

●●● EGG FARMERS OF CANADA ●●●

LAYER PROGRAM

Start Clean–Stay Clean[®]

On-Farm Food Safety Program Farmer Guidelines

This manual was developed with the assistance of
Agriculture and Agri-Food Canada



EGG FARMERS
OF CANADA

INTRODUCTION

Objectives

Our objective is to produce safe eggs and end-of-lay hens for consumption.

Our goal is to reduce, prevent, or eliminate the biological, chemical, or physical hazards identified in Egg Farmers of Canada's (EFC) Start Clean-Stay Clean™ program (SC-SC™) to the best of our abilities by utilizing good management practices and operating procedures that effectively prevent or control the identified hazards.

What is HACCP?

Hazard Analysis Critical Control Point (HACCP) is a systematic approach to food safety that is internationally recognized and recommended by the Codex Alimentarius Commission. HACCP is a food safety management system that concentrates on prevention strategies for identified hazards and on reducing the risk of these hazards occurring at specific process points. Critical control points are the process points, steps, or procedures during production at which control methods must be applied to prevent, eliminate, or reduce a food safety hazard. A HACCP plan provides better management of food safety during production by identifying all potential hazards, describing the prevention of these hazards, and ensuring corrective action is taken when necessary.

HACCP uses seven accepted principals. These are to:

1. Conduct a hazard analysis
2. Identify the critical control points (CCP)
3. Establish critical limits for each CCP
4. Establish monitoring procedures for each CCP
5. Establish corrective actions
6. Establish verification procedures
7. Establish record-keeping procedures

In addition to the seven principles, there are five preliminary steps in order to implement a HACCP plan. These steps include:

1. Assemble the HACCP Team
2. Describe the product
3. Identify the intended use of the product
4. Construct a process flow diagram and production unit schematic
5. On-site verification

Start Clean-Stay Clean™ is a generic HACCP-based On-Farm Food Safety Program (OFFSP) for the production of eggs and end-of-lay hens. The program identifies all biological, chemical, and physical hazards and provides critical control points (CCP), Good Management Practices (GMP's), and Standard Operating Procedures (SOP's) to prevent, reduce, or eliminate the identified hazards.

Incorporating Start Clean-Stay Clean™ into egg farming practices will assure that farmers are following a HACCP-based program and assist farmers to comply with regulations, show due diligence, and fulfil customer expectations for a food safety management system.

National Strategy for On-Farm Food Safety in Eggs and End-of-Lay Hens

Egg Farmers of Canada has been proactive in the area of food safety since 1990. In 1990, CEMA (now EFC) introduced its Safe From *Salmonella* Program. This program was developed as a control for *Salmonella* Enteritidis as outbreaks of salmonellosis, the human disease caused by *Salmonella* bacteria, had seriously disrupted the egg industry in much of Europe and the United States. Similarly, all developed and many developing countries were turning their efforts to introducing or increasing controls for *Salmonella*. Even though Canada's record with *Salmonella* Enteritidis was among the best in the world, the egg industry in this country felt it could contribute to the improvements being made worldwide and by doing so, maintain or improve both its national and international reputations.

As the program matured, the industry came to realize that the same practices that combat *Salmonella* Enteritidis also control other organisms that can cause food-borne illness or poultry disease. The Safe From *Salmonella* Program was reviewed, updated and renamed Start Clean-Stay Clean™. While today's Start Clean-Stay Clean™ program still emphasizes protection against *Salmonella* Enteritidis, care is taken to remember that the true goal of good management practices must be the control of all food safety hazards.

Canada's egg industry enjoys a reputation for producing a nutritious, wholesome, and safe product. Canadian egg farmers accept their responsibility for providing consumers with eggs of the highest quality possible. The task ahead is to ensure Canada maintains, and improves upon, its enviable reputation abroad, and particularly at home.

With this in mind, the Canadian egg industry adopted a generic HACCP-based program in 1997 as EFC updated the Start Clean-Stay Clean® program to meet HACCP-based management practices through consultation with the HACCP Review Team, egg boards, the Production Management Committee, the Canadian Food Inspection Agency, and the Board of Directors. This program necessitates identifying all biological, chemical, and physical hazards in the production unit. The program recommends controls and management programs to deal with the identified hazards. Moreover, the program involves a combination of individual commitment and initiative as well as industry programs that will help farmers recognize and respond to specific hazards in their individual production units. This in turn will minimize the risks associated with egg production and maintain consumer confidence.

EFC strives for continuous improvement on assessing and mitigating food safety and quality risks in Canadian egg production. Start Clean-Stay Clean® is a dynamic program and is updated as the body of knowledge changes through experience, research, technical advancements, and government regulations. This constant development maintains the strength of the program and assists the Canadian egg industry in continually meeting the highest standards for food safety and egg quality.

On-Farm Evaluation/Audit and Certification Process

On-farm inspections are conducted by trained professionals to verify the operations against Start Clean-Stay Clean® (SC-SC®) and ensure that the program requirements are met. This includes an annual on-farm food safety audit for certification that the SC-SC® standards have been met.

Roles and Responsibilities

Start Clean-Stay Clean® is implemented at both the national and provincial/territorial levels. EFC is responsible for the design, development, and delivery of the SC-SC® program and its related documents. The On-Farm Food Safety Program includes the SC-SC® Administrative Manual that outlines the tasks involved in developing, administering, and managing the program. This manual includes the procedures for program maintenance, the requirements and training for OFFSP auditors, and the on-farm implementation and certification processes. The Administrative Manual, in conjunction with a Memorandum of Understanding (MOU) agreed to by the provincial/territorial egg boards and EFC, set the requirements of EFC and the egg boards for the on-farm delivery and implementation of Start Clean-Stay Clean®.

To maintain compliance with the OFFSP, it is the farmer's responsibility to implement the Start Clean-Stay Clean® standards on-farm, keep records to demonstrate this conformance, undergo scheduled evaluations/audits, and take corrective actions as necessary.

Evaluation/Audit Procedures

On-Farm Food Safety Program conformance is determined by an annual audit process.

The Start Clean-Stay Clean® audit consists of an on-farm inspection conducted by an EFC Field Inspector or Provincial Delivery Agent to review the biosecurity, the Critical Control Point and Critical Control elements, and all requirements outlined in Part One and Part Two of the program.

The SC-SC® program elements are categorized into Critical non-conformances, Major non-conformances, Minor non-conformances, and General non-conformances. Corrective Action Requests (CARs) for Major non-conformances should be closed within 30 days and CARs for Minor non-conformances should be closed within 3 months. The agreed upon closure date for General non-conformances may be up to 12 months. If the Major, Minor, and General non-conformance CARs are closed after the agreed date, the farmer will not regain their lost points, and the evaluation score will remain unchanged.

In order to pass the SC-SC® audit, farmers must achieve a 90% or higher score and meet the Critical Control elements (CCE). If a farmer does not receive full points for the CCEs, it will result in an immediate 7-day hold of the SC-SC® audit. Corrective Action Requests will be issued with a 7-day completion date. If the CAR(s) for the Critical Control element(s) are not corrected within 7 days with proof provided from the egg board, the result will be an immediate failure of the SC-SC® audit.

Audit Schedule

Start Clean-Stay Clean® audits are conducted annually, within 9-15 months of the previous audit.

Triggered audits may be initiated outside of the scheduled audits by events or issues that may have an impact on the safety of eggs and end-of-lay hens. These include but are not limited to:

- ▶ A *Salmonella* Enteritidis positive event
- ▶ Substantiated complaints from grader or processor regarding egg temperatures, cleanliness of eggs, or mouldy eggs
- ▶ A series of non-conformances are identified during an interim audit
- ▶ Change in production unit management or ownership
- ▶ Notification by a farmer to their egg board of a food safety risk
- ▶ New construction

Certification

An Audited Standards Certificate is granted when a farmer meets the requirements of the SC-SC® Program, including a minimum score of 90% and full points on the Critical Control elements. The certificate is issued by EFC for a one year period from the date of the initial assessment or re-assessment

An Audited Standards Certificate may be suspended and/or withdrawn if an interim audit determines non-conformances and the farmer fails to meet the requirements as outlined in the SC-SC® Rating Form and/or to meet the timelines of a Corrective Action Request (CAR).

Use of the Start Clean-Stay Clean® Farmer Guidelines

Start Clean-Stay Clean® On-Farm Food Safety Program GMP's and SOP's

The components of a HACCP-based On-Farm Food Safety Program consist of good management practices, administrative protocols, and verification protocols. These are detailed in the Start Clean-Stay Clean® Good Management Practices (GMP's) and Standard Operating Procedures (SOP's). This manual contains the program's "must do's" and the "highly recommended" GMP's and SOP's. The "must do's" are identified and referenced in the Start Clean-Stay Clean® rating form. The "highly recommended" GMP's and SOP's are practices that farmers may wish to incorporate into their operations over and above the expected standard practices.

GMP's that are essential to reducing, preventing, or possibly eliminating biological, chemical, and physical hazards are discussed in detail. Namely:

- ▶ Premises
- ▶ Transportation and Storage
- ▶ Equipment
- ▶ Personnel Training
- ▶ Sanitation
- ▶ Notification

In addition, the Start Clean-Stay Clean® GMP's and SOP's manual contains templates for record keeping, templates for letters of assurance and guidelines for farmers to identify their own farm practices as they refer to the Start Clean-Stay Clean® program, hazard identification and critical control points.

Start Clean-Stay Clean® On-Farm Food Safety Program Farmer Guidelines

This document, the Farmer Guidelines, is a summary of the GMP's and SOP's and is provided to farmers as a guide to explain the rating form requirements. Should there be a conflict of information between the Farmer Guidelines and the GMP's and SOP's manual the information contained in the GMP's and SOP's manual will prevail. Part One is used to determine the compensation factor that you may be entitled to should you have to depopulate for *Salmonella* Enteritidis. The sum of Part One and Part Two are used to determine your overall risk factor in your production unit and your eligibility for certification under the Start Clean-Stay Clean™ program.

Start Clean-Stay Clean™ is a dynamic program. The program documents will be updated as the body of knowledge changes through experience, research, technical advancements, and government regulations. EFC's HACCP Review Team will annually review this document and in consultation with farmer representatives will determine if any changes in the program are warranted.

Communications

To ensure that farmers are aware of the Start Clean-Stay Clean™ program and any future updates, the information in the program is transferred to farmers in several formats:

- ▶ Farmer newsletter
- ▶ EFC columns in egg board newsletters
- ▶ Presentations at egg board meetings
- ▶ One-on-one visitations with farmers

Monitoring, Deviation and Verification Procedures

The recommended procedures are to serve as a guide for farmers. Farmers may customize a procedure to better accommodate their process flow. However, the customizing of a procedure cannot change the intent of the Good Management Practice or create another food safety hazard. Discuss any procedural changes with your EFC Field Inspector.

Note: Where a device cannot be used (thermometer, flow meters, etc.) observation may be the only alternative. The senses of hearing, seeing, smelling, and touching are applied in this case and recorded in the appropriate record.

Note: Where indicated in the following GMP's an activity that is monitored or recorded by an owner, manager, or designate must be verified by another person other than the one executing the activity. This person can be a family member, friend, partner, another staff person, a supplier, or service provider. A signature and date of verification is required. Persons verifying records are verifying that the activity has taken place and not the accuracy of the record. The remaining GMP's will be verified by EFC staff during the annual Start Clean-Stay Clean™ inspection and rating.

The suggested procedures can be found in the Appendix Section of this manual. Refer to the Process Step as described with each Good Management Practice (GMP).

Confidentiality and Privacy Policy

Through the Start Clean-Stay Clean™ program, EFC collects information related to individual farmers. EFC may collect this information through on-farm inspections, on-farm audits, and through Corrective Action Requests. Except as required by law, EFC will treat this information as confidential and will use this information for the sole purpose of administering the Start Clean-Stay Clean™ program. To this end, EFC may share this information with the egg board in the province or territory where the farmer is located, EFC Field Inspectors, and delivery agents (in provinces or territories where delivery agents are used) for the sole purpose of administering the Start Clean-Stay Clean™ program.

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PART ONE

Refrigerated Storage

1. a) Temperature Control – Critical Control Point (CCP-1b)
- b) Monitoring, deviation and verification procedures

Facility Hygiene

2. All-in, all-out program followed in each laying facility
3. Cleaning and disinfecting the laying facility
4. Water lines purged and flushed
5. Floors, walls, ceiling, ancillary equipment are free from contaminants
6. Appropriate utilization of manure handling system
7. Refrigerated storage is kept clean, tidy and odour free
8. Cats, dogs and other animals are denied access to the production unit
9. All garbage is in covered containers and in a separate area away from clean eggs
10. Dead birds are removed from the laying facility daily
11. Microbiological testing for *Salmonella* Enteritidis

Pest Control

12. Adequate integrated pest management program followed.

Sorting and Packing

13. Eggs are gathered at least once daily in systems with egg rollouts and minimum of twice daily for systems with no rollouts
14. Excessively dirty eggs, visibly cracked and leakers are segregated
15. Rejected egg trays are stored in a plastic bag
16. All packaging and conveying materials are protected from contaminants

Range Management

17. Range managed in accordance with established guidelines

PART TWO

Premises: Outside Property and Building Exterior

1. Restricted and unrestricted zones are defined
2. Only one kind of poultry maintained on the farm
3. Pest barriers around the production unit

Premises: Building Interior

4. Restricted and unrestricted zones are defined
5. Adequate level of air quality maintained
6. Floor drains have perforated covers

Sanitary Facilities

7. Hand washing facility or sanitizing lotion available

Receiving and Storage

8. Feed storage is constructed and maintained to prevent contamination
9. All chemicals stored in the production unit are stored safely in accordance with provincial guidelines or prerequisite program
10. Eggs on carts/skids stored in the cooler are tagged (farm identification; barn number; date of lay)

General Equipment

11. A standby generator for auxiliary power is available and in proper working order

Personnel

12. Sanitary outer clothing and a change of boots is required before anyone enters the restricted area of the production unit

PART THREE

Records

13. Feed consumption records
14. Water consumption records
15. Laying facility temperature
16. Mortality record
17. Water test record
18. Pharmaceutical record
19. Cooler temperature
20. Rejected tray record
21. Egg production
22. Flock disposal/housing record
23. Sanitation records
24. Pest control records
25. Pullet Flock History Certificate
26. Letter of Assurance from feed supplier or ingredients supplier
27. Letter of Assurance from conveying and packaging material supplier

28. Letter of Assurance from bedding material supplier
29. Range management record
30. Corrective action log

Other Must-Do's

1. Water supply
2. Miscellaneous items storage
3. End-of-lay hens
4. Bedding material
5. General design, construction and maintenance
6. On-farm feed mixing
7. Manure handling system is adequate
8. Flock housing protocol
9. General equipment maintenance
10. Foraging material
11. Pharmaceutical use

Highly Recommended

1. Adequate lighting is provided throughout the production unit
2. Laying hen delivery vehicle protocol
3. Ventilation system provides adequate level of air quality
4. Proper design for conventional and enriched colony housing systems
5. Proper design for deep litter or slatted housing systems
6. Proper design for feeding equipment
7. Proper design for watering equipment
8. Proper design of egg conveying equipment
9. Alarms
10. Technical training

APPENDIX

1. List of Terms
2. Record Keeping
3. Flock Information Reporting Form
4. Rating Form
5. Cleaning and Disinfecting

PART ONE RISK FACTORS

REFRIGERATED STORAGE – Critical Control Point

1. a) Temperature Control – Critical Control Point (CCP-1b)

It is important to cool eggs after collection to keep them fresh and prevent or reduce the growth of organisms, especially *Salmonella*.



Keys to compliance:

- ▶ Maintain egg cooler temperature at a minimum of 10°C and maximum 13°C or 50°F and 55°F.
 - A thermometer must be available to monitor the operational adequacy of the cooling unit. A maximum-minimum thermometer is preferable or a data logger.
- ▶ Refrigeration unit must function adequately on demand.
 - Size of cooling unit required will depend on how much product it must cool.
 - Household air conditioners will not maintain an adequate temperature control and must not be used.
 - A fan must be utilized to aid in uniform air movement.
- ▶ The humidity level in the refrigerated storage must be below 85% within 24 hours. If the humidity level exceeds 85% for over 24 hours, corrective action must be taken.
 - Humidity in the refrigerated storage must be recorded daily.
 - Maintaining the humidity between 70-85% is highly recommended in order to optimize egg quality.
- ▶ Keep eggs off the cooler floor.
- ▶ Only eggs from registered egg production on quota holder farm(s) on carts/skids and egg cart/fillers stored in cooler/production unit based on Premise ID.
- ▶ Only eggs are stored in the cooler.
 - Do not store pesticides, dead hens, rejected egg trays, fuels or any fruits/vegetables that may give off distinct odours.
- ▶ Pest control is achieved by using live traps only.
- ▶ In sizing the cooler allow for additional one-day production storage to accommodate potential egg pick-up and transport problems.

- › Allow for easy access to service the refrigeration unit.
- › Access doors should be insulated and weather sealed as well as sufficiently wide to provide safe and easy access.
- ▶ Anyone selling directly to consumers must have regard for provincial legislation related to temperature. Contact your provincial ministry of agriculture for particulars.
 - › Record maximum-minimum temperature daily. Sect. 2.19
 - › Record time of temperature reading.
 - › Record observations in the “Activity Log”.
 - › Record corrective actions. Sect. 2.30
 - › Follow deviation and verification procedures.

b) Monitoring, Deviation and Verification Procedures

“What can I do to ensure that my refrigerated egg storage is functioning properly?”

Many circumstances can affect the temperature in the egg storage:

1. Refrigeration unit not working.
 - › Power source failure – check breaker panel; check whether the unit is plugged into the electrical outlet; improper thermostat setting.
 - › Thermostat not functioning properly – affected by dust; mechanical breakdown.
 - › Mechanical failure.
 - › Safety switch may have shut the unit down.
2. Refrigeration unit working but not cooling the egg storage effectively.
 - › Unit is undersized for the volume of eggs and the size of the storage.
 - › Air filter is not clean.
 - › Refrigerant is low.
 - › Poor insulation factor in the egg storage.
 - › Egg storage door not properly sealed.
 - › Egg storage door left open for periods of time – during egg collection; during egg pick-up.
 - › Volume of warm eggs is placed into the storage at one time – as in collecting eggs only once per day.
 - › Air in the egg storage not properly circulated – creating pockets of warm, stale air.

To ensure that your refrigerated egg storage is functioning properly:

1. Have a timely maintenance and repair program for the refrigeration unit.
2. Determine if the refrigeration unit is of adequate capacity to cool down the eggs and storage area.
3. Have a standby generator for auxiliary power available and check regularly to ensure it is in proper working order.
4. Check and add insulation if necessary.
5. Make sure that all doors are properly sealed.
6. Reduce the number of times and the length of time that the cooler doors are opened.
7. Have the refrigeration unit operable at all times.
8. Have a fan moving air continuously.
9. Monitor the temperature by:
 - a. Using a maximum-minimum thermometer and recording the temperatures daily. Sect. 2.19
 - b. Electronic recorders or data loggers. These are ideal because they monitor and record the temperature for you at predetermined intervals.
 - c. High and low temperature alarms as well as electric power interruption alarms. Alarms should be tested regularly to ensure that they function when needed. Be sure that they sound where someone will hear them.
10. Calibrate thermometers and recording devices.
11. Clean up and disinfect the egg storage regularly, ideally after every shipment of eggs.

“What do I do if the temperature exceeds the 13°C or goes below 10°C?”

If, through monitoring, you determine that the eggs have deviated from the critical limits for more than twenty-four (24) hours:

1. Contact your grader and discuss the situation with them. Discuss the possible removal of your eggs from the egg cooler to the grading station.
2. Label all carts or skids that were exposed to temperatures above or below the critical limits – farm identification; barn number; date of lay; comments re: temperature.
3. Determine the cause of the deviation and take corrective action.
4. Clean up and disinfect refrigerated storage.
5. Record your actions. Sect. 2.30

“I am using a maximum-minimum thermometer. I know the temperature exceeded 13°C but I don’t know for how long. What do I do?”

1. Observe the minimum temperature recorded and maximum temperature recorded. Sect 2.19
2. Observe the temperature at the time of reading. Is it closer to the minimum recorded or the maximum recorded?
3. Monitor the temperature periodically – at first entry into the production unit, immediately after first gathering, before second gathering, immediately after second gathering, and if possible once in the evening. Record your readings. Sect 2.19
4. If, at the times of reading, your temperatures are closer to the maximum recorded, you should have your refrigeration unit checked by a technician for servicing.
5. If, at the times of reading, your temperatures are closer to the minimum recorded, you may need to adjust the thermostat.
6. Tag your carts/skids and notify your grader.
7. Record your actions. Sect 2.30
8. Calibrate your thermometer.
 - a. Compare thermometer with a calibrated thermometer.
 - b. Place thermometer into container of boiling water – temperature must read 100°C (212°F).
 - c. Place thermometer into a container of ice – temperature must read 0°C (32°F).

“How do I verify that my monitoring program is satisfactory?”

1. Calibrate thermometers and recording devices.
2. Check your daily temperature records. Sect 2.19
3. Check your records for additional observations and comments by employees or yourself. “Activity Log” Sect 2.30
4. Do a visual inspection of your refrigerated egg storage.

“What records does Start Clean- Stay Clean™ expect of me?”

1. Maximum-minimum temperatures on a daily basis. Sect 2.19
2. Observations. “Activity Log”
3. “Corrective Action Log” Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>) and Chemical (pesticides)	GMP 2.4.1 GMP 2.4.2 GMP 3.1.1 GMP 7.13.0 GMP 7.18.0	Step #(2–5) and 20

FACILITY HYGIENE

2. All-in, all-out program is followed in each laying facility



Keys to compliance:

- ▶ Only one age group is retained in the laying facility. This provides an opportunity to:
 - Eliminate rodents and insects.
 - Clean and disinfect the laying facility.
- ▶ The “all-out” is the more important program to follow ensuring a break in the contamination cycle.
- ▶ Factors may necessitate the placement of new birds over several days.
- ▶ If birds are sourced from different pullet barns:
 - Obtain certificates that new birds are sourced from SE negative environments. Sect 2.25
 - Be able to identify the area where the differently sourced birds are located in your laying facility.
- ▶ Record flock housing dates. Sect 2.22
- ▶ Record flock disposal dates. Sect 2.22

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP: 5.1.1 GMP: 7.8.0 GMP: 7.9.0	Step #12

3. Cleaning and disinfecting the laying facility

Clean and disinfect thoroughly after depopulation to prevent and reduce biological contamination.



Keys to compliance:

- ▶ Before cleaning and disinfecting ensure that:
 - All repairs to the exterior of the building are completed.
 - All manure from the barn is removed.
- ▶ **Option 1** – pressure wet washing with detergent followed by disinfecting. Dry cleaning in advance of pressure wet wash is desirable. Wet washing is the best good management practice to begin reducing and eliminating bacteria.
- ▶ **Option 2** – dry cleaning followed by disinfecting is questionable. Dry cleaning does not remove dirt completely and dirt cannot be disinfected. Dry cleaning is not an alternative to wet washing. However, in certain instances (climate, equipment electronics, building design, provincial environmental regulations/municipal environmental by-laws) dry cleaning may be the only means of cleaning.
 - Should the farmer chose to dry clean, the laying facility must be swab tested for *Salmonella* Enteritidis (SE) by a qualified third party 8 weeks prior to repopulation. The SE test can be combined with the late-lay SE test as per the National SE Protocol.
 - Keep a record of this test. Sect 2.23
 - Should the test results be SE positive, the barn must be wet-washed, disinfected, and re-tested for SE prior to repopulation.
- ▶ Be sure to clean, dry, and disinfect the whole facility including walls, ceilings, rafters, fans, heaters, wire mesh, drinkers, feed troughs, and conveying equipment.
- ▶ A patio/veranda attached to the production unit must be cleaned and disinfected. Generally, these are utilized in conjunction with free range and organic egg production.
- ▶ Remove any litter from the patio/veranda floor.
 - If cement floor – clean and disinfect using same procedure as interior of production unit.
- ▶ Disinfect and/or fumigate with an approved disinfectant or fumigant.
- ▶ Cleaning, drying, disinfecting, and airing out of depopulated houses should take a **minimum of seven days (an equivalent of 168 hours starting from when the last bird is out to when the first bird is back in)**.
 1. The seven day minimum rest period encompasses two or three days of cleaning the laying facility followed by four to five days empty before introducing the new birds. This rest period reduces bacteria, viruses and parasites following cleaning and disinfecting.

2. The 7-day downtime policy is mandatory unless the farmer is affected by a situation beyond their control that will not permit them to abide by the 7-day downtime policy. Farmers must show documentation indicating why they could not abide by the 7-day policy (e.g. snowstorm; truck delayed in picking up spent birds). Farmers housing in ***less than seven days (an equivalent of 168 hours starting from when the last bird is out to when the first bird is back in) must provide proof of microbiological analysis*** for *Salmonella* verifying the effectiveness of their cleaning and disinfecting program. The sampling procedure would include floors, walls, fans, wire mesh, egg conveying systems, and refrigerated storage.

- Refer to the Appendix 5 “Recommended practice for cleaning and disinfecting regulated egg layer barns and regulated/registered pullet barns in Canada”.
- Record all sanitation activities including date, procedure, any microbiological testing and results. “Activity Log”; Sanitation Record Section 2.23 and “Corrective Action Log” Sect 2.30.

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP: 5.1.2 GMP: 7.11.0	Step #12

4. Water lines are purged and flushed

A regular cleaning program must be used to eliminate water line contaminants such as bacteria, sludge, and hard water deposits.

Keys to compliance:

- ▶ Timely maintenance programs as well as a general cleaning procedure between flocks must be followed.
- ▶ Different types of water delivery systems may require specific maintenance procedures. Therefore, contact the manufacturer or supplier for a recommended cleaning program.
- ▶ Water source must be an uncontaminated surface, ground, or municipal source.
 - Chemical treatment and filtration in accordance with provincial guidelines.
- ▶ Temperature of drinking water should not exceed 30°C/86°F.
- ▶ A water meter to measure daily usage is required or alternate method of recording water usage. Water Consumption Record Sect 2.14
- ▶ A record of water potability (laboratory test results at least once per year) and water treatments applied are maintained and filed.
- ▶ Water Test Record Sect 2.17 and “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>) and Chemical (Medications)	GMP 1.4.1 GMP 5.1.3 GMP 7.2.0 GMP 7.5.0	Steps #3, 4, 5, 6 and 10

5. Floors, walls, ceilings and ancillary equipment are free from contaminants

Note: For the purpose of this section, in reference to dust and applying the words “free from” it is understood that the facility is “free from accumulations of” and therefore “practically free from dust”.

Keys to compliance:

All Housing Systems:

- ▶ Walls, ceilings, light fixtures, air intakes, and exhausts should be clean.
- ▶ Seemingly benign substances such as feed and water can serve as sources of contamination if allowed to stand. Spilled feed and waste eggs can attract rodents, flies, and other insects. This is also an excellent growing environment for bacteria. Also watch for spilled feed below bins.
- ▶ Dirt and cobwebs should be removed and dust should be kept to a minimum.
- ▶ Dead flies, darkling beetles, and rodent droppings must be removed.
- ▶ Egg belts must be regularly cleaned and serviced. Before the egg-collecting belt is run, ensure dead birds are removed from the laying facility. Dried yolk, albumen, shell, feathers, dust, rodent droppings, dead flies, darkling beetles, and pest baits must be removed from the egg collection system.
- ▶ Dead hens **must not** be disposed of in the manure gutter or left on the facility floor.
- ▶ Work areas are kept clean. Entry areas, office areas, tool rooms, electrical rooms, and hallways are considered to be work areas.
- ▶ Records: “Corrective Action Log” Sect 2.30 and Sanitation Record (date and activities). Sect 2.23

In addition to the above, the following practices must be applied in the specific housing systems.

Conventional and Enriched Colony Housing Systems:

- ▶ Floors should be clean.
- ▶ Manure and feathers should be removed.
- ▶ It is important to keep the area clean from bird and rodent droppings and from caked and mouldy feed.

Free Run, Free Range and Organic Housing Systems:

- ▶ Keep the litter dry and loose (not caked).
- ▶ Stir the litter to prevent it from caking.
- ▶ Avoid wet litter around watering systems.

- ▶ Avoid spilled feed around feeding systems.
- ▶ Perches, roosts, nest, scratch pads, slatted or wire floor areas need to be kept clean – free from accumulation of caked on droppings and mouldy feed.
- ▶ Watch for floor eggs or range eggs.
- ▶ Keep the nests clean.
- ▶ Feeders should be kept clean; water vessels should be scrubbed every two or three days or as often as necessary to keep them clean and free from slime.

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP 2.3.2 GMP 5.1.4 GMP 7.11.0 GMP 7.17.0	Step #13

6. Appropriate utilization of manure handling system



Keys to compliance:

- ▶ Dispose of all waste in a sanitary manner to reduce and prevent biological contamination of the production unit and eggs by direct contact or by encouraging pest populations.
- ▶ Clean splashed manure from walls and walkways.
- ▶ Clean equipment utilized in manure handling.
- ▶ Record dates and sanitation activities. Sect 2.23

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP 5.1.5 GMP 7.11.0	Step #27

7. Refrigerated storage is kept clean, tidy and odour free

To prevent and reduce the biological contamination of the refrigerated storage by biological contaminants, it must be kept clean and tidy.

Keys to compliance:

- ▶ Free from accumulations of dust, cobwebs, broken eggs, shells, debris, mud/water.
- ▶ No debris (waste material, spare parts).
- ▶ No evidence of insects or mice (carcasses or droppings).
- ▶ No evidence of pesticides, cleaners/sanitizers or other chemicals.
- ▶ Corrective actions recorded in the “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>) Chemical (pesticides, cleaners/ sanitizers or other chemicals)	GMP 5.1.6 GMP 7.11.0 GMP 7.18.0	Step #13

8. Cats, dogs and other animals are denied access to the production unit

To prevent and reduce biological contamination of the production unit by reservoirs of *Salmonella* deny access to cats, dogs, wild birds, stray poultry, and other animals (see exceptions).

Keys to compliance:

- ▶ Cats can be an effective component of rodent control but can acquire microbes of *Salmonella* and serve to perpetuate disease within and between flocks.
- ▶ Cats can also act as a reservoir for other infectious diseases, such as toxoplasmosis, and being close to food production areas may increase public health risk. The biosecurity best practice is to prevent access of cats to poultry houses.
- ▶ However, the risks associated with cats can be reduced if specific protocols are implemented. Cats may be used in conjunction with a comprehensive pest control management system.
- ▶ If a cat is used in the production unit as an additional method of pest control, the following guidelines will apply.

- ▶ If they are used in the production unit, which includes the laying facility, as an additional method of pest control, the following exceptions must be met:
 1. Cat may be male or female, but must be spayed/neutered.
 2. Cat litter must be swabbed for SE once annually, at a minimum.
 3. Cat must have access to their own food, water, and litter.
 4. Cat must not have access to the outdoors and/or other poultry houses.
- ▶ If working with other species, work with layer hens first or a change of outerwear and boots is required.
- ▶ Corrective actions recorded in the “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> <i>Campylobacter</i> , <i>E. coli</i>)	GMP 5.1.7 GMP 7.18.0	Step #13

9. All garbage is stored in covered containers and in a separate area away from clean eggs

To prevent and reduce microbiological contamination of the production unit through improper handling of dry garbage.

Keys to compliance:

- ▶ Keep all garbage in sealed containers.
- ▶ Keep containers away from the restricted areas.
- ▶ Keep containers in a special area or building.
- ▶ Pharmaceutical and chemical containers require special disposal care. Read the label for instructions or contact your supplier.
- ▶ Covered containers reduce the opportunity for rodents to utilize garbage as favourable living conditions.
- ▶ Corrective actions recorded in “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> <i>Campylobacter</i> , <i>E. coli</i>)	GMP 1.5.2 GMP 7.18.0	Step #13

10. Dead birds are removed from the laying facility daily

Improper handling of dead birds can cause microbiological contamination of the production unit.



Keys to compliance:

- ▶ Check your flock for dead and sick birds daily.
- ▶ Sick birds should be euthanized.
- ▶ Dead birds must not be disposed of in the manure pit located directly below where the birds are housed.
- ▶ Dead birds may be:
 - Bagged, frozen and picked-up by a renderer.
 - Composted.
 - Buried.
 - Incinerated.
- ▶ If dead birds are being stored for disposal:
 - Store in sealed containers away from the laying facility inaccessible to dogs, cats, or other wild animals.
- ▶ Mortalities must be kept covered and secure from wildlife and public access.
- ▶ If moving mortalities from your farm to another location (i.e. disposal site), which involves travel on public roads, consider moving in a sealed container.
- ▶ Confirm proper disposal and storage methods with your municipal/provincial guidelines, policy, regulation, or legislation.
- ▶ Record the number of dead birds daily in the Mortality Record. Sect 2.16
- ▶ Corrective actions recorded in “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> <i>Campylobacter</i> , <i>E. coli</i>)	GMP 1.5.3 GMP 7.4.0 GMP 7.18.0	Steps #13, 25 and 26

11. Microbiological testing for *Salmonella* Enteritidis of the production unit carried out at least twice during the production cycle

The test determines the presence or absence of *Salmonella* Enteritidis in the production unit.



Keys to compliance:

- ▶ Follow EFC's National SE Protocol.
 - Minimum ventilation fans and egg conveyors.
 - Minimum twice during the production cycle for all housing systems.
- ▶ Tests sent to an accredited laboratory for analysis.
- ▶ File the information received from the test for future reference. Sect 2.23
- ▶ Non-conformances are recorded in the sanitation record. Sect 2.23
- ▶ Corrective actions recorded in "Corrective Action Log". Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i>)	GMP 5.1.8 GMP 7.11.0 GMP 7.11.3 GMP 7.18.0	Step #13

PEST CONTROL

12. Adequate integrated pest management program followed. There is no visible infestation of rodents, flies, wild birds or other pests

To prevent and reduce biological contamination of the production unit.



Keys to compliance:

All Housing Systems:

- ▶ Eliminate breeding areas around the exterior of the production unit.
- ▶ Patch holes and gaps in the exterior walls and under the eaves of the production unit.
- ▶ If farmers choose to do the monitoring themselves, they must do so on a weekly basis for rodents and monthly basis for other pests. If a farmer utilizes a licensed professional service provider to administer pest control, that service provider must provide:
 - Minimum monthly visits.
 - A copy of their inspection report should be on file.
 - An index report to the farmer who in turn must provide it to the inspector.
 - A plan if an increase in activity is noted and the farmer must comply with the plan.
- ▶ No bait in the refrigerated storage.
- ▶ Corrective actions recorded in “Corrective Action Log”. Sect 2.30
- ▶ Observations and control measures recorded in “Pest Control Record”. Sect 2.24

Rodents

- ▶ Rodent traps (mechanical and live) are tools for control and for monitoring. They assist in identification, determine population size, location of activity and gauging the effectiveness of the control program.
- ▶ Visual checks – droppings, body grease marks, chewed material, disturbed bait, and night observations with flashlight.
- ▶ Place traps strategically and effectively at points of entry or openings into the production unit, such that the traps will function.
- ▶ If an active area is determined, increase the number of traps in that area.
- ▶ Can be used interior or exterior of the production unit.
- ▶ Bait must be in bait stations and the bait stations must be inaccessible to the layers and to non-target animals.
- ▶ Inspect and where possible rodent proof the production unit. Reference Part Two-3 in this manual.
- ▶ Record monitoring checks – visual checks, number, and types of rodents found in traps. A rodent index can be established. Sect 2.24
- ▶ Map location of traps. Sect 2.24

Flies and insects (e.g. darkling beetles)

- ▶ Traps, sticky strips, or black lights are tools for control and for monitoring. They assist in identification, determine population size, location of activity and gauging the effectiveness of the control program.
- ▶ Visual checks – droppings on eggs; observations of activity in the production unit on walls, ceiling, floor surfaces, and corners; droppings on indicators such as white paper or recipe cards placed strategically.
- ▶ Place traps strategically and effectively – at points of entry or openings into the production unit.
- ▶ If an active area is determined, increase the number of traps in that area.
- ▶ Inspect and, where possible, fly/insect proof the production unit. Reference Part Two–3 in this manual.
- ▶ Baiting for flies is not possible in the laying facility because of the potential chemical effects on the layer hen.
- ▶ Destroy damp breeding places.
- ▶ Monitor litter for dryness.
- ▶ Maintain proper manure program. Reference Part One–6.
- ▶ Record monitoring checks – visual checks. A fly index can be established. Sect 2.24
- ▶ Map location of traps and indicators. Sect 2.24

Wild Birds

- ▶ Check for signs – bird droppings in the production unit; nests in eaves and rafters; chirping sounds from attic or eaves.
- ▶ Record observations. Sect 2.24

Organic Housing System:

Rodents:

- ▶ Consult with accrediting body to determine if natural chemical controls, such as Vitamin D₃, can be used.
- ▶ Trapping and good management practices around the exterior and interior of the production unit are applicable.
- ▶ For organic free range systems place traps in the laying facility on both sides of the “pop holes”.

Mice Infestation Index (WHO Report of a workshop on C&D/Sanitation in Poultry Farms, June 1993)

Indexing Method (*Dr. David Henzler, 1993*)

Mice index is always based on the number of mice caught in 12 traps in seven days. If more or fewer traps are used and mice are counted after more or less than seven days, use the following formula to determine mice infestation index.

of mice caught in traps divided by # of functioning traps divided by # of days since last count multiplied by 12 multiplied by 7 equals No. of mice index

Index	Number of mice	Rating
0	0	Insignificant
1	1–10	Slight
2	11–25	Moderate
3	25 or more	Severe

Biological Data for Rodents
(WHO Report of a workshop on C&D/Sanitation in Poultry Farms, June 1993)

Mice:		Rats:	
Home Range	small; 3–6 metres (10–20 feet)	Home Range	large; 15–30 metres (50–100 feet)
Maturity	1 month	Maturity	2–3 months
Young/litter	5–10	Young/litter	5–12
Litters/year	8 maximum	Litters/year	7 maximum

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>) and Chemical (Rodenticides, insecticide translocation)	GMP 5.2.1 GMP 7.11.0 GMP 7.12.0 GMP 7.17.0 GMP 7.18.0	Step #14

SORTING AND PACKING

13. Eggs are gathered at least once daily

To prevent and reduce biological contamination of eggs by timely gathering from the laying facility.



Keys to compliance:

- ▶ Eggs are gathered at least once daily in systems with egg rollouts and minimum twice daily for systems with no rollouts.
- ▶ Recommended gatherings reduce egg temperature and avoid contamination from the environment (dust, manure). Regular gathering reduces the chance of breakage.
- ▶ Extra gatherings during hot weather should be considered.
- ▶ Floor eggs and range eggs need to be gathered at the same time as nest eggs are gathered.
- ▶ Record amounts gathered during each collection period in the “Daily Egg Production Record.” Sect 2.21
- ▶ Any corrective action taken as a result of deviation from gathering frequency must be recorded in the “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP 2.3.1 GMP 7.10.0 GMP 7.18.0	Steps #18 and 19

14. Excessively dirty eggs, cracks, and leakers are segregated from clean eggs during collection process and disposed of on the farm

To prevent and reduce biological contamination of eggs by separating suspect contaminated eggs.



Keys to compliance:

- ▶ Cracked, leaky and manure soiled eggs (inedible eggs) can be host to bacteria.
- ▶ Handle these eggs separately from clean eggs and dispose of them on the farm.
- ▶ Disposal on-farm:
 - During collection process, eggs not suitable for shipping to the grading station must be removed. Deposit these eggs into a container to avoid cross contamination. At the end of the day place these eggs into the manure long term liquid storage. This avoids providing opportunity food for rodents and flies.
 - Do not deposit inedible eggs in gutters or in long-term dry manure storage.
 - If long-term liquid manure storage is not available, consider composting, incineration, or burial as alternatives.
 - If the alternatives are not available and disposal into dry manure storage is the only option, the following protocol must be followed:
 1. A monitoring program for flies and rodents is initiated in the area that the inedible eggs are placed.
 2. Monitoring is recorded separately from regular pest monitoring program.
 3. Continue search for other means of disposal.
- ▶ On-farm washing of eggs is an unacceptable practice unless the farmer is a registered egg grading station.
 - This practice washes away the natural barriers that the egg shell is provided with by the hen. Improper water temperature and improper sanitizer solutions add to the mix of biological contamination.

Free Run, Free Range and Organic Housing Systems:

- ▶ Occasionally clean floor eggs or eggs on the range will be found.
 - Separate these eggs from nest eggs.
 - Discuss the next steps with your grader.
- ▶ Corrective actions taken as a result of deviations from standards of determining “excessive” must be recorded in the “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP 2.3.2 GMP 7.12.0 GMP 7.18.0	Steps #18 and 19

Canada Nest Run Egg
Egg Regulations
Canada Agricultural Products Act

- a. Sample does not contain more than:
 - 10% of eggs with cracked shells
 - 5% of eggs with dirt on the shell where the dirt is more than 160 sq. mm. (0.32 sq. in.) in size
 - 3% of eggs that are leakers or rejects; *or*
- b. The lot does not contain more than a total of 15% of eggs described in paragraph a)

15. Rejected egg trays stored in plastic bags and in an area away from clean eggs

Inadequately cleaned plastic trays can spread disease from one farmer's premises to another.



Keys to compliance:

- ▶ Trays removed with contaminants such as dried yolk, albumen, feathers, manure, egg shells are stored in plastic bags and in an area away from clean eggs.
- ▶ Daily record number of rejected trays in "Rejected Tray Record" Sect 2.20
- ▶ Farmers utilizing central gathering systems are unable to view each tray individually to determine acceptability.
 - Select random stacks of trays and check them for contaminants.
- ▶ In-line grading operations do not tray eggs. *This section does not apply to them.*
- ▶ Any corrective actions should be recorded in the "Corrective Action Log".
Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP 1.5.4 GMP 7.14.0 GMP 7.18.0	Steps #19 and 23

16. All packaging and conveying material protected from contaminants

To prevent and reduce microbiological contamination of eggs and trays through inappropriate handling procedures at storage.



Keys to compliance:

- ▶ Packaging and conveying material – carts/skids, dividers, egg trays, egg cartons, and boxes.
- ▶ Require a “Letter of Assurance from conveying and packaging material supplier”. Sect 2.27
- ▶ Carts/skids and dividers may be stored in the refrigerated storage. They should not enter the laying facility.
- ▶ Empty trays – (2.5 dozen size):
 - Plastic trays may be stored in refrigerated storage.
 - Fiber trays should be stored in dry storage.
 - All trays should be stored away from the laying facility, protected from dust, feathers, water, insects, and rodents.
 - Use only clean, sanitized trays or new trays.
 - After each gathering, unused trays must be returned to storage.
 - Trays must never be stored on the floor.
- ▶ Empty cartons – (1 dozen size fiber or foam):
 - After each gathering, unused cartons must be returned to storage.
 - Cartons must never be stored on the floor.
- ▶ Trays/cartons with eggs should never be in direct contact with the floor.
- ▶ Collection carts must be visibly clean.
- ▶ Rejected trays are recorded daily in “Rejected Tray Record”. Sect 2.20
 - Provides farmer with an overview of the cleanliness of egg trays.
- ▶ Any corrective actions taken as a result of packaging contamination should be recorded in the “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP 2.2.1 GMP 7.14.0 GMP 7.16.0 GMP 7.18.0	Step #(2–9)

RANGE MANAGEMENT

17. “Range” managed in accordance with established guidelines

To prevent and reduce biological and chemical contamination of outdoor areas to which layers have access.



Keys to compliance:

- ▶ Mitigate the risk of chemical contamination from spray drifts.
 - Minimize the exposure of layers to agricultural chemicals being applied to adjacent cropping areas.
 - Where possible, locate range to avoid chemical drift from adjacent cropping areas.
- ▶ The range must have a good quality grass cover.
 - Suitable for climatic and soil conditions.
 - Maintained to avoid bacterial and parasitic diseases and discourage pests.
 - Mow as needed.
- ▶ Keep range well drained to avoid ponding and puddling.
 - Discourages fly populations, wild birds, bacterial and algal growth.
- ▶ Rotate range at a minimum annually or sooner.
 - Depends on layer population.
 - Avoid grass removal, build-up of manure, feathers and bacterial, viral, and parasitic diseases.
 - Allowing the range a rest period for a minimum of six consecutive weeks is considered equivalent to rotating the range.
- ▶ Harrow the range to mix droppings, grass, and soil.
 - This displaces the bacterial load from the manure.
 - Droppings rapidly break down, dry out, and attract fewer flies.
 - Harrow as needed.

- ▶ Use stone, gravel, or concrete/asphalt around the production unit exposed to the range.
 - Provides proper drainage around the production unit and prevents muddy conditions.
 - Reference Part Two-3 in this manual.
- ▶ Record mowing, harrowing, rotations, and water drainage inspections in “Range Management Record”. Sect 2.29
- ▶ Corrective actions should be recorded in the “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>) and Chemical (insecticides, fungicides or herbicides from drift)	GMP 1.1.4 GMP 7.17.0 GMP 7.18.0	Step #17

PART TWO RISK FACTORS

PREMISES: Outside Property and Building Exterior

1. Restricted and unrestricted zones are defined

To create effective biosecurity zones around the exterior of the production unit.



Keys to compliance:

- ▶ To minimize visitors, place no entry signs at the layer barn and driveway approach. Sign should advise visitor on what should be done i.e.

DO NOT ENTER

BIOSECURITY IN EFFECT

REPORT TO OFFICE

- ▶ Set up restricted zone to protect birds and eggs from disease-causing organisms.
 - › Zone includes production unit.
 - › Define zone with signs, gate, fence, rope, or any combination of these.
 - › Areas not signed are considered unrestricted.
- ▶ All entrances to buildings in the restricted zones should be well lit and locked to prevent unauthorized access.
 - › NO ENTRY signs are placed at these entrances and any other point where the restricted zone begins.
- ▶ Vehicle tires can bring onto and take contaminants away from the farm.
 - › Create a parking area away from the layers.
 - › This area is also away from air exhaust and air intakes to avoid cross contamination of the vehicle or the production unit.
- ▶ Farmers should consider the land use around the production unit:
 - › Roadways and approaches properly graded and maintained to minimize dust drift and ponding of water.
 - › Location of the production unit in relation to other livestock buildings, especially feather livestock buildings, and the potential cross-contamination.
 - › Woodlots, windbreaks, orchards, and clusters or rows of trees or bushes between barns provide nesting areas for wild birds. Bird droppings attract flies.
 - › Field crops or vegetable and fruit crops provide an opportunity for dust and chemical drift contamination.

- Water supply location in relation to the production unit.
- Location of manure storage.
- Driveways on the windward side of buildings should be set back at “reasonable” distances to prevent dust and debris from being taken into the building.
- Location of feed storages and roadway approaches that a feed truck would access.
- ▶ A farm schematic identifying all of the above can assist in developing a biosecurity program.
 - A biosecurity program must be in place for the farm.
 - Written biosecurity program must be available and reviewed annually. At minimum the biosecurity program should include procedures for:
 - Defining restricted and unrestricted areas.
 - Controlling movement of equipment, personnel, and visitors.
 - Procedures for changing boots and outerwear.
 - All farm personnel understand their responsibilities in adhering to the biosecurity program.
 - Reference GMP 7.20.0.
- ▶ Corrective actions are recorded in “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>) Chemical (Agricultural spray drift)	GMP 1.1.1 GMP 7.18.0	Step #13

2. Only one kind of poultry maintained on the farm

To prevent and reduce biological contamination in the production unit from adjacent poultry production units.

Keys to compliance:

- ▶ It is highly recommended that only one kind of poultry production unit is maintained on the farm.
- ▶ Having more than one kind of livestock, and particularly more than one kind of feather enterprise, puts the pullet operation at risk for disease.
- ▶ If more than one kind of poultry production unit or livestock production unit is maintained on the farm, the location of the production units should be considered and extra attention must be paid to biosecurity.

- Production units must be independent structures.
 - Production units are not connected and do not have shared walls, hallways, or roof.
 - Production units have independent feeding, watering, manure removal, and ventilation systems.
 - The direction of air exhaust does not flow into air intakes of the pullet production unit.
- Each production unit has its own staff or staff must change outerwear and footwear between production units.
- New construction/major renovations on new or existing footprints must ensure production units are not adjacent.

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP 1.1.2	Step #13

3. Pest barriers around the production unit

To prevent and reduce biological contamination in the production unit from pests such as rodents, flies, and wild birds.

Keys to compliance:

All Housing Systems:

- ▶ Seal openings around feed pipes, electrical services, damaged walls, and cracks in the foundation to prevent access by rodents, wild birds, and insects.
- ▶ Any unsealed cracks in the floor can become home to bacteria and insects. Of particular concern are unsealed cracks greater than ½ centimetre or approximately ¼ inch in width. Cracks greater than ½ centimetre need to be sealed.
- ▶ Damaged screens must be repaired promptly on doors, windows, and air intakes.
- ▶ Exterior cladding must be installed to prevent access by pests.
 - A metal rodent guard strip between the foundation and the siding is an effective barrier.

- ▶ Discourage rodent nesting areas by clearing long grass, weeds, and debris from around the production unit.
 - Areas within 4.5 metres (15 feet) of the production unit are cleared.
- ▶ A coarse gravel, stone, concrete or asphalt border around the outside foundation will discourage rodents from entering and burrowing under the production unit.
 - A barrier more than one foot wide (0.30 m.) and slightly deeper than grade around the building.
- ▶ Stagnant water can carry *Salmonella* and can be an environment for other organisms and insects.
 - Areas within 60 metres (200 feet) of the production unit must be eliminated.
- ▶ Corrective actions recorded in the "Corrective Action Log". Sect 2.30

Free Range and Organic Free Range Housing Systems:

- ▶ Pop holes remain open for long periods during the day to allow layers access to and from the range. This also provides rodents and other pests access to the laying facility.
- ▶ Proper range management program and integrated pest management programs must be implemented.

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP 1.1.3 GMP 7.18.0	Steps #13, 14 and 17

**Free Range farmers will be in non-compliance with the "screened/sealed door" section of this GMP. Farmers must exhibit what they are doing to reduce or prevent contamination of the production unit by rodents and wild birds.

PREMISES: Building Interior

4. Restricted and unrestricted zones are defined

To create effective biosecurity zones in the interior of the production unit.

Keys to compliance:

- ▶ Ordinarily the restricted zone includes the laying facility, the egg collection room, and the cooler.
 - The grading room for in-line operations is included within the restricted zone.
 - The number of visitors into this zone is restricted.
 - The zones are defined with signs, painted lines, walls and/or partial walls.
 - Review the effectiveness of defined zones annually.
 - Record any corrective actions in the “Corrective Action Log.” Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP 1.2.1 GMP 7.18.0	Step #13

5. An adequate level of air quality is maintained

To maintain air quality in the production unit and especially in the laying facility.

Keys to compliance:

All Housing Systems:

- ▶ Ventilation influences temperature, moisture and the presence of gases, dust, odours and organisms in the air.
 - Control speed, volume, and direction of air movement to eliminate drafts and provide adequate air in the laying facility.
 - Maintain the laying facility at a relatively steady temperature.
 - Various strains and ages of hens differ in their optimum temperature and requirements.

- ▶ Hens must be protected from drafts and colds.
- ▶ Install several maximum-minimum thermometers placed strategically in the laying facility.
 - Temperature fluctuations greater than 3°C can be stressful, enhancing respiratory problems and affecting productivity.
 - Use thermometers to monitor ventilation control systems.
 - Record temperatures daily. Sect 2.15
- ▶ Daily removal of droppings, if so designed, will also remove much moisture from the house.
- ▶ Monitor ammonia levels in the laying facility.
 - Maximum norm for poultry is 25 ppm.
 - Passive diffusion tubes are one way of monitoring ammonia levels.
 - Monitor monthly from October to March.
- ▶ Dead birds and combustible waste should not be burned on the air intake side of the production unit to avoid airborne contamination by ash and odour.
- ▶ Corrective actions recorded in “Corrective Action Log”. Sect 2.30

Conventional and Enriched Colony Housing Systems

- ▶ Mixing of incoming air with the warmer air in the building should occur above the top level of the system. This will ensure distribution of fresh warm air throughout the system.

Free Run, Free Range and Organic Housing Systems

- ▶ “Dampness” causes wet litter, excessive amounts of ammonia liberation from the droppings, bacterial growth, and a high percentage of soiled eggs in the laying facility. Monitor the litter moisture by observations or by use of a garden moisture meter. Optimum is 25%–30%.
- ▶ Appropriate use of litter treatments must be discussed with your supplier. Litter treatments can have an effect on microbial activity in the litter. Sect 2.28
- ▶ Deep litter on the floor will prevent warm, moisture laden air exhaled by the layers from condensing on the floor.
 - Free run housing systems totally on slats or wire are considered to operate in a high-rise system similar to high-rise conventional housing systems.
- ▶ Proper insulation in the walls and ceiling will reduce condensation and keep the inner surfaces warmer.
- ▶ Gravity or forced ventilation systems using air intake or exhaust fans will remove much of the moisture laden air.

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>) Chemical (Ammonia gas and agricultural spray drift)	GMP 1.2.2 GMP 1.5.1 GMP 7.3.0 GMP 7.17.0 GMP 7.18.0	Steps #9, 13, 27, 28 and 29

Gases of concern to poultry farmers:

Ammonia – maximum norm for poultry is 25 ppm. Humans can detect the smell of ammonia at 7ppm. When human eyes are affected (watering/burning) ammonia levels are at least 20 ppm. Passive diffusion tubes are one way of monitoring ammonia levels.

Hydrogen Sulphide can be deadly to humans and poultry exposed to concentrations as low as 20 ppm. The suggested maximum exposure limit is 10 ppm for poultry and 5 ppm for humans.

Carbon monoxide – suggested maximum exposure limit is 50 ppm for poultry and humans.

6. Floor drains have perforated covers

Perforated covers allow drainage and prevent pests from nesting. The covers also prevent debris from becoming trapped in the drain.

Keys to compliance:

- ▶ Maintain covers on floor drains.
- ▶ Consider flushing drains periodically to ensure drainage.
- ▶ Clean and disinfect drains with the laying facility between flocks.
- ▶ Maintain drains free of debris.
- ▶ Corrective actions recorded in “Corrective Action Log”. Sect 2.30
- ▶ Monitoring recorded in “Activity Log”.

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP 1.2.3 GMP 7.18.0	Step #13

SANITARY FACILITIES

7. Hand washing facility or sanitizing lotion available

To prevent egg microbiological cross-contamination by handling.



Keys to compliance:

- ▶ Contamination can occur when clean eggs are handled after dirty ones.
 - Wash hands before and after collecting eggs.
- ▶ Hand washing facilities with disposable paper towels should be readily available and used.
- ▶ Use of sanitizing lotion is an acceptable alternative.
- ▶ Monitored for effectiveness on a weekly schedule.
- ▶ Corrective actions taken are recorded in the “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP 1.3.1 GMP 4.1.0 GMP 4.2.0 GMP 4.3.0 GMP 7.18.0	Step #13

RECEIVING AND STORAGE

8. Feed storages are constructed and maintained to prevent contamination of feed by water, wild birds, rodents and insects

To prevent and reduce microbiological contamination of laying hens and production unit by feed and feed delivery vehicles at receiving.



Keys to compliance:

- ▶ Consider location of feed storage in relation to air intakes and exhausts of the production unit.
- ▶ Consider approaches to the feed storage from the roadway that a feed truck would access.
- ▶ Secure the storage from pests (wild birds, rodents, flies, and insects) and water.
 - Pests can transmit disease-causing organisms.
 - Water contaminated feed can become mouldy.
- ▶ Feed delivery vehicles can be carriers of biological contaminants.
 - Do not allow feed delivery personnel to enter the production unit.
 - Provide a container (mail box, etc.) where feed invoices at delivery may be deposited. Locate it near the feed bin and accessible by the feed delivery personnel.
- ▶ Obtain a “Letter of Assurance” from your feed supplier that feed supplied will not knowingly be contaminated with *Salmonella* Enteritidis or with pharmaceutical residues.
 - Letter is issued annually. Sect 2.26
- ▶ Samples of feed should be taken from the truck into aseptic containers, dated, and held for 4–6 weeks.
 - As a suggestion, samples should be sent to an accredited laboratory for content analyses when changing formulations or sooner if an egg production/quality problem develops.
- ▶ Feed consumption is recorded daily. Sect 2.13. This can be determined by:
 - Scales.
 - Timers.
 - Total weight computed out to daily values.

- ▶ If contaminated or medicated feed is unknowingly given to the birds, your veterinarian or poultry nutritionist should be immediately consulted to determine the best course of action.
- ▶ Monitoring recorded in “Activity Log”.
- ▶ Corrective actions recorded in “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>) and Chemical (Pharmaceuticals, Heavy Metals)	GMP 2.1.2 GMP 2.2.3 GMP 7.1.0 GMP 7.7.0 GMP 7.18.0	Steps #(1–2), (2–2), 8 and 11

9. All chemicals stored in the production unit are stored safely in accordance with provincial guidelines or prerequisite program

To prevent and reduce chemical contamination of eggs by inappropriate handling procedures of chemicals in storage.



Keys to compliance:

- ▶ Use food grade grease and oil for parts requiring lubrication.
- ▶ All pesticides and disinfectants must have a Pest Control Products number (PCP#).
 - *The Pest Control Products Act* is a federal law that regulates all products used to control pests in Canada.
 - Provinces may also regulate chemical use through Provincial Acts and Regulations.
 - Check with your province in this regard.
 - Record usage, amounts, and why used. Sect 2.24
- ▶ All pharmaceuticals must have Drug Identification Number (D.I.N. #).
 - Record usage, dosage, and route of administration. Sect 2.18
- ▶ Follow the directions on the product label or in the case of pharmaceuticals – follow the instructions of the veterinarian making the diagnosis and writing the prescription.
- ▶ Dispose of chemicals and their packaging by following the instructions on the label or by contacting the manufacturer or supplier.

- ▶ How pesticides are stored is as important as where they are stored. How to store pesticides safely:
 - › Store pesticides in a dry area.
 - › Must be stored away from food and drink for animals or humans.
 - › Some pesticides require protection from freezing.
 - › Must not impair the health and safety of any person.
 - › Must not contaminate the environment or other pesticides.
 - › Do not store herbicides close to other pesticides. Keep herbicides in tightly sealed containers.
 - › Store pesticides in an area used only for pesticide storage.
 - › Warning signs posted.
 - › Ventilation to outdoors.
 - › Locked doors – authorized entry only.
 - › No floor drains in storage (unless into holding tank).
 - › Protective clothing and equipment nearby.
 - › Emergency telephone numbers posted nearby.
 - › Material Safety Data Sheets (MSDS) information should be available for emergency use and for staff training.
 - › Keep all pesticides in their original, labelled containers.
 - › Know the quantity and the age of the pesticides in storage by keeping an inventory list.
 - › Keep an up-to-date inventory list off site.
- ▶ It is highly recommended that pharmaceuticals be used on the advice of a veterinarian. How to store pharmaceuticals safely:
 - › Store pharmaceuticals in a dry area.
 - › Do not store with pesticides and disinfectants.
 - › Store under lock and key and erect warning signs.
 - › Keep an up-to-date inventory list.
 - › Keep in their original, labelled containers.
 - › Disposals should be returned to the point of purchase (dispensing veterinarian, distributor, or manufacturer) or follow the instructions on the product label.
- ▶ Monitoring recorded in “Pharmaceutical Records; Pest Control Records; Sanitation Record”. Sect 2.18 / 2.24 / 2.23
- ▶ Corrective actions recorded in “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Chemical (Pesticides, Disinfectants, Pharmaceuticals)	GMP 2.2.6 GMP 7.6.0 GMP 7.11.0 GMP 7.12.0 GMP 7.18.0	Steps #{1-3}, {1-4}, {1-5}, {2-3}, {2-4}, {2-5}

10. Eggs on carts/skids stored in the cooler are tagged (farm identification; barn number; date of lay)

To prevent and reduce contaminated eggs being consumed by the public.

Keys to compliance:

- ▶ Farmers must be able to identify production dates, volumes, shipment dates and to whom shipped.
- ▶ Farmers must be able to segregate any eggs that may have been affected by temperatures resulting from mechanical failure during gathering or in storage.
- ▶ Grading stations may not require farmers to use tags, however:
 - Tags may be used to communicate deviations from critical limits.
- ▶ Where grading stations are picking eggs up at the production unit and the egg truck driver is tagging carts/skids with farm identification and date of pick-up, the grading station is assuming the responsibility for knowing the age of eggs and for identifying the farmer/laying facility.
- ▶ Distribution Record for shipments to grading station or breaking plant:
 - Farm identification and/or farmer name.
 - Barn number.
 - Date of lay.
 - Comments re: temperature.
- ▶ Distribution Record for farm gate sales – it is highly recommended that farmers record the names of all visitors and date of visit.
- ▶ If, through monitoring, you determine that the eggs have deviated from the critical limits for more than twenty-four (24) hours:
 - **Biological contamination:**
 1. Contact your grader and discuss the situation with them. Discuss the possible removal of your eggs from the egg cooler to the grading station.
 2. Label all carts or skids that were exposed to temperatures above or below the critical limits – farm identification; barn number; date of lay; comments re: temperature.

3. Determine the cause of the deviation and take corrective action.
 4. Clean up and disinfect refrigerated storage.
 5. Record your actions in the “Corrective Action Log”. Sect 2.30
- If, through monitoring of water and feed or other elements, you determine that the eggs have been contaminated chemically (disinfectants or pharmaceuticals) or biologically:
1. Contact your egg board and discuss the situation. Determine who will contact the proper federal/provincial authorities (CFIA/Provincial Ministry of Agriculture or Provincial Ministry of Health).
 2. Contact your grader and discuss the situation with them.
 3. Follow steps #2–#5 above. In the “Corrective Action Log” – record the problem. Sect 2.30
- If you are notified by a supplier that an input has been delivered to you that is contaminated:
1. Follow the same procedures as for chemical contamination above.
- If you have farm gate sales and through monitoring you determine that your eggs have become biologically or chemically contaminated:
1. Contact your egg board and discuss the situation. Determine who will contact the proper federal/provincial authorities (CFIA /Provincial Ministry of Agriculture or Provincial Ministry of Health).
 2. Be prepared to inform customers.
- Corrective actions recorded in “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i>) and Chemical (Pesticides, Disinfectants, Pharmaceuticals)	GMP 6.1.1 GMP 6.1.2 GMP 7.18.0	Step #21

GENERAL EQUIPMENT

11. A “Standby Generator” for auxiliary power is available and in proper working order

For prevention and reduction of microbiological contamination of eggs by maintaining critical temperature limits in the refrigerated storage at times of power failure. Furthermore, a standby generator allows for the provision of feed, water, and ventilation to the production unit and allows the operation of central gathering systems to gather eggs daily in times of power failure.



Keys to compliance:

- ▶ Have a standby generator large enough to carry the essential load.
- ▶ Test generator regularly to ensure that it is in proper working order.
 - ▶ Run the generator “under load”.
- ▶ Record monitoring in “Activity Log”.
- ▶ Corrective actions recorded in “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP 3.1.2 GMP 7.18.0	Step #20

PERSONNEL

12. Sanitary outer clothing and a change of boots required before *anyone* enters the restricted areas of the production unit

To prevent and reduce biological contamination of the production unit by employee/visitor's clothing. Microbes can be found on hands, hair, clothing, and shoes.



Keys to compliance:

- ▶ Change into protective clothing such as clean coveralls, boots, bonnets, and plastic gloves before entering the laying facility or any restricted zone.
- ▶ A visual mark, such as a partial wall or a line painted on the floor, to a restricted area will serve as a reminder that precautions must be taken before entering.
- ▶ Everyone, including the farmer, must change footwear at this point, making sure there is no common contact between the two zones.
- ▶ Crossing zones with the same pair of boots poses risks of contamination with bacteria and other organisms. Reserving separate footwear for restricted zones will go a long way in reducing the disease-causing organisms entering restricted areas.
- ▶ Extra care must be taken with visitors and staff who have recently had contact with other poultry and livestock. While it is strongly recommended that such individuals must not have access to your poultry production unit, should that be necessary, then these people must change boots and clothing at the point of entering the restricted zone.
- ▶ This applies particularly to farmers keeping other livestock besides laying hens and to service personnel who have just come from another farm. This minimizes the spreading of disease agents such as bacteria, viruses, and parasites from one farm to another.
- ▶ Changing footwear in between different aged laying facilities is recommended.
- ▶ On those premises where shower-in and shower-out programs are in place, the showers must be between the unrestricted area of the production unit and the restricted area of the production unit.
 - All staff and visitors entering and leaving the restricted area must follow the program.
 - Shower facilities must be hygienically maintained, provide privacy, environmental comfort, and safety. Farmers must provide clean towels, outerwear, and boots.

- ▶ A log of visitors to the production unit must be kept.
 - At a minimum, the log must have the name of the visitor, time of visitation, date of visitation, contact number, place last visited and what biosecurity measures were used, and signature or initials. The purpose of this log is to assist in traceability in the case of poultry diseases and contact to determine areas of exposure.
- ▶ Monitoring is recorded in the “Activity Log”.
- ▶ Corrective actions recorded in “Corrective Action Log”. Sect 2.30

Applies to these housing systems:	The hazards controlled are:	Reference:	Applies to Process:
Conventional Enriched Colony Free Run Free Range Organic	Biological (<i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i>)	GMP 4.1.0 GMP 7.18.0	Steps #{1–6}, {2–6}, 13, 19, 20, 21, and 31

PART THREE RECORDS

A well-established and designed record keeping system provides the farmer with the assurance that their eggs were produced according to established procedures. Good records can also provide an early indication of problems and permit a rapid response if necessary. Records are also a means for the EFC Inspector to verify compliance with the prerequisites of the HACCP-based plan over a period of time rather than only on a day of inspection. In general, records may be kept in any form that is convenient for the farmer. **Records must be kept for a minimum of two (2) years.** Appendix Section 2 of this manual contains examples of record-keeping forms.

All records are available for audit purposes and are available upon request.

13. Feed consumption records

Feed consumption recorded daily.

- ▶ Daily feed consumption may be calculated through the following methods:
 - Daily bin scale weights.
 - Daily run times from cross-auger timers.
 - Dump hopper weights computed out to daily values.
- ▶ Increases or decreases in consumption can be an early indicator of problems.
- ▶ Reference Farmer Guidelines Section 2.8.
- ▶ Reference GMP's and SOP's manual GMP 7.1.0.
- ▶ Record for process step #11.

14. Water consumption records

Water consumption recorded daily.

- ▶ Farmers must install a meter to determine daily usage or use an alternate method of measuring water usage.
- ▶ Increases or decreases in consumption can be an early indicator of problems.
- ▶ Reference Farmer Guidelines Section 1.4.
- ▶ Reference GMP's and SOP's manual GMP 7.2.0.
- ▶ Record for process step #10.

15. Laying facility temperature

Laying facility temperature recorded daily.

- ▶ Recording maximum-minimum temperatures is preferable.
- ▶ Farmers may wish to place 3 or 4 thermometers throughout the laying facility to determine uniformity of temperature.
- ▶ Those facilities that are monitored electronically need to record their temperatures also.
- ▶ May assist in determining problems early.
- ▶ Reference Farmer Guidelines Section 2.5.
- ▶ Reference GMP's and SOP's manual GMP 7.3.0.
- ▶ Record for process step #9.

16. Mortality record

Dead hens recorded daily.

- ▶ Recording mortality provides the farmer with an overview of flock health.
- ▶ Mortality in excess of 0.5% per month should be investigated by a veterinarian.
- ▶ Reference Farmer Guidelines Section 1.10.
- ▶ Reference GMP's and SOP's manual GMP 7.4.0.
- ▶ Record for process step #13.

17. Water test record

- ▶ Farmers are expected to take drinking water samples at least once per year.
- ▶ If treating water, chlorine residual tests are to be conducted monthly.
- ▶ It is a good practice to sample after the completion of a water well or when the quality of a water supply is suspect because of surface run-off or high amounts of rainfall, turbid water, or unusual colour, taste, or smell.
- ▶ Drinking water must be tested for the presence or absence of two groups of bacteria: total coliforms and faecal coliforms.
- ▶ These bacteria are considered to be indicators of the presence of animal wastes and sewage, in that they are present in large numbers in such wastes.

- ▶ Contact your provincial ministry responsible for drinking water to provide you with locations of Public Health Laboratories in your province and provide you with information related to sampling and fees.
- ▶ Corrective action is taken if no record of annual water test indicating total coliforms and fecal coliforms is available.
- ▶ Corrective actions should be discussed with your provincial ministry/municipal department responsible for water quality.
- ▶ Reference Farmer Guidelines Section 1.4 and *Other Must Do's* – 1.
- ▶ Reference GMP's and SOP's manual GMP 7.5.0.
- ▶ Record for process step #10.

18. Pharmaceutical record

- ▶ All pharmaceutical use must be recorded to ensure that eggs being consumed do not contain medication that would deem the egg inedible. Records must be made clear.
- ▶ Record pharmaceutical administered, by whom, dates administered, method of application (feed, water, etc). This includes any prescribed antimicrobials added at the feedmill.
 - Was it prescribed by a vet?
 - Is there a withdrawal time?
 - If a withdrawal period is required, where did the eggs go and for how long?
 - If no pharmaceuticals were used, indicate this on the pharmaceutical records at the end of each flock.
- ▶ Record of pharmaceuticals stored on the farm.
- ▶ Record D.I.N. numbers and retain labels for documentation.
- ▶ Reference Farmer Guidelines Section 2.9. and *Other Must Do's* – 11.
- ▶ Reference GMP's and SOP's manual GMP 7.6.0.
- ▶ Record for process steps #2–4, 3 and 7.

19. Cooler temperature-THE COOLER IS A CRITICAL CONTROL POINT

Cooler temperature recorded daily.

- ▶ The recording of maximum-minimum temperatures is preferred.
- ▶ The time the temperature is read must be recorded.
- ▶ Maximum-minimum thermometers, electronic recorders, or data loggers may be used.
- ▶ The recording of cooler temperatures provides the farmer with information on the functioning of their refrigeration unit and validates that the farmer is in compliance with the prerequisite program.
- ▶ Reference Farmer Guidelines Section 1.1.
- ▶ Reference GMP's and SOP's manual GMP 7.13.0.
- ▶ Record for process step #20.

20. Rejected tray record

Rejected trays recorded daily.

- ▶ Provides the farmer with an overview of the cleanliness of trays provided to them.
- ▶ It also validates that the farmer is in compliance with the prerequisite program.
- ▶ Reference Farmer Guidelines Section 1.15.
- ▶ Reference GMP's and SOP's manual GMP 7.14.0.
- ▶ Record for process step #23.

21. Egg production

Egg production recorded daily.

- ▶ Indicate volume gathered at each gathering and date gathered.
- ▶ Monitoring egg production is also an early indicator of flock health and a means for the EFC Inspector to validate that the farmer is in compliance with the prerequisite of gathering eggs at least once per day.
- ▶ Reference Farmer Guidelines Section 1.13.
- ▶ Reference GMP's and SOP's manual GMP 7.10.0.
- ▶ Record for process step #19.

22. Flock disposal/housing record

- ▶ Record number of end-of-lay hens shipped, date, and to whom.
- ▶ Record number of pullets placed and date.
- ▶ Identify catching crew company and transporter.
- ▶ Record any unusual observations related to climate, personnel hygiene, and vehicle and equipment cleanliness.
- ▶ Farmers should discuss their on-farm food safety program with the catching crew company before contracting them to do the job.
- ▶ Farmers must be prepared to supply disposable coveralls, boots, and bonnets to ensure the biosecurity of the production unit if they are not satisfied with the outer appearance of the crew.
- ▶ The crew must work in such a manner as to minimize cross contamination between inside and outside of the production unit.
- ▶ If shipping end-of-lay hens to a federally regulated processing plant you must complete a Flock Information Reporting Form.
- ▶ Reference Farmer Guidelines Section 1.2 and *Other Must Do's* – 3.
- ▶ Reference GMP's and SOP's manual GMP 7.8.0.
- ▶ Reference GMP's and SOP's manual GMP 7.9.0 for a Flock Information Reporting Form example.
- ▶ Record for process steps #2–6, 31 and 32.

23. Sanitation records

- ▶ Record date.
- ▶ Service person.
- ▶ Cleaning procedure (wet/dry).
- ▶ Detergents used, name of detergent, amounts used.
- ▶ Disinfectant used, name, amounts used.
- ▶ Fumigants used and amount.
- ▶ It is recommended that the farmer retain the product labels for documentation.
- ▶ Describe details of cleaning procedure.
- ▶ If applicable, record environmental testing procedure, date and results.

- ▶ Farmers should also record their general sanitation program (dates manure removed from laying facility, dates that dust and cobwebs are blown down from walls and ceilings).
- ▶ Reference Farmer Guidelines Section 1.3.
- ▶ Reference GMP's and SOP's manual GMP 7.11.1 at depopulation.
- ▶ Reference GMP's and SOP's manual GMP 7.11.2 for ongoing sanitation record.
- ▶ Reference GMP's and SOP's manual GMP 7.11.3 for microbiological testing record.
- ▶ Record for process step #13.

24. Pest control record

- ▶ If a professional pest control company provides service, record the company name and retain their service records for inspection.
- ▶ If the farmer maintains their own program, then record – number of bait stations and locations, number of traps and locations, type of pesticide used, and amounts used.
- ▶ Record P.C.P. number and retain labels for documentation.
- ▶ Record pest activity (for example, number of rodents per station or trap).
- ▶ Record visual checks. "Activity Log".
- ▶ Reference Farmer Guidelines Section 1.12.
- ▶ Reference GMP's and SOP's manual GMP 7.12.0 for pest control record, mapping and activity.
- ▶ Reference GMP's and SOP's manual GMP 7.12.0 for rodent index record.
- ▶ Record for process step #14.

25. Pullet Flock History Certificate

- ▶ Certificate should indicate that the supplier has implemented suitable GMP's that reduce, prevent, or eliminate known biological and chemical hazards in the production of pullets.
- ▶ The supplier will provide a pullet flock history – breeder flock, hatch date of layer hens supplied, name of pullet grower and location, vaccination programs, mortality record.
- ▶ If tested for SE, supply test date and results.
- ▶ The certificate to the layer farmer should include a requirement that confirms that no Category I antibiotics were given.

- ▶ Reference Farmer Guidelines Section 1.2.
- ▶ Reference GMP's and SOP's manual GMP 7.15.0.
- ▶ Record for process steps #1–6 and 2–6.

26. Letter of Assurance from feed supplier

- ▶ Letter of Assurance from feed or feed ingredient supplier that the supplier has implemented suitable GMP's that reduce, prevent, or eliminate known biological and chemical hazards. Reference Farmer Guidelines Section 2.8.
- ▶ Reference GMP's and SOP's manual GMP 7.7.0.
- ▶ Record for process steps #1–1 and 1–2.

27. Letter of Assurance from conveyance and packaging material supplier

- ▶ Letter should indicate that packaging and conveyance material supplied has been cleaned under suitable GMP's that reduce, prevent, or eliminate known biological and chemical hazards.
- ▶ Reference Farmer Guidelines Section 1.16.
- ▶ Reference GMP's and SOP's manual GMP 7.16.0.
- ▶ Record for process steps #1–9 and 2–9.

28. Letter of Assurance from bedding material supplier

- ▶ Letter should indicate that material supplied has been produced under suitable GMP's that reduce, prevent, or eliminate known biological and chemical hazards and comes from an untreated/non-toxic source.
- ▶ Reference Farmer Guidelines Section *Other Must Do's* – 4.
- ▶ Reference GMP's and SOP's manual GMP 7.17.2.
- ▶ Record for process steps #1–7 and 2–7.

29. Range management record

- ▶ Record date when grass is cut.
- ▶ Record date when drag harrowing the range.
- ▶ Record date when range is rotated.
- ▶ Record checks for ponding/puddling after rainfall.
- ▶ Reference Farmer Guidelines Section 1.17.
- ▶ Reference GMP's and SOP's manual GMP 7.17.0.
- ▶ Record corrective actions in the "Corrective Action Log". Sect 2.29
- ▶ Record for process step #17.

30. Corrective action log

- ▶ A log of any corrective actions that were undertaken as a result of a deviation from a critical limit must be kept.
- ▶ The deviation could occur in the prerequisite program or in the critical control point.
- ▶ This log would indicate the date, the deviation, and the corrective action and who executed the corrective action.
- ▶ Reference GMP's and SOP's manual GMP 7.17.0.
- ▶ Record of corrective actions for all process steps.

OTHER MUST DO'S

Although the following are not assessed on the Start Clean- Stay Clean™ rating form, they are an integral component in reducing, preventing, or eliminating biological, chemical or physical hazards in the production steps of eggs and end-of lay hens. As farmers, you are required to implement these good management practices.

1. Water supply

- ▶ Biological hazards (*Salmonella*, *Campylobacter*, *E. coli*) and chemical hazards (Agricultural chemicals and Medications) controlled.
- ▶ Applies to all housing systems.
- ▶ In addition to the information provided under records “Water Consumption” and “Water Test”, the following are good practices to implement.
- ▶ Reference GMP's and SOP's manual GMP 1.4.1.

Source:

- ▶ Determine the water supply location in relation to the production unit.
Uncontaminated surface, ground, or municipal source.
- ▶ Surface water sources must be protected from surface runoff of fields that have had pesticides, fertilizers, or manure applied.
- ▶ Groundwater sources – Locate wells upslope from potential sources of contamination.
- ▶ Municipal sources – This water is chemically treated, filtered, and stored for distribution. This water meets the provincial regulatory guidelines for acceptable levels of microbiological and chemical contaminants.

Treatment and filtering:

- ▶ If chemically treating and/or filtering water, do so in accordance with provincial guidelines. Filters, if not replaced periodically, could become a source of bacterial contamination. Depending on type of contamination or impurities in the water, various systems are available to improve the water quality. Most popular systems are chlorinator units feeding a weak solution of chlorine and/or a cartridge type filter. Holding tanks and pipelines are possible areas for contamination. To determine acceptable limits refer to your provincial guidelines.
- ▶ If chlorinating to destroy organisms the chemical must be in contact with the water for a minimum 20 minutes. Post contact it is desirable to have some residual chlorine. Free available chlorine of minimum 0.5 mg/L is desirable. Chlorine residual test kits able to measure free-available chlorine within a range of 0.1 to 1.5 mg/L can be used to monitor the water monthly.

- ▶ With chlorination, filtration may be required to remove precipitated organic matter, iron, or manganese.
- ▶ Applies to process steps #3 and 4.

Storage:

- ▶ Storage tanks are used in conjunction with limited water source (slow well) or in chlorination process to provide sufficient contact time for chlorine.
- ▶ Purge and flush when necessary.
- ▶ Applies to process step #5.

Medicating:

- ▶ Before medicating consider composition of water.
- ▶ Before adding medication to water stop all forms of water treatment (chlorination) and if applicable, acidification.
- ▶ Check expiration date of medication.
- ▶ Read the label carefully and apply as per directions and respect the withdrawal periods for both eggs and hens. Record in pharmaceutical records GMP 7.6.1.
- ▶ Applies to process step #6.

Water Test:

- ▶ A record of water potability (laboratory test results at least once per year) and water treatments applied are maintained and filed.
- ▶ Follow laboratory instructions on when and where to take the sample.
- ▶ Drinking water must be tested for the presence of total coliforms and faecal coliforms. These bacteria are considered to be indicators of the presence of animal wastes and sewage, in that they are present in large numbers in such wastes.
- ▶ As a guideline, drinking water should contain <10 total coliforms per 100 mL and <1 faecal coliforms per 100 mL. If the presence of these bacteria exceed these limits, corrective action must be taken to improve water potability.
- ▶ Contact your provincial ministry/municipal department responsible for drinking water/water quality to provide information on sampling or to discuss corrective actions.

Watering:

- ▶ When production unit temperature is over 26, 28, 30°C/79, 82, 86°F any interruption of supply should not exceed 12, 6, or 2 hours respectively.
- ▶ Temperature of drinking water should not exceed 30°C/86°F.
- ▶ Any corrective actions taken as a result of water contamination should be recorded in the "Corrective Action Log". Sect 2.29
- ▶ Applies to process step #10.
- ▶ Water must be available to the birds until time of loading.

2. Miscellaneous items storage

- ▶ Biological hazards controlled (*Salmonella*, *Campylobacter*, *E. coli*).
- ▶ Applies to all housing systems.
- ▶ All dry goods entering the facility should be stored in a manner that they are protected from contaminants.
- ▶ All repair and maintenance equipment should be dedicated to the production unit. However, should any equipment be needed to be brought into the facility from another building, the equipment should be washed and disinfected beforehand.
- ▶ Monitored by individual responsible for SOP to determine conformance and effectiveness as received. Monitoring recorded in "Activity Log".
- ▶ Any corrective actions taken as a result of dry goods, equipment or bedding contamination should be recorded in the "Corrective Action Log". Sect 2.29
- ▶ Reference GMP's and SOP's manual GMP 2.2.5.
- ▶ Applies to process steps #1–8 and 2–8.

3. End-of-lay hens

- ▶ Biological hazards controlled (*Salmonella*, *Campylobacter*, *E. coli*).
- ▶ Applies to all housing systems.
- ▶ End-of-lay hens are shipped to a processing facility in crates on a transport vehicle.
- ▶ This vehicle and crates should be cleaned and disinfected before loading end-of-lay hens for delivery.
- ▶ Catching crews should have sanitary outer clothing and a change of boots before entering the production unit.
- ▶ If end-of-lay hens are slaughtered on-farm:
 - Equipment used to facilitate this process should be cleaned and disinfected before accessing the farm.
 - Catching crew and processing crew should have sanitary outer clothing and a change of boots before entering the production unit.
 - Vehicle and containers used to transport the processed end-of-lay hens from the farm should be cleaned and disinfected before accessing the farm.
- ▶ Feed withdrawal times for spent fowl should be determined in consultation with the processor respecting Section 138.2 (b) of the Health of Animals Act Transportation regulations.
- ▶ Never withdraw feed to the birds before the agreed upon time.

- ▶ Reference section 7.9.0 for record information – Flock Disposal Record and Flock Information Reporting Form.
- ▶ Monitored by individual responsible for SOP to determine conformance and effectiveness on a daily schedule. Monitoring recorded in “Activity Log”.
- ▶ Corrective actions recorded in “Corrective Action Log”. Sect 2.29
- ▶ Reference GMP’s and SOP’s manual GMP 2.5.1; 2.5.2; 2.5.3.
- ▶ Applies to process steps #30, 31 and 32.

4. Bedding Material

- ▶ Biological hazards (*Salmonella*, *Campylobacter*, *E. coli*, mould) and chemical hazards (agricultural chemicals, wood preservatives) controlled.
- ▶ Applies to free run, free range, and organic housing systems utilizing bedding material. Conventional and enriched colony systems on occasion will use straw or shavings to mix with manure as it is augured from the production unit.
- ▶ The characteristics to look for in good poultry bedding are absorbency, ability to give up moisture readily, and low dust content.
 - *Caution – straw can be dusty and may contain residues of agricultural chemicals; wood shavings and wood chips may contain wood preservatives.*
 - *Caution – recycled paper may contain chemical contaminants such as ink.*
- ▶ Know your source. Determine whether the source has a control program in place to assure you of uncontaminated bedding.
- ▶ Use clean transport vehicles.
- ▶ Store bedding in a dry covered location free from birds, insects and rodents.
- ▶ A Letter of Assurance from the bedding material supplier is required (GMP’s and SOP’s manual section 7.17.2) (Reference Farmer Guidelines Section 2.28).
- ▶ Monitored by individual responsible for SOP to determine conformance and effectiveness as received. Monitoring recorded in “Activity Log”.
- ▶ Any corrective actions taken as a result of bedding contamination should be recorded in the “Corrective Action Log” Section 7.18.0 / 7.18.1.
- ▶ Reference GMP’s and SOP’s manual GMP 2.2.7.
- ▶ Applies to process steps #1–7 and 2–7.

5. General design, construction and maintenance

- ▶ Biological hazards (*Salmonella*, *Campylobacter*, *E. coli*) and chemical hazards (ammonia, agricultural chemical drift) controlled.
- ▶ Applies to all housing systems.
- ▶ To prevent accumulated build-up of biological and chemical hazards due to poor construction and design.
 - Floors, walls, and ceiling must be constructed of material that is durable, smooth, and cleanable.
 - Floor designed and managed for proper drainage of water.
 - Doors must be close fitting.
 - Laying hen living quarters must be separated from egg storage and packaging material storage.
- ▶ Reference GMP's and SOP's manual GMP 1.2.5.
- ▶ Applies to process steps #9, 12 and 13.

6. On-farm feed mixing

- ▶ Biological hazards controlled (*Salmonella*, *Campylobacter*, *E. coli*, mycotoxins).
- ▶ Chemical hazards controlled (pesticide residues in grains, heavy metals and medications).
- ▶ Applies to all housing systems.
- ▶ Farmers must have regard for any applicable feeds regulations.



Keys to compliance:

- ▶ Retain samples of the complete feed mixed on-farm for a minimum of 4 weeks. Feed samples are to be taken at each ration change.
- ▶ Samples should be collected in a sanitary or sterile manner and stored in a sealed container in a cool, dry location. A minimum 500 gram sample size is recommended.
- ▶ It is highly recommended that feed samples be routinely tested for microbiological analysis, mycotoxins and content analysis. The frequency of routine sampling is dependent on the mill and should be risk-based.
- ▶ A written standard operating procedure is required to outline the protocol for handling contaminated feed. This should minimally include a method to ensure no contaminated feed is supplied to the birds as well as a procedure for cleaning and disinfecting the equipment and areas affected.

Establishments that have been accredited through CFIA inspection or the CQA program are issued equivalency under the SC-SC™ Program.

- ▶ Feed mill establishments should have an adequate sanitation program in place to monitor and control the risk of cross contamination. This program should be carried out in a manner that does not contaminate finished feed or feed ingredients during or subsequent to cleaning and sanitizing.
- ▶ An adequate integrated pest management program should be followed to prevent and reduce biological contamination of the establishment.
- ▶ The establishment should be protected by implementing the necessary protocols and barriers to reduce, prevent or eliminate harmful pathogens that may cause contamination of finished feed and/or feed ingredients.
- ▶ All scales and metering devices used in the making of feed should be appropriate for the range of weights or volumes to be measured, and should be calibrated and maintained properly to avoid errors in measurement of feed ingredients and/or medications.
- ▶ Use of medicated feed on farm must meet the standards set out in the federal Feeds Act and Regulations as well as CFIA's Compendium of Medicated Ingredients Brochure. It is highly recommended to seek the advice of a veterinary professional. Medications should only be used in accordance with veterinary prescriptions and/or manufacturer's label.
- ▶ Medications used must be recorded in the 'Pharmaceutical Record.'
- ▶ It is recommended to have a written procedure and/or description of activities (SOP) relating to the following categories:
 - Cleaning & Sanitation
 - Pest Control
 - Biosecurity
 - Equipment
 - Medicated Feed
- ▶ Reference GMP's and SOP's manual GMP 2.2.2.
- ▶ Applies to process steps #1-1, 2-1, 7 and 8.

7. Manure handling system is adequate to meet the needs of the production unit

- ▶ Biological hazards controlled (*Salmonella*, *Campylobacter*, *E. coli*).
- ▶ Applies to all housing systems.
- ▶ To prevent and reduce the microbiological contamination of the production unit through improper handling of manure.
 - No manure splash on walls and floor.
 - No caked manure on equipment that is used in manure handling system.
- ▶ Manure storage – observation that it is adequately sized for the amount of manure generated and for the number of days that manure will be stored. Consideration given to odour control and pest control.
- ▶ Manure disposal – in accordance with provincial/municipal regulations or guidelines.
- ▶ Date manure removed from laying facility in “Activity Log” or Section 2.23.
- ▶ Date manure removed from storage and where it was disposed (land application or other means) in the “Activity Log”.
- ▶ Equipment clean-up in Section 2.23.
- ▶ Reference GMP’s and SOP’s manual GMP 1.5.1; 5.1.4; 5.1.5; 7.11.2.
- ▶ Applies to process steps #27, 28, 29.

8. Flock housing protocol

- ▶ Biological hazards controlled (*Salmonella*, *Campylobacter*, *E. coli*).
- ▶ Applies to all housing systems.
- ▶ To prevent microbiological contamination of laying hens and production unit at flock placement.
- ▶ Record flock housing date and number placed.
- ▶ Identify unloading crew and any climatic observations.
- ▶ Pullet Flock History Certificate.
- ▶ Reference GMP’s and SOP’s manual GMP 2.2.4.
- ▶ Reference Farmer Guidelines section 2.22 and 2.25.
- ▶ Applies to process steps #2–6.

9. General equipment maintenance

- ▶ Biological hazards controlled (*Salmonella*, *Campylobacter*, *E. coli*).
- ▶ Chemical hazards controlled (grease, oil, lubricants).
- ▶ Applies to all housing systems.
- ▶ To prevent and reduce chemical contamination of eggs during conveyance from laying facility to refrigerated storage.
 - Practice preventative maintenance program.
 - Use food grade grease.
 - Follow manufacturer's recommended sanitation program.
 - All repair and maintenance equipment should be dedicated to the production unit.
- ▶ Calibrate thermometers (Reference Farmer Guidelines Section 1.1).
- ▶ Calibrate feed mixing scales and metering devices (Reference Farmer Guidelines Section *Other Must Do's* – 6).
- ▶ Calibrate water medicators (Reference Farmer Guidelines Section *Other Must Do's* – 1).
- ▶ Reference GMP's and SOP's manual GMP 1.4.1; 2.2.2; 2.4.2; 3.1.10.
- ▶ Applies to process steps #3, 4, 6, 7, 20.

10. Foraging material

- ▶ Biological hazards (*Salmonella*, *Campylobacter*, *E. coli*, mold)
- ▶ Applies to housing systems utilizing additional substrates or objects as foraging material.
- ▶ Know your source. Determine whether the source has a control program in place to assure you of uncontaminated foraging material. Purpose-designed foraging materials such as pecking stones should be registered poultry products.
- ▶ Edible pecking material (ex. oat hulls) and supplemental foraging material (ex. hay bales) must be visually inspected for mold or other visible contamination.
- ▶ Non-edible/hard objects used to provide foraging opportunities (ex. golf balls) must be appropriately cleaned before entering the production unit.
- ▶ Store foraging material in a dry covered location free from birds, insects and rodents.
- ▶ Monitored by individual responsible for SOP to determine conformance and effectiveness as received. Monitoring recorded in "Activity Log".
- ▶ Any corrective actions taken as a result of foraging material contamination should be recorded in the "Corrective Action Log" Section 7.18.0 / 7.18.1.
- ▶ Reference GMP's and SOP's manual GMP 2.2.8.

11. Pharmaceutical use

- ▶ The definition of a pharmaceutical for the purpose of the SC-SC™ Program is a drug or medicine that is prepared or dispensed and used in medical treatment to treat or prevent disease.
- ▶ Methods of delivery for pharmaceuticals include feed (mixed on or off-farm), water, spray, vaccine, etc.
- ▶ All pharmaceutical use must be recorded to ensure that eggs being consumed do not contain medication that would deem the egg inedible.
 - Reference Farmer Guidelines Section 3.18.
- ▶ If no pharmaceuticals were used, indicate this on the pharmaceutical records at the end of each flock.
- ▶ When monitoring indicates improper doses of medication are reaching the birds, consult your veterinarian and/or poultry nutritionist for corrective actions.
- ▶ In addition to the above requirements, the following information applies to antimicrobials:
 - According to the Government of Canada, the definition of an antimicrobial drug is a natural, semisynthetic or synthetic substance that is capable of killing or inhibiting the growth of microbes. Antimicrobials include antibiotics (including ionophores), antivirals, antifungals, and antiparasitics.
 - Health Canada has categorized antimicrobials into four categories based on their significance in human medicine. Medically important antimicrobials (categories 1-3) are antimicrobials used in human medicine for treatment purposes. Category 4 antimicrobials are not currently used in human medicine and are therefore not currently considered medically important.
 - Any preventative use of Category 1 antibiotics on-farm will result in the immediate suspension of a farmer's SC-SC™ Program certification.
- ▶ For the purpose of the SC-SC™ Program, a supplement is a non-pharmaceutical vitamin, mineral, or additive used on-farm for the purpose of benefiting production or to promote the health and welfare of the birds.
- ▶ Pharmaceuticals and supplements must be used only in accordance with the manufacturers' instructions unless veterinary advice has been given to vary from the directions.

HIGHLY RECOMMENDED

The following management practices are included for you to consider implementing on your farm. They may or may not be applicable to your enterprise. They are also a reference for you when considering change.

1. Adequate lighting is provided throughout the production unit

- ▶ Biological hazards controlled (*Salmonella*, *Campylobacter*, *E. coli*).
- ▶ Applies to all housing systems.
- ▶ To allow sufficient lighting for inspection areas and/or gathering areas to remove cracks and leakers.
- ▶ Reference GMP's and SOP's manual GMP 1.2.4.

2. Laying hen delivery vehicle protocol

- ▶ Biological hazards (*Salmonella*, *Campylobacter*, *E. coli*) and chemical hazards (pharmaceutical residues) controlled.
- ▶ Applies to all housing systems.
- ▶ To prevent microbiological contamination of laying hens and production unit at flock placement.
- ▶ Reference GMP's and SOP's manual GMP 2.1.3.
- ▶ Reference Farmer Guidelines Section 2.22 and 2.25.
- ▶ Applies to process steps #1–6 and 2–6.

3. Ventilation system provides adequate level of air quality

- ▶ Biological hazards (*Salmonella*, *Campylobacter*, *E. coli*) and chemical hazards (agricultural spray drift) controlled.
- ▶ Applies to all housing systems.
- ▶ To prevent and reduce microbiological contamination of the production unit through improper air movement.
- ▶ Reference GMP's and SOP's manual GMP 3.1.3.

4. Proper design for conventional and enriched colony housing systems

- ▶ Biological hazards controlled (*Salmonella*, *Campylobacter*, *E. coli*).
- ▶ Applies to conventional and enriched colony housing systems.
- ▶ To prevent and reduce microbiological contamination of the layer hen by minimizing contact with manure and minimizing contamination of the egg by reducing contact with the layer hen and manure.
- ▶ Reference GMP's and SOP's manual GMP 3.1.4.

5. Proper design for deep litter or slatted housing systems

- ▶ Biological hazards controlled (*Salmonella*, *Campylobacter*, *E. coli*).
- ▶ Applies to free run, free range, and organic.
- ▶ To reduce and prevent microbiological contamination of the production unit, layer hen and eggs.
- ▶ Reference GMP's and SOP's manual GMP 3.1.5.

6. Proper design for feeding equipment

- ▶ Biological hazards (*Salmonella*, *Campylobacter*, *E. coli*) and chemical hazards (lubricants) controlled.
- ▶ Applies to all housing systems.
- ▶ To prevent and reduce stresses associated with lack of feed on the layer hen.
- ▶ Reference GMP's and SOP's manual GMP 3.1.6.

7. Proper design for watering equipment

- ▶ Biological hazards (*Salmonella*, *Campylobacter*, *E. coli*) and chemical hazards (water treatment and medications) controlled.
- ▶ Applies to all housing systems.
- ▶ To prevent and reduce stresses associated with lack of water to the layer hen.
- ▶ Reference GMP's and SOP's manual GMP 3.1.7.

8. Proper design of egg conveying equipment

- ▶ Biological hazards controlled (*Salmonella*, *Campylobacter*, *E. coli*).
- ▶ Applies to all housing systems.
- ▶ To prevent and reduce biological and chemical contamination of eggs during conveyance from the laying facility to refrigerated storage.
- ▶ Reference GMP's and SOP's manual GMP 3.1.8.

9. Alarms

- ▶ For all housing systems.
- ▶ To minimize loss associated with power interruption.
- ▶ Reference GMP's and SOP's manual GMP 3.1.9.

10. Technical training

- ▶ Biological hazards controlled (*Salmonella*, *Campylobacter*, *E. coli*).
- ▶ Areas of training could include:
 - Daily, weekly, monthly and annual routines.
 - All aspects of the production unit biosecurity program.
 - All aspects of facility hygiene.
 - All aspects of pest management program.
 - All aspects of egg handling.
 - Material Safety Data Sheet literature.
 - Reading and recording thermometers and any electronic devices that may be used in production unit for monitoring.
 - Starting standby generator.
- ▶ Employees are encouraged to report any problems encountered during workday.
- ▶ Letter signed by employee that they have been trained in the safe handling of eggs.
- ▶ Reference GMP's and SOP's manual GMP 4.3.0

APPENDIX

1. List of Terms

For the purpose of Start Clean-Stay Clean™, the following terms are to be interpreted as specified:

“Activity log” refers to a book wherein all observations, special notes, monitoring steps and out of the ordinary occurrences related to the good management practices for egg production are recorded as required. This log can be replaced by a *comment section* in the record of concern;

“Biosecurity program” refers to practices set up for the production unit to protect flocks and eggs from organisms, which can cause disease. These practices include defining restricted and unrestricted zones; sanitary outer clothing and a change of boots required before anyone enters the production unit. Farmers should have a cautious regard for egg conveying systems and manure handling systems that they do not cross from one laying facility through another;

“Breaking plant” means registered processing facility as defined in the Federal Processed Egg Regulations made under the *Safe Food for Canadians Act*;

“Commercial layer housing” (a.k.a. Production Unit) means a structure wherein laying hens are sheltered and provided a high standard of care;

“Conveyors” means any form of transferring the egg from the point of lay to the refrigerated storage;

“Control point” means a point, step or procedure at which control can be applied and a food safety hazard can be prevented, eliminated or reduced to an acceptable level;

“Corrective action” means the action to be taken when monitoring a CCP or prerequisite if the monitored value is above the critical limit it indicates a potential or actual loss of control;

“Critical limit” means the value of a preventative measure, determined during monitoring, that distinguishes acceptable and unacceptable;

“Egg” means an egg of the domestic hen but does not include a hatching egg;

“End-of-lay” or “Spent hen”; a hen that is no longer laying eggs;

“Enriched Colony” refers an enclosure predominantly made from wire with wire or solid walls, outfitted with perches, nest area, scratch area and more head room compared to conventional housing; group sizes in enriched colony housing can range from 10 to over 100 hens, depending on the model;

“Free range” refers to a system where birds roam freely inside a barn and are allowed access to an outdoor pasture or range area;

“Free run” refers to a system where birds roam freely inside a barn but do not have access to the outdoors;

“Good Manufacturing Practices” is a set of principles and hygienic practices for the manufacturing and handling of food. Areas of focus include: Premises, Equipment, Personnel, Manufacturing Controls, Sanitation Program, Records, Recalls and Transportation and Storage;

“Grader” means grading station operator;

“Grading station” means an egg station registered under section 7 of the Egg Regulations made under the *Canada Agricultural Products Act*;

“HACCP” (Hazard Analysis Critical Control Point) means a systemic approach to the identification and assessment of the hazards and risks associated with a food operation and the defining of the preventative measures that are to be applied to effect control;

“Hazard” means a potential to cause harm to the consumer (Safety). Examples are bacteria (*Salmonella*) and chemical (pesticides, pharmaceuticals);

“Laying facility” means an area within a production unit wherein laying hens are sheltered and provided a high standard of care. The laying hens are of one age and a biosecurity program is in place;

“Manure storage” means a container of adequate capacity to accumulate biomass from the laying hen until time of proper disposal;

“Monitoring” means observations or measurements to assess whether controls are being implemented effectively;

“Organic” a method of production;

“Organic egg production” refers to an egg production system that has been “certified” organic according to the requirements of a provincial, federal, or international body. This may imply free range conditions, organically grown feed ingredients, and restrictions on the types of rodent control products, medications, and disinfecting agents that can be used;

“Packing” means placing eggs into trays or cartons and onto a cart or skid in preparation for shipping;

“Predator” means an animal that habitually preys on chickens such as dogs, coyotes, foxes, cats, skunks, weasels or racoons;

“Prerequisite Programs” (Prq.) are defined as universal steps or procedures that control the operational conditions within a food establishment allowing for environmental conditions that are favourable to the production of safe food. They

are simply a set of good manufacturing practices that must be in place before the implementation of HACCP or HACCP based programs;

“Preventative measures” (controls) means activities that eliminate hazards or reduce occurrence to an acceptable level;

“Production unit” means a structure that contains one or more laying facilities that are connected and which include accessory work areas, storage areas and refrigeration rooms and defined restricted and unrestricted areas;

“Range” refers to a grassed outside area that layers have access to and protected from predators;

“Receiving” means a protocol of accepting inputs required in the production of eggs;

“Refrigerated storage” means an area of adequate capacity to accumulate total production of eggs between pick-ups and possess mechanical means to adequately reduce temperature to an acceptable level;

“Risk” means the chance (probability) that a given hazard will occur;

“Shipping” means the transfer of eggs from the refrigerated storage to a transportation vehicle;

“Sorting” means the separation of visible cracks, excessively soiled and inedible eggs from eggs fit for use as human food;

“Standard operating procedure” means written step-by-step operational procedures detailing practices to achieve the GMP including monitoring and record-keeping;

“Verification” means a procedure additional to monitoring to determine if an activity is in compliance with the prerequisite program. Persons verifying records are verifying that the activity has taken place and not the accuracy of the record.

2. Record Keeping

Attached are examples of record keeping sheets. Also, please refer to the GMP's and SOP's manual for details on record keeping. The records in this section are examples of how records may be kept but not necessarily the manner in which they must be kept.

Month: _____

FLOCK DISPOSAL		FLOCK PLACEMENT		MONITORING RODENTS		MONITORING OTHER PESTS	
Date	Hens Shipped	Date	Hens Housed	Service Provider – Professional – Producer Program		Use of Fly Strips	
Destination	Crew	Destination	Crew			Fly Traps	
Transporter	Observations	Transporter	Observations			Other	
CLEANING and DISINFECTING (between flocks)						Visual Check (Date/Observations)	
Date	Service Person	Pressure Wet Wash / Dry Clean	Detergents Used (brand name) (retain product label)				
	Amount of Detergent Used		Disinfectant Used (brand name) (retain product label)				
	Amount of Disinfectant Used		Fumigants Used (brand name) (retain product label)	PESTICIDES USED (retain labels)			
	Amount of Fumigant Used		Procedure:	Date	Product	P.C.#	
	Day 1			layer facility			
	Day 2						
	Day 3						
	Day 4						
	Day 5						
	Day 6						
	Day 7						
ENVIRONMENTAL TESTING				Visual Checks: (Date and Observations)			
Number of Tests _____ Dates _____							
Samples Taken From							
Floors	Egg Belts						
Walls	Egg Conveyors						
Ceiling	Feed Troughs						
Fans	Water Cups/Nipples						
Manure Belts/Pits	Other						
Test Results: Sc Negative / Sc Positive _____							
Lab Test Conducted By: _____							

Authorized Signature:

3. Flock Information Reporting Form

Producer/Enterprise Name: _____ Producer Code/Quota: _____

Barn #: _____ Placement Date: _____ Age of Birds at Shipment (Wks): _____

Birds Placed: _____ # Birds Shipped: _____ Mortality Rate (%): _____ Kg/Bird: _____

EFC SCSC™ OFFSP Program: ☐ Yes ☐ No

Section A – Medication and Vaccine Information

1	Were medications or vaccines administered at the hatchery?	<input type="checkbox"/> Yes <input type="checkbox"/> No	A through G *
2	Were vaccines administered on-farm during the last 120 days?	<input type="checkbox"/> Yes <input type="checkbox"/> No	A, through G
3	Were any non-treated diseases or syndromes diagnosed during the flock during the last 120 days?	<input type="checkbox"/> Yes <input type="checkbox"/> No	H
4	Were any medications administered for treatment during the last 120 days?	<input type="checkbox"/> Yes <input type="checkbox"/> No	A through H*
5	During the last 14 days, were any drugs administered that required a withdrawal period?	<input type="checkbox"/> Yes <input type="checkbox"/> No	A, through G*
6	Were any Category I medications (e.g., ceftiofur – Excenel™, enrofloxacin – Baytril™) used on-farm in a <u>preventive</u> manner during the entire lifetime of the flock?	<input type="checkbox"/> Yes <input type="checkbox"/> No	A through G *
7	Were any extra-label medications used during the last 120 days? (refer to prescription or CgFARAD)	<input type="checkbox"/> Yes <input type="checkbox"/> No	A through G*

***Attach prescriptions for all extra-label medication use**

Record any “Yes” answers in the table below (use the guide above to fill in the columns):

Question # (i.e. 1–7 above)	(A) Medication or Vaccine Name	(B) First treatment date	(C) Last treatment date	(D) Withdrawal Period (days)	(E) Safe marketing date (if any)	(F) Dose (i.e mg/kg, grammes/tonne,etc)	(G) Method (Feed/ water/ other)	(H) Disease or Syndrome & Flock Recovery date

Section B – Feed Withdrawal and Loading Information

Planned catching time:	M	D	Time	AM PM	Actual start of catching:	Time	AM PM
Planned processing time:	M	D	Time	AM PM	Time of last access to water:	Time	AM PM
Was the feed supply disrupted in the last 48 hours?	<input type="checkbox"/> Yes <input type="checkbox"/> No				Feed withdrawal time provided by the processor:	Time	AM PM
Time feed was no longer accessible:	M	D	Floor #1 Time	AM PM	Floor #2 Time	AM PM	

Provide any additional comments on flock condition during the laying cycle and/or the catching process on a separate sheet of paper if desired

Additional Comments: _____

I confirm that, to the best of my knowledge, the information contained on this flock information reporting form is accurate and complete and that any diseases that were diagnosed in the flock as a result of laboratory tests and/or readily observable clinical signs have been identified and reported on this form.

Producer’s Signature: _____

Note: This information is confidential between the producer and the processor. Version 7.0

Instructions to Complete the Flock Information Reporting Form

Flock information (except # birds shipped) and Section B must be sent to the processor 3–4 days prior to shipment. Use one form per flock when all flock information is identical; use additional forms when flock information is not identical. There is no specific order of coloured pages to send or keep. Ensure to keep a copy in your farm records. When multiple truckloads are sent to the same processor, only one flock sheet is required and it should accompany the **first** load.

Age of birds at Shipment: Record the age of the flock in weeks.

Birds Placed: Include any additional chicks (e.g. 2%) provided by the hatchery.

Birds Shipped, Mortality Rate (%) and Kg/Bird: These are estimates based on production records.

EFC SC-SC™ OFFSP Participation: Indicate if the farm participates in EFC’s SC-SC™ on-farm food safety program (OFFSP).

Section A: Medication and Vaccine Information: Answer questions 1 through 7 by checking either the “yes” or “no” box. If “yes”, the letters beside each question indicate which columns need to be completed in the table. Record the question number in the first column of the table to reference which question the information being provided refers to. To determine whether a medication is prescribed extra-label, look for a CAPV (Canadian Association of Poultry Veterinarians) or CgFARAD (Canadian global Food Animal Residue Avoidance Database) reference number on your veterinary prescriptions.

Question 1: If yes, complete columns A (name), B (treatment date), C (last treatment date), D (withdrawal period), E (safe marketing date), F (dose) and G (method) for all vaccines and medications administered at the hatchery (as per the hatchery invoice). All vaccines have a 21 day withdrawal period. A veterinary prescription must be attached to the advance copy of the flock sheet for any extra-label medication use.

Question 2: If yes, complete columns A (name), B (treatment date), C (last treatment date), D (withdrawal period), E (safe marketing date), F (dose) and G (method) for all vaccines administered during the last 120 days before shipment. All vaccines have a 21 day withdrawal period.

Question 3: Check “yes” if any diseases or syndromes were diagnosed during the laying cycle and if no medications were used to cure the flock (see Question 4 if medications were used); complete column H (Disease or Syndrome) and include the date the birds recovered. This is very important for export certification. Flocks that are not eligible for export because of notifiable diseases will remain eligible for domestic use. (e.g. Infectious Laryngotracheitis or ILT). This should focus on the last 120 days before shipment. Indicate the date that the flock recovered from the disease/syndrome based on when the clinical symptoms have resolved and flock appears normal to go for processing. This is important for the plant defect detectors to differentiate between active lesions or scar lesions: this will contribute to maximize your return.

Question 4: Check “yes” if any medications, including those used in feed or water, and even those without a withdrawal period, were used to treat clinical symptoms during the last 120 days and complete columns A through H indicate date flock recovered. A veterinary

prescription must be attached to the advance copy of the flock sheet for any extra-label medication use. Indicate the method used to administer any medications.

Question 5: Check “yes” if any medications that required a withdrawal period were used prior to shipment in the last 14 days. If yes, complete columns A (name), B (treatment date), C (last treatment date), D (withdrawal period), E (safe marketing date), F (dose), and G (method). If feed tags indicate a withdrawal period, but do not specify the specific medication that requires the withdrawal period, then list all medication names in the ration in column A.

Question 6: Check “yes” if any Category I medications (e.g. penicillin - β -lactamase inhibitor combinations, enrofloxacin – Baytril™) were used in a preventive manner (without clinical signs or disease diagnosis) during the laying cycle. If yes, complete columns A through G. A veterinary prescription must be attached to the advance copy of the flock sheet for any Category I antimicrobials and for any extra-label medication use.

Question 7: Check “yes” if any extra-label medications were used and fill out columns A through G. To determine whether a medication is prescribed extra-label, look for a CAPV (Canadian Association of Poultry Veterinarians) or CgFARAD (Canadian global Food Animal Residue Avoidance Database) reference number on your veterinary prescriptions.

Section B: List the month, day and time (circle am or pm) as required for each item.

Record the estimated **Planned Catching Time** and the **Planned Processing Time** as provided by the processor.

Record the **Actual Start of Catching** time at which the first bird of the lot of birds was placed into a crate.

Record the **Time of Last Access to Water** when water availability was removed.

Check “yes” if the **Feed supply was disrupted in some way in the last 48 hours**, and birds were starved (even for a short period of time) as they may have gorged themselves and their digestive tract might have been impacted. This has a serious impact on the amount of digesta present during evisceration and potential contamination with disease-causing bacteria.

Record the time of **Feed withdrawal provided by the processor**; if no time has been provided, indicate N/A or cross out the box.

Time feed was no longer accessible: List the actual time when the flock no longer had access to feed. If the time of feed withdrawal is different for individual floors within the barn, record the time of feed withdrawal on each floor in the barn.

4. Rating Form

Rating forms will be used by EFC Inspectors/Auditors to assess your production unit to determine compliance with the Good Management Practices and Standard Operating Procedures.

There are two forms that may be used:

1. Conventional and Enriched Colony Housing Systems and Free Run (100% Slatted or Wire Floor)
2. Free Run (Litter), Free Range and Organic Housing Systems

These forms are living documents that will experience continued change as knowledge and practicality dictate. Significant changes on requirements of production units will be communicated to farmers prior to implementation.

Should you have any questions please contact your regional EFC Inspector or EFC's Field Operations Department in Ottawa.

5. Recommended Practice for Cleaning and Disinfecting Regulated Egg Layer Barns and Regulated/Registered Pullet Barns in Canada

Reference the *Recommended Practice for Cleaning and Disinfecting Regulated Egg Layer Barns and Regulated/Registered Pullet Barns in Canada*.