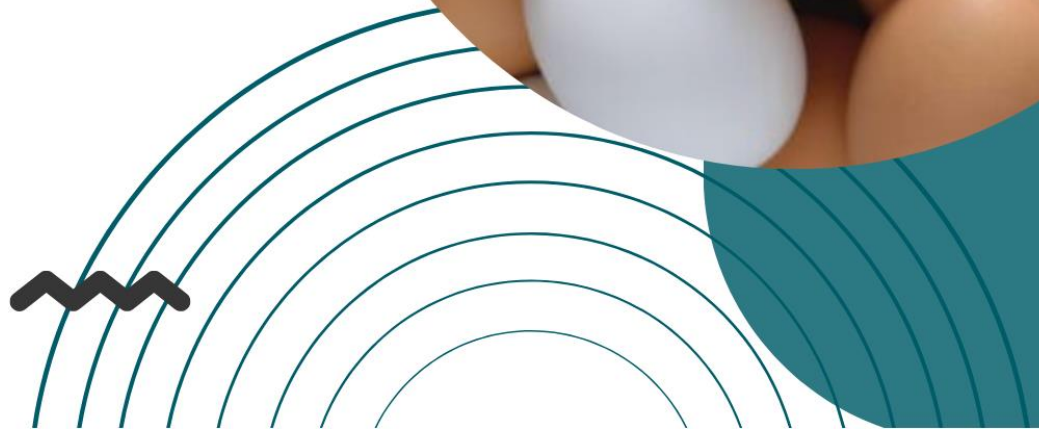
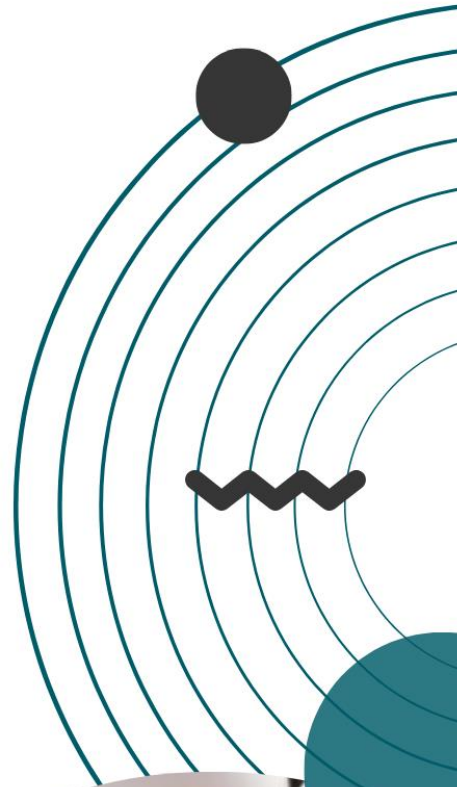




**international
egg foundation**

Production Manual

For Emerging
Commercial Egg
Producers



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About the Manual

This manual outlines fundamental guidance for emerging commercial egg producers managing egg production on medium sized layer farms (100-5000 layer birds) in tropical and subtropical regions.

This manual is not aimed at backyard egg production, although many principles within this document may apply. The information specifically covers commercial egg production and is not specific to poultry/meat/dual purpose production.



About the International Egg Foundation (IEF)

The IEF was established in 2014 by the International Egg Commission (IEC) to work as an independent charitable foundation. The IEF's ambition is to help implement the United Nations' Sustainable Development Goals (SDGs) and increase egg production and egg consumption in underdeveloped countries to provide undernourished infants, children and families with an independent, sustainable, high-quality protein supply. To achieve this, the IEF works alongside the world's largest and most effective charitable foundations and with the world's largest egg businesses to help ensure high-quality protein is accessible to everybody, no matter who they are or where they come from.

The IEF has created this manual to support emerging commercial egg producers (ECEPs) in achieving sustainable egg production.

The Importance of Biosecurity



- Biosecurity is the most important aspect of egg farming and must be considered in every aspect of farming operations.
- Measures to promote good on-site biosecurity can help to reduce the spread of pathogenic diseases such as avian influenza and reduce both the need for vaccination and the risks related to antimicrobial resistance.
- Farms must have good sanitation and sensible biosecurity systems to keep flocks healthy.
- Good biosecurity minimises the effect of infections, reduces the impact of disease and reduces the need for medical intervention. A farm with good biosecurity is likely to have good performance and good financial results.
- If a farm has poor biosecurity then disease and the need for medical intervention is very likely. Farms with poor biosecurity are likely to have poor long-term performance and financial results.



Site Selection

The farm's location will impact the ability to manage farming operations.

The site must be carefully selected to ensure the farm buildings promote successful long-term egg production.

- Good site selection promotes easy bird management and long-term business success.
- Poor site selection can make bird management difficult and may result in additional expenses and poor performance.

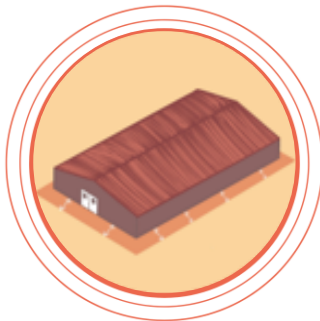
Good site location requirements include:

- Site must be positioned far from other birds;
- Site must be positioned far from other commercial farms;
- Site must have access to a clean water supply;
- Site must have access to an electricity supply (critical for proper control of lighting);
- Site must have well drained ground.

Site Selection

A good site must be able to facilitate:

- Controllable entry and exit access points;
- Installation of a security fence around the farm, fitted with a gate;
- Space for designated clean and dirty areas;
- Space to allow 5 metres clear ground around each building;
- Space to allow plenty of distance between each bird house (particularly if the site has birds from multiple age groups);
- Cement flooring inside buildings;
- 1 metre roof overhang around each building;
- Installation of pest bait stations.



Biosecurity risks and provisions for biosecurity measures must be considered when selecting the farm site. Consider that poor site selection may bring greater biosecurity hazards.

For example:

- **Poorly drained ground may increase the biosecurity risk by attracting pests.**
- **Lack of cleaning facilities results in cleaning and disinfection not being performed properly, increasing the biosecurity risk.**

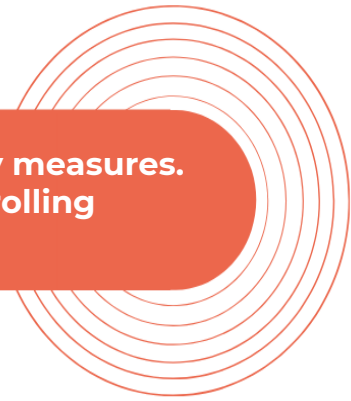


Building Infrastructure

Buildings that are designed and constructed well, aid bird management and promote good productivity.

Buildings represent a long-term investment (10 years +) and bird houses which are poorly designed/constructed can make bird management difficult and may result in inefficiencies and could lead to financial losses.

Farm buildings must be built to accommodate biosecurity measures. Buildings with good biosecurity facilities make controlling biosecurity risks practical and manageable.



Building capacity

- The building capacity of A frame and H frame housing systems must comply with the relevant manufacturer's recommendations.
- Building capacity for floor housing systems should allow 5-6 layers per metre².

Area in metre ²	Width (metre)	Length (metre)	Number of Birds
5	5	10	250
6	6	17	500
7	7	30	1000



Building Infrastructure

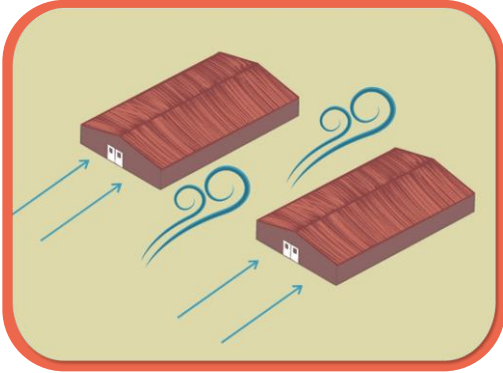
Housing should include

- Anteroom with full walls and the capacity for:
 - Foot baths at the entrance;
 - Clean and dirty clothes storage;
 - Showers and other cleaning and disinfection facilities;
 - Feed and equipment storage.
- Semi-open walls to encourage air circulation
 - Low walls (40/50 cm high);
 - Open sides covered with protective wire to prevent access to pests;
 - Shutters/material must be easy to roll up to manage natural ventilation and to limit direct sunlight.
- All openings should be covered with protective wire to prevent access to pests.
- Cement flooring to facilitate cleaning and disinfection.
- Building walls must be smooth to facilitate cleaning and disinfection.
- Any ventilation equipment must be easy to access and clean.
- 1 metre-width cement slabs around each building to facilitate cleaning of the surrounding areas.



Building Infrastructure

Housing orientation



- Position bird houses perpendicular (right angle crossing) to the prevailing winds (usually an east-west direction), to avoid direct sunlight and benefit from the prevailing winds for natural ventilation.
- In case of several buildings on the same farm, all buildings should have the same orientation, in a parallel position.

Roofing

- All roofing must allow a 1 metre roof overhang around the whole building.
- All roofing must be set at a 30% slope.

Thatch roof (2-3m high)

- ✓ Cool (good insulation)
- ✓ Cheaper
- ✗ Difficult to clean (holds disease)

Tin roof (make higher than 3m)

- ✓ Easy to clean/disinfect
- ✗ Limited insulation (hot)

To reduce heat transferred through the tin roof, add a layer of vegetation (straw or millet stems) on top of the metal sheets or build a false ceiling of plywood painted white.



Housing System

When choosing the housing system for the birds, economical, financial and productivity factors should all be considered.



Nest Boxes/Floor:
6 - 13 birds/m²

- ✓ Cheaper initial set-up
- ✗ Harder to remove manure
- ✗ Expensive to run
- ✗ Higher disease risk
- ✗ Dirty eggs



A Frame:
16 birds/m²

- ✗ Expensive to set up
- ✓ Good ventilation
- ✓ Cheap to run
- ✓ Easy to remove manure



H Frame cages:
± 20 birds/m²

- ✓ Cheap to run
- ✗ Expensive to set up
- ✗ Need to plan manure removal
- ✗ Need to plan ventilation well



Air System

Good air quality is a fundamental requirement to good bird health.

Bird housing must be set up to maintain good air quality, good air ventilation and good temperature control.

- Housing requirements to accommodate good air systems include:
 - Semi open building walls to encourage air circulation;
 - Position housing to allow winds to run through the buildings for natural ventilation;
 - Hang curtains/shade cloths on the sides of the building.
- Additional housing installations to control temperature/ventilation include:
 - Provide knapsack sprayers to mist chickens;
 - Install sprinklers to the roof and sides of buildings;
 - Install fans;
 - Backup/fail safe systems to support air system installations during electricity shortages.



Cleaning of ventilation systems is essential to ensure good biosecurity



Lighting System

Bird health and egg production is affected by the spectrum, intensity and duration of light.

Even simple lighting systems installed on the farm can be used to control bird health and egg production.

Housing installations for lighting management

- Install low watt bulbs for bright and evenly distributed light (you should have enough visibility to be able to read a book).
- Install shutters/black shades to control sunlight penetration.
- Ensure a backup energy supply is in place to support lighting system installations during electricity shortages.



Feeding Equipment

Feed is a fundamental aspect of bird health and egg production.

- Clean and effective feeding equipment is critical for feeding programmes.
- Bird houses must be set up with good quality and effective feeding equipment to ensure the birds are fed the appropriate nutrients for good bird health and egg quality.
- Feed is the largest single cost in egg farming. Feed storage must store the feed away from pests and feeding equipment must deliver the feed with minimal wastage.
- Consider that poor quality or handmade feeding equipment may cause wastage and higher costs in the long run.
- Feed attracts pests, therefore all feed must be stored and managed safely.

A frame and H frame housing systems use integrated feeding systems.

Feeding options for floor systems include:

- Manual feeding:
 - Hanging a circular funnel
- Automatic feeding:
 - Linear floor feeding station
 - Aerial feeding station using a silo
- Floor feeding equipment should be off the ground, low enough for birds to eat easily and high enough to avoid bird faeces.

	Number of feeders (18kg funnel)
Layers	3



Drinking Equipment

Access to clean drinking water is a fundamental aspect of good bird health.

- Bird houses must be set up with good quality and effective drinking equipment to ensure the birds are provided with clean water.
- Consider that poor quality or homemade drinking equipment may cause wastage and higher costs in the long run and may lead to poor egg production or egg quality.
- The water system must have capacity to accommodate increased drinking rates during high temperatures.

Water delivery set-up should include:

- Covered water tanks;
- Water tanks installed away from exposure to the sun;
- Concealed water pipes to deliver fresh water;
- Well insulated/buried water pipes to avoid water freezing or evaporating.

All water systems must prioritize biosecurity. Water attracts pests and water systems must be well managed and store water safely.



Drinking Equipment

A frame and H frame systems use integrated water equipment.

Floor drinking systems use the following equipment:

Manual drinkers:

- 100 birds = 1 drinker
- Set drinker height level with the bird's chest.

Bell drinkers:

- 100 birds = 1 drinker
- Set drinker height level with the bird's chest.

Nipple drinkers:

- 5 birds = 1 drinker
- Set drinker height level with the bird's chest.



Site Movement

Follow these steps to control movement on site:

- Limit movement of equipment and people.
- Track and record all inputs entering and exiting the site (people, vehicles, equipment, feed and birds).
- All vehicles should be left off site unless essential.

Cleaning and disinfection

- Any vehicles entering the site must be cleaned and disinfected.
- All inputs at the site gate/chicken house door must be cleaned/disinfected in external cleaning stations, using the appropriate method.
- Personnel must wash hands when entering site/bird houses.
- Use footbaths when entering/leaving houses.
- Personnel must wash hands and change into dedicated on-site clothing and footwear before entering the site/each bird house.



Personnel Management

All personnel on site are required to work according to site specific standard operating procedures which normally include:

- Maintain high levels of personal hygiene.
- Recognise potential infection indicators.
- Be prepared for emergency protocols.
- Keep no birds at home. Off site responsibilities also include avoiding bird hunting, bird shows, exhibitions and zoos at least 72 hours before entering the site.
- All staff must be provided with the appropriate training and briefing for their responsibilities.
- All personnel must sign a 'personnel declaration form' before entering the site.
- Declare to the employer if any of the responsibilities may have been breached.
- Wear clean on-site clothing and footwear.



On-site Clothing and Footwear

All personnel on site must use the following clothing and footwear:

- Hair nets;
- Farm-dedicated clothing/coveralls;
- Dedicated outdoor shoes;
- Low tread, durable rubber boots (barn work).

Ensure that all:

- On-site clothing and footwear must be separated for inside and outside work;
- On-site clothing and footwear must be regularly cleaned, disinfected and renewed;
- Off-site clothing should be stored in specific 'dirty areas' in the farm changing rooms and clean on-site clothing should be kept separately in a clean area.



Site Maintenance

The following site maintenance tasks should be included in the sites standard operating procedures and performed regularly:

- Walk around the perimeter fence daily, checking for problems.
- Ensure a 5-metre perimeter of ground is cleared around each bird house.
- Ensure no tall grass is present on site.
- Maintain cleaning and disinfection stations.
- Clean and restock footbaths.
- Clean and restock showers.
- Make sure barns are fully enclosed (including wired sides).
- Ensure no wild birds, insects or rodents are on site.



Waste Management

Waste must be managed appropriately to maintain good biosecurity on site.

Manure is not a waste product, it is a highly valuable fertiliser, with nutrients to aid crop growth.

Litter/manure management

- Litter management for floor systems:
 - Use litter that is absorbent and not dusty.
 - Good litter materials include: chopped straw, nut shells, sugar cane residue, rice husks or waste paper.
 - Disinfect litter before use (if possible).
 - Regularly add to the litter (at the end of the cycle, the litter may reach 20-35 cm in thickness).
- Manure management for A frames and H frames:
 - Remove manure at least 2 times a week.

Dead bird management

- Dead birds must be removed from the bird houses as soon as possible.
- Keep dead birds in sealed containers in a dedicated area of the site before disposing of them in the appropriate manner, for example either buried or burned.

Waste is a threat to biosecurity as it attracts pests and may carry infection/disease. Waste must be separated from the birds as soon as possible. Waste must never be left in the bird house between cycles.

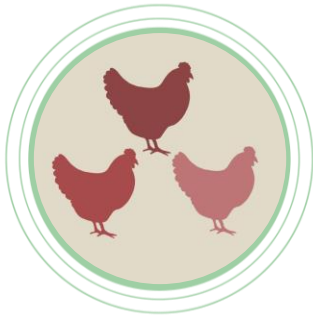


Feed Management

Birds must be provided with the appropriate feed/nutrients to promote good bird health and high egg yield.

Feed/nutrients requirements are influenced by:

- Breed of bird;
- Bird body weight;
- Ambient temperature of bird housing.



Good quality feed must:

- Be dry, not damp;
- Have a good smell;
- Have good even size;
- Be stored in a cool dry place out of direct sunlight.

When feed particles are very small in size:

- Birds are not able to consume enough nutrients if the particles are too small and difficult to eat.
- Small particles make the bird house dusty.

When feed particles are too big:

- Birds only eat the smaller particles they are able to consume. If feed consumption is reduced the birds may not get the nutrients they require.



Feed Management

Feed assessment

- Regularly assess bird health and behaviour to check feed is providing a balanced and healthy diet.
- Track and record feed consumption daily. Consider that a decrease in feed consumption may be an indicator of illness onset.
- Weigh a 2% sample of your birds weekly. Weigh the same birds each time if possible.
- Use a breeder performance table to measure body weight according to the variety standard:
 - If bird weight is above the variety standard – decrease feed (overweight birds – stop laying and become aggressive).
 - If bird weight is below the variety standard – increase feed (underweight birds – stop laying/eggs become smaller).

Managing feed deliveries

- Store samples from each new food batch.
- Introduce food gradually when using new food suppliers.

Feed can attract pests and carry disease. Store feed in secure dry storage, away from pests and always clean up any spillages immediately.



Feed Management

Feed quantity

- Feed each bird between 100-125g of feed each day.
- Comply with the feed supplier recommendations for specific feed quantities.
- When temperature decreases, increase food quantities:
 - 20°C + 4g per bird per day
 - 19°C + 8g per bird per day
 - 18°C + 12g per bird per day
 - 17°C + 16g per bird per day

Feed nutrients

Energy (found in maize)

- Low energy = Small eggs.
- High energy = Fat birds, reduced egg yield and high bird mortality.

Protein (found in soya)

- Low protein = Reduced egg yield.

Roughage (found in maize and soya)

- Quantities of roughage affect particle size (influencing feed intake).

Vitamins and minerals (added to feed)

- Lack of calcium/phosphorous may result in:
 - Bird's legs turn weak/red;
 - Bird's beaks turn red;
 - Decrease in bird's energy levels;
 - Bird's chest bone twists;
 - Weak egg shells;
 - Increase in egg peritonitis.
- Lack of vitamin D may result in:
 - Aggressive bird behaviour;
 - Bird's feathers fall out.



Water Management

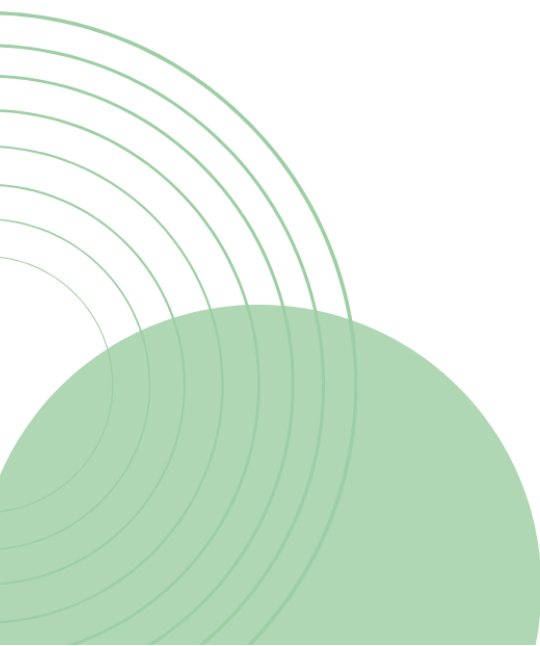
Birds must be provided with a continuous supply of clean water to promote good bird health and a high egg yield.

Provide water that:

- Is clean;
- Has a cool temperature;
- Has a pH between 5-7.

Water quality

- Only provide birds with water that is fit for human consumption.
- Regularly check water quality.
- Regularly check pipe line/water supply flow.
- Poor water quality = poor gut health = fewer eggs.
- Water from a bore hole/well is preferred over water from an open source e.g. dam.





Water Management

Water consumption rates depend on:

- Water quality/taste of water;
- Type of drinkers;
- Temperature and humidity inside bird housing;
- Feed intake/quality;
- Age of bird;
- Breed of bird.

Water quantity

- Provide 240ml of water for every 120g of feed.
- Increase water quantity when temperatures rise.
- Regularly check drinker heights.

Bird age (weeks)	Number of litres 100 birds will consume (when house temperature is between 21-27 °C)
16 - 18	11 – 18 litres
19 - 22	13 – 21 litres
23 +	15 – 23 litres

Water can attract pests and carry disease. Ensure that the water is clean and covered and stored away from pests.



Air Management



Temperature

- Ensure the temperature of the bird house always measures between 18 - 25°C.

To cool the house:

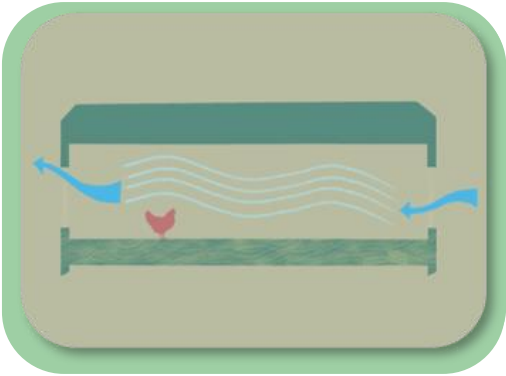
- Place shade cloths on the sides of bird housing (if applicable).
- Mist birds with knapsack sprayer (if applicable).
- Use sprinklers on housing roof/sides (if applicable).

To warm the house:

- Draw curtains/close shutters (if applicable).



Air Management



Ventilation

- Ventilation is an important factor in keeping the birds healthy.
- Air movement = ventilation.
- Good ventilation relies on good air management.

Ventilation must:

- Remove dust;
- Remove carbon dioxide;
- Circulate oxygen;
- Remove moisture;
- Remove ammonia.

To ventilate the house:

- Open/roll up curtains (if applicable);
- Turn on fans (if applicable).



Light Management

The hours of light and dark can affect bird productivity.

Lighting programmes must:



- Provide 16 hours of light per day.



- Evenly distribute bright light (you should have enough visibility to be able to read a book).



Point of Lay General Requirements

We recommend having only one age of birds on site to control biosecurity and break disease cycles.

Before purchasing the birds ensure:

- The birds come from a good quality, reliable supplier;
- The bird's average weight meets the breed target with little variation from the average;
- The birds are vaccinated appropriately according to the region/local legislation.

Breed selection

When choosing the layer breed, consider the following factors:

- Housing system;
- Farm location/region;
- Egg laying potential (number of eggs per year);
- Feed conversion rates;
- Liveability/mortality rates;
- Availability of genetics;
- Availability of technical support for the breed in the local area.



Bird Health

Health management is the optimised way to reach profit by reducing loss of birds and increasing the conversion of feed into growth and egg production.

The first step to maintaining good bird health is to have good biosecurity on farms to protect birds from illness and disease.

Important elements of good biosecurity include:

- Cleaning of buildings and equipment at least 2 weeks before new birds arrive;
 - Controlled/recorded site movement;
 - Pest control;
- Appropriate use of on-site clothing and footwear;
- Cleaning and disinfection of everything entering/exiting each bird house;
 - Appropriate fast disposal of all carcasses.



Bird Health

Vaccination

The second step to maintaining good bird health is through prevention of infection through vaccination.

Perform vaccination programmes according to local legislation and requirements.

Whilst vaccines can be extremely useful measures, vaccines must be managed correctly.

Vaccination programmes must:

- Transport and store the vaccine according to the product manufacturing guidelines (usually in a cool place away from direct sunlight);
- Ensure the vaccine is administered by a trained professional in the correct dosage, according to the product manufacturing guidelines;
- The equipment used to administer the vaccine must be clean and sterile (e.g. clean water lines, clean sprayer);
- Vaccinate birds in the early morning to avoid stress.



Bird Health

Bird Health Checks

- Weigh a sample of birds twice weekly.
- Perform regular inspections to ensure birds are healthy.
- When inspecting the birds check for:
 - Cannibalistic behaviour;
 - Poor laying performances;
 - Injuries/mortalities.
- Take appropriate action when an unhealthy bird is identified.



Disease outbreak

If a disease outbreak is suspected:

- Separate the sick birds;
- Remove and dispose of the dead birds;
- Record the number of sick/dead birds and flock behaviours/symptoms;
- Seek veterinary advice.

Unusually high mortality rates and significant disease outbreaks must be reported to the competent veterinary authority.



Bird Health

Use the following bird health table to identify and treat bird health problems:

<u>Threat</u>	<u>Symptoms</u>	<u>Causes</u>	<u>Treatment</u>
Bacteria	Green droppings Stopped laying Post-mortem: green spots in liver and lungs	Bacteria	Antibiotics
Stress	Comb turns purple Cannibalism Aggression	Heat Lack of nutrients Shortage of water	Cold water Increase nutrient intake – night feeding Try a different feed Stress mix
Fatty liver	White body and pale comb Hard to see blood vessels Post-mortem: liver covered with fat	Bird too fat Unbalanced diet	Reduce feed
Egg-bound chicken (can lead to peritonitis)	Bird looks depressed Bird eating and drinking less Fluffed up feathers Eggs change colour	Dehydration Weak shells	Calcium grit Give supplement Cold water



Cleaning and Disinfection

Allow 2 weeks down time in between flocks and perform the appropriate cleaning and disinfection procedure to reduce the spread of infection and disease from one flock to the next.

Cleaning and disinfection procedures in between flocks should include:

- Remove feed and manure before cleaning.
- Clean away all organic matter.
- Wash house from top to bottom.
- Expose as much equipment to direct sunlight as possible.
- Dry house thoroughly.
- Spray disinfectant.
- Flush and sanitise water lines.



Pest Control

Pests, including insects and animals can carry diseases and spread infections into bird houses. Pests are a significant biosecurity risk and must be controlled.

Pest control on site must:

- Ensure the outside farm area is kept clean;
- Ensure there is no vegetation within 5 metres of each bird house;
- Ensure pests do not have access to bird feed, water or shelters;
- Ensure there are no gaps in the building walls/roof/ventilation etc;
- Install pest control stations in the outside farm area, feed storage and egg storeroom. Pest control stations must be regularly inspected and restocked;
- Staff must regularly inspect the farm and the surroundings, tracing and identifying where pests may be present.



Record Keeping

Bird health and performance must always be recorded and stored on site in logbooks.

Take records of:

- Daily mortalities;
- Total cumulative mortalities from day one;
- Daily stock balance;
- Daily total eggs picked;
- Daily total breakages;
- Lay rate;
- Disease outbreaks;
- Treatments/vaccinations given.

Take a weekly record of:

- Total % mortalities from day of placing;
- Weekly lay rate;
- Average egg weight;
- Average bird body weight.



Egg Collection

Egg collection

- Wash hands/apply sanitiser before egg collection.
- Collect eggs frequently, either manually or mechanically (depending on housing method).
- Handle eggs carefully to avoid shell cracking etc.
- Collect clean eggs first before collecting dirty/broken eggs.
- Record the number of eggs collected.





Egg Grading

Egg grading

Eggs must be sorted and classified to ensure only good eggs are sold for human consumption.

- A good egg has a strong, clean eggshell.
- Remove eggs with:
 - Shape imperfections;
 - Broken shells;
 - Dirty shells;
 - Poor/weak shells;
 - Excessively large size;
 - Eggs that are leaking;
 - Shells with sweat.
- Dispose of unsuitable eggs appropriately, using either:
 - Mortality pit;
 - Incineration;
 - Composting.

Some eggs with faults may still be suitable for human consumption and may be sold in a local market.



Egg Storage

When storing eggs:

- Only store clean eggs.
- Handle and store eggs carefully to preserve quality and prevent breakages.
- Do not store eggs on the floor.
- Store egg boxes on pallets.
- Minimise egg storage time as much as possible.
- Store eggs in an order that allows older eggs to be used/sold first.

Storage rooms must:

- Be secure and pest proof;
- Away from direct sunlight;
- Away from strong smelling materials/chemicals;
- Have a cool dry atmosphere;
- Be well ventilated;
- Egg storage facilities must be regularly cleaned.

Eggs stored in dirty environments pose a biosecurity threat and may become covered in germs and mould.



Egg Distribution

Eggs must be transported safely to maintain quality. Consider that if the drivers/passengers are being bounced around on the drive to the farm, so are the eggs.

The smaller the number of broken eggs, the higher the number of saleable eggs and the greater the profit.

When transporting eggs:

- Do not over stack the boxes - only stack egg boxes a maximum of 6 flats high.
- If it is hot outside, transport eggs at night.

Transport facilities must:

- Have good air ventilation reaching all eggs.
- Have built-in shelves allowing the egg slats to be securely stacked.

Glossary

Air quality	Air quality is a measure of how clean or polluted the air is.
Air ventilation	The circulation of clean air.
Anteroom	A room at the entrance of a bird house with cleaning and disinfection facilities to be used before entering the main bird house.
Antimicrobial resistance	Antimicrobial resistance occurs when an animal builds up resistance to medications that are used to cure infections, disease, and illness.
Backyard egg production	Small scale egg production in a non-commercial set-up.
Biosecurity	Biosecurity is the control measures used to prevent disease entering or leaving any place where it can pose a risk to farm animals, other animals, humans, or the safety and quality of a food product.
Commercial egg production	Egg production set up in a commercial manner to generate income.
Egg consumption	The eating of eggs.
Egg production	Egg farming.
Egg yield	The number of eggs produced.
Emergency protocols	A document which details the procedures used to deal with an emergency.
Emerging Commercial Egg Producers	Farmers managing small to medium egg farms (100 - 5000 layer birds).
Fundamental aspect	Something of key importance.

Glossary

Grading	Egg classification determined by size and quality.
Hygiene	The conditions and/or practices that help to maintain health and prevent the spread of disease.
Insulation	Material used to reduce the transfer of heat and/or sound between spaces.
Layers	Female chickens bred specifically for egg production.
Maintenance	The regular upkeep of something. This can be related to equipment, farm buildings and the farm site and its surroundings.
Medical intervention	A medical treatment, procedure or other action taken to prevent or treat disease or improve health outcomes.
Pathogenic diseases	Viruses or diseases that are typically contagious.
Point of lay	Layer hens which have matured to the stage where they start to lay eggs. Point of lay is normally reached at 16 - 20 weeks old.
Potential infection indicators	Any signs that may suggest infection, disease, or poor health.
Sanitation	The process of making something clean, typically using disinfection.
Standard operating procedures (SOPs)	The method that is put in place for key processes on the farm.
Vaccination	Medical treatment using a vaccine to produce immunity/protection against a disease or illness.



With thanks to

Ebenezer Trust

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