Poultry health and biosecurity guide

Prevent, spot problems early, call the vet in time: the right habits in an open-sided house

Benchmarks: Cobb (Broiler Management Guide) · diagnosis and treatment: the vet in your area



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1. The principles of biosecurity

Biosecurity is the set of barriers that stop diseases from getting onto the farm, and then from spreading from one house to another. A farm can never be made sterile: the aim is to reduce the germs present and prevent them from coming back. Prevention always costs less than disease.



At the NEXTEKCI hatchery in Agnibilékrou: dedicated work clothes, hair cover and mask for handling chicks.

Organise the farm into three zones

Zone	What is there	The rule
Outer zone	Car park, reception for buyers and delivery drivers	Vehicles and crates from elsewhere stay here
Transit zone	Changing room, hand washing, footbath, farm boots and clothing	Change and disinfect before going any further
Rearing zone	Poultry houses, feed store, water tank	Only staff and essential visitors, in farm clothing

The basic barriers

- Fenced farm, a single entrance, gate kept closed.
- A footbath at the entrance to each house, covered, renewed every 1 to 2 days and after rain. Brush boots before stepping in: mud neutralises the disinfectant.
- Boots and clothing kept for the farm, and if possible for each house. Hand washing at the entrance.
- As few visitors as possible, with a visitors' book: name, date, and the last farm visited.
- No other poultry on the site: no village hens, ducks, guinea fowl or caged birds. No dogs or cats in the houses.
- Equipment and crates from another farm or from the market: washed and disinfected before entering.
- Constant rodent control, clear surroundings, spilt feed cleaned up straight away.
- Visits in order: from the youngest to the oldest birds, from healthy to sick.

Source: Cobb (Broiler Management Guide)

A single-age farm ("all in, all out") is the most effective barrier: young birds do not pick up germs from older ones, and the house can be completely emptied, cleaned and rested between two flocks.

> Tip: The most useful visitors are also the most dangerous: vets, technicians, buyers and feed sellers go from farm to farm. Give them the farm's boots and overalls, and let buyers see the birds from the entrance: their crates never go into the house.

Brown laying chicks are vaccinated against Marek's disease at the hatchery (certificate on request). The other chicks (white broilers, red broilers, barred grey, hybrids, cockerels) receive no vaccine at the hatchery:

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vaccination is done on the farm, following the protocol of the vet in your area.

2. Cleaning, disinfection and downtime

Disinfectant poured onto dirt does almost nothing: organic matter (droppings, dust, litter) neutralises it. Cleaning matters more than the choice of product. The order of operations is always the same.



Between two flocks, once all the litter has been removed: wash, disinfect, then leave the house empty and dry. — NEXTEKCI illustration

Between two flocks

1. Remove all birds from the farm. Treat against insects immediately, while the litter is still warm.
2. Keep up rodent control throughout the downtime.
3. Empty any remaining feed; take out all the litter in covered vehicles, well away from the house.
4. Dry clean: dust from walls, beams, wire mesh, the tops of low walls, fans.
5. Wash with water and detergent, from top to bottom (roof, walls, curtains inside and out, floor), then the dismantled equipment. Rinse.
6. Drain the water tank and pipes, scrub the tank, leave a cleaning solution in for at least 12 hours, then flush thoroughly.
7. Carry out repairs, clean the surroundings and drains. Allow to dry.
8. Disinfect with a broad-spectrum product, at the dose shown on the label, on every surface, from top to bottom.
9. Put the footbath and entrance barriers back in place, then leave the house empty, clean and closed (downtime).

Source: Cobb (Broiler Management Guide)

Length of downtime

Situation	Recommended minimum
Normal flock, no disease	10 to 14 days, house clean, dry and closed
After disease in the flock	21 to 30 days
After Gumboro or avian influenza	4 weeks or more, on the vet's advice

Tip: Downtime only starts once the house has been washed, disinfected and dried. Two weeks without birds are not wasted: most germs die without a host on a clean, dry surface. Coccidiosis or Gumboro coming back flock after flock costs far more.

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What people often forget

- The curtains: wash both sides.
- Transport crates, boots, clothing and the changing room.
- Equipment that cannot be washed (cardboard, fibre chick guards): destroy it, do not reuse it.
- The surroundings: 3 metres weeded and clean around the house, no standing water.

Source: Cobb (Broiler Management Guide)

3. Checking your flock every day

Most diseases show up on the record sheet before they show on the birds: water intake drops, feed is left in the feeders, deaths rise. A careful round morning and evening and a record sheet filled in every day let you act one or two days earlier, and those days save the flock.



Spot the bird that stands apart: hunched, ruffled feathers, half-closed eyes, drooping wings. — NEXTEKCI illustration

The morning round

1. Listen before going in: a healthy flock makes a steady, calm sound. Rattling, sneezing or unusual silence are warning signs.
2. Look at how the birds are spread: evenly spread out, not huddled, not pressed against the walls, not panting.
3. Pick up and count the dead birds, note what you saw (age, condition, position).
4. Record the water drunk and the feed given since the day before, at the same time.
5. Check the water (flow, cleanliness), the feeders, the litter around the drinkers.
6. Look at the droppings, eyes, breathing and legs.

Warning signs

- Water intake falling for no reason (no drop in heat), feed left uneaten.
- Birds huddled, feathers ruffled, eyes half closed, not getting up when you walk past.
- Abnormal droppings: blood, white, green or very watery diarrhoea in many birds.
- Noisy breathing, beak open at rest, watery eyes, swollen face.
- Nervous signs: twisted neck, trembling, paralysis, birds turning in circles.
- In laying hens: drop in laying, shell-less, misshapen or pale eggs.

Mortality: normal or abnormal

Period	Normal	Warning
First week	1 to 1.5% in total (journey, start-up)	More than 1% in a single day after day 1, or more than 2% in total at 7 days

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From week 2 to sale (broilers)	0.1 to 0.2% per day	More than 0.5% per day two days running, or a sudden peak
Whole flock (white broilers)	3 to 5% in total	More than 7%
Laying hens in lay	Less than 1% per month	More than 2% per month, or a drop in laying at the same time

These benchmarks assume good management. What matters is not having zero deaths, but spotting when the limit is exceeded on the same day. The percentage is calculated on the number of chicks received: 15 deaths out of 1,000 chicks = 1.5%.

> Tip: Water is the best alarm signal. A chicken drinks about twice what it eats, more when it is hot. A 10 to 15% drop in water intake, with no drop in temperature, often signals a problem a day before the first sick birds appear.

4. The main diseases

This table helps you recognise a warning sign and describe what you see accurately to the vet. It does not replace the vet's diagnosis: several diseases look alike, and only a visit, a post-mortem or a laboratory test can tell them apart. Treatment, where one exists, is always decided by the vet in your area.

Recognising the main diseases

Disease	Cause	Main signs	Prevention	What to do
Newcastle disease	Virus	Rapidly rising mortality, breathing difficulties, greenish diarrhoea, twisted neck, paralysis; sudden drop in laying	Vaccination as set by the vet, biosecurity	Isolate, call the vet immediately; notifiable disease
Gumboro (infectious bursal disease)	Very resistant virus	Around 3 to 6 weeks: prostrate birds, whitish diarrhoea, mortality that rises then falls within a week	Vaccination as set by the vet, thorough cleaning, long downtime	Isolate, call the vet; no treatment for the virus
Marek's disease	Virus (feather dust)	Mainly in birds over 6 weeks: paralysis of a leg or wing, weight loss, grey eye	Vaccination at the hatchery (NEXTEKCI brown layers), single-age farm, hygiene	Isolate sick birds, call the vet; no treatment
Infectious bronchitis	Virus	Sneezing, rattling; in laying hens, drop in laying, thin or misshapen shells, watery egg white	Vaccination as set by the vet, house environment	Call the vet; correct the environment
Mycoplasmosis (chronic respiratory disease)	Bacterium	Rattling, runny nose, swollen sinuses, flock that lags and grows poorly; worse with ammonia and dust	Biosecurity, dry litter, good ventilation, single-age farm	Call the vet: treatment only on prescription
Colibacillosis	Bacterium often present in the environment	Chicks with poorly healed or inflamed navels, flock breathing badly, lingering mortality	Clean water, hygiene at start-up, dry litter, good ventilation	Call the vet: treatment only on prescription

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Fowl cholera	Bacterium	Mainly adult birds: sudden deaths, purple or swollen comb and wattles, greenish diarrhoea	Rodent control, no other poultry on the site, biosecurity	Isolate, call the vet the same day
Fowl pox	Virus spread by mosquitoes and wounds	Scabs on the comb, wattles and around the eyes; sometimes yellow patches in the mouth and breathing difficulty	Mosquito control, vaccination as set by the vet	Call the vet; isolate the worst affected
Coccidiosis	Intestinal parasite	Around 3 to 6 weeks: bloody or orange droppings, huddled birds, wet litter	Dry litter, suitable feed, correct stocking density, downtime	Call the vet the same day (see chapter 5)
Avian influenza	Virus	Massive, sudden mortality, swollen or bluish head and comb, reddened legs, drop in laying	Strict biosecurity, no contact with wild birds or market poultry	Sell nothing, isolate, compulsory notification (see chapter 8)

Risks by season

Season	What changes	What to watch for
Rainy season	Humidity, wet litter, mosquitoes	Coccidiosis, fowl pox, mould in feed and litter
Harmattan	Cool nights, dust, dry air	Respiratory diseases; close the curtains at night
Hot dry season	Intense afternoon heat	Heat stroke in heavy birds, lower feed intake

Tip: For the vet, a fresh dead bird (from the same day, kept cool, never frozen) is worth more than the best description: a post-mortem shows lesions that cannot be seen from the outside.

5. Coccidiosis

Coccidiosis is caused by tiny parasites that multiply in the gut. Their eggs come out in the droppings and, in warm, damp litter, become infective within one to two days. The birds peck them up and the cycle starts again. It strikes mainly between 3 and 6 weeks of age, and wherever the litter is wet.

The signs, in the order they appear

- Drop in water and feed intake (the record sheet shows it first).
- Huddled birds, ruffled feathers, head drawn in.
- Soft droppings, then red, brown or orange, sometimes with blood.
- Mortality rising within a few days; flock becoming uneven.

Prevent and respond

Point	What to do
Litter	Dry and loose; remove wet patches around the drinkers; adjust drinker height
Feed	Ask your supplier whether the starter and grower feed contains an anticoccidial; add nothing without the vet's advice
Stocking density	Do not exceed the recommended density: fewer birds, fewer droppings per m²
Between flocks	All litter removed, full cleaning, downtime respected
At the first signs	Call the vet the same day: the vet confirms and decides on the treatment, its length and the withdrawal period before sale

Tip: The hand test: squeeze a handful of litter. It should stick together slightly, then crumble. If it stays in a ball, it is too wet: that is where coccidiosis builds up. Without dry litter, no treatment will hold.

6. Respiratory diseases

Poultry airways are fragile. Ammonia from wet litter, dust, cold draughts at night and overcrowding irritate them, and germs take advantage. The first step against any respiratory disease is therefore always to correct the environment in the house.

The main families

Family	Examples	What you see	What to do
Bacteria	Mycoplasmosis, coryza, colibacillosis	Rattling, runny nose, swollen face or eyes; slow progression	Diagnosis and treatment by the vet; withdrawal period respected
Viruses	Infectious bronchitis, Newcastle disease	Sneezing, rattling, sometimes nervous signs or a drop in laying; rapid spread	No antibiotic works against a virus; prevention through vaccination and biosecurity
Moulds	Aspergillosis (mouldy litter or feed)	Chicks breathing with beak open, neck stretched	Remove the source (litter, mouldy bag), ventilate, call the vet
Environment only	Ammonia, dust	Watery eyes, sneezing	Dry litter, ventilation, correct stocking density

Prevention

- Air flowing through the house, without blowing directly on young chicks.
- Dry litter; if ammonia stings your eyes or nose at bird height, it is already too strong.
- Curtains closed at night when the temperature falls, especially during the harmattan.
- Never use mouldy feed or litter.
- Correct stocking density, single-age farm.

Source: Cobb (Broiler Management Guide)

Tip: Listen at night: curtains closed, house quiet, stay still for five minutes. Rattling and sneezing can be heard before they can be seen. Film with sound for the vet.

7. Newcastle disease and Gumboro

These are two serious and common viral diseases. No medicine kills these viruses: only on-farm vaccination, decided by the vet, and biosecurity protect the flock.

Telling them apart

	Newcastle disease	Gumboro
Age most affected	All ages	Mainly 3 to 6 weeks
Signs	Respiratory, nervous (twisted neck, paralysis), greenish diarrhoea; in laying hens, drop in laying and abnormal eggs	Prostrate, trembling birds, whitish watery diarrhoea, soiled feathers around the vent
Course	Very fast; a large part of the flock can die within a few days	Mortality rises for 2 to 3 days, then falls within a week
After the disease	Farm to be monitored, neighbours to be warned	Survivors have weakened defences and catch other diseases more easily
The virus	Travels with birds, crates, shoes and visitors	Survives for months in the house and litter, resists many disinfectants

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Notification	Disease to be notified to the veterinary services	Reported to the vet, who advises on next steps

If you suspect them

- Isolate the house: nobody enters without changing boots and clothing.
- Call the vet immediately, with the record sheet, photos and a video.
- Do not sell or move any birds, alive or dead. Do not throw carcasses outside.
- Put nothing in the water "just in case": an antibiotic does not cure a virus and confuses the diagnosis.
- After the outbreak: full cleaning, a suitable disinfectant recommended by the vet, long downtime.

Brown laying chicks are vaccinated against Marek's disease at the hatchery (certificate on request). The other chicks (white broilers, red broilers, barred grey, hybrids, cockerels) receive no vaccine at the hatchery: vaccination is done on the farm, following the protocol of the vet in your area.

> Tip: A vaccine is alive and fragile: it is kept cold, between 2 and 8 °C, never in the sun, and an opened vial is used straight away. A vaccine that has been left in the heat no longer protects, and the farmer believes the flock is protected. The dates and method are set by the vet in your area.

8. Avian influenza

Avian influenza (bird flu) is a highly contagious viral disease. Its severe forms kill a large part of a house within one to two days. It spreads with wild birds, ducks and birds from live poultry markets. It can also infect humans.

Signs that should raise the alarm

- Massive, sudden mortality with no obvious cause.
- Very dull birds, swollen or bluish head, comb and wattles, reddened legs.
- Respiratory or nervous signs, diarrhoea.
- In laying hens, a sudden drop in laying.

What to do, in order

1. Close the house and the farm: nobody goes in or out, and no bird, egg, crate, bag or vehicle leaves the farm.
2. Call the vet in your area or the nearest veterinary services officer straight away.
3. Notify: it is compulsory. Notification protects your neighbours, and it is what makes you eligible for any government support.
4. Do not sell, give away or eat sick or dead birds.
5. Keep carcasses in closed bags, set apart, until the veterinary services decide what to do.
6. Then apply the measures decided by the veterinary services.

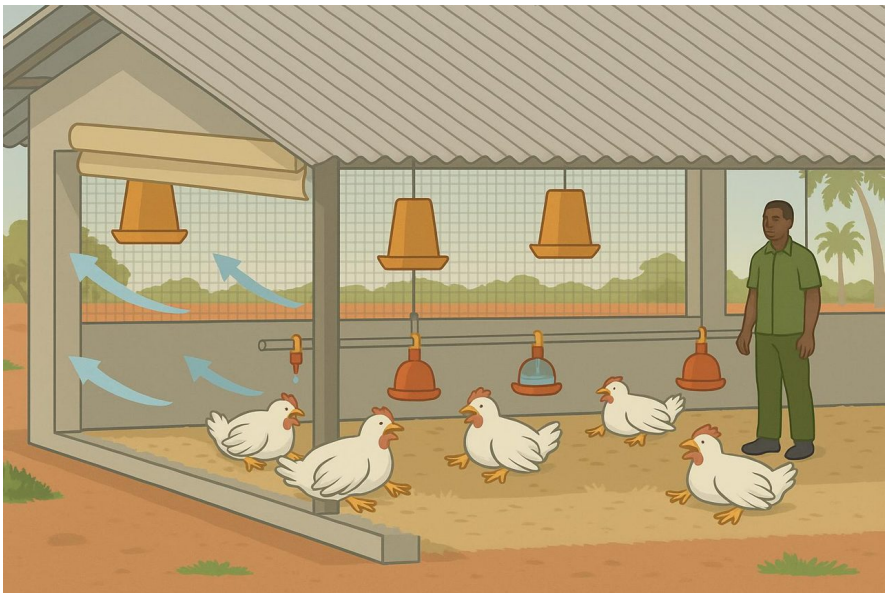
Protect yourself

- Gloves, mask and boots to handle sick or dead birds; wash your hands with soap afterwards.
- No children and no sick or vulnerable people in the house.
- If you develop a fever or cough after contact, go to a health centre and say that you work with poultry.

> Tip: Hiding avian influenza or selling sick birds endangers neighbours and consumers, and it is an offence. When outbreaks are reported in the country or in neighbouring countries, tighten every barrier: no visitors at all, vehicles disinfected, feed delivered to the farm entrance.

9. Heat stress

In Côte d'Ivoire, heat is one of the flock's worst enemies. Above 30 to 32 °C, especially when the air is humid, a chicken can no longer get rid of its body heat: it pants, eats less, drinks much more, and can then die of heat stroke. The most at risk are heavy birds at the end of the flock and overcrowded flocks.



Heat stress: open beaks, wings held out. Curtains open, fresh air at bird level, cool water. — NEXTEKCI illustration

The signs

- Beak open, rapid panting, wings held away from the body.
- Birds lying down, spread out, pressed against the walls or under the drinkers.
- Feed intake down, water intake doubling.
- Deaths in the afternoon, heavy birds found on their backs; in laying hens, thin shells and a drop in laying.

Temperature felt by a chicken over 28 days old

Temperature and humidity	Still air	Air at 1.1 m/s	Air at 2.5 m/s
35 °C, 50% humidity	35 °C	26.6 °C	22.2 °C
35 °C, 70% humidity	38.3 °C	30.5 °C	25 °C
32 °C, 70% humidity	35 °C	28.8 °C	23.3 °C
29 °C, 80% humidity	33.3 °C	28.8 °C	23.8 °C

Source: Cobb (Broiler Management Guide)

Diagram: Improved open-sided house: the heat stays under the roof and the air flows at bird level. (see it in colour at www.nextekci.com/en/school/guides/poultry-health-and-biosecurity) — After Cobb (Broiler Management Guide)

Act within the hour

- Cool water at all times: refill with water from a shaded tank, add drinkers.
- Open the curtains as low as possible, on both sides (after 14 days); use circulation fans to move air over the birds.
- Wet the metal roof; use misting only if the air is moving and not already very humid.
- Do not feed during the hottest hours: raise the feeders several hours beforehand, feed again in the evening and early morning.
- No weighing, no vaccination, no handling during the hottest hours.
- Walk slowly through the house: the birds get up, air flows and they go and drink.
- Any water supplement only on the vet's advice.

Source: Cobb (Broiler Management Guide)

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Tip: Prepare for the hot season before it arrives: fewer birds per m², a roof painted white or insulated, a shaded water tank, and heavy flocks sold a little earlier. Coloured chickens and naked-neck birds cope better with heat.

10. Parasites

Parasites rarely kill outright, but they slow growth, reduce laying and weaken birds against other diseases. They mainly affect birds that stay on the farm for a long time (laying hens, coloured chickens) and those that go out on a free-range run.

The most common parasites

Parasite	Where to see it	Signs	Prevention
Roundworms and tapeworms (gut)	In the droppings or in the gut at post-mortem	Weight loss, slow growth, drop in laying, dull feathers	Clean litter, rotating runs, control of the insects that carry them
Lice	At the base of feathers, under the wings and around the vent	Itching, damaged feathers, restless birds	Regular check of a few birds, no contact with backyard poultry
Red mites	Hidden by day in cracks, perches and nests; on the birds at night	Pale comb (anaemia), drop in laying, restless birds at night	Cleaning of cracks and perches, downtime
Sticktight fleas	Small dark dots attached to the comb, wattles and around the eyes	Irritation, scabs, weakened birds	Clean floor and surroundings, no dogs or backyard poultry
Scaly leg mites	Leg scales raised and thickened	Crusty legs, lameness in older birds	Hygiene, isolate affected birds
Darkling beetles (small black beetles)	In the litter and walls	Carry germs and certain worms	Insect treatment on the day the birds leave

Tip: Once a week, catch a few birds, part the feathers under the wings and around the vent, and look at the comb and legs. If you find parasites, the vet chooses the right product, the method and the withdrawal period before birds and eggs can be sold.

11. When and how to call the vet

Choose the vet in your area before the chicks arrive. The vet sets the vaccination protocol, makes the diagnosis, prescribes treatments and notifies serious diseases. Simple rule: if in doubt, call. A call for nothing costs a phone call; a late call can cost the flock.

When to call

Signal	Threshold	When to call
Mortality	More than 1% in one day in the first week; more than 0.5% per day two days running after that; any sudden peak	The same day
Water	Drop of 10 to 15% with no drop in heat	During the day
Nervous signs	Twisted neck, paralysis, trembling	Immediately
Droppings	Blood, white or green diarrhoea in many birds	The same day
Breathing	Rattling at night, swollen faces, beak open at rest in many birds	The same day
Laying	Drop of more than 5% in a week, abnormal eggs	Within 24 hours

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Massive, sudden mortality	Possible avian influenza	Immediately, with the farm closed

Preparing the call

- The record sheet: age, number of birds, deaths per day, water and feed, vaccines and treatments already given with their dates.
- Photos and a short video with sound: posture, droppings, eyes, breathing, litter.
- One or two birds that died that day, kept cool, never frozen.
- A sample of the feed in use and the label from the bag.
- What has changed recently: new feed, breakdown, storm, visitor, vaccine.

While waiting for the vet

- Isolate the house and separate the sickest birds.
- Cool, clean water at all times; correct the litter and ventilation.
- Put nothing in the water without advice: no antibiotic "while waiting", no product from a neighbour. It confuses the diagnosis and makes germs resistant.
- Do not sell or move any birds.

> Tip: Every medicine given on prescription has a withdrawal period: during that time, neither birds nor eggs are sold. Write the end date on the record sheet and respect it: it is about your customers' health and your farm's reputation.

A technical question? Send photos and videos to a NEXTEKCI adviser on WhatsApp: https://wa.me/2250544832779

12. The health record

The record is the flock's memory. It helps you spot a problem early, helps the vet make a diagnosis, ensures withdrawal periods are respected and shows, afterwards, what worked and what did not. A record posted at the house entrance and filled in every day is worth more than a perfect notebook filled in on Sundays.

What to record

When	What
Every day	Deaths and birds removed; feed given; water drunk; minimum and maximum temperatures; what you observed (droppings, breathing, behaviour)
Every week	Average weight of a sample of birds; condition of the litter
At each vaccination	Vaccine name, batch number, expiry date, date, time, number of birds, who gave it
At each treatment	Prescribed product, vet's prescription, start and end dates, end of the withdrawal period
At each delivery	Feed (supplier, type, date), keeping a sample; chicks (origin, date, number)
At each visit	Visitors' book: name, date, reason, last farm visited
Between flocks	Dates of cleaning, disinfection and downtime; any post-mortem results

Source: Cobb (Broiler Management Guide)

> Tip: Photograph the record sheet every evening with your phone: if there is a problem, you can send it to the vet straight away, even when you are not on the farm.

Go further with the NEXTEKCI Training health lessons: www.nextekci.com/en/school

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