Ministry of Planning, Agriculture, Housing, Infrastructure, Transport & Development

Cayman Islands Government

Cayman Islands Poultry Standards

Layer Operations

Ministry of Planning,
Agriculture, Housing,
Infrastructure, Transport
& Development
Cayman Islands Government

Cayman Islands Poultry Standards

Layer Operations

Version 1.4

Mission Statement

To advance the sustainable development of the local egg sector that will produce high-quality sale eggs to meet the demand of the people of the Cayman Islands through the introduction of food safety, quality and environmental standards.

Aiming to promote consumer confidence and consumption contributing to the success of all local egg farmers and the enhancement of the Cayman Islands food and nutrition security.

Committees

The Committees below list the persons who have contributed to the development of this document.

The signatures below certify that this **Layer Operation Standards Manual** has been reviewed and accepted. It demonstrates that the signatory is aware of all the requirements contained herein, and is committed to ensuring their provision.

Technical Committee

Demoy Nash
Senior Policy Advisor, Ministry of Planning, Agriculture, Housing and Infrastructure

Rudy Myles
Member, Cayman Islands Agriculture Society / Caribbean Poultry Association

Joel Victorine
Environmental Health Officer, Department of Environment Health

Ashli Welcome
Veterinary Officer, Department of Agriculture

Daniel Palcu
NEST Officer, Department of Agriculture

Advisory Committee

Brian Crichlow
Director, Department of Agriculture (Acting)

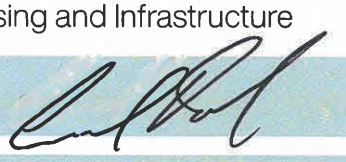
George Smith
President, Cayman Islands Agriculture Society

Leyda Nicholson-Makasare
Deputy Chief Officer, Ministry of Planning, Agriculture, Housing and Infrastructure

Approved By

Hon. Johany Ebanks
Minister, Ministry of Planning, Agriculture, Housing and Infrastructure

Eric Bush
Chief Officer, Ministry of Planning, Agriculture, Housing and Infrastructure



Contents

Mission Statement 2

Committees 3

Introduction 6

Scope 6

Definitions 7

1. General Farm Management 8
   - Location
   - Farm Plan
   - Bio-security
   - Farm Type
   - Performance Objectives
   - Animal Welfare and Care Statement
   - Risk Management Plan
   - Complaints and Investigations
   - Competence and Training
   - Monitoring and Reporting
   - Records

2. Sourcing of Birds 16
   - Accredited Sources
   - Ordering
   - Transportation

3. Rearing Period 17
   - Readiness for D.O.C. Arrival
   - General Placement Practices
   - Housing and Environment
   - Ventilation and Temperature Control
     - Key Period 1 - Additional Specific Requirements
   - Feed and Water
     - Key Period 1 - 1 Day to 4 Weeks
     - Key Period 2 - 5 to 16 Weeks
   - Lighting Requirements
   - Litter
   - Transfer to the Next Stage

4. Productive Period - Laying Hens 23
   - Readiness for Pullets Arrival
   - General Placement Practices
   - Housing and Environment
     - Veranda
     - Outdoor
   - Ventilation and Temperature Control
   - Feed and Water
   - Lighting Requirements
   - Nest Boxes and Nest Management
   - Coop Management - Perches
   - Environment Enrichment
   - Litter
   - Veranda - Additional Specific Requirements

5. Nutrition 31
   - Feed Management

6. Health 32
   - Veterinary Health Plan
   - Health Records
   - Medicines
   - Management of Injurious Pecking
   - Induced Moulting

7. Bird Population Management 34
   - Bird Losses
   - On-Farm Euthanasia
   - Bird Handling and Catching
   - Slaughtering
     - On-Farm Euthanasia
     - Stunning
     - Bleeding Out
   - Records

Contents (continued)

8. Egg Handling and Sanitising..... 36
Facility
Collection
Sanitising
Storage

9. Egg Grading, Sorting, and Sizing 39

10.Egg Distribution and Commercialisation ... 40
Marketing - Seal and Logo
Sizing / Grading Eggs

References 42

Appendices

Appendix A 43
Performance Indicators

Appendix B..... 50
Indicative Document Outlines
- Performance Objectives Report
- Risk Management Plan
- Animal Welfare and Care Statement
- Veterinary Health Plan
- Complaints and Investigations
- Competence Assessment

Appendix C.....65
Monitoring Templates
- Climate Record
- Observations Log
- Bodyweight Records
- Production Record
- Disease/Health Records

Introduction

The Cayman Islands Poultry Standards Layer Operation (CIPS-LO) establishes the approved standards for local egg operation in the Cayman Islands. The standards are government-supported and include:

- Production standards that are geared to increase egg production.
- Environment and animal welfare standards to comply with the relevant Cayman Islands legislation including, but not limited to, Public Health Act, Animal Act, Veterinary Act and Planning Act. This is to promote the security and safety of the birds, and offer buyers and consumers a higher quality and safer product.
- Marketing standards that offer greater access to markets for local eggs, increase traceability, and more information to the consumer.

The standards are in line with international standards and best practices. It presents a comprehensive guide to provide:

- Caring and responsible planning and management for overall operation.
- Skilled, knowledgeable keeping of the birds.
- Appropriate environmental design.
- Considerate handling and transport.
- Proper culling and humane slaughter techniques.
- Safe production of table eggs with increased information on packages for customers.

The list of standards herein applies to layer hens that are reared in the non-caging housing system in the Cayman Islands. It outlines a provision for the various stages of growth of the birds with consideration given to how they are sourced locally.

The standards are attainable and it is expected that all indoor, outdoor, and semi-indoor systems are to comply to receive certification for their operation.

All local egg producers are responsible for ensuring that the operations meet the standards. The buyers of local table eggs should use the standards as a means of assurance of the quality and safety of the local product.

Scope

This (CIPS-LO) is intended to provide egg producers with guidelines to perform the various criteria stipulated under the approved standards at their local farms to obtain certification.

Definitions

"Ad libitum" Feeding – feed is available for animals at all times, at discretion.

Adult Hen – a laying bird that has the appropriate body weight according to the breed standard, and its reproductive system is fully developed allowing the animal to produce eggs (with the first egg laid around 17-20 weeks of age).

Air Cell Depth – the depth of the air cell is the distance from its top to its bottom when the egg is held with the air cell up.

"All in–all out" System – refers to the placement and removal of the layer birds in/from a farm unit. The processes should be done for 100% of the flock.

Brooders – consist usually of a heat source (infrared heat lamp) and a brooder guard. The purpose is to keep chickens warm during the first 3 weeks after hatch.

Brooding – refers to the period of the growing chicks when the birds are kept under a brooder, usually up to 21 days (3 weeks).

Candling – refers to the process of candling when an egg candler is used to determine the condition of the air cell, yolk, and white. Candling detects bloody whites, blood spots, or meat spots.

CIPS-LO – Cayman Islands Poultry Standards – Layer Operation.

DoA – Department of Agriculture.

Day-old Chicks (D.O.C.) – refers to brooding chicks under the age of 72 hours.

Egg Candler – an instrument that uses a beam of bright light and channels the light into the egg during candling.

Internal Inclusions –refer to the presence of a foreign body or other contaminants within an egg, such as a meat spot or blood spot.

Layer Birds – are birds primarily engaged in table egg production, whether day-old chicks, pullets, or adult hens in the full production cycle.

Major Event – is a case of acute onset of illness or death of 10% or more of any given flock within less than 2 weeks.

Mechanical Ventilation Systems – refers to the use of extraction fans to manage air exchange. Stirring fans may be used in each system to assist with air movement within the laying facility.

National Egg Strategy Officer – an employee of the Cayman Islands Government, Department of Agriculture, that will provide technical and extension services to the farmers to enable these to meet the requirements of the CIPS-LO.

Natural Ventilation Systems – refers to the use of natural airflow to manage air exchange.

Nest Space – a minimum of one nest box for five hens.

Performance Indicators (KPIs) – the monitored parameters which measure the efficiency and productivity of the operation (e.g. bodyweight, feed conversion ratio (FCR), mortality rate, egg production, uniformity, feed intake, water consumption, and disease incidence). Based on the KPIs, producers can identify areas of improvement.

Pullet – a young layer bird (younger than 17 weeks) with an immature reproductive system that does not allow her to produce eggs. Once matured they will be transferred to the laying house facility.

Record – a document kept of certain aspects of the production system including, but not limited to, bird body weight, feed and water consumption, indoor/outdoor temperature, mortality, egg production, and health/medication. This can be kept manually or electronically where possible.

Veranda – an addition to the laying facility which provides birds with a roofed area in which to forage and dust bathe.

Veterinarian – an individual with active registration to practice veterinary medicine within the Cayman Islands as provided for under the Veterinary Act.

Veterinary Health Plan (VHP) – is a list of practices to implement to maintain the birds' health and safety.

1. General Farm Management

1.1 For any new and/or existing layer operations, the Cayman Islands land governing regulations (Development and Planning Act), environmental restrictions (Public Health Act) as well as animal health and welfare guidance (Animal Act, Veterinary Act) must be considered together with all regulations relevant to the poultry industry.

1.2 Ideally, each production period should be managed as a separate flock, following the principle of "All in – All out".

1.3 For better efficiency, it is recommended to have specialised farm unit (either rearing or laying) at the choice of the producer, otherwise, one rearing unit and three separate laying units will provide a robust operation setting.

1.4 In both rearing and laying units, it is recommended to have birds of the same age provided by the same supplier.

Location

1.5 The layer poultry farm should be located as far as possible from other poultry farms.

1.6 The farm should be kept clean and in an acceptable appearance to the public including the buildings and the entrances to the farm.

1.7 The farm should be enclosed within a fenced perimeter to control access.

Farm Plan

1.8 A farm plan should be produced and be available for all staff and visitors alike, if required.

1.9 The plan should present the following mandatory information:

a. Location plan of the farm in the area, including the coordinates or alternative geolocation information (for example the What3words app or similar) for emergency services, nearby roads, and other nearby poultry farms.

b. Position and size of the farm's units and their auxiliary areas (e.g. outdoor or veranda).

c. Location of other facilities of the farm such as feed storage area, egg room, etc., and their purposes.

d. Fencing and access points to the units.

e. Location of first aid box.

f. Location of fire extinguishers (if any).

g. Location of water supply connection. If borehole owned, then the coordinates are to be provided. If there is a connection to the main, public water supply, the connection points are to be confirmed.

h. Location of bio-security area.

i. Emergency evacuation route from the farm.

1.10 Optional information which can be shown on the plan is as follows:

a. Water sources available for firefighting.

b. Neighbouring water wells or boreholes – information useful in case of contamination.

c. Any sources of high pollution in all mediums (soil, water, air).

d. Parking area, trafficked area.

e. Pedestrian routes/walkways.

f. Landscaping (type of vegetation).

Bio-security

1.11 The main objective of bio-security is to prevent infectious diseases from affecting healthy flocks.

1.12 There are multiple ways of implementing a bio-security plan, however, the most essential requirements are the following:

a. **Visitor control** – limit access to multiple units or different poultry farms; limit access to the farm in general, and ideally, visitors should follow a quarantine period before visiting the farm; all visitors and the date and time of their visit should be registered in the visitor record log.

b. **Hygiene control** – all visitors must wear single-use personal protective equipment (PPE) during their visits; all farm staff must wear farm-specific PPE; facilitate access to a changing room if either the number of visitors or of employees is significant; implement disinfectant foot baths and wheel baths at the entry into the bio secure areas.

c. **Wild animals control** – establish, maintain, and monitor rodent and insect control, install bird nets to prevent access of the wild birds, and include a buried barrier around the enclosure to prevent underground access.

1.13 In general, bio-security protection is reinforced by regular hygiene controls, strict visitor management and good sanitation on site.

1.14 The bio-security areas should be defined before the new flocks are placed in their relevant development units.

1.15 Foot baths and wheel baths should contain disinfectants suggested by DoA and these should be changed regularly.

1.16 Before the arrival of a new flock, a thorough check should be undertaken of all elements set up to ensure a high level of bio-security.

1.17 To ensure efficient control of vermin, no vegetation should be allowed near the wall of the egg-producing units.

1.18 As part of the general farm maintenance checks carried out monthly, the assessor should also record also any new confirmed or potential infestation on the farm premises.

1.19 All substances which are used to deter any infestation or used for sanitation purposes should be recorded, and they should be selected as non-toxic for the birds or any of the farm staff during the application or afterward.

Farm Type

1.20 This standard has been mainly prepared for naturally ventilated, enclosed floor rearing and laying systems.

1.21 Optional alternatives such as added veranda and outdoor areas are included in this standard. The specific requirements are specified for each of these options.

Performance Objectives

1.22 Good overall farm management is confirmed by meeting a set of performance objectives (indicators) which should be predefined based on: the breed of the birds, specific farm conditions and settings, as well as individual strategies adopted for feeding, watering, housing etc.

1.23 The performance objectives should be specific for each development period of the bird and these should be recorded as such.

1.24 For the Rearing **Key Period 1** (birds age between D.O.C – 4 weeks), the main performance indicators to be achieved are:

a. Constant growth to reach expected body weight at 4 weeks of age.

b. Good bodyweight uniformity from the beginning.

c. Negligible mortality.

1.25 For the Rearing **Key Period 2** (birds' age between 5 weeks to 16 (18) weeks), the main performance indicators are:

a. Reach the recommended weight at 5% production.

b. To establish a good feeding behaviour pattern.

c. To develop a well digestive tract (crop and gizzard).

d. To obtain a good bodyweight uniformity of at least 80%.

1.26 For the **Production Period,** the main performance objectives are:

a. Egg production within the range of the performance targets defined by the breeder's standard or agreed with the NEST Committee.

b. Achieve the high peak of egg production as indicated in the breeder's performance standard or agreed with the NEST Committee.

c. The revenue obtained from the production process of the layer operation should exceed the running costs of the entire operation. The profit will ensure sustainable poultry production as well as provide support for resilient future development of the operation.

Animal Welfare and Care Statement

1.27 Producers must draw up and comply with an animal welfare and care statement.

1.28 **The Animal Welfare and Care Statement** must specify general management and standard operating procedures as relevant to the egg-laying facility, including, but not limited to:

a. Sourcing and placement of birds.

b. Housing and environment.

c. Feeding and watering.

d. Veranda and outdoor area, where relevant.

e. Maintaining stocking density.

f. Bird observation.

g. Humane euthanasia/culling.

h. Depopulation.

1.29 The current animal welfare and care statement must be provided to the NEST Advisory Committee and be available at the time of an assessment.

1.30 The animal welfare and care statement must be reviewed on an annual basis.

Risk Management Plan

1.31 It is recommended that each egg-producing facility has a plan for effectively managing emergencies. The emergency may include:

a. Extreme weather including flooding.

b. Disease outbreaks.

c. Fire.

d. Feed, water supply, and electricity shortages.

e. Equipment failure.

1.32 The plan should contain a list of emergency contact details for each type of emergency identified.

1.33 The list of emergency contact details should be printed and positioned in a visible, easily accessible location, potentially on the evacuation route, if that is defined, so that any person present on the premises during the incident is informed.

Complaints and Investigations

1.34 A procedure should be defined for each egg-producing facility to address potential complaints and record the investigation outputs.

1.35 All the complaints raised by any of the neighbours, the general public, customers, suppliers, service providers, or centres of egg commercialisation (e.g. supermarkets or markets) must be recorded as soon as the complaint has been raised.

1.36 All complaints must be addressed within a maximum of 2 weeks from the date of being raised. However, if one complaint is likely to highlight an issue that puts people's health at risk, impacts the environment or affects other egg producers, this should be considered high importance, and as such, be addressed urgently, within less than 24 hours.

1.37 If any of the complaint raised is deemed to be considered of high importance, the Poultry NEST officer and the DoA veterinary officer (if necessary) should be alerted as soon as possible to provide support. Complaints should likely also be referred to the Department of Environmental Health in the event that the complaint pertains to food safety/hygiene, food quality, and/or environmental concerns related to the housing of poultry on site (malodorous content, rodents, etc.)

1.38 All complaints should be investigated and a root cause analysis should be undertaken. This will determine the cause, how the incident can be avoided in the future, and what the mitigation measures to be put in place are. This will ensure that the corrective action is implemented as soon as possible.

1.39 The complaint records should include:

a. Date when the complaint was filed/raised.

b. Originator of the complaint.

c. Description of the complaint.

d. Criticality of the complaint.

e. Root cause analysis.

f. Mitigation measure.

g. Status and date of closure.

Competence and Training

1.40 Persons responsible for the management and/or handling of birds must be appropriately trained and competent in their required tasks, including:

a. Handling and catching of birds

b. Inspection of birds and laying facility environment

c. Maintaining laying facility environment

d. Identification of normal and abnormal bird behaviour

e. Deviations in production targets

f. Bird care and treatment of injury or distress

g. Humane euthanasia/culling of birds

h. Record-keeping

i. Basic farm management

1.41 Regular competency assessments should be undertaken as proof of good management practice. The assessments will identify areas requiring additional training or change in equipment.

1.42 Records of staff training must be maintained.

1.43 Farms must work closely with the poultry extension officer to develop and maintain systems that ensure ongoing compliance with the CIPS-LO Standards.

Monitoring and Reporting

1.44 Birds must be observed at least twice every 24 hours to ensure that their appearance, vocalisations, and behaviour are normal, including:

a. Feather cover, cleanliness, absence of injuries.

b. Active, responsive, calm behaviour, low noise level.

c. Absence of signs of injurious pecking and/or self-mutilation.

d. Absence of evidence of disease.

e. Even distribution across the laying facility.

1.45 Date and times of daily bird checks, notes of any problems identified (including the absence of normal behaviour), and action(s) taken must be recorded.

1.46 Inspections must be increased during extreme weather or disease outbreak.

1.47 Weak, ill, or injured birds must be identified and provided with appropriate medical care or humanely euthanised without delay.

1.48 The Department of Agriculture must be notified of any major event which impacts flock health and welfare adversely.

1.49 Animals, other than the layers, must be prevented from entering the laying facility.

Records

1.50 Record keeping is essential for good farm management, because it provides valuable information such as:

a. Expected performance level of the flock versus actual performance level.

b. Early warning of potential issues, such as changes in bird behaviour that are reflected in feed and water consumption records.

c. Offers robust information in case of any type of incident analysis.

d. Historical comparative analysis between flocks as well as farm performance over time.

1.51 The activity records should be kept for each flock or each unit as required:

a. Sourcing including source name, dates, breed, and unit of placement.

b. Transportation including departure date/time, arrival date/time, and number of birds live and dead on arrival.

c. Completion of the pre-placement preparation for each of the populated units including maintenance works, litter removal, cleaning and sanitising, replaced equipment, etc.

1.52 The general farm management records should be kept as follows:

a. All visitors arriving at the farm including time, name, reason and duration of the visit.

b. Monthly maintenance records for all units and the other farm facilities (i.e. feed storage, cleaning/sanitation products storage, fencing, etc.) as well as for the existing equipment.

c. Incident records specifying issue, root cause, and action plan to address it when these happen.

d. Complaints records specifying who raised the complaint, when the complaint was raised, root cause assessment and resolution.

e. Personnel training records – any courses or workshop attendance, date, duration and subject.

1.53 The following records must be maintained for each populated unit, as follows:

a. Minimum/maximum indoor and outdoor temperatures (daily).

b. Lighting programme.

c. Egg room temperature.

d. Ammonia levels (monthly).

e. Water quality (bi-annually or annually depending on the source of water).

f. Dust levels at bird head height (monthly).

1.54 The following records must be maintained for each flock:

a. Number of birds (daily).

b. Age of birds.

c. Bird mortality, separated into 'deaths' and 'culls' and noting the main reason for culling (daily).

d. Mortality rates per laying unit over the life of the flock. Reference the feather cover score requirements under section 6.12 (weekly).

e. General observations on the birds behaviour, health, and welfare (daily).

f. Bodyweights (weekly during the rearing period, monthly during the production period).

g. Feed consumption (daily).

h. Water consumption (daily).

i. Number of good eggs (daily).

j. Number of secondary category eggs collected (daily).

k. Egg weights (daily).

l. Number of all egg collections (daily).

1.55 The following production records must be maintained for each flock:

a. Total monthly egg production.

b. Total number of eggs supplied to the market (monthly).

1.56 Current flock records, as well as flock records since the previous assessment, must be available on-farm at the time of any type of assessment/inspection.

2. SOURCING OF BIRDS

Accredited Sources

2.1 Day-old chicks/pullets must be sourced from the Department of Agriculture (DoA) or any other source approved by the Department, as this will guarantee the correct breed, the health status of the birds as well as their quality.

2.2 Records must be maintained for each flock specifying the name of the rearing facility from which baby chicks and/or pullets are sourced.

2.3 A record specifying the bird type/strain must be kept for each flock placed.

Ordering

2.4 The number of birds purchased should not exceed the farm's rearing unit maximum placement capacity.

Transportation

2.5 The date and time of the birds' departure from the sourced facility and arrival at the laying facility must be recorded.

2.6 The number of birds delivered by the accredited supplier must be recorded.

2.7 Day-old chicks/pullets that have died while being transported must be recorded and reported as 'dead-on-arrivals' to the supplier facility.

3. Rearing Period (Pullet phase)

3.1 Rearing is a critical period that will influence laying performance. It is recommended to keep birds of the same age and operate an **All in - All out** system. This will maximise the bio-security of the farm unit, as well as performance indicators.

3.2 Two key rearing periods are generally recognised in the poultry industry:

a. **Key Period 1** – for birds aged between day-old chicks and 4 weeks. The brooding period extends from day old to three weeks of age.

b. **Key Period 2** – for birds aged between 5 weeks to 16 weeks.

3.3 Specific requirements are to be presented below for each of these periods for the relevant topics.

Readiness for D.O.C. Arrival

3.4 The rearing unit must be appropriately prepared before the arrival of the birds. Disinfection of the enclosure and equipment located in the entire unit should be carried out between flocks starting typically 2 weeks in advance.

3.5 The stocking density for birds with ages between 0 to 4 weeks **(Key Period 1)** should not exceed 14 birds/m^2 or 1 bird/0.8 sq. ft. The number of chicks to be received from the supplier should be consistent with the maximum stocking density or lower.

3.6 If the same rearing unit is intended to accommodate a flock from day old chicks to 16-18 week old pullets, then the maximum stocking density to be considered should be 8 birds/m^2 or 1 bird/ 1.34 sq. ft.

3.7 Pre-placement preparation activities include:

a. Checking water and feed availability and quality.

b. Checking if existing equipment on the premises is in good condition. If not, new equipment should be purchased. All equipment should be in place before the birds' arrival.

c. Completing any maintenance works before the disinfection of the unit. This should ideally take place 3 days in advance of the birds' arrival.

d. Verifying that all the necessary protections against vermin and wild birds are in place.

e. General cleaning and sanitation using approved disinfectants.

f. Litter provision.

g. Flushing of water lines or sanitation of manual drinkers.

h. Sanitation of feeders.

i. Ensuring appropriate temperature and ventilation settings. If necessary, warm up the rearing unit 24 hours prior to the chick's arrival.

3.8 A record specifying Completion of Pre-placement Rearing Unit Preparation must be kept. (Please reference Appendix B – Pre-placement Rearing Unit Checklist form).

General Placement Practices

3.9 The chicks purchased from accredited sources must be placed within their new brooding facilities immediately after arrival.

3.10 A record specifying the birds' placement time of completion must be kept.

3.11 Chicks must be observed at least three times in the initial 24 hours following placement to ensure that their appearance, vocalisations, and behaviour are normal, including:

a. Clean appearance.

b. Active, responsive, yet calm behaviour.

c. Even distribution across the rearing facility.

3.12 Chicks are recommended to be brooded in groups of 100. The grouping makes observation easier. It also prevents "piling up" (chicks stepping on each other) which can lead to crushing, and subsequent deaths.

3.13 A record of each time an observation checks of the chicks has been conducted must be kept, and any problems must be identified with detail. Any action, if taken, must also be recorded.

Housing and Environment

3.14 Ideally, the rearing unit should be fully enclosed with mechanical ventilation, temperature control, and light control, in addition to other equipment necessary for the optimal development of the chicks.

3.15 The rearing facility must be designed, constructed, and maintained to minimise thermal discomfort to birds.

3.16 In naturally ventilated enclosed systems with natural light, optimal development might not be fully reached. However, with careful control of all other parameters (e.g., spacing, feed, water, etc.), good performance is possible based on the farm records.

3.17 The rearing unit should be built considering all bio-security aspects, preventing any external contamination.

3.18 A 0.64 cm (1/4in x 1/4in) or wire mesh enclosed brooder/coop should be utilised to ensure greater protection from snakes, rats, and other predators.

3.19 The rearing unit should be constructed to securely contain the birds, without sharp edges or electrical cabling exposed. All precautionary actions must be taken in advance to prevent bird injuries.

3.20 Housing should provide adequate ventilation. Any problems identified and actions taken must be recorded.

3.21 A monthly maintenance programme must be put in place to ensure that any housing defects are identified and prompt action is taken to correct them.

3.22 A record of facility maintenance/repairs must be maintained.

3.23 The rearing unit must be fitted with brooders, heating lamps, and feeding and watering equipment.

3.24 Contingencies must be in place to ensure that conditions in the laying facility can be managed and that feed and water can be provided to birds including in the event of equipment failure, flooding, or other natural disasters.

3.25 Quarantine and bio-security procedures must be in place to minimise the risk of introduction and spread of disease among birds and to safeguard the health and well-being of native wild fauna.

Ventilation and Temperature Control

3.26 Natural or mechanical ventilation systems must be operational and effective to provide adequate air exchange for the age and number of birds.

3.27 Ammonia levels must be managed to not exceed 15 ppm at bird head height. Measurements should be taken periodically (monthly) and the data recorded.

3.28 Dust levels at bird head height must be managed to avoid negative impacts on bird welfare.

3.29 Indoor minimum and maximum temperatures should be recorded daily.

3.30 If additional ventilation fans are used, then the noise level should be minimised.

Key Period 1 – Day-old Chick to 4 Weeks of Age – Additional Specific Requirements

3.31 While maintaining adequate ventilation, eliminate or reduce wind drafts for consistent brooder temperature and comfort of chicks. The brooders should not be located in areas with air drafts.

3.32 Heating elements, whether bulbs or gas heaters, must be tested, and recommended temperature maintained. This could be maintained by hanging a 50-watt light bulb approximately 10 cm or 4in from the floor for every 50 birds. Heating mats are not permitted. A non-heated area should be available to birds at all times.

3.33 Heating elements should be removed when birds are fully feathered at around 4 weeks of age.

3.34 The temperature recommended for the brooding period is presented in the table below.

BROODING TEMPERATURE		
AGE (DAYS)	AT THE EDGE OF THE BROODERS	AT 2-3M FROM THE BROODERS
0 - 3	35°C (95°F)	29 - 28°C (84.2 - 82.4°F)
4 - 7	34°C (93.2°F)	27°C (80.6°F)
8 - 14	32°C (89.5°F)	26°C (78.8°F)
15 - 21	29°C (84.2°F)	26 - 25°C (78.8 - 77°F)

Feed and Water

3.35 Feeding and watering equipment design, position, and height must allow birds to access feed and water with minimal effort and using normal posture.

3.36 Feeding and watering systems and equipment must be operated effectively to ensure the birds' daily requirements for feed and water are met.

3.37 Feed and water distribution within the rearing facility should be uniform with supply available and accessible to all birds.

3.38 The drinkers should never be empty.

Key Period 1 – Day-old chick to 4 weeks of age

3.39 Chicks should be provided access to water immediately after arrival to restore their body fluids lost during transportation. If needed, each day-old chick should be put in contact with water.

3.40 A one-gallon capacity drinker for every 50 chicks must be used, depending on the drinker used. A narrow-lid base drinker will help prevent chicks from getting into the water.

3.41 In the event birds get wet, they must be put under a suitable heat source, such as a heating lamp, until they are dried.

3.42 Supplementary drinkers should be used during the first few days and removed gradually.

3.43 Fresh and cool drinking water must be provided. During the first 2 days, use water at 20-25°C (68-77°F). This will help the birds to reduce their body temperature and it will increase their feed intake. Drinking water temperature should never exceed the body temperature of the birds.

3.44 Drinkers should be cleaned daily for the first 2 weeks and then once a week minimum. If drinkers are grossly contaminated with debris, faeces, mould or other materials, cleaning should be undertaken as soon as possible.

3.45 The recommended feed for brooding layer chicks is an age-appropriate starter feed.

3.46 The starter diet should be distributed when chicks have drunk enough water to restore their body fluid (recommended 4 hours after delivery).

3.47 Additional feeders can be used, or fed on paper to encourage feed consumption. The chick carton can be used as feeders for the first three days.

3.48 Feed for brooding chicks should be provided at discretion.

3.49 Allow the feeders to become empty once or twice each week to avoid build-up of fine particles.

3.50 Galvanised feeders can be used when chicks are consuming a greater volume of feed.

3.51 Feeders should be cleaned daily for the first 2 weeks, and afterwards at least once a week, or as often as needed in case of contamination with foreign materials.

Key Period 2 – 5 to 16 (18) weeks of age

3.52 Water quality should be maintained, with no debris, feed, or litter in the drinker.

3.53 Check the water temperature from time to time to ensure that the drinking water temperature will never exceed the body temperature of the birds. Do not place the drinkers in direct sunlight.

3.54 Drinkers should be cleaned at least once a week.

3.55 Feed type should be administered per DoA recommendations according to the appropriate age of the birds.

3.56 Feeders' space requirements are 8cm (2.5in)/pullet for linear feeders, or one pan feeder per 25 birds.

3.57 Allow feeders to become empty once or twice each week to avoid build-up of fine particles.

3.58 Feeders should be cleaned once a week.

3.59 Where electrified wire is used to prevent birds from perching, overfeeding and/or accessing watering systems, the wire must only be switched on during the period coinciding with nest box training.

3.60 Birds must be observed to be feeding and drinking. Any problems identified and action(s) taken must be recorded.

3.61 Birds must have unrestricted access to feed, and at-will access to clean, potable water. The exceptions to this are: birds being treated under veterinary advice; birds being prepared for depopulation; or during extreme heat where feeding birds during cooler parts of the day may be required to reduce the risk to their welfare.

3.62 Birds that are sick and not able to reach feed or water must be humanely euthanised/culled immediately.

Lighting Requirements

3.63 Lighting programme requirements in terms of light duration and intensity are age specific and listed in the table below.

LIGHTING REQUIREMENTS		
BIRD'S AGE	HOURS LIGHT (HR)	LIGHT INTENSITY (LUX)
0 - 2 days	23	20 - 40
3 - 7 days	22	15 - 30
1 - 2 weeks	20	10 - 20
2 - 3 weeks	19	5 - 10
3 - 5 weeks	18	5 - 10
5 - 7 weeks	17	5 - 10
7 - 9 weeks	16	5 - 10
9 - 11 weeks	15	5 - 10
11 - 13 weeks	14	5 - 10
13 - 14 weeks	13.5	5 - 10
14 - 15 weeks	13	5 - 10
15 - 16 weeks	12	5 - 10
16 - 18 weeks	12	5 - 10
After 18 weeks	12	5 - 15

3.64 Maintain 22 to 23 hours of light with 30-40 lux to encourage feed and water consumption in the first few days.

3.65 There must be no light leakage into the bird shed.

3.66 As a general rule, light hours and intensity will continually decrease through the entire rearing period.

Litter

3.67 In the case of litter brooding, chicks should be placed on a floor that is covered with litter materials such as rice hulls, shredded newspaper, or any absorbent material. Sawdust is not recommended during **Key Period 1** (bird's aged D.O.C. to 4 weeks) because it can be consumed by the chicks and cause respiratory issues.

3.68 Dry litter needs to be maintained throughout the brooding period.

3.69 Litter should be at least 10 to 15cm or 4in - 6in thick.

3.70 Wet and caked litter must be replaced with fresh litter periodically.

3.71 Litter materials recommended for Cayman Islands' conditions include sawdust, good-quality wood shavings, shredded paper, or similar material that can be a good absorbent and non-toxic..

3.72 After relocation of the pullets into the laying unit facilities, all litter should be removed.

Transfer to the Next Stage

3.73 Transfer is advised around 16 to 17 weeks of age:

a. Before the appearance of the first eggs.

b. If deworming will be done, it should be at minimum 3 days before transfer.

3.74 To minimise the stress at transfer time, it is important to:

a. Rear the birds on a drinking system similar to the one they will encounter on transfer.

b. Increase light intensity to encourage water consumption.

c. Maintain temperature as close as possible to the temperature experienced by the pullets at the end of the rearing period.

4. Productive Period – Laying Hens

Readiness for Pullets Arrival

4.1 If pullets are purchased from an accredited supplier, the laying facility unit must be appropriately prepared before the arrival of the birds.

4.2 If the pullets are transferred from the rearing unit on the same farm, then the pullets are expected to already be familiar with the existing equipment in the laying facility.

4.3 The stocking density for birds aged 16-18 weeks is recommended not to exceed 5 birds/m^2, or 1 bird/ 2.2 sq. ft. The number of pullets received from the supplier or transferred from the rearing unit should be consistent with, or lower than, the recommended stocking density.

4.4 Excessively high pullet stocking densities will result in increased heat production, leading to higher heat stress. It is advised to provide chickens with as much space as possible by reducing pullet stocking density. Always monitor performance and adjust as necessary to individual conditions. An overcrowded flock tends to experience higher mortality and culling, slower growth, and lower uniformity.

4.5 Pre-placement preparation activities include:

a. Checking water and feed availability and quality.

b. Checking if existing equipment on the premises is in good condition. Otherwise, new equipment should be purchased, and all the equipment should be in place before the birds' arrival.

c. Completing any maintenance works before the disinfection of the unit.

d. Verifying if all the protections against vermin and wild birds are in place.

e. General cleaning and sanitation using approved disinfectants.

f. Ensuring litter provision.

g. Flushing of water lines or sanitisation of manual drinkers.

h. Sanitising feeders.

i. Ensuring appropriate temperature and ventilation settings.

4.6 A record specifying completion of the Pre-placement Rearing Unit Preparation must be kept. (Please refer to **Appendix B – Animal Welfare and Care Statement** for the Pre-placement Rearing Unit Checklist form.

General Placement Practices

4.7 Pullets should be provided access to water immediately after arrival or transfer from the rearing unit to restore their body fluids lost during transportation.

4.8 Feed and water must be available Ad Libitum (at discretion) to meet the birds' requirements during the first days.

4.9 A record must be kept specifying time of completion of the bird's placement.

4.10 Pullets must be observed at least three times in the initial 24 hours following placement to ensure that their appearance, vocalisations, and behaviour are normal, including:

a. Clean appearance.

b. Active, responsive, yet calm behaviour.

c. Even distribution across the rearing facility.

4.11 A record must be kept each time observation checks of the chicks are conducted, and any identified problems must be detailed. Any action(s) taken, must also be recorded.

Housing and Environment

4.12 The laying facility must be designed, constructed, and maintained to minimise thermal discomfort to birds.

4.13 Floors, surfaces, fittings, and equipment in laying facilities must be designed, constructed, and maintained to:

a. Minimise the risk of injury or disease in birds.

b. Facilitate cleaning.

c. Prevent a build-up of parasites that affect birds.

4.14 Where infrastructure is observed to cause injury to birds, immediate action must be taken to prevent this situation from recurring.

4.15 The finished floor level in the laying unit should be higher than the outside ground level, to prevent flooding. Any rainwater pipes from the roof should be drained away from the farm walls to prevent increased humidity, development of mould, or other health issues.

4.16 Housing should provide adequate ventilation. Any problems identified and actions taken must be recorded.

4.17 A monthly maintenance programme must be put in place to ensure that any housing defects are identified and prompt, corrective action is taken.

4.18 A record of facility maintenance/repairs must be maintained.

4.19 Contingencies must be in place to ensure that conditions in the laying facility can be managed, and that feed and water can be provided to birds consistently, including in the event of equipment failure, flooding, or other natural disasters.

4.20 Quarantine and bio-security procedures must be in place to minimise the risk of introduction and spread of disease among birds, and to safeguard the health and well-being of native wild fauna.

4.21 Facilities, including feed and egg storage areas, must be constructed and maintained to reduce the attractiveness to, and restrict the entry of, wild birds, rodents, predators, and other pests or animals that could cause distress or transmit diseases to birds.

4.22 Pest animal control programmes must use the most humane techniques that apply to the situation, achieve the programme aims, and reduce the risk of impact on non-target species.

4.23 The laying facility should consist of appropriate flooring as approved by the poultry extension officer. The design must:

a. Provide adequate support for the birds' feet.

b. Avoid damage to or entrapment of the birds' feet.

c. Prevent manure build-up protruding through the floor.

d. Prevent the entry of pests, such as rodents, via the floor.

Veranda

4.24 The CIPS-LO does not require that birds have access to a veranda. It is optional. However, where a veranda is included in the calculation of usable area, the following additional standards must be met.

4.25 Birds must be given access to the veranda as soon as possible, but no later than three weeks following placement, allowing for a period in which to train birds to use the nests.

4.26 Where a period to train birds to use the nests is used, birds must have at least daily access to the veranda immediately after egg laying.

4.27 The veranda must be designed and constructed to provide shade, natural light, and good airflow.

4.28 The usable floor area of the veranda must provide sufficient space to allow at least one-third of the flock to forage and dust bathe at any one time.

4.29 The roof of the veranda must be waterproof.

4.30 Access to the veranda must meet the following requirements:

a. Openings must be of a minimum height to allow birds to pass through using normal posture.

b. The number and position of openings must ensure that all birds have the opportunity to access the veranda.

c. The design and position of openings must prevent birds from obstructing the movement of other birds and causing injuries to the birds.

d. The position of openings must allow the veranda to be visible to birds at ground level within the laying facility.

e. The area around openings must be kept clean.

4.31 Any ramps for birds to access the veranda must:

a. Be made from non-slip material.

b. Allow for minimal effort and ease of bird movement to and from the laying facility.

c. Be cleaned after each batch.

4.32 The veranda must be actively managed and maintained to:

a. Encourage birds to access all areas.

b. Control disease and parasites.

c. Avoid injury or mortality.

d. Minimise the risk of predation.

e. Minimise or eliminate contact with wild birds and other wild fauna.

Outdoor

4.33 The CIPS-LO does not require that birds have access to an outdoor area. This is optional. Where an outdoor area is provided, the following additional standards must be met.

4.34 Birds must be given access to the outdoor area as soon as possible, but no later than three weeks following placement, allowing for a period in which to train birds to use the nests.

4.35 Birds must have at least daily access to the outdoor area immediately after the egg-laying period. The exceptions to this are during extreme weather conditions, during training birds to use the nests, under the advice of a veterinarian, or otherwise advised by the DoA extension services.

4.36 During periods where birds are trained to use nests in a laying facility that does not provide litter indoors or a veranda, birds must have at least daily access to the outdoor area immediately after egg-laying.

4.37 Access to the outdoor area must meet the following requirements:

a. Openings must be of a minimum height to allow birds to pass through using normal posture.

b. The number and position of openings must ensure that all birds have the opportunity to access the outdoor area.

c. The design and position of openings must prevent birds from obstructing the movement of other birds, causing injuries to the birds, and must take into account prevailing weather conditions.

d. The position of openings must allow the outdoor area to be visible to birds at ground level.

e. The area around openings must be kept clean and well-drained.

4.38 Any ramps for birds to access outdoor areas must:

a. Be made from non-slip material.

b. Allow for minimal effort and ease of bird movement to and from the laying facility.

c. Be cleaned after each batch of birds, in accordance with All in-All out principles.

4.39 The outdoor area must be actively managed and maintained to:

a. Encourage birds to access all areas.

b. Provide birds with palatable vegetation.

c. Control disease and parasites.

d. Avoid injury or mortality.

e. Prevent land degradation.

f. Avoid the accumulation of water.

g. Minimise the risk of predation.

h. Minimise contact with wild birds and other wild fauna.

i. Minimise the risk of fire.

4.40 At least $2m^2$ or $27ft^2$ natural and/or artificial overhead shade/shelters per 1000 birds must be provided and distributed across the outdoor area.

4.41 Birds must be observed to be using shade/shelter structures and action must be taken to modify facilities if use is deficient.

Ventilation and Temperature Control

4.42 Natural or mechanical ventilation systems must be operational and effective to provide adequate air exchange for the age and number of birds.

4.43 Ammonia levels must be managed to not exceed 15 ppm at bird head height. Measurements should be taken monthly and the data recorded.

4.44 Dust levels at bird head height must be managed to avoid negative impacts on bird welfare.

4.45 Indoor minimum and maximum temperatures should be recorded daily.

4.46 If additional ventilation fans are used, then the noise level should be minimised.

Feed and Water

4.47 Feeding and watering equipment design, position, and height must allow birds to access feed and water with minimal effort and using normal posture.

4.48 Feeding and watering systems and equipment must be operated effectively to ensure the birds' daily requirements for feed and water are met.

4.49 Feed and water distribution within the rearing facility should be uniform with available supply and accessible to all birds.

4.50 For the farms with independent water supply, water quality should be checked twice per year. Farms using main public water supply should check water quality once per year.

4.51 Water quality records should be kept and made available during any assessment/investigation.

4.52 Water quality should be maintained, with no debris, feed, or litter in the drinker.

4.53 Feed type should be administered as per recommendations from DoA according to the appropriate age of the birds.

4.54 Feeders' space requirements are 10cm (4in)/bird for linear feeders, or four pan feeders per 100 birds.

4.55 Allow the feeders to become empty once or twice each week to avoid build-up of fine particles.

4.56 Feeders should be cleaned once a week.

4.57 Oyster shells or another calcium supplement should be offered at will to strengthen the eggshells. These supplements must not be mixed in with the main feed but instead should be offered in separate, freely accessible feeders.

Lighting Requirements

4.58 The recommended lighting programme for rearing period is presented in the table below:

LIGHTING REQUIREMENTS		
BIRD'S AGE	HOURS LIGHT (HR)	LIGHT INTENSITY (LUX)
5% Lay	14*	5 - 15
> 35% Lay	15*	5 - 15
> 60% Lay	16*	5 - 15

Note:* *Optional 2 more hours of light can be provided during the night to encourage the feed intake if needed.*

4.59 As a general rule, the number of light hours will slightly increase, while the intensity will remain constant throughout the entire laying period.

4.60 Light intensity measured at bird head height throughout the laying facility must ensure that no area of the laying facility is lit at less than 10 lux during the light period.

Nest Boxes and Nest Management

4.61 For larger flocks, one nest must be provided for every 4 to 5 hens in the flock. This will help limit egg breakage from normal traffic and daily egg-laying.

4.62 To allow for bird accessibility, nest boxes must be enclosed on all sides, with an opaque material on one side. Boxes must also have a suitable floor substrate to encourage nesting behaviour.

4.63 Neither the nest box nor any other flooring should include wire or plastic-coated wire.

4.64 Nest boxes must be kept in a sanitary and operational condition, and the layer's environment must be clean at all times.

4.65 The nest boxes should be kept clean and a deep cleaning of the bedding completed at least every two weeks.

4.66 Wet litter in the coop must be cleaned out. The outside run area must also have good drainage and be not overgrazed.

4.67 Nest boxes must have a deep, clean layer of bedding to prevent breakage and help absorb waste or broken-egg material.

4.68 Nest bedding should never be reused after the cycle.

4.69 Where the nest box lighting is used to facilitate the nest box training, this should be done under the following conditions:

a. Only be turned on in the morning.

b. Be turned off in the afternoon.

c. Not be used once birds have learned to lay in the nest.

Coop Management - Perches

4.70 Perches can improve leg bone strength, allow hens to escape from other aggressive hens, increase available space in the layer house, avoid disturbances, improve thermo-regulation, and reduce heat stress. All these will lead to better welfare.

4.71 Perches must be provided at all times. Perches should be appropriately sized and constructed from non-toxic materials.

4.72 Perches must allow for a minimum of 10 cm or 4in of perch space per bird unless a producer can demonstrate that this would obstruct the movement of the birds and/or people throughout the laying facility, and thereby negatively impact overall welfare. If this situation occurs, the laying facility must provide a minimum of 7.5cm or 3in of perch space per bird.

4.73 Perches must be constructed and positioned to:

a. Be raised above and not flush with floor areas.

b. Allow birds to access them.

c. Allow birds to stand in a normal posture.

d. Provide comfortable support for the bird's feet and keel bone.

e. Minimise the risk of injury.

f. Prevent vent pecking by birds below and/or behind.

g. Minimise fouling of birds below.

4.74 Recommended perch length is a minimum of 10cm (4in) per bird.

4.75 The first accessible level must be 20cm (8in) height from the ground floor.

4.76 The distance from the wall should be 30cm (12in).

4.77 Distance between perches should be 40cm (16in) with a slope of 45 degrees.

4.78 The perch diameter should be between 2.5-4cm (1-1.5in) and the perch should be flat and level to allow hens to rest comfortably.

Environment Enrichment

4.79 Environmental enrichment in the form of pecking objects should be provided inside the laying facility at all times.

4.80 Pecking objects must be provided either in loose form or suspended.

4.81 Pecking objects must be evenly distributed throughout the laying facility to prevent undue competition and allow easy access for birds.

4.82 Pecking objects must be maintained, replaced, or changed as necessary to ensure birds have continuous access and maintain interest.

4.83 Where used, organic pecking objects must be stored in a manner that avoids the introduction of pathogens and/or pests.

Litter

4.84 All laying facilities must allow the provision of litter indoors.

485 The litter must completely and evenly cover the usable area of the laying facility floor at ground level.

4.86 Birds must be given continuous access to litter as soon as possible, but no later than three weeks following placement, allowing for a period in which to train birds to use the nests.

4.87 Litter must be maintained at a minimum average depth of:

a. 5cm (2 in) during the first two months of use.

b. 10.25cm (4-6 in) after the first two months of use.

4.88 Litter must be of good quality, water-absorbing material and provide for the bird's behavioural needs to dust bathe, scratch, and forage.

4.89 Litter must be actively maintained in a dry and friable condition.

4.90 Litter condition must be monitored and recorded daily, and prompt action taken where crusts and/or wet areas have been identified.

4.91 Litter management equipment must be available on-farm.

4.92 Irreparably wet or fouled litter must be removed promptly and replaced with dry, friable litter.

4.93 Litter should never be reused after the cycle.

4.94 A litter disposal management plan should be defined and specific areas for litter storage after removal from the units should be identified.

Veranda – Additional Specific Requirements

4.95 Litter must completely and evenly cover the veranda floor.

4.96. Litter must be maintained at a minimum average depth of:

a. 5cm (2 in) during the first two months of use.

b. 10.25cm (4-6 in) after the first two months of use.

5. Nutrition

Feed Management

5.1 Currently, feed is supplied by the DoA.

5.2 The feed is specially formulated for the local conditions in the Cayman Islands.

5.3 Specific feed formulations for birds of different age categories will be available, and their utilisation should be according to the recommendations provided by the DoA and the NEST Officer.

5.4 Feed is formulated as a complete feed, and it should not be diluted with other feeds or any other ingredients or additives, either natural or artificial.

5.5. Supplements, such as oyster shells, are recommended during the laying period, but only in a dedicated feeder, not mixed with the complete feed.

5.6 The unauthorised use of any feed additives or supplements in water or feed is not permitted as it can lead to decreased performance by impairing the digestive system of the birds or by interacting with other ingredients in the complete feed.

5.7 Egg producers should record all approved additives/supplements to be used. The record must contain information regarding the brand name, dosage used and date of administration.

5.8 The use of any other natural ingredients such as plants or parts of plants should not be used as a substitute for the complete feed, but can be offered to the birds occasionally as enrichment.

5.9 Other additives, if recommended, are to be administered preferably via water provision.

5.10 Records of feed purchases must be kept.

5.11 Visually inspect feed for obvious signs of contamination with foreign materials, mould, insects, physical structure (caking), unpleasant smells, dustiness, etc. If any issue is detected, record the batch number of the feed and contact the NEST officer for support. The contaminated/deteriorated feed should be discarded and not fed to the birds.

5.12 After purchase and inspection, the feed should be stored in a dedicated storage facility that will protect against direct sunlight, increased humidity, rain, flood, rodents or other pests.

5.13 The feed should be administered in clean feeders, uniformly distributed in the house and at appropriate height according to the age of the birds, and should be protected from contamination of any type.

5.14 Feed consumption is an important performance criterion and it should be recorded daily as accurately as possible.

6. Health

Veterinary Health Plan

6.1 A veterinary health plan must be documented and complied with.

6.2 The veterinary health plan must contain details on the following:

a. Procedures for the identification and treatment of weak, ill, or injured birds, including separation/treatment and euthanasia.

b. Procedures to prevent injurious pecking and identify feather loss.

c. A vaccination schedule.

d. A helminth worm and external monitoring and treatment schedule.

e. A red mite monitoring and treatment schedule.

f. Quarantine and bio-security procedures.

g. Pest control procedures to restrict access of wild birds, predators, insects and rodents to the flock.

h. Cleaning and sanitation procedures.

6.3 The current veterinary health plan must be provided to the NEST-Advisory Committee and be available at the time of an assessment.

6.4. The veterinary health plan must be reviewed on an annual basis and authorised by the attending Department of Agriculture veterinarian/poultry extension officer.

Health Records

6.5 Health records must be kept for each flock.

6.6 Health records must contain details of the following:

a. Vaccinations.

b. Diseases.

c. Mortalities, separated into 'deaths' and 'culls' and noting the main reason for culling.

d. Injuries.

e. Other treatments administered to birds.

Medicines

6.7 Antibiotics must only be administered for therapeutic purposes under veterinary advice and provided by a veterinarian licensed in the Cayman Islands. Appropriate withdrawal periods for any medications utilised must be adhered to.

6.8 Where the cause of ill health or disease and the appropriate treatment cannot be identified, veterinary advice from a veterinarian licensed in the Cayman Islands must be sought and followed accordingly.

Management of Injurious Pecking

6.9 Daily monitoring of birds must occur to identify early signs of injurious pecking, including pecking directed at the body feathers of other birds, feather eating, feather damage or bare areas around the tail, or signs of persistent aggression, such as pecking directed at the head, loud vocalisation and chasing/fighting other birds.

6.10 If there is a large number of birds exhibiting early signs of injurious pecking or aggression, action must be taken to adjust management practices and to seek further technical or veterinary advice.

6.11 A bird that is injured as a result of injurious pecking or aggression must be promptly removed for treatment or be humanely euthanised.

6.12 Feather cover must be monitored at least once a month throughout the life of the flock using a scoring method that assesses feather cover on the back/vent and the head/neck. This enables prompt action to be taken in case of feather loss. The method requires visual assessment and scoring of a total of 50 birds (5 different birds in 10 different areas of the laying facility). See *Feather Loss Score Benchmarking Tool* below:

BENCHMARKING TOOL		
SCORING	FEATHER LOSS	DESCRIPTION
0	No / Minimal	no bare skin visible, no or slight wear, only single feathers lacking
1	Slight	moderate wear and damaged feathers or two or more adjacent feathers missing with an area of bare skin visible of < 5cm or 2in
2	Moderate / Severe	bare skin visible in an area of 5cm or 2in or more

6.13 The feather cover score must be entered into the feather loss benchmarking tool above and on laying facility records. Notes of any problems identified and action taken should also be included.

6.14 Brooding chicks may be beak trimmed under 7 days of age by trained personnel. It is prohibited for untrained persons to carry out this procedure.

6.15 Beak trimming must be limited to the extreme tip of the upper beak only. Beaks may only be trimmed utilising a mechanical method. Beaks should be rounded and consistent across the flock.

Induced Moulting

6.16 Induced moulting is not permitted regardless of whether the practice uses feed-withdrawal or non-feed-withdrawal methods.

7. Bird Population Management

Bird Losses

7.1 A daily record of mortality and its causes should be maintained.

7.2 The cause of death should be quickly assessed and if considered difficult to ascertain, veterinary support should be sought.

7.3 Dead birds must be removed from the immediate vicinity of the laying facility and disposed of safely and hygienically, under the Cayman Islands Public Health Act and other relevant legislation.

7.4 Where birds are found to be entrapped or have escaped, they must be freed or caught immediately and action taken to prevent the situation from recurring.

On-farm Euthanasia

7.5 Birds must be handled and euthanised in a manner that ensures that distress or discomfort is minimised.

7.6 The method of culling recommended by the DoA must be followed.

Bird Handling and Catching

7.7 Persons involved in the handling and catching of birds must be appropriately trained and competent.

7.8 A person responsible for the welfare of the birds must be present at the catching.

7.9 Removal of water facilities must not take place until immediately before catching commences.

7.10 Birds must have access to feed within 12 hours before catching commences.

7.11 Removal of environmental enrichment in preparation for catching must coincide with the removal of feed to minimise disturbance to the birds.

7.12 Lighting must be dimmed during catching to ensure that birds are calm.

7.13 The catching process must be designed and managed to ensure that bird crowding, distress, or discomfort is minimised and injuries or mortalities are prevented.

7.14 Flock preparation involving the separation of the birds into groups must proceed calmly and birds are not to be kicked or picked up and thrown aside.

7.15 Birds must be caught and carried either firmly around the body, encompassing both wings or by grasping both legs.

7.16 No more than two birds must be carried in one hand.

7.17 Birds must not be caught, suspended, or dragged by the head or neck.

7.18 Inappropriate catching techniques used by the catching crew must be addressed immediately by the person responsible for the welfare of the birds.

7.19 A record of catches must be maintained for each flock, including:

a. The name of the person responsible for the welfare of the birds at catching.

b. The names of persons involved in the catching of birds.

c. The time feed and water are withdrawn.

d. The time catching commenced and concluded.

e. The number of birds caught.

Slaughtering

7.20 Stunning and slaughter must be carried out by an individual that is appropriately trained and competent to ensure bird welfare is not compromised.

7.21 If farmers choose to dispatch (slaughter) the birds for eating purposes the following should be practiced.

Stunning

7.22 All birds must be stunned before slaughter. Killing birds without prior stunning is prohibited.

7.23 All birds must be restrained before being stunned and slaughtered in a manner that spares the bird any avoidable pain, suffering, agitation, and/or injury. Stunning must be followed immediately by killing (bleeding). In other words, an individual responsible for both operations must carry them out consecutively on one bird before moving on to the next. Killing birds without prior stunning is prohibited.

7.24 Approved humane stunning methods include:

a. Controlled Atmospheric Stunning (CAS) – using carbon dioxide.

b. Electrical Stunning – Probes and prods of different sizes and voltages based on the size of the operation.

Bleeding out

7.25 Bleeding out must commence before birds regain consciousness.

7.26 Birds must be checked to ensure that they have been cut effectively to bleed out and are dead before commencing feather removal or entering the scalder. Birds can be confirmed dead by confirming the lack of corneal reflex.

7.27 Manual cutting systems using one knife hand must have at least one backup knife hand checking the bird. Knives must remain sharp at all times and be able to sever the neck with one incision. Back-up knives must be available.

7.28 Where bleeding out has not been effective:

a. Affected birds must be euthanised before entering the scalder.

b. The knife hand(s) and/or automated equipment must be checked to ensure

Records

7.29 Flock records must be maintained for a minimum period of one year after the culling/slaughter of the last member of the respective flock to which the records pertain.

8. Egg Handling and Sanitising

Facility

8.1 The outside premises shall be free from refuse, rubbish, waste, unused equipment, and other materials and conditions which constitute a source of odours or a harbour for insects, rodents, and other vermin.

8.2 Buildings shall be of sound construction so as to prevent, insofar as practicable, the entry or harbouring of vermin.

8.3 Grading and packing rooms shall be of sufficient size to permit the installation of necessary equipment, and conduct grading and packing in a sanitary manner. These rooms shall be kept reasonably clean during grading and packing operations, and shall be thoroughly cleaned at the end of each operating day.

8.4 The floors, walls, ceilings, partitions, and other parts of the grading and packing rooms including benches and platforms shall be constructed of readily cleanable materials, maintained in a sanitary condition, and impervious to moisture in areas exposed to cleaning solutions or moist conditions. The floors shall be constructed to provide proper drainage.

8.5 Adequate ventilation, heating, and cooling shall be provided where needed.

Collection

8.6 Floor eggs must be collected frequently, and at least three times within a 24-hour interval during nest box training.

8.7 Generally, eggs should be collected at least twice daily, especially during extreme weather temperatures.

8.8 The date and time of floor egg collection, and the number of floor eggs collected must be recorded.

8.9 Eggs must be collected in an easy-to-clean containers like plastic-coated wire baskets or plastic egg flats. This will prevent stains from rusted metal, and contamination from other materials which are difficult to clean and disinfect.

8.10 Do not stack eggs too high. If collecting in baskets, do not stack eggs more than five layers deep. If using plastic flats do not stack more than six flats. If you stack eggs too deep, it increases breakage.

8.11 Never cool eggs rapidly before they are cleaned. The eggshell will contract and pull any dirt or bacteria on the surface deep into the pores when cooled. Try to keep the temperature relatively constant until they are washed.

8.12 Eggs should be sanitised as soon as they are collected. This helps limit the opportunity for contamination and loss of interior quality.

8.13 Eggs stored properly in their carton in a 7.2°C (45°F) cooler should maintain a Grade A quality for at least six weeks.

Sanitising

8.14 To ensure proper and efficient egg sanitation, a multi-step process should be followed. The main steps are:

a. Preparation.

b. Inspection.

c. Washing.

d. Rinse.

e. Dry.

8.15 **Preparation** - The work area and equipment should be cleaned and sanitised.

8.16 **Inspection** – Ensure that each egg is intact with no visible cracks, major stains, or shell damage. Discard any eggs that are damaged as they can be more susceptible to bacterial contamination.

8.17 Excessive dirty eggs and those with weak or broken shells are removed before washing begins.

8.18 **Washing** should be undertaken in a dedicated room with good drainage.

8.19 Egg washing should be carried out as soon as they are collected, ideally within less than 48 hours, or up to a maximum of 7 days after being laid.

8.20 Only potable water may be used to wash eggs. The frequency of testing for potability and specific parameters (e.g. iron content) shall be determined by the Department of Agriculture (DoA). When the water source is changed, new tests are required.

8.21 Water used to wash eggs should be at 32.2°C (90°F) or higher, and a min of 6.7°C (20°F) greater than egg temperature. Wash water temperatures should never be greater than 45°C (113°F). These temperatures shall be maintained throughout the cleaning cycle.

8.22 Accurate thermometers should be used during the washing process to monitor the wash water temperatures.

8.23 Use a soft brush or cloth to gently scrub dirt, stains, or other debris.

8.24 Eggs must not be allowed to stand or soak in water.

8.25 Wash water will be changed daily, or more often if needed, to maintain sanitary conditions.

8.26 **Rinse** the eggs to remove any loose debris that the egg has picked up during the main wash. It will also remove any residue of chemicals or other dissolved matter.

8.27 The temperature of the final rinse water should always be slightly higher than the temperature of the wash water.

8.28 Use an approved sanitiser at the correct recommended dosage if there is a concern about bacterial contamination.

8.29 Never let eggs sit in water. Once the temperature equalises, the egg can absorb contaminants in the water.

8.30 Wastewater from the egg-washing operation shall be piped directly to drains.

8.31 **Dry** - After eggs have been washed, they must be promptly and thoroughly dried prior to packing. A clean towel or paper towel can be used.

8.32 The washing, rinsing, and drying operations shall be continuous and shall be completed as rapidly as possible to maximise the conservation of egg quality and to prevent egg sweating.

8.33 All egg washing and equipment cleaning compounds, defoamers, destainers, sanitisers, or any other compound that comes into contact with the shell eggs shall be approved by the Department of Environmental Health for that specified use, and handled following the manufacturer's instructions.

Storage

8.34 Cooler rooms should be free from noticeable odours and from mould, and must be maintained in a sanitary condition.

8.35 Eggs should be stored in a room separate from other materials such as food items, chemicals, etc.

8.36 Eggs must be stored with small ends down in an egg carton to keep the air cell stable.

8.37 The carton must be dated so that the oldest eggs may be sold first, and extra eggs should be rotated.

8.38 Eggs must be placed under refrigeration at an ambient temperature no greater than 7.2°C (45°F) promptly after packaging.

8.39 Condensation on the eggs should be avoided.

8.40 Accurate thermometers should be used to permanently monitor cooler room temperatures.

8.41 Eggs packed for the consumer must be labeled "Keep Refrigerated" and stored and transported under refrigeration in an ambient temperature of no greater than 7.2 °C (45°F).

8.42 All unwashed eggs must be sold within five days of being collected.

8.43 Cleaning of floors, ceilings, and walls must be done at the end of each production day, and as needed, to maintain sanitary conditions.

9. Egg Grading, Sorting and Sizing

9.1 Eggs should be evaluated for egg quality with the use of an egg candling device.

9.2 Cracked, leaking eggs, or eggs with foreign matter inside like blood spots should be discarded.

9.3 Eggs can be graded and sorted before they are stored, sold, or consumed.

The CIPS-LO currently has no recommendations for an egg grading standard since the local market has not requested it. Grading can still be used and incorporated into the daily/weekly records for monitoring purposes if needed.

10. Egg Distribution and Commercialisation

10.1 Eggs should be sold within five days of laying.

10.2 Eggs should be refrigerated at 7.2°C (45°F) or less.

10.3 Do not use cartons from another business.

10.4 Cartons should not be reused once sold.

Marketing - Seal and Logo

10.5 Each carton from certified farms should bear the approved NEST logo issued by the NEST Advisory Committee on the left side.

10.6 Each carton from the certified farmer should have a seal issued by the NEST Advisory Committee with a unique code.

10.7 Each carton of eggs should include this unique code in the box under the NEST logo. This will be used in the event there is a need for a recall or other safety issues.

10.8 The unique code assigned to each carton of eggs should lead to a set of records that will ensure the traceability from sourcing of the chicks, to the production of the eggs contained in the carton.

10.9 All information about the farm including its logo/branding should be on the right hand of the carton.

10.10 Quality checks should be done before eggs leave for market.

a. Re-check for cracked and soiled eggs

b. Check for any dirt, feathers, etc.

c. Each carton must be labelled with:

i. Name and address of egg-producing facility.

ii. Date of packaging.

iii. Date eggs laid.

iv. Expiration date.

v. Statement of identity (eggs).

vi. Egg coloration.

vii. Net contents (3/16" letters).

viii. "Keep refrigerated."

ix. "Unclassified" - unless you weigh the eggs.

x. Safety statement – "Eggs should be cooked thoroughly before eating."

Sizing/Grading Eggs

10.11 For marketing purposes, it is usually best to size the eggs. Medium, large, and extra-large eggs sell best. Egg sizes are expressed in ounces per dozen.

a. Small – 510 grams or 18 oz.

b. Medium – 595 grams or 21 oz.

c. Large – 680 grams or 24 oz.

d. X-Large – 765 grams or 27 oz.

e. Jumbo – 850 grams or 30 oz.

10.12 Never sell eggs in cartons with the name of another egg producer or store. Eggs must be sold in generic cartons or customers may be asked to bring their cartons to carry the eggs home.

10.13 Eggs produced under the current standards are designed for human consumption; therefore, no fertile eggs are allowed for sale. The presence of males in the laying hen population is not permitted.

10.14 Be prepared to replace any eggs that are not satisfactory to a customer. Learn about and correct the dissatisfaction.

References

1. **Development and Planning Act (2021 Revision)**
   www.planning.ky/dop-documents/development-and-planning-act-2021-revision

2. **Public Health Act (2021 Revision)**
   www.gov.ky/health-wellness/publications

3. **Animals Act (2015 Revision)**
   www.legislation.gov.ky/cms/legislation/current/

4. **Veterinary Act (1997 Revision)**
   www.legislation.gov.ky/cms/legislation/current/

5. **USDA regulations- Minimum facility and operating requirements for shell egg grading and packing.**
   www.govinfo.gov/app/details/CFR-2022-title7-vol3/CFR-2022-title7-vol3-sec56-76

6. **Improving the Safety and Quality of Eggs and Egg Products**
   - Woodhead Publishing Series in Food Science, Technology and Nutrition 2011
   www.amazon.co.uk/Improving-Safety-Quality-Eggs-Products-ebook/dp/B00HLLNL5C

7. **Egg Science and Technology, 4th Edition, William J Stadelman, Debbie Newkirk, Lynne Newby, CRC Press 1995.**
   www.amazon.co.uk/Science-Technology-Fourth-William-Stadelman/dp/1560228555

8. **EFSA Journal - 2005**
   - Opinion of the Scientific Panel on biological hazards
   www.efsa.europa.eu/en/efsajournal/pub/175

9. **ISA Brown Commercial Guide (Hendrix Genetics)**
   www.isa-poultry.com/en/product/isa-brown/

10. **Commercial Management Guide - Hot & Tropical Climates (Hendrix Genetics, 2021)**
    layinghens.hendrix-genetics.com/en/technical-support/management/

11. **Poultry Production in Hot Climates, 2nd Edition, CAB International, 2008**
    www.cabidigitallibrary.org

Appendix A – Performance Indicators

It is recommended for all egg producers to consider the following listed Performance Indicators which will inform overall farm performance.

The key performance indicators should be reviewed every set period as established by farm management, or other parties, if required. They should be compared with the farm's specific performance objectives, or with the breeder's performance standard. Specific values can also be discussed with the NEST Committee.

Different performance indicators are typically used for each key development stage of the laying hens, and are briefly outlined below.

If any of the performance indicators are not in line with the farm's management expectations, then mitigating measures and technical solutions should be sought and applied as soon as possible to minimise the negative impact on the farm's performance.

Disclaimer: *Within this appendix, reference is made to ISA Brown Layers Guide, and is presented mainly for illustrative purposes only. A greater proportion of the D.O.C. arriving on the Cayman Islands in 2023 are known to be ISA Brown. However, every egg producer should always obtain and refer to the production parameters relevant to the hybrid purchased.*

Key Period 1: D.O.C. to 4 Weeks of Age

Key Performance Indicator	How to calculate it	How to compare it	How to present it
Constant Growth	1. Measure the bodyweight of the chicks weekly (minimum 10% of the flock size). 2. Record bodyweight in a record log (*See Appendix C – Bodyweight Record Form*). 3. Calculate the average weight of all the birds in the sample batch for one day.	1. Compare the average weight of the birds from one day to the precedent values. 2. The increments should be relatively constant and progressive. 3. Compare the final reading (in week 4) to the breeder's performance standard or the NEST Committee' standard. 4. See **Figures 1 and 2** for ISA Brown performance parameters.	1. In a graph or tabular format, showing incremental growth together with the minimum and maximum weight from the beginning and from the end of the Key Period 1. 2. Compare with breeder's performance standard.
Bodyweight Uniformity	1. Using the bodyweight measurements carried out to monitor **constant growth,** and the average weight representative for the sample, bodyweight uniformity can be calculated. 2. The flock is considered uniform when all the weights within the sample fall between ±20% of the average weight or, when 80% of the weights lie within ±10% of the average value. 3. See **Figure 3** for a graphical representation of the bodyweight uniformity.	1. After determining the average uniformity percentage, it can be concluded whether the flock is uniform. 2. Uniformity percentage will be used when evaluating flock development, to set additional requirements for feed and supplements, or to set other general conditions. 3. In case the flock is not growing uniformly, and the uniformity percentage is less than 80%, or the value defined in the farm's performance objectives, then action to address this will be required.	1. Bodyweight uniformity can be presented as a percentage or as a range in a tabular format, next to the average bodyweight. 2. Identify if the flock is considered uniform based on the selected criterion listed in the *Performance Objectives Report (See Appendix B).*
Low Mortality	1. Record mortality daily. 2. Calculate the average mortality per week, and the average mortality percentage per week.	1. The average mortality percentage, should preferably be less than 1% of the monitored flock.	Mortality should be presented as a weekly and a monthly percentage in a tabular format.

Key Period 2: 5 to 16-18 Weeks of Age

Key Performance Indicator	How to calculate it	How to compare it	How to present it
Reach Recommended Weight	1. Measure the bodyweight of the pullets weekly (minimum 10% of the flock size). 2. Record bodyweight in a record log (See *Appendix C – Bodyweight Record Form*). 3. Calculate the average weight of all the birds measured for one day.	1. Compare the average weight of the birds from against the breeder's performance standard, or the NEST Committee standard. 2. For example, reference **Figures 1 & 2** below for the ISA Brown standards for recommended growth.	In a graph or tabular format, showing weight as a percentage profile of the breeder's performance standard. (See **Figure 2** for ISA Brown for an example.)
Bodyweight Uniformity	1. Using the bodyweight measurements carried out to monitor **constant growth,** and the average weight representative for the sample, bodyweight uniformity can be calculated. 2. The flock is considered uniform when all the weights within the sample fall between ±20% of the average weight or, when 80% of the weights lie within ±10% of the average value. 3. See **Figure 3** for a graphical representation of bodyweight uniformity.	1. After determining the average uniformity percentage, it can be concluded whether the flock is uniform. 2. Uniformity percentage will be used when evaluating flock development, to set additional requirements for feed and supplements, or to set other general conditions. 3. If the flock is not growing uniformly, and the uniformity percentage is less than 80%, or the value defined in the farm's performance objectives, then action to address this will be required.	1. Bodyweight uniformity can be presented as a percentage or as a range in a tabular format, next to the average bodyweight. 2. Identify if the flock is considered uniform based on the selected criterion listed in the *Performance Objectives Report (See Appendix B).*
Good Feeding Behaviour	The decision can be made on whether weekly or monthly feeding behaviour is good or bad by reviewing the information recorded in the *Observations Log* and the *Production Record Sheet*, both contained in *Appendix C*.	As long as the birds consume the amount of feed expected at the right times, and growth is in the expected parameters, then it is considered that the flock developed good feeding behaviour.	Commentary and supplementary reference can be made on the daily feed intake records and the growth and bodyweight uniformity parameters. (See *Appendix C – Production Records Sheet; Bodyweight Record*)
Well developed digestive tract	A select number of birds will need to be regularly dissected by a qualified and approved veterinarian to observe the development of their digestive tract and correlate that with feed consumption. (See the Good Feeding Behaviour parameter above.)	If the pullets do not ingest the expected amount of feed, or their growth is delayed, the cause might be an underdeveloped digestive tract. This can be established by direct examination.	This can be presented as a comment confirming the status/health of their digestive systems. *The Disease/Health Record in Appendix C* can be used.

Figure 1: Bodyweight and feed consumption for ISA Brown laying pullets

Key Period 1: D.O.C. to 4 Weeks of Age

Key Period 2: 5 to 16(up to 18) Weeks of Age

(Image sourced from ISA Brown Guide)

Age		Bodyweight				Feed intake per bird per day				Feed intake per bird cumulative			
Weeks	Days	(g)		(Lbs.)		g/bird		Lbs./100 birds		g/bird		Lbs./100 birds	
		min	max	min	max	min	max	min	max	min	max	min	max
1	0 - 7	64	67	0.14	0.15	10	12	2.2	2.6	70	84	15.4	18.5
2	8 - 14	132	139	0.29	0.31	16	18	3.5	4	182	210	40.1	46.3
3	15 -21	211	221	0.46	0.49	24	26	5.3	5.7	350	392	77.2	86.4
4	22 - 28	296	312	0.65	0.69	31	33	6.8	7.3	567	623	125	137.3
5	29 - 35	388	408	0.86	0.9	36	38	7.9	8.4	819	889	180.6	196
6	36 - 42	485	510	1.07	1.12	41	43	9	9.5	1,106	1,190	243.8	262.3
7	43 - 49	584	614	1.29	1.35	45	47	9.9	10.4	1,421	1,519	313.3	334.9
8	50 - 56	685	720	1.51	1.59	49	51	10.8	11.2	1,764	1,876	388.9	413.6
9	57 - 63	786	826	1.73	1.82	53	55	11.7	12.1	2,135	2,261	470.7	498.5
10	64 - 70	886	932	1.95	2.05	57	59	12.6	13	2,534	2,674	558.6	589.5
11	71 - 77	984	1,034	2.17	2.28	60	62	13.2	13.7	2,954	3,108	651.2	685.2
12	78 - 84	1,079	1,134	2.38	2.5	63	65	13.9	14.3	3,395	3,563	748.5	785.5
13	85 - 91	1,169	1,229	2.58	2.71	66	68	14.6	15	3,857	4,039	850.3	890.4
14	92 - 98	1,255	1,319	2.77	2.91	69	71	15.2	15.7	4,340	4,536	956.8	1, 000
15	99 - 105	1,335	1,404	2.94	3.09	72	74	15.9	16.3	4,844	5,054	1,067.9	1,114.2
16	106 - 112	1,409	1,481	3.11	3.27	75	77	16.5	17	5,369	5,593	1,183.6	1,233
17	113 -119	1,476	1,552	3.25	3.42	78	80	17.2	17.6	5,915	6,153	1,304	1,356.6
18	120 - 126	1,537	1,615	3.39	3.56	83	85	18.3	18.6	6,497	6,748	1,432.4	1,487.9

Figure 2: Expected performance (Bodyweight Growth Parameter) of ISA Brown laying hens

(Image sourced from ISA Brown Guide)

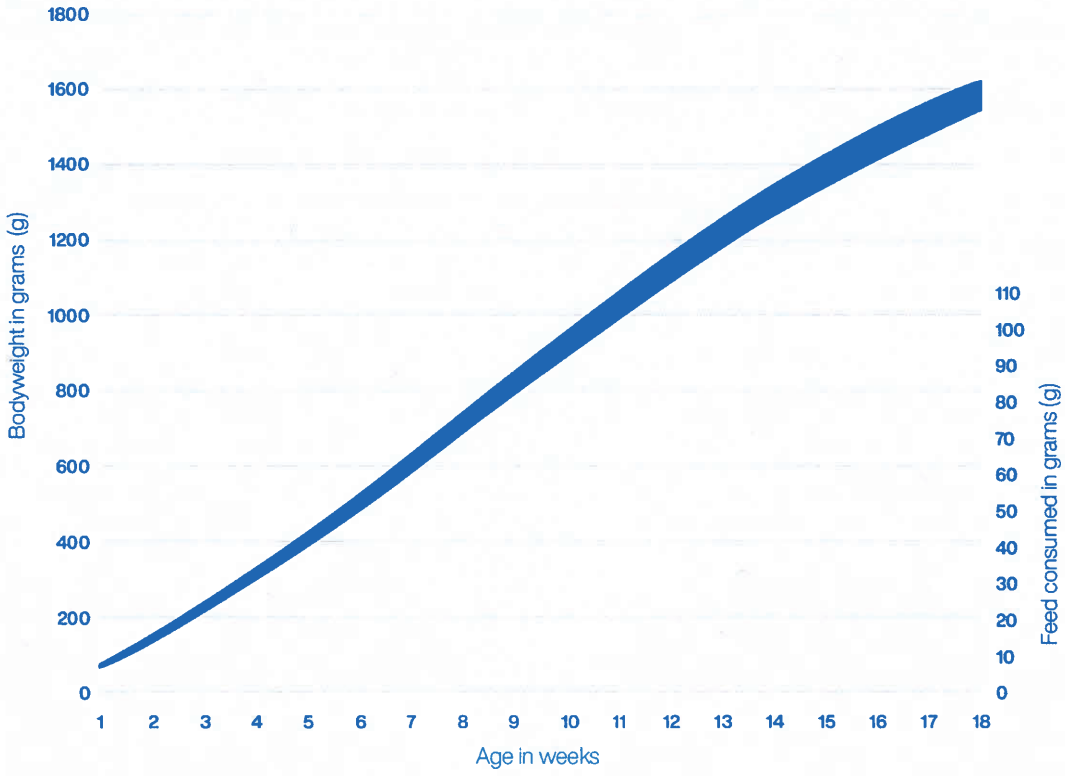
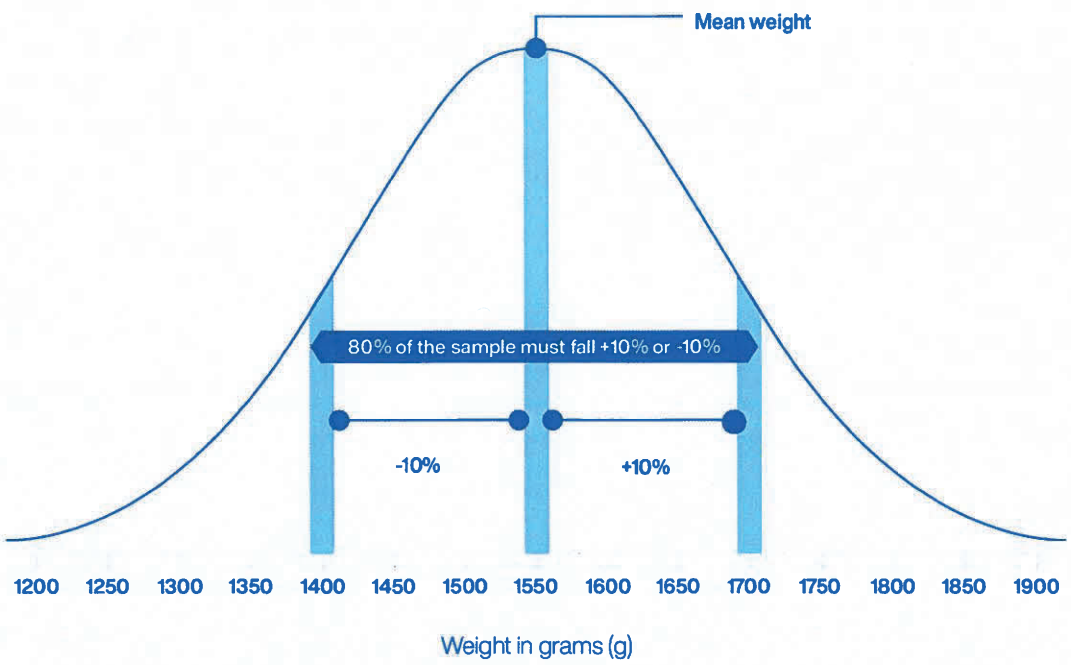


Figure 3: Graphical representation of the Bodyweight Uniformity Parameter

(A batch is uniform when all the weights within the sample fall between ±20% of the mean or, when 80% of the weights lie within ±10% of the mean.)

(Image sourced from ISA Brown Guide)

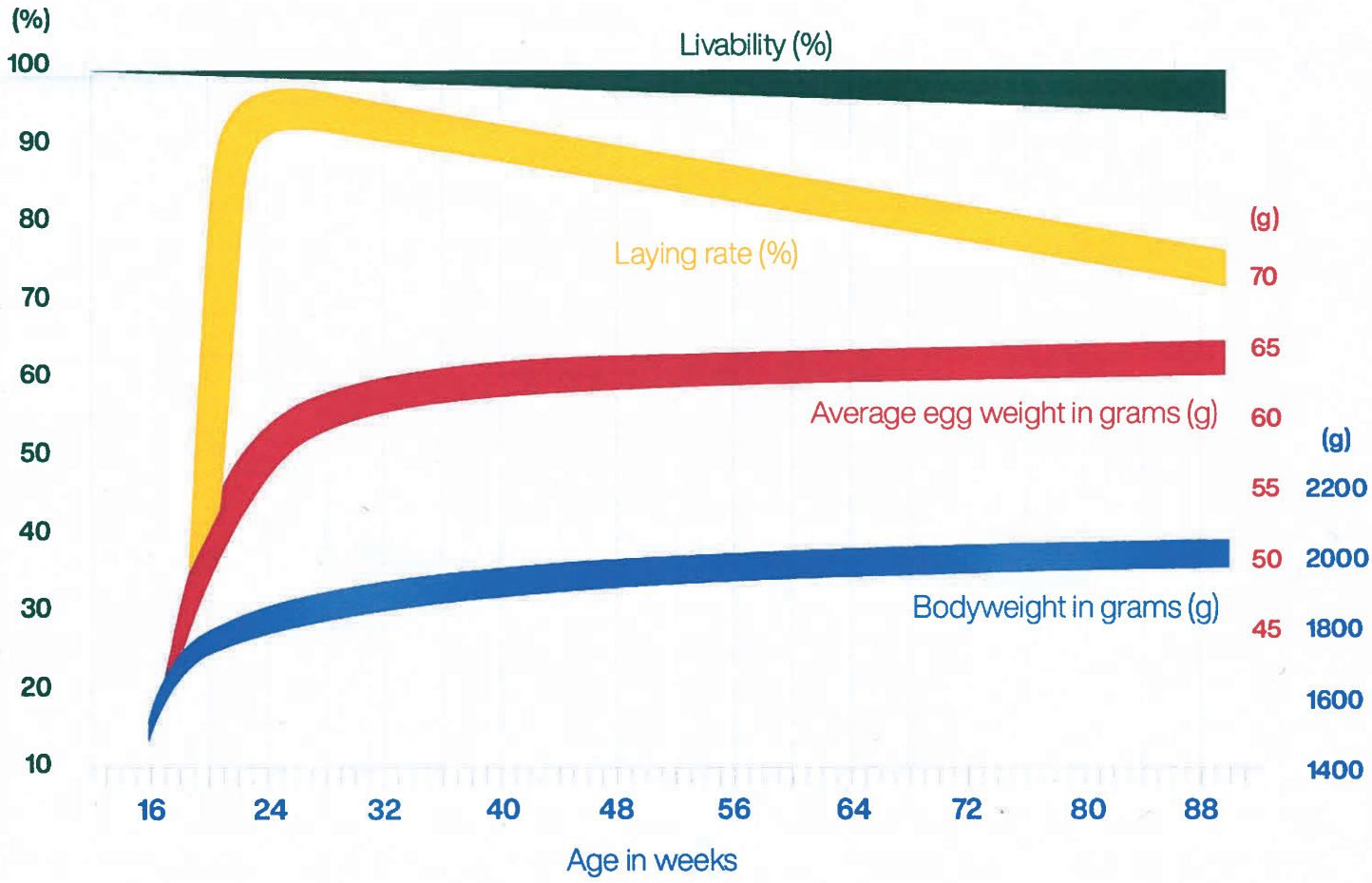


Production Period

Key Performance Indicator	How to calculate it	How to compare it	How to present it
Egg production	1. Record egg production every day as part of the performance monitoring process. 2. Calculate the total monthly production.	1. Compare the daily and monthly production to the expected production level based on the age of the layers as reflected in the breeder's guide, or as agreed with the NEST Committee representatives. 2. **Figure 4** below is a good example that presents the variation of production parameters over time for ISA Brown Layer.	Include the number of dozen eggs per reporting period and compare it to the total predicted production. (Total # dozen eggs vs. Total predicted production)
Reach high peak production	1. High peak production is determined once the laying rate is calculated. 2. The laying rate is a percentage that reflects the total number of quality eggs collected divided by the number of layers.	1. The laying rate is compared with the breeder's performance guides, or the performance objective established by the egg producer. 2. The laying rate for an ISA Brown Layer represented in **Figure 4** graph below is a good reference. 3. By recording the laying rate, a production trend specific to each poultry unit can be traced, and this information can be used for planning egg distribution.	1. This can be presented on the *Production Record Sheet (See Appendix C)* as a comment with a supporting estimated production trend line in ascending or descending order. 2. If the trend is descending, then the farm's projections should be re-evaluated to confirm the viability of the business model.
Revenue/Profit	Use financial information, costing tool(s), or any method of determining all costs of production and the income obtained from the eggs commercialisation.	1. The income should be greater than the costs. 2. If income is not greater than the cost, a review of the costs should be undertaken to evaluate the business resilience.	1. Profit/loss amount in KYD. 2. If reporting period is monthly, then it is likely that some months will mainly record losses, but the projections should indicate the forecasted profit.

Figure 4: **Graphical representation of relevant production parameters: laying rate, livability, average egg weight and layers bodyweight representative for ISA Brown Layers.**

(Image sourced from ISA Brown Guide)



Appendix B – Indicative Document Outlines

The National Egg Strategy (NEST) programme, CIPS-LO, recommends that egg producers collect and document a variety of key information that details the farms' ongoing operations. The list below contains the main reports that farmers should be compiling and providing the NEST officer.

It is recommended that farmers use the information outlined in each section to create their own reports, making sure that all suggested, relevant information is included.

Performance Objectives Report

Risk Management Plan

Animal Welfare and Care Statement

Veterinary Health Plan

Complaints and Investigations

Competence Assessment

Performance Objectives Report

This report should summarise the key parameters and targets that an egg producer would like to achieve within a set period. This type of report is typically prepared once a year, at the start of the financial year.

The report should contain, but not be limited to, these main sections:

1. General Statement

- Briefly describe the current farm situation.
- Identify at least one main, specific target to achieve in a defined period (e.g. increase my profit by 10%, or double the number of laying hens, etc.).

2. Performance Objectives

- List the specific targets for key parameters in each developmental stage. The targets should be realistic based on historical data and if in doubt refer to relevant standards.
- Subsections should be included for the Key Period 1 (D.O.C. - 4 weeks), Key Period 2 (5 to 18 weeks) and Production Period. For each subsection, the key objectives should be listed.

3. Methods of Control and Monitoring

Briefly describe the methods of control and monitoring, such as:

- The type of records to be kept
- The frequency the methods of control and monitoring are conducted
- The instrumentation used
- Personnel
- Particular schedules, etc.

4. Reviews

- Establish how often a review of the farm's performance is to be carried out (e.g. bi-weekly, monthly, quarterly, etc.).
- Identify the people who will review the information, and/or who are responsible for any decisions.
- Describe the follow-up process, and how any change to the performance objectives above will be recorded.

5. Other Relevant Documents

List here any reference to other available documentation, such as templates, plans, or statements.

Risk Management Plan

This report should present all the risks identified at the beginning of the reporting period, including risks within farm management control, as well as unforeseen events.

The Risk Management Plan should be a live document reflecting the most up-to-date status of the farm. The purpose of this document is to acknowledge hazards and risks, but most importantly, it is to establish a mitigation plan for each of the identified risks. The Plan will inform farm management what needs to be done to minimise the risks.

The Risk Management Plan should contain, but not be limited to, the following main sections:

1. Introduction

- Briefly describe the farm and its management hierarchy structure.
- Provide contact details and staff responsibilities.
- Describe the location, existing site condition, and historic known hazards which might impact proper farm operation (e.g. flooding, periods of drought, high winds, hurricanes, wild animals, pests, thefts, etc.).

2. Hazards Log

Using a table format, record as many potential hazards as possible. Please reference the attached Hazards Log Template for a sample of what type of information is needed and how to record it. The Hazards Log should contain at minimum the following columns, or more, where relevant:

Hazard ID – Assign an ID number in ascending order.

Hazard Description – Describe the hazard. (e.g. "Avian influenza spreads on the island.")

Hazard Impact – Identify the impact. (e.g. "Due to avian influenza, the flock might need to be kept in quarantine, but if the virus contaminates any of the birds, the birds will be culled. Significant loss of money.")

Hazard Risk – Identify risk level, High, Medium, or Low BEFORE any mitigation is put in place. This is a recommended scale where the risk levels are defined as: High means significant impact (economic, human loss, animal welfare) on the farm, and Low means negligible impact on the farm.

Hazard Likelihood – High, Medium, or Low BEFORE any mitigation is put in place. This is a recommended scale where the likelihood for that hazard to occur is defined as: High means very often, and Low means rarely.

Mitigation Measure – Describe what measures are already in place. (e.g. avian influenza, "Ensure biosecurity level is high, limit the number of visitors, restrict birds' access, and monitor their health daily.")

Contingency Plan – Describe what more can be done in case of emergency. (e.g. avian influenza, "Prohibit farm access, keep birds enclosed, and limit any contact with outdoor factors as much as possible. If necessary, the contaminated flock will be culled.")

Contingency Risk – Identify risk level, High, Medium, or Low AFTER any mitigation is put in place. This is a recommended scale where the risk levels are defined as: High means significant impact (economic, human loss, animal welfare) on the farm, and Low means negligible impact on the farm.

Contingency Likelihood – High, Medium, Low AFTER the mitigation measure is in place. This is a recommended scale where the likelihood for that hazard to occur is defined as: High means very often, and Low means rarely.

Criticality – This represents the level of attention that the owner should assign to the hazard. It should be considered the most conservative level when combining the risk and likelihood levels assessed after implementing the mitigation measures.

3. Critical Hazards

The Hazards log should be reviewed and the most critical hazards with the most damaging impact on the farm should be identified and notated. Conclusions on whether any further actions can be taken to reduce impact on farm operation should also be notated.

4. Emergency Contacts Details

- For any emergency event when external parties are to be called for help, support or guidance, a list of contact details should be included in the report.
- Contacts for the fire department, water supply, electricity, hospitals, police, veterinary services, Department of Agriculture, and the NEST Committee should be listed with the point of contact, phone number, and email address.
- A list of all emergency contacts should be printed and positioned in a visible place for easy access by all farm staff in case of emergency.

Appendix B.1
Hazards Log Template

Procedure No: ID to be confirmed by the farmer. _____

Farm Unit: _____

Date: _____

Prepared by: _____

Checked by: _____

Sample of a Hazards Log with recommended types of information that each poultry farm owner/manager should complete. The hazards listed are for illustration purposes only.

Hazard ID	Hazard Description	Hazard Impact	Risk	Likelihood	Mitigation Measure	Contingency Plan	Risk	Likelihood	Critcality
HAZ_001	Avian influenza spreads on the island	Due to avian influenza, the flock might need to be kept in quarantine, but if the virus contaminates any birds, the birds will be culled. Significant loss of money.	High	Low	Ensure biosecurity level is high, limit the number of visitors, restrict birds' access and monitor daily their health	Prohibit farm access, keep birds enclosed, and limit any contact with outdoor factors as much as.	Med	Low	Med
HAZ_002	Sinkholes formation								
HAZ_003	Neighbours' complaints								
HAZ_004	Hurricane or major tropical storm								
HAZ_005	Feed access restricted								
HAZ_006	D.O.C. not available from the suppliers								
HAZ_007	Staff sickness, or not available								
HAZ_008	Lack of monitoring instruments for keeping records								
HAZ_009	Water supply not available								
HAZ_010	Fencing damaged – access of wild animals								
	Other Hazard(s)								

Animal Welfare and Care Statement

The Animal Welfare and Care Statement is one of the most important reports that egg farmers are to prepare documenting general farm management and standard operating procedures as they relate to animal welfare.

This report is mandatory for certification purposes, and it must be provided to the NEST Advisory Committee as part of the application process.

The overall aim of this document is to confirm that the poultry farm is managed, operated, and organised in accordance with poultry standards, thus evaluating the level of compliance with the standards.
Any aspects planned to be implemented at a later stage should be noted as part of the long-term commitment to further develop the poultry farm, with specific consideration given to animal welfare and care.
The Statement should provide detailed information about the current state of the farm, and address future developments where possible or necessary.

The Animal Welfare and Care Statement should include, but not be limited to, the following main sections:

1. Introduction

Briefly describe the farm including location, layers population, and units. A plan with a farm biosecurity area identified might be useful.

2. Sourcing and Placement of Birds

- Describe where the day old chicks, pullets or layers are purchased from, how many, and with what frequency they are purchased.
- There should be a subsection called "Procedures". This should include all the procedures in place for the placing of birds at different stages of development.
- Please refer to the attached Pre-placement Rearing Unit Preparation Checklist template for an example.

Appendix B.2
Pre-placement Rearing Unit Checklist

Procedure No: ID to be confirmed by the farmer. _____

Farm Unit: _____

Date: _____

Prepared by: _____

Checked by: _____

Requirement Checked	Description	Yes/No	Comments
House lay-out	The house is adequately cleaned and disinfected before the birds arrive		
Equipment is in place	Feeders and drinkers in an adequate number		
Water and feed	Water and feed are available and quality checked		
House Temperature	House temperature checked and monitored		
Light	Light intensity checked		
Stocking density	Not to exceed 14 birds/m2 or 1 bird/0.8 sq. ft. (o to 4 weeks)		
Litter	The litter is distributed evenly and of good quality		
Vermin and predator protection	Necessary measures in place		

Photos:

Insert photos of the house

Records:

Insert a table with specific readings on lux level, house temperature, etc.

3. Housing and Environment

- Describe each unit available on the farm as they are. The unit's description should contain a reference to the spatial dimension, type of construction, fencing, ventilation, accumulation of dust, and presence of heating elements for chicks of 0-4 weeks of age.
- Refer to the types of records which will be kept to monitor the housing and environment for each unit. (e.g. a Climate Records Log – for temperature, humidity, dust, ammonia, etc.)
- Ensure that a maintenance plan is in place including items like regular inspection, sections of the unit to be replaced, etc.
- Include a section with procedures in place for placement readiness, cleaning, disinfection, maintenance, egg collection timings, monitoring and recording data.

4. Feeding and Watering

- Describe the type of feeding and water supply systems in place, including the position of the feeders and drinkers, and the storage facility for the feed.
- Refer to records such as water quality reports and productivity records, where feed and water consumption is recorded.
- Include a section that outlines the procedures in place for ordering feed, transportation, storage, and monitoring and recording relevant data.

5. Veranda and Outdoor Area

- If applicable, briefly describe the veranda and/or the outdoor area spatial dimensions, location, exposure, biosecurity, and protection.
- Any particular procedure for these areas should be included in either the Housing and Environment or Feeding and Watering procedures.

6. Maintaining Stock Density

- Describe how stock density is maintained within a unit, and how transitions are made between houses/units if this approach is used.
- Describe the type of monitoring in place to ensure that new layers have adapted into the new flock, and that the development of the main flock and new birds is not negatively impacted.
- The procedures to transfer layers between units/houses should be listed including pre- and post-monitoring data, confirming that animal welfare is preserved.

7. Bird Observation

- Describe the observation methods employed on the farm, and the schedule of regular visual inspections.
- Since bird observation is a daily activity, it is recommended to record findings in an observations log. Please refer to Appendix C – Observations Log for a sample template.

- Describe the bird observation process – how it is conducted, the route followed, the elements checked, and the manner in which the outcome is recorded.
- Refer to the Risk Management Plan in case of an emergency, and to the Veterinary Health Plan in case any health issues are noticed.

8. Human Euthanasia/Culling

- Briefly describe the process in place for culling birds, and identify those persons responsible for undertaking this task.
- List the circumstances when this activity is carried out, and the specific measures taken for each situation.
- Identify the procedures in place to carry out this activity, including record type, the need for veterinary support, whether the meat is commercialised, and in what condition, etc. To avoid duplication, any veterinary procedures should be included in the Veterinary Health Plan. A summary reference to euthanasia/culling procedures is sufficient to include in the Animal Welfare and Care Statement.

9. Depopulation

- Describe the process of depopulation, including cleaning and disinfection of houses, environments, feeding and watering systems, and any other related activities, such as significant maintenance works, biosecurity issues, etc.
- Mention any scheduled depopulations activities.
- Include details on the procedure in place to undertake this activity. This should cover all aspects, ensuring that the placement of new layers in the unit/house will not be hindered and that there will be a smooth transition between layers' flocks.

Veterinary Health Plan

This report should comprehensively present all the procedures and schedules planned for the upcoming year, focusing on the Health and Safety of the Layers on the farm. The plan will require yearly updates to align with the latest legislation. Most of the procedures outlined in this plan should involve the veterinary services of a qualified and competent veterinarian.

All farms are required to designate a point of contact with a veterinary service of their choice. Additionally, the poultry farm's management team should ensure efficient communication with the Cayman Islands Ministry of Planning, Agriculture, Health, and Infrastructure - Department of Agriculture - Veterinary Support in the event of any outbreak of contagious diseases or other illnesses that pose a significant risk to the farm, other poultry farms, or the general public.

This plan will assist the poultry farm's management team in their endeavour to alleviate any health-related risks, and ensure a controlled environment where a healthy and productive layers population can thrive.
This report should be prepared with support from the selected veterinary services, and should reflect the current status. Any further improvements can be planned and included as a section in the plan if needed.
The report should contain (but not be limited to) these main sections:

1. Introduction

- Briefly describe the farm and the layers population and their existing condition.
- Specify the veterinarian assigned to the farm who will conduct checks and provide relevant recommendations.

2. Poor Health Conditions

- As part of the daily operational activities on the poultry farm, various incidents/behaviours may be observed that will potentially require veterinary support, such as a variety of injuries and illnesses affecting individual birds or the entire flock. List the potential poor health conditions which might affect the layers population.
- Once defined and grouped, outline the procedure(s) in place for addressing these incidents. The procedure(s) should list the identification process as well as the treatment for weak, ill, or injured birds and any quarantines, separated treatment or euthanasia.
- Each procedure should specify the type of veterinary services support, e.g. consultation over the phone, farm visit, laboratory support, etc.
- In case of contamination or viral infections, the euthanasia procedure should define how the carcasses are removed from the farm and where are they taken.
- Include the procedures in place for addressing stress related conditions, such as injurious pecking and feather loss.

3. Quarantine and biosecurity

- Describe the procedure for keeping layers in quarantine, where they will be located, at what distance from other poultry units, and in what conditions. The procedure should include the steps for monitoring/observation and treatment if required.
- A separate subsection should address biosecurity. Define the farm's established biosecurity area, and identify the control measures in place to restrict access of visitors, and wild birds, predators, insects, and rodents in the proximity to the layers.
- The procedures to control, monitor and maintain the biosecurity area should be listed along with the main activities currently in place. If the biosecurity area is not yet defined, the procedures should reflect what will be done moving forward as of the writing of this report.

4. Cleaning and Sanitation

- Cleaning and sanitation are extremely important on the farm and it should ideally be carried out at regular intervals to minimise the impact on the layers' productivity.
- A recommended plan for cleaning and sanitation activities can be presented on a weekly basis, and should cover all areas relevant to egg production, or the biosecure area, if defined.
- Cleaning and sanitation procedures should reflect the current procedures in place.
- A list of cleaning equipment and cleaning substances used for cleaning and sanitation should be provided.

Complaints and Investigations

As part of general farm management, each farm manager should create a form to record details of any complaints received. The form should record the items listed in Clause 1.39 of the General Farm Management section of the Poultry Standards.

It is expected that the majority of complaints will be received from distributors, such as local shops, supermarkets, etc., based on their direct observations or on behalf of unsatisfied customers. If egg producers sell eggs directly from the farm, then customers should be able to lodge complaints if they are unsatisfied.

All complaints and investigations should be recorded and contain at minimum, the complaint registration number, the title, the date when the complaint was filed/raised, and its status (open/closed). This, and any other relevant complaint details should be recorded on the log.

Please refer to the attached Complaints and Investigations Form for an example of what information should be included.

Appendix B.3
Complaints Investigations Form

Complaint Title:		
Registration no. :		
Date raised:		
Originator name:		
Complaint status:	OPEN	
Description of the complaint:	*Description of the complaint with the time, location from where the eggs have been purchased, the defects noticed and the overall dissatisfaction of the client. The complaints can cover various aspects, such as:*	• *Transportation - ways of transportation* • *Quantities delivered* • *Quality of eggs* • *Quality of egg canons etc*
Impact on the farm:	*Describe the impact for example costs, loss of trust, loss of customer confidence, etc*	
Criticality:	*Estimated criticality using a scale High/Medium/Low, where High would require maximum attention and swift resolution* ☐ HIGH ☐ MEDIUM ☐ LOW	
Root cause analysis:	*In order to resolve an issue and prevent it's occurrence, the root cause of the issue must be identified. Here it should be summarised the results of an internal discussion and assessment during which the root cause has been identified. The assessment details should be provided, such as: date, attendees and location.*	
Mitigation measures/resolutions:		
Description:		**Date of implementation**
Describe each mitigation measure adopted, for example: additional training for the staff, new procedure, new control and monitoring process, etc.		DD/MM/YEAR *When it will be done*
Other mitigation measure/resolution – if necessary – Multiple entries should be added if required.		DD/MM/YEAR *When it will be done*
Evidence:	*Refer to any type of evidence relevant for closing the complaint.* *If there are changes to any of the procedures in place, the updated format should be attached to this form.*	
Date of closure:	DD/MM/YEAR	
Signatures:	**Name**	**Position**
Name of Investigator:		
Name of Reviewer:		

Competence Assessment

It is recommended that all staff employed by the poultry farm are to be evaluated yearly to confirm individual competence and responsibility levels, and to stipulate requirements for future development/training plans. Competencies and responsibilities are listed in Clauses 1.40 and 1.41 of the General Farm Management section of the Poultry Standards.

Please refer to the attached Competency Assessment Form as an example, for illustration purposes only. Each farm manager can generate their own specific competency assessment forms.

Appendix B.4
Competency Assessment Form

Competency Assessment Form

Employee name :	
Current position:	
Duration of employment:	
Name of the reviewer:	
Date of the review:	DD/MM/YEAR

Competencies of the employee

Level of experience	*List education evidence provided, if any.*
Previous experience	*List experience provided, if any.*
Experience at the current farm	*List the roles, responsibilities at the current farm, if any.*
Relevant training during the last year	*In order to resolve an issue and prevent it's occurrence, the root cause of the issue must be identified. Here it should be summarised the results of an internal discussion and assessment during which the root cause has been identified. The assessment details should be provided, such as: date, attendees and location.*

Assigned responsibilities following the assessment	Execution works ☐ YES ☐ NO	Planning & recording ☐ YES ☐ NO	Decision making/operations ☐ YES ☐ NO	Farm management ☐ YES ☐ NO

Role description:	

Describe the employee's role and responsibilities for the new working year.

Competency status for the role described:
Confirm their competency level

Training recommended: ☐ YES ☐ NO	**Target date:** DD/MM/YEAR

Training suggestions:	*Indicate the specific areas of improvement and sources for further education: professional courses, online resources, eBooks, public talks, etc. Multiple entries should be added if required.*

Signatures:		**Position:**
Name of employee:		
Name of employer:		

Appendix C – Monitoring Templates

Climate Record
Observations Log
Layers Bodyweight Record
Production Records
Disease/Health Records

Ministry of Planning, Agriculture, Housing, Infrastructure, Transport & Development

Cayman Islands Government

Appendix C.1
Monthly Climate Record Sheet

Month: _____ Unit No.: _____

Farm/Unit: _____ No. of birds: _____

Person Recording: _____ Age (weeks): _____

Day	Indoor Temp (F°)	Outdoor Temp (F°)	Egg Room Temp (F°)	Ammonia Levels Checked (Y/N)	Ammonia Levels Record* [ppm]	Water Quality Checked (Y/N)	Water Quality Record (Y/N)	Dust Level Checked (Y/N)	Dust Level Record	General Weather Description (Sunny, Partially cloudy, Showers, Storm etc)
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										

Egg producers must record the data represented in the columns of the table below as a minimum requirement. Farmers have the option to use a different table format. The table shown is a suggested template. Note: An asterisk (*) notates the records that should be provided at least once per month, and more frequently if possible.

Appendix C.2
Monthly Observations Log

Month: _____

Farm/Unit: _____

Person Recording: _____

Unit No.: _____

No. of birds: _____

Age (weeks): _____

Egg producers must record the data represented in the columns of the table below. Farmers have the option to use a different table format.

The table shown is a suggested template.

Day	Time	Appearance *eg. healthy, unkept*	Vocalisation *eg. normal, excessive*	Behaviour *eg. active, lethargic*	Cleanliness *eg. clean, dirty*	Activity *eg. feeding, resting, roaming*	Distribution *eg. clustered in corner, evenly distributed*	Other Observations
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

Appendix C.3
Layers Bodyweight Record

Month: _____

Farm/Unit: _____

Person Recording: _____

Unit No.: _____

Type (Pullets/Layers): _____

No. of Birds: _____

Breed Type: _____

Feed Type: _____

Egg producers must record the data represented in the columns of the table below. Farmers have the option to use a different table format. The table shown is a suggested template.

Measurements for pullets (D.O.C. - 18 weeks) should be taken on a weekly basis. Measurements for layers should be taken at least once monthly.

No.	Date of Measure	Age *(Weeks)*	Body Weight Min *(Lbs.)*	Body Weight Max *(Lbs.)*	Uniformity	Comments *Include the number of birds measured and the total population at the time of measuring*
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

Appendix C.4
Monthly Production Record Sheet

Month: _____

Farm/Unit: _____

Person Recording: _____

Unit No.: _____

Type (Pullets/Layers): _____

No. of Birds: _____ Age (weeks): _____

Breed Type: _____ Feed Type: _____

Egg producers must record the data represented in the columns of the table below. Farmers have the option to use a different table format. The table shown is a suggested template.

Day	Dead *(No. of dead birds/ day)*	No. of Birds	Eggs Collected *(Number)*	Eggs Rejected *(Number)*	Feed *lb. / day*	Water *Gallon / day*	Comments
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							

Appendix C.5
Disease/Health Record

Month: _____

Farm/Unit _____ Unit No.: _____

Person Recording: _____

Type (Pullets/Layers): _____

No. of Birds: _____ Age (weeks): _____

Breed Type: _____

Feed Type: _____

Egg producers must record the data represented in the columns of the table below. Farmers have the option to use a different table format. The table shown is a suggested template.

No.	Date	Health Issues/ Scheduled Checks	Vet Visit *Yes / No*	Treatment / Medication	Observations *Include any relevant related to the treatment / vaccination et. Also make reference to the state of the layers*
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Cayman Islands Poultry Standards

Layer Operations

Ministry of Planning, Agriculture, Housing, Infrastructure, Transport & Development

Cayman Islands Government