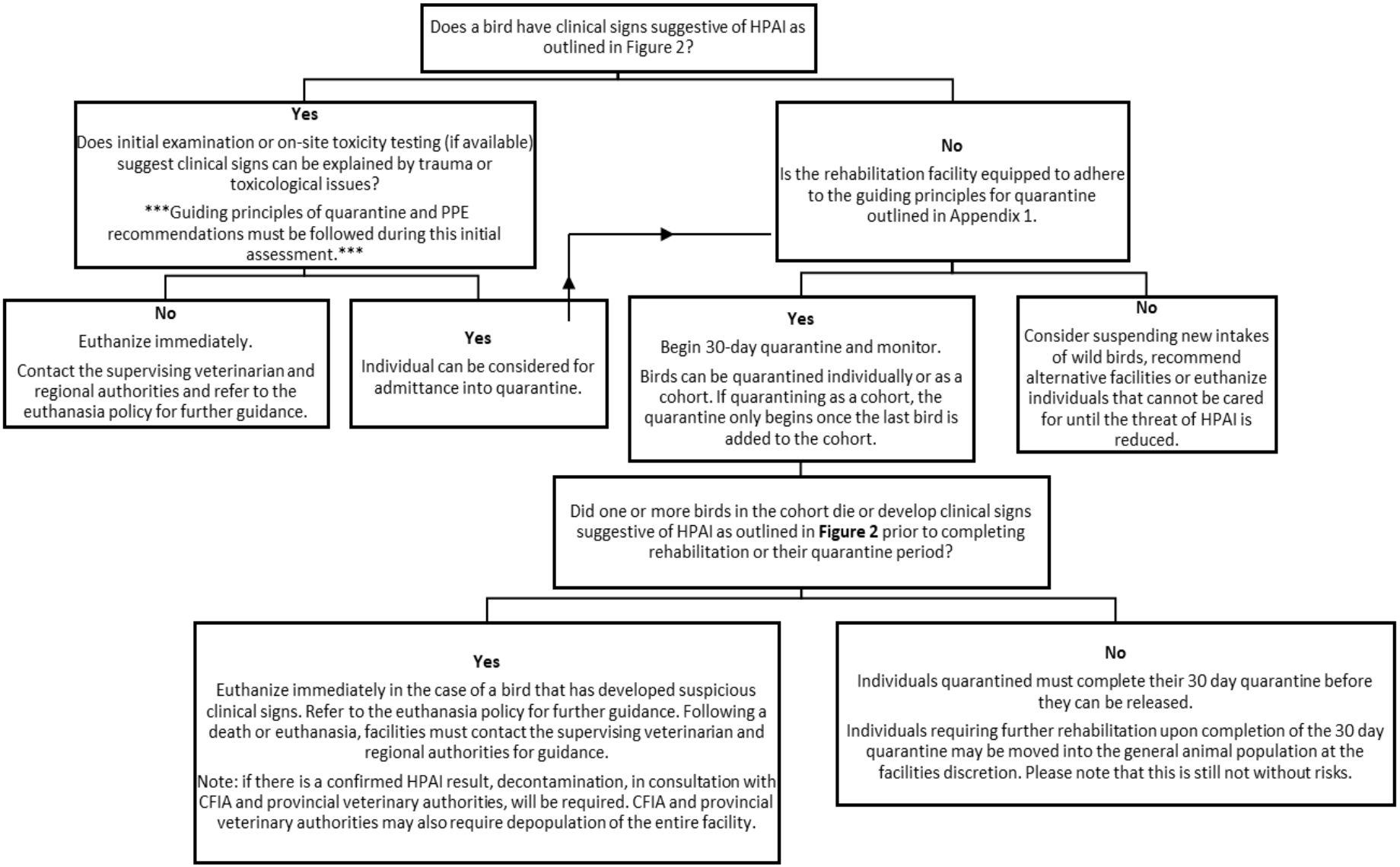

Figure 1. Decision tree for intake and treatment of wild birds at rehabilitation facilities during a HPAI outbreak.

Clinical Signs of Illness
Sudden death
Diarrhoea
Regurgitation
Respiratory signs (coughing, sneezing)
Unexplained emaciation
Open sores
Discharge from the mouth, nose, ears, or vent (clear or cloudy)
Extensive swelling and/or discolouration of the tissues of the head (including the conjunctiva)
Abnormal feathers (annular constrictions of the shaft, shaft haemorrhages, retained waxy sheaths)
Behavioural abnormalities (quiet or depressed demeanor, lethargic, huddled posture, anorexia or reduced appetite)
Neurological abnormalities (falling over, head and neck tilt or twisting, circling or rolling, paralysis)
Abnormal locomotion that cannot be explained through presence of traumatic injuries (unable to stand or walk, ataxia, unable to flap wings)
Mass mortality or clusters of wild bird mortality (mortality unexpected considering the natural history of the species)

Figure 2. Clinical signs of HPAIV infection in wild birds (adapted from FAO 2006 - Wild bird highly pathogenic avian influenza surveillance [pg. 3], and CFIA guidance document - Avian Influenza (AI) - What to expect if your animals are infected). **It is important to note that some species of birds may be infected with HPAIV and remain asymptomatic.**

Appendix 1. Guiding principles for quarantine of wild birds during a HPAI outbreak.
Requirements for euthanasia and de-population will be determined on a case-by-case basis following investigation by CFIA, provincial veterinary authorities, public health authorities, ECCC-CWS, and Canadian Wildlife Health Cooperative. As a result, adherence to these guiding principles may not prevent euthanasia and de-population in all cases.

1. Quarantine all new intakes for a minimum of 30 days to prevent potential spread of HPAIV into the general animal population of the facility.

2. Birds can be quarantined as a cohort as required. The quarantine period for a cohort begins only once the last individual is added.

3. Quarantined birds should not share an airspace with the general animal population at the facility. A dedicated building for housing quarantined patients separately from the general facility population is recommended. Additionally, use of separate feeding and handling equipment between quarantined individuals/cohorts is preferred, and tools and supplies should also be separate between quarantined animals and the general animal population. Complete individual/cohort isolation should be the goal.

4. Facility staff/volunteers must use separate clothing, footwear, and equipment when handling quarantined birds. Guidance for PPE is found on the PHAC website (here). For additional details on PPE, refer to the FAO manual (here). All staff and volunteers should also be vaccinated for influenza.

5. Wash your hands and change footwear between handling the two groups. Whenever possible, clean and disinfect clothing and equipment before and after handling.

6. Birds in quarantine should be cared for after feeding and handling all other species in the facility.

7. Adequate storage of waste material for 30 days or disposal should also be considered.

8. A rodent control program should be in place to prevent movement of rodents between the quarantine area and the general animal population.

Appendix 2. Cleaning and Disinfection Principles (provided by CFIA).
Use appropriate PPE during any cleaning and disinfectant process. Contact your regional CFIA office for appropriate PPE during cleaning and disinfection
The most important cleaning step is the thorough removal of all organic debris. Disinfectants will not work in the presence of organic material.

Before starting cleaning and disinfection, examine all areas and structures where birds were housed, and equipment and materials used for their care were kept. Determine what structures, equipment, tools and materials are of suitable condition to clean and disinfect. Materials in poor condition or which are composed of materials such as old and pitted wood are more difficult to clean and disinfect appropriately. Determine what can be saved, what may need to be disposed of, and what may need additional effort to effectively clean and disinfect. Consider using only materials that can be easily cleaned and disinfected in areas used for quarantine and care of ill or diseased animals.

Ensure rodents and other pest problems are addressed prior to cleaning and disinfecting the areas as they can result in barns/pens being re-contaminated by some bacteria and viruses.

- Before applying disinfectant, “dry clean” surfaces by brushing and scrubbing ground, floors, ramps, and walls after removing or dismantling of equipment or installations that would impair effective cleaning and disinfection.
    - The avian influenza virus can occasionally cause disease in humans. While human infections are rare, minimizing potential exposure to the pathogen is important. Some measures to reduce exposure and transmission include minimizing aerosolization of dust particles during cleaning and disinfection. In dry conditions, consideration may be given to lightly wetting down material using power washers with a low-pressure spray.
- Carry out wet cleaning of all exposed surfaces (barn, equipment) to remove all organic material. (The use of a detergent will loosen the organic material and facilitate this step.)

When temperatures are below freezing, additional heat will be required inside structures to enable suitable cleaning and disinfection processes. If this is not feasible, these areas may need to be cleaned and disinfected when ambient outside temperatures are above 5^{o}C.

- Avoid recontamination of previously cleaned areas, particularly with high-pressure hoses.

Use cleaners and disinfectants according to label directions for concentration and contact time. Consider organic load (the amount of contamination), and ambient temperatures. It is also important to carefully read the label directions regarding the compatibility of certain disinfectants with certain detergents.

- Use degreasing agents (such as soap or detergents) and disinfectants under conditions where their effectiveness is not reduced (appropriate temperatures, pH, organic load, etc. referring to manufacturer’s directions).
- Use degreasing or detergent agents to remove the virus and to expose any remaining virus to the disinfectant (repeating as necessary, since the virus is protected by animal protein, such as eggs and feces, and thus in situations where a high volume of proteinaceous material is present, degreasing and application of detergent may have to be repeated until clean).
- After washing and cleaning, allow time to dry thoroughly.
- Consider the nature of the premises, vehicles, and objects to be treated when choosing disinfectant.
- Check the disinfectant activity and scope before use and during application. (For example, it is preferable to use disinfectants with a label claim for effectiveness against Avian Influenza virus or similar virus, and to use them according to the effective dilution and contact time required. Prevail™ or Virkon™ are suggestions for disinfectants for destroying the Avian Influenza virus.)
- Using enough quantity to meet the contact time specified by the manufacturer, spray disinfectant on all areas where animals were present, all equipment and materials in contact with birds or their feces, and litter.

Disinfectants are tested at a specific concentration. Higher concentrations of disinfectants may be more hazardous to personnel and the environment and damage materials and equipment.
Follow the manufacturer's recommended contact time.

General considerations:

1. Read the Material Safety Data Sheets (MSDS) for the product(s) before use to understand the chemical handling and use hazards.
2. Always prepare and use fresh solutions.
3. Label spray bottles and buckets with the date of preparation and the expiry date or time. Expired cleaning products will not perform to the same standards and may not be as effective.

Prevail Prevention Concentrate™ mixing directions:

1. Wear goggles and gloves while mixing.
2. Hydrogen peroxide will work in the presence of some organic material, but ideally items are clean before disinfection. Increase concentration for activity against spores.
3. A 2.5% solution is prepared by adding 25 ml (1oz) of Prevail™ Prevention Concentrate to 1 L of water. Contact time is 5 minutes.
4. If uncontaminated and kept in a sealed container, prepared Prevail™ solution can be kept for up to 30 days, but should be used within 7 days of preparation for maximum effectiveness.
5. Freeze protect agents can be added.

Virkon mixing for disinfecting solution:

1. Maintain a current disinfectant log (example) to ensure diluted solution is prepared to the correct concentration (Virkon Test Strips).
2. Wear appropriate personal protective equipment when mixing.
3. Add warm or cold water and then Virkon to containers when mixing.
4. One pouch of commercial Virkon contains 50 g of Virkon:
    a. For a 1% Virkon solution: mix 50 g (1 pouch) of Virkon into 5 L of water.
    b. For a 2% Virkon solution: mix 100 g (2 pouches) of Virkon into 5 L of water.
5. Stir, then let sit for a few minutes.
6. Contact time is 10 minutes.
7. Virkon is corrosive and surfaces should be rinsed after the contact time is complete.
8. Use the mixture within 7 days.
9. Freeze protect agents can be added.

Bleach – handy guidelines for using bleach with 5-6% sodium hypochlorite:

1. Wear a mask, rubber gloves, and waterproof apron. Goggles are also recommended to protect the eyes from splashes. Mix and use bleach solutions in well-ventilated areas.
2. **Chlorine is inactivated in the presence of organic material.**
3. Viruses and Bacteria: 1 part bleach + 9 parts water (10 min contact time).
4. Mix bleach with cold water. Hot water decomposes the sodium hypochlorite and renders it ineffective. Protect mixture from heat and light.
5. Discard unused mixture after 24 hours.

Additional Considerations and Guidance:

- Ensure all feeders and waters are rinsed well after cleaning and disinfection.
- Allow all surfaces to dry thoroughly after disinfecting. Heaters may be needed to ensure surfaces dry.
- Avoid placing birds back into the areas that have been cleaned and disinfected for as long as possible.

- Additional information on cleaning and disinfection can be found here: External Link – Canadian Food Inspection Agency

Decontamination of Outdoor Enclosures (e.g., pre-release aviaries)

Prior to adding new animals to an outdoor pen, enclosure, or containment area in which suspected or confirmed HPAI animals were housed, it may be necessary to disinfect the outdoor holding areas. If birds and/or fecal matter have been in contact with the soil, the top inch (2.5cm) of soil should be removed and properly disposed of.
If there has been minimal direct contact between the birds and the soil and fecal matter has been effectively removed using physical means, then using a calcium hydroxide (lime) solution should be sufficient for decontamination of the soil. Calcium hydroxide (1%) solution will be sufficient to inactivate the virus in soil[1]. It can be corrosive to some surfaces so care should be taken when applying the solution around metal.

[1]Matsuzaki S, Azuma K, Lin X, Kuragano M, Uwai K, Yamanaka S, Tokuraku K. Farm use of calcium hydroxide as an effective barrier against pathogens. Sci Rep. 2021 Apr 12;11(1):7941.