
AVIAN INFLUENZA
EPIDEMIC CONTROL
MANUAL
CID LINES
An Ecolab Company
WHERE HEALTH BEGINS

AVIAN INFLUENZA (A.I.)

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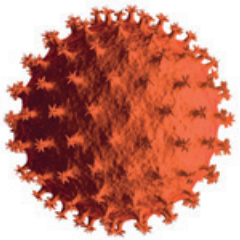
THE AGENT



The patoghenity of influenza viruses can differ a lot. Disease symptoms can vary from „no symptom“, mild pathogenic symptoms to 100% mortality.

Influenza viruses in birds present a potential zoonotic risk to humans. A.I. viruses can contaminate people directly, as it has been the case with H5N1 infections in Hong-Kong in 1997 and in East Asia in 2004-2005. Since 2013, there have been around 1.500 cases of A.I. worldwide and between 300 and 600 casualties. Several people suffered from retina infection as a consequence of an infection with the H7N7-virus. Today it is impossible to predict which A.I. strains can be potentially harmful to human.

(AI viruses are classified in 15 different subtypes, H 1 to H 15 based on haemagglutinin (H), a protein that forms a part of the viral envelope. We also distinguish nine different neuraminidases (N1-N9).

Avian Influenza is a viral infection to birds. The causal agent is an Influenza virus, type A. Infections with Influenza viruses type B and C do not occur with birds. Influenza viruses are RNA viruses and belong to the Orthomyxoviridae group.

INFECTION ROUTES

As low pathogenic A.I. strains (LPAI) can mutate to highly pathogenic A.I.-virus (HPAI), LPAI needs to be addressed as well.

Contamination of poultry in new areas is possible as a result of contact with humans and movement of contaminated poultry. Contact with wild birds or the import of exotic birds can cause primary outbreaks.

Migrating waterfowl are an important source of A.I. infection and outbreaks often occur at the time and in the place of migration.

Contaminated birds spread the virus via the respiratory system, via the eye and via excrements. Transmission usually happens through direct contact between birds or indirectly through exposure with infected surfaces, equipment or fomites.

Feces or excrements can contain very high concentrations of the A.I. virus. This way the virus can be transmitted to birds, mammals, insects and people, but also to feed, water, equipment, crates or trays, utensils and trucks.

Forced ventilation of poultry houses pushes out contaminated dust particles, manure and feather particles, and can spread the virus over a wide distance (easily 1 kilometer or three quarters of a mile). Wild birds rarely spread secondary infections.

Main sources for direct spreading:

Transport of life birds including the vehicles and crates

Bird shows and markets

Direct contact of poultry with waterfowl and coastal birds

Passive mechanical spread can occur through:

Poultry manure

Aeral spread of contaminated dust particles

(aerogene spread only over short distances and is not a main source)

Poultry meat

The virus can survive for a long time in frozen meat. (In coocked meat, the virus dies within 1 second as of 77° C (171 °F)

Equipment, trucks, people and animals

Water

open water (like ponds, rivers or lakes that are contaminated by waterfowl or coastal birds), birds' drinking water reservoirs

Eggs

The A.I. virus can be present on or in eggs. The virus is rarely transmitted to the chick as the embryo dies in an early phase of the incubation process.

A. TOTAL PREVENTION PROGRAM

As wild birds are considered to be a major source of avian influenza, direct and indirect contact between your flocks and free flying birds or their excrements should be avoided at all times.

A.I. can be spread via feces from infected birds on clothing or equipment, so it is extremely important to control "traffic" between infected and uninfected farms/birds.

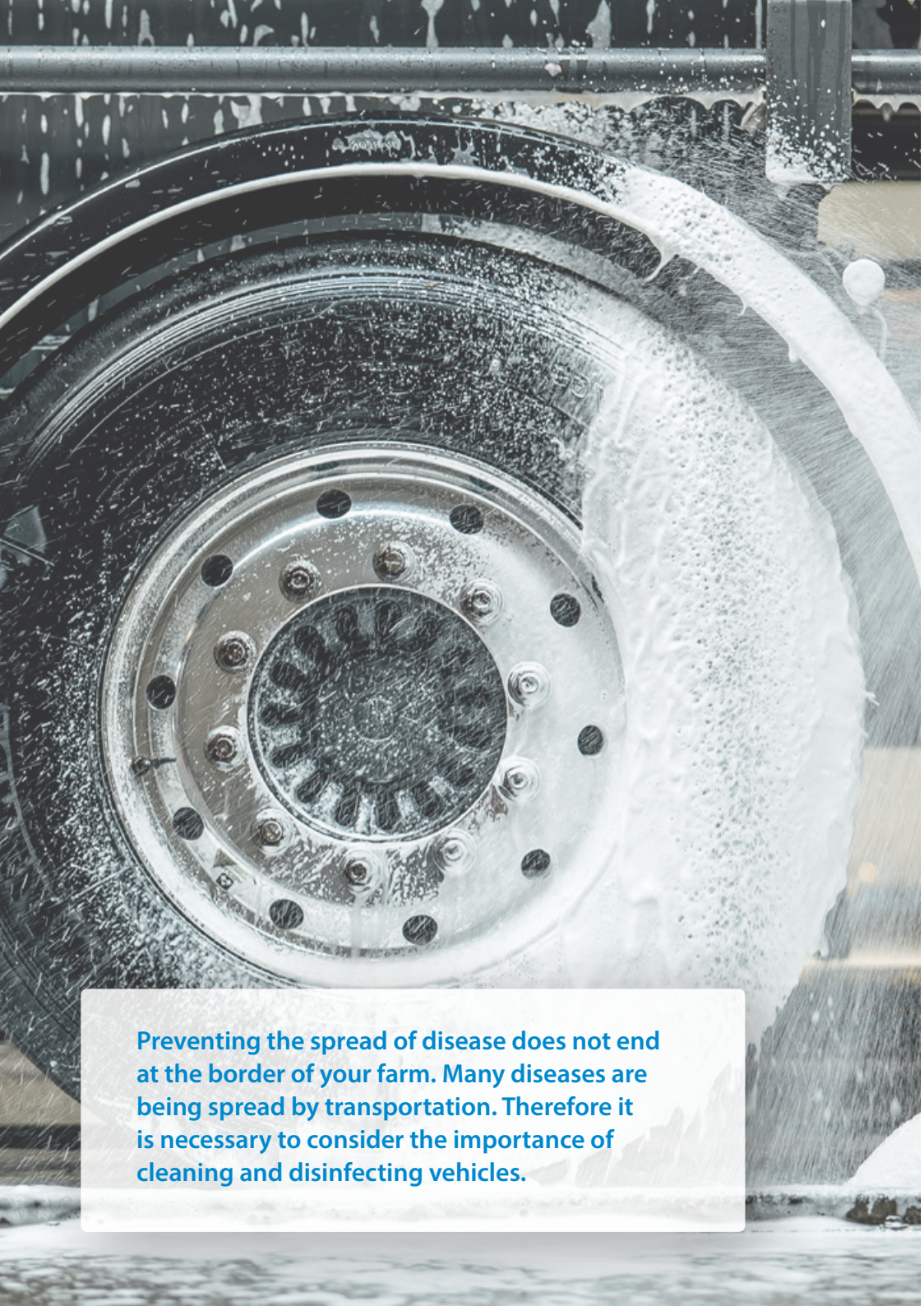
A.1. Prevention measures

FARM LEVEL

1. Check the fence surrounding the farm for gaps or damage.
2. Entrance should be completely restricted. Poultry farms should only be entered after clearance from the farm manager or the appointed responsible. Permit-access only to who are strictly necessary on the farm e.g. personnel, veterinary services.
3. Visiting different farms within 48 hours must always be avoided. In the exceptional case where a visit to different farms should occur, showering in between two visits is necessary. The team catching and loading poultry for slaughter should also apply this measure.
4. To improve access control on the farm, access should be limited to one entrance and exit. Clean and disinfect this road every day.
5. Leave vehicles outside the farm whenever you can. Vehicles must be cleaned and disinfected before entering the farm and before leaving the farm, with special focus on wheels, wheel arches and mudguards.
6. Provide boot and wheel dip baths filled with a disinfectant, with a proven action against A.I. in field conditions. Ensure that the baths are renewed daily.
7. Upon arrival, every visitor should report to the farm manager or an appointed responsible.
8. Name, date and reason of visit should be noted in the visitors' register. (including the visitors who never enter the barns).
9. Be sure to place signs where action is needed.

BARN LEVEL HYGIENE TIPS

1. Keep the barn key-locked at all times.
2. Only enter a poultry barn if necessary. Enter barns after passing through the changing room with hand-washing facilities on the edge of the clean and dirty zone of the farm.
3. Install a shower-in (and shower-out) policy. At the CLEAN SIDE of the shower: Clean clothes and boots that belong to - and stay on - the farm are the best and safest way. Or only use disposable clothes and boots, which are left at the farm after the visit.
4. Make sure all materials, drugs, vaccines, etc. are cleaned/disinfected and/or passed a "quarantine storage room". They should remain in a separate room for 10 days before entering the farm. Adapt your buying policy to this 10-day 'quarantine' period.
5. If different species are present on the farm, keep the different animals as well as their accessory tools fully separated.
6. Put boot dips at the entrance and exit of every barn and ensure they are used and changed regularly. Monitor their correct use and timely renewal.
7. All material has to be cleaned and disinfected before and after usage.
8. Fogging empty barns is an essential part of any prevention program. It will further reduce the risk of contamination. Check your biocide registration of the disinfectant to find the right dilution.
9. Ensure that migrating birds or other wild animals cannot contaminate poultry pens or poultry drinking water and feed supplies. Make the barns bird proof and follow pest control protocols!
10. Clean and disinfect the loading area/dock after loading and unloading.
11. Also follow an effective rodent control program.
12. Never allow pets to enter the barns.



Preventing the spread of disease does not end at the border of your farm. Many diseases are being spread by transportation. Therefore it is necessary to consider the importance of cleaning and disinfecting vehicles.

A.2. Vehicle disinfection program

TRANSPORT LEVEL

1. Remove all equipment that can be disassembled and cannot be cleaned on the spot.
2. Remove all dry litter, mud, straw from all surfaces, wheels, wheel arches, etc.
3. Use a powerful car and truck cleaning product to soak all surfaces. Pay attention to ceilings, wheels, lift, etc. Leave it soaking for 15 to 30 minutes.
4. Clean the removed equipment and other tools with a proper detergent.
5. After soaking, rinse all surfaces and equipment under high pressure.
6. Inspect your vehicle for any remaining organic material.
7. Your disinfectant should be compatible with your detergent, active in the presence of organic material, safe for your vehicle and effective at all temperatures.
8. Disinfect all surfaces inside and outside with the right disinfectant. Work your way down from the top to the bottom and pay attention to cracks and wheels. Do not forget the underside of the vehicle.
9. Move the vehicle to a clean and disinfected place to let it drain and dry.
10. Remove clothing and disinfect them.

A.3. How to clean and disinfect?

Influenza viruses are not a very resistant virus group. They are relatively easy to kill. Nevertheless, organic material deteriorates the efficacy of your disinfectant. Viruses that are covered in manure are well protected and can **survive up to 100 days** in that environment. Complete removal of organic material is therefore essential to an effective disinfection procedure.

A VIRUS CAN SURVIVE UP TO 100 DAYS

After litter and manure is removed, clean and disinfect all surfaces, respecting the application recommendations of the manufacturer.

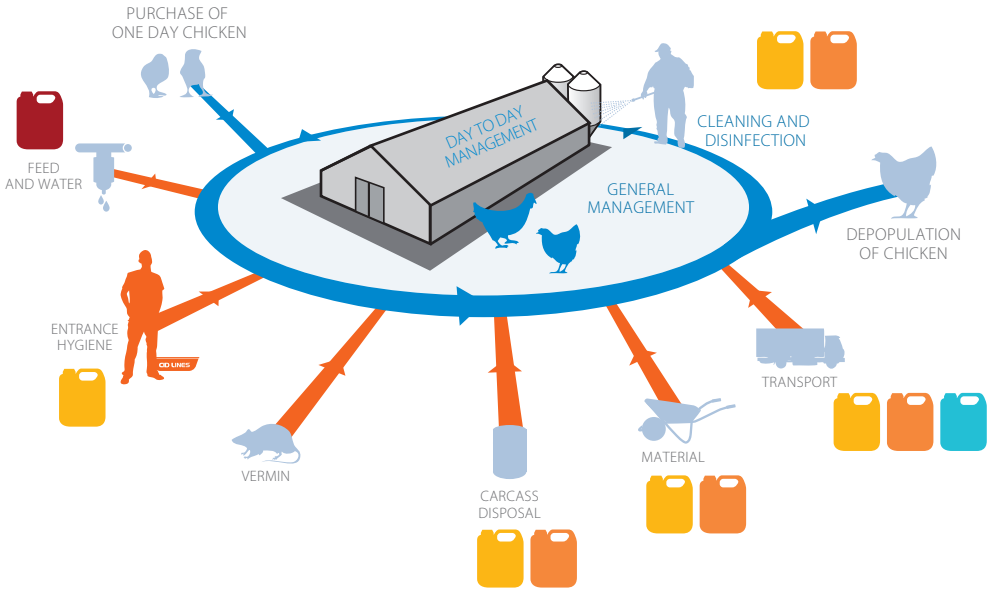
5% Make sure you use a broad-spectrum disinfectant, with proven effectiveness when applied with hard water, in the presence of at least 5% organic load.

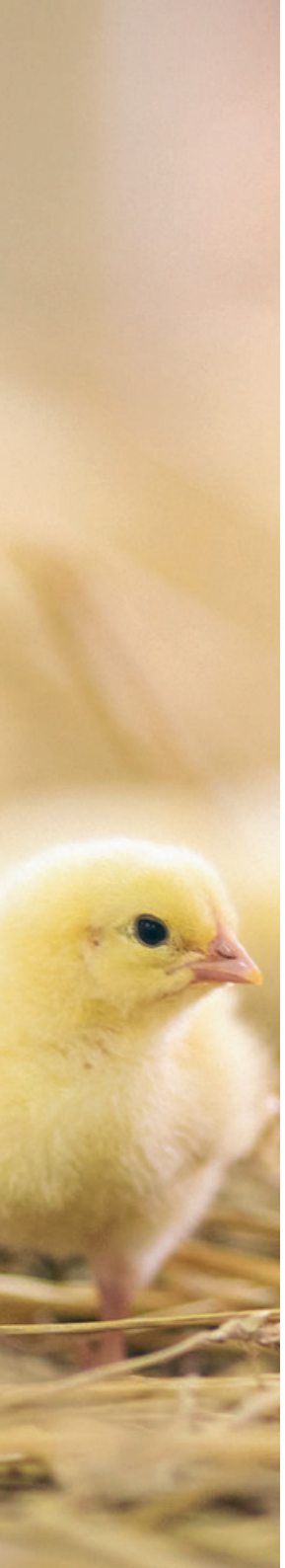
All high-quality disinfectants can provide official test reports that prove the efficacy of the product at certain dilutions against the A.I. virus. However, it's very important that these tests have been done in the exact right conditions. Only tests where field conditions (by adding organic material and using hard water) are simulated are trustworthy.

Scores obtained by disinfectants tested in clean lab conditions (without adding organic material and with demineralized water) gives NO reliable information about their efficacy in the field.

Break through the route of transmission!

You have the power to resist and prevent Avian Influenza. CID LINES, An Ecolab Company is by your side with products, solutions and best practices.





B. TOTAL DECONTAMINATION PROGRAM

B.1. Personnel decontamination

People working on infected premises are the most important factor. Cross contamination via personnel must be contained through personal hygiene, washing and disinfecting. All places where infected animals - dead or alive - are inspected (e.g. at slaughter sites or carcass disposal sites), or where manure, straw, beddings are removed from buildings, present the greatest risk of heavy personal contamination.

Every individual should follow the same procedure when a personal decontamination site is established. Before entering and before leaving the contaminated site, personal decontamination needs to be applied.

All overalls should be disinfected (soaked in the proper disinfectant) and disposable ones should be put in a plastic bag and burned. Boots have to be disinfected for every transition between stables or divisions and used only on the premises.

B.2. Property decontamination

After identifying the suspected disease, it is vital to choose the appropriate disinfectant. Use a broad spectrum disinfectant which is active at all temperatures and effective in the presence of organic matter.

B.2.A. FIRST DISINFECTION

Preliminary disinfection should be done as soon as possible after the presence of disease is identified. All areas known to be infected must be decontaminated to reduce the risk of spread. Disinfect all buildings, roads, paths, entries and exits. One should continue to disinfect these areas step by step until the first clean-up procedures start.

B.2.B. CLEAN-UP PROCEDURES

Culling of infected birds is done by a team of specialists appointed by an official institute responsible for the control of infectious diseases. After birds have been killed, they must be transported in hermetic closed containers to special combustion furnaces.

- Treat the barn with thermal fog. Fogging is to be preferred over spraying, as spraying increases the weight of the run out.
- Close the barn hermetically for 2 days.
- After ventilation, remove all manure, dirt and debris. The easiest and safest disposal of faecal material is burial. Transport of manure, dirt and debris from the barn to the place where it will be burned, should be done in hermetically closed containers.

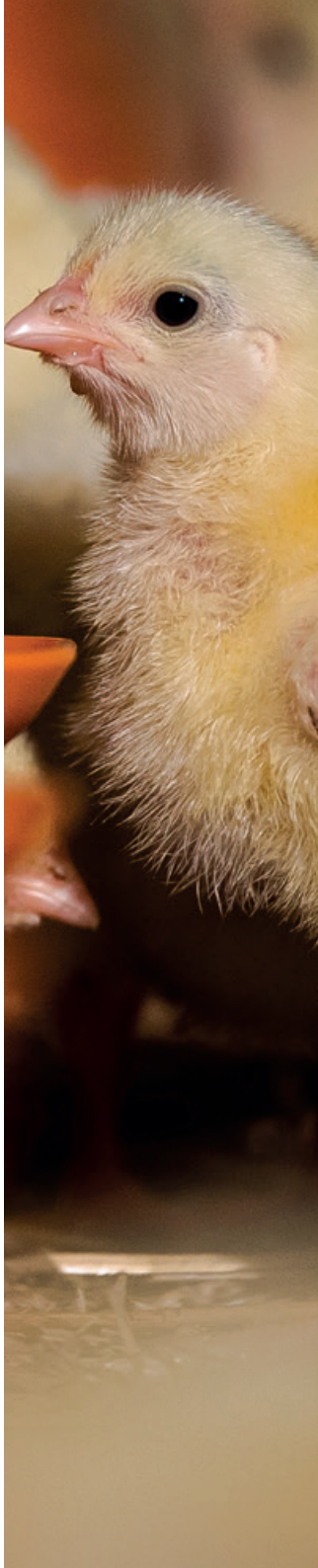
B.2.C. FULL DISINFECTION

- Disinfect all equipment and interior of buildings.
- Close buildings afterward. Additional fogging is advised.
- Disinfect all exteriors of buildings, roads, paths, gates, road-ways, entries and exits.
- A second full disinfection of the buildings after 14 days is strongly recommended. For the second disinfection, the procedure of the first can be repeated. Disassemble all material that cannot be cleaned in place, and clean and disinfect all components.
- Use a foam- or gel forming detergent to soak roofs, walls, floors, boxes, feeders, drinkers or any other material that has been in direct contact with the birds.
- Foam improves the contact time of the detergent with the soaked material for an improved cleaning result. Let the gel soak in for 10 minutes. Then rinse all material under high pressure. Let dry.

This brief hygiene protocol for poultry farms and visitors was established by FASFC or FEDERAL AGENCY for the Safety of the Food Chain. It's also applicable in mixed farms in case of a disease outbreak in other livestock. FASFC's mission is to monitor safety and quality of our food and to protect the health of animals, humans and crops. FASFC does this via thorough check throughout the entire food chain.

FAO, The Food and Agriculture Organization of the United Nations, and OIE, World Organiation for Animal Health, recognize that improvement in biosecurity on every level and at every stage of farm life is an indispensable step for the prevention and control of HPAI (FAO publication 165, 2008).

**FAVV is the Belgian official institute that, in order to guarantee safe food, controls the whole food chain: 'from farm to fork". During outbreaks of animal diseases, FAVV issues measurements in order to prevent the spread of the infectious disease.*



NOTES

THE ULTIMATE COMBINATION FOR FUNCTIONAL HYGIENE

Kenosan™
UNLEASH THE POWER OF CLEANING!

Virocid®
ACTION IN DISINFECTION

Alkaline foam cleaner

Highly concentrated disinfectant , broad spectrum

CID LINES®
An Ecolab Company

Fostering quality of life means caring for every stage of the cycle. Everywhere it matters, health means the world. And health, we believe, starts with hygiene. It's why at CID LINES, An Ecolab Company, we devote all our passion, experience, and expertise to safeguarding animal health and hygiene. Because no matter where you are in the food chain, health matters. And this is where health begins.

Discover our brand story

Interested in our solutions? Go to www.cidlines.com or ask your dealer for more information.

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