

Newcastle Disease: Key Measures to Strengthen Biosecurity on Your Farm



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The **Newcastle disease** outbreaks recently detected in Spain, specifically in Castilla y León, have once again highlighted the serious consequences that the introduction of an infectious agent can have on a poultry farm.



The situation has affected several farms and required the implementation of health measures such as the preventive culling of birds, the establishment of restriction zones, movement controls and reinforced vaccination.



Beyond this particular episode, the emergence of new outbreaks is a reminder that **biosecurity must be part of the day-to-day management of every farm.**

It should not be activated only when there is a nearby animal-health alert, but maintained consistently to reduce the risk of disease introduction and spread.



WHAT IS NEWCASTLE DISEASE?



Newcastle disease is a **highly contagious viral infection** that can affect both domestic and wild birds.

It is caused by virulent strains of avian paramyxovirus type 1, also known as Newcastle disease virus.

- Depending on the strain, the birds' age, their immune status and farm conditions, the disease may cause clinical signs of varying severity.

The most virulent strains can cause **respiratory, digestive and neurological disorders**, as well as high mortality and major production losses.

Because of its animal-health and economic consequences, Newcastle disease is **notifiable** in many countries.



When an outbreak is confirmed, the authorities must take immediate action to limit circulation of the virus and prevent it from reaching other farms.

HOW CAN THE VIRUS ENTER A FARM?



The virus may be introduced by infected birds, but also through many elements associated with the farm's everyday activities.

The main routes of entry include:

- > **People** who have previously visited other farms.
- > **Vehicles** transporting birds, feed, eggs or by-products.
- > Contaminated footwear and clothing.
- > Shared equipment, tools, trays or cages.
- > Contaminated water or feed.
- > Direct or indirect contact with wild birds.
- > Litter, manure, carcasses and other organic materials.
- > Rodents, insects and other animals moving through the facilities.

Organic matter is particularly important. Faeces, dust, feathers and litter residues can protect the virus and reduce the effectiveness of disinfectants.



For this reason, superficial cleaning or applying disinfectant directly without first removing dirt does **not ensure effective disinfection.**

KEY MEASURES TO STRENGTHEN FARM BIOSECURITY



Restrict and Control Access by People



Anyone entering a farm can act as a **vehicle for the transmission of infectious agents**.

Visits should be limited to those that are strictly necessary, and every entry should be recorded. This makes it possible to know who entered the farm, when they entered and whether they had previously been in contact with other poultry farms.

The entry protocol should include:

- A complete change of clothing and footwear.
- Use of farm-dedicated clothing.
- Hand washing and disinfection.
- Clear separation between dirty and clean areas.
- Cleaning and disinfection of any materials brought onto the farm.
- Restrictions for people who have recently visited other farms.





Footbaths can help reduce risk, but only when used correctly. The product must be kept at the recommended concentration and replaced whenever dirt or organic matter is present.

A **contaminated or poorly maintained footbath** can become a point of spread instead of serving as a sanitary barrier.





Control Vehicle Entry and Movement



Vehicles can carry infectious agents on their **wheels, undercarriages, in the cab or on the loading surface.**

Whenever possible, external lorries and vehicles should remain outside the farm's clean perimeter. Loading, unloading and delivery operations should be arranged to minimise contact between the outside environment and production facilities.

Recommended measures include:

- Establish specific loading and unloading areas.
- Define traffic routes within the farm.
- Clean and disinfect wheels and undercarriages.
- Record the entry of every vehicle.
- Prevent access by vehicles that have visited other farms unless they have first been cleaned.
- Separate routes used for incoming animals, feed and materials from those used to remove carcasses and waste.



Proper **flow management** is essential to prevent clean routes from crossing potentially contaminated ones



Establish Clear Separation Between Clean and Dirty Areas



Biosecurity begins with the **correct definition of farm areas**.

The dirty area includes spaces in contact with the outside, such as car parks, access points, loading bays and reception areas. The clean area includes poultry houses, indoor storage areas and spaces directly associated with the birds.

A **clearly identified sanitary barrier** must separate the two areas.

This separation can be reinforced through:

- Benches or lines for changing footwear.
- Entry and exit changing rooms.
- Showers when required by the level of risk.
- Clearly marked routes.
- Controlled-access doors.
- Dedicated areas for receiving and disinfecting materials.

Barriers must be easy to understand and use. A **complex or impractical protocol increases the risk** of incorrect implementation.





Prevent Contact with Wild Birds



Wild birds can contribute to the circulation of various avian diseases and contaminate the farm environment.

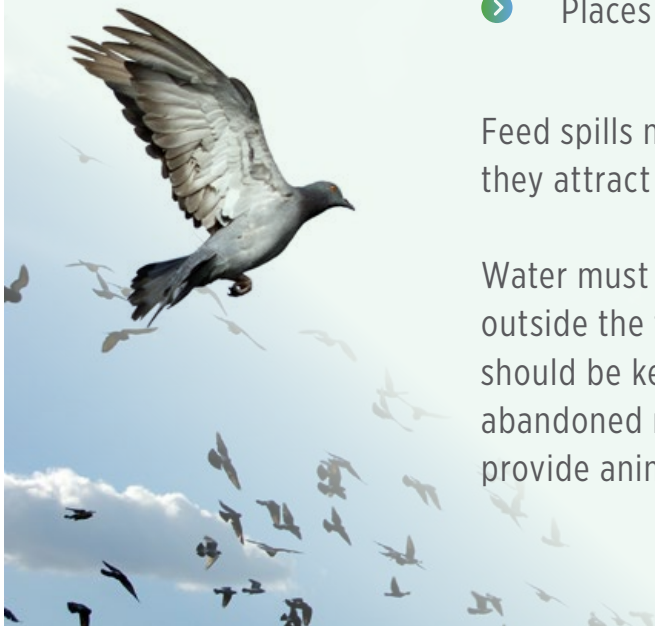
To reduce this risk, they must be prevented from coming into contact with **production birds, water, feed or equipment.**

The following should be checked regularly:

- Netting and perimeter fencing.
- Air inlets and outlets.
- Doors and windows.
- Roofs and openings in poultry houses.
- Water tanks and pipes.
- Feed silos and stores.
- Areas of standing water.
- Places where birds may perch or nest.

Feed spills must be removed quickly because they attract both wild birds and rodents.

Water must not be allowed to accumulate outside the facilities, and the surrounding area should be kept free of excessive vegetation, abandoned materials and waste that could provide animals with food or shelter.



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Implement an Effective Pest-Control Programme



Rodents, insects and other animals can carry infectious agents between different areas of the farm.

A pest-control programme should include **preventive measures, monitoring systems and corrective actions.**

It is important to:

- Seal cracks and entry points.
- Keep doors and enclosures in good condition.
- Remove feed residues.
- Prevent materials from accumulating.
- Place baits and traps at strategic points.
- Regularly assess the level of activity.
- Record all actions taken.
- Work with specialist companies when necessary.



Occasionally placing bait is not enough. Control must be **continuous and adapted to the activity detected in each area.**



Prevent Transmission Between Poultry Houses



From an animal-health perspective, a farm with several poultry houses should not be managed as a single unit.

If an infectious agent enters one house, internal measures must prevent it from spreading rapidly throughout the farm.

To reduce this risk, it is recommended to:

- > Use dedicated footwear for each house.
- > Provide separate clothing or protective equipment.
- > Wash and disinfect hands before every entry.
- > Avoid sharing tools and equipment.
- > Clean and disinfect any material that must be moved.
- > Organise work from lower-risk to higher-risk flocks.
- > Manage carcasses independently.
- > Record internal movements of people and materials.



Trolleys, crates, utensils, portable equipment and maintenance tools can act as **mechanical vehicles for the virus.**



Whenever possible, each poultry house should have its own work materials.



Carry Out Cleaning and Disinfection Correctly

Disinfection is effective only when surfaces have **first been cleaned.**

Dust, grease, faeces, feathers, feed and litter residues reduce the disinfectant's ability to come into contact with microorganisms.



A complete protocol should include:

1. Removal of the birds.
2. Dismantling or opening the components to be cleaned.
3. Removal of litter, manure, dust and organic residues.
4. Dry cleaning.
5. Washing with water and detergent.
6. Rinsing when necessary.
7. Drying the surfaces.
8. Application of an authorised disinfectant.
9. Observance of the concentration and contact time.
10. Final drying and a sanitary downtime period.
11. Verification of process effectiveness.

Cleaning must cover both visible surfaces and **hard-to-reach areas.**



Feed equipment, drinking lines, egg collection systems, belts, fans and structures beneath the equipment must also be included in the protocol.

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Make Cleaning Easier Through Good Equipment Design

Facility design has a direct influence on the effectiveness of biosecurity programmes.

Equipment should allow **easy inspection** and provide access to every area where dirt may accumulate.



A system that is difficult to dismantle, with inaccessible spaces or numerous points where organic matter can build up, may make the staff's work harder and reduce cleaning effectiveness.





In contrast, equipment designed for easy maintenance makes it possible to:

- Reduce waste accumulation.
- Access surfaces more easily.
- Detect leaks or faults.
- Apply cleaning products evenly.
- Reduce the time required between flocks.
- Improve process verification.

Ease of cleaning should be considered at the farm-design stage, not only when an animal-health problem arises.





Protect Drinking Water



Water is essential for production, but it can also become a **route of transmission** if it is not properly controlled.

Tanks, pipes and drinkers can accumulate biofilm, sediment and organic matter. These residues reduce water quality and hinder the action of sanitation products.

The control programme should include:



- Regular microbiological and physicochemical water-quality testing.
- Cleaning of tanks.
- Sanitation of drinking lines.
- Monitoring treatment concentrations.
- Inspection of line ends.
- Elimination of dead legs.
- Leak checks.
- Protection of tanks and pipes against animals and dirt.

Leaks must be repaired quickly. In addition to wasting water, they increase litter moisture and create favourable conditions for organic matter to accumulate.



Protect Feed and Feeding Systems



Silos and stores must remain properly closed and protected against birds, rodents, insects and water.

Distribution systems should also be inspected for:

- Breakages.
- Leaks.
- Feed build-up.
- Moisture.
- Old feed residues.
- Pest activity.
- Hard-to-clean areas.

Spilled feed beneath feeders or around silos should be removed as soon as possible.

Correct adjustment of feeding equipment also **helps prevent waste and reduce the organic matter available** in the surrounding environment.





Manage Carcasses Correctly



Carcasses pose a major **animal-health risk** and must be removed from poultry houses as quickly as possible.

The removal system should prevent staff from crossing clean areas with potentially contaminated containers or materials.

It is recommended to:

- Use closed, easy-to-disinfect containers.
- Establish a dedicated removal route.
- Locate the storage point away from poultry houses.
- Prevent external vehicles from entering the clean perimeter.
- Clean and disinfect containers after every use.
- Record daily mortality.
- Investigate any abnormal increase.



The collection point should be designed so that the authorised vehicle can access it from outside without coming into contact with production areas.



AN INTEGRATED STRATEGY TO PROTECT THE FARM



Biosecurity does not depend on a single measure. Its effectiveness is based on a combination of complementary barriers..

Controlling people and vehicles, separating areas, cleaning equipment, protecting water and feed, pest control, vaccination and daily surveillance are all part of the same strategy.

Facility design also plays a fundamental role. A **well-organised farm with defined flows and accessible equipment** makes protocols easier to apply and reduces critical points.



No measure can completely eliminate risk, but well-planned biosecurity, applied consistently, can **significantly reduce the likelihood of infectious agents** entering the farm, limit their spread and improve the farm's response capacity.





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