CHAPTER 6.4.

BIOSECURITY PROCEDURES
IN POULTRY PRODUCTION

Article 6.4.1.

Introduction

This chapter provides recommended biosecurity procedures in poultry production.

Infectious disease agents of poultry are a threat to poultry health and, at times, human health and have significant social and economic implications. In poultry production, especially under intensive conditions, prevention is the most viable and economically feasible approach to the control of infectious disease agents.

Biosecurity procedures should be implemented with the objective of preventing the introduction and dissemination of infectious disease agents in the poultry production chain. The adoption of Good Agricultural Practices and the Hazard Analysis Critical Control Point (HACCP) system will help to achieve these objectives.

Article 6.4.2.

Purpose and scope

This chapter deals with biosecurity procedures in poultry production. It should be read in conjunction with the Codex Alimentarius Code of Hygiene Practice for Meat (CAC/RCP 58-2005) and Code of Hygienic Practice for Eggs and Egg Products (CAC/RCP 15-1976 Revision 2007).

This chapter provides general recommendations for infectious disease agents of poultry. Recommendations on specific diseases may be found in relevant disease chapters in the Terrestrial Code.

This chapter identifies several relevant biosecurity measures. The choice of measures to be implemented will vary according to national conditions, including poultry disease status, the risk of introduction and dissemination of infectious disease agents and the cost effectiveness of control measures.

Article 6.4.3.

Definitions (for this Chapter only)

Breeders: means poultry destined for the production of fertile eggs for incubation for the purpose of producing day-old birds.

Culling: means the depopulation of a flock before the end of its normal production period.
**Live bird markets**: means markets where live birds from various sources are sold for slaughter or further rearing.

**Article 6.4.4.**

**Recommendations on the location and construction of poultry establishments**

1. **All establishments (poultry farms and hatcheries)**
   a) A suitably isolated geographical location is recommended, taking into account the direction of the prevailing winds, location of other *poultry establishments* and the distance from roads used to transport *poultry*.

   b) *Poultry establishments* should be located and constructed to provide adequate drainage away from the site.

   c) *Poultry* houses and hatcheries should be designed and constructed (preferably of smooth impervious materials) so that cleaning and *disinfection* can be carried out effectively. Ideally, the area immediately surrounding the *poultry* houses should be paved with concrete or other impervious material to facilitate cleaning and *disinfection*.

   d) The *establishment* should be surrounded by a security fence to prevent the entry of unwanted animals and people.

   e) A sign indicating restricted entry should be posted at the entrance to the farm.

2. **Additional measures for poultry farms**
   a) *Establishments* should be designed for use with single species and single purpose. Whenever possible, the ‘all-in all-out’ single age group principle should be used. If this is not feasible and several *flocks* are maintained on one *establishment*, each *flock* should be managed as a separate *epidemiological unit*.

   b) *Poultry* houses, and buildings used to store feed or eggs, should be constructed and maintained to prevent the entry of wild birds, rodents and insects.

   c) Where feasible the floors of *poultry* houses should be constructed using concrete or other impervious materials and designed so that cleaning and *disinfection* can be carried out effectively.

   d) Where feasible, feed should be delivered into the farm from outside the security fence.

3. **Additional measures for hatcheries**
   a) The design of the hatchery should take account of work flow and air circulation needs, with ‘one way flow’ movement of eggs and *day-old birds* and one way air flow in the same direction.

   b) The hatchery buildings should include physical separation of areas used for the following:
      i) personnel changing, showering and sanitary facilities;
      ii) receipt, storage and transfer of eggs;
      iii) incubation;
iv) hatching;
v) sorting, sexing and placing of day-old birds in boxes;
vi) storage of egg boxes and chick boxes, egg flats, box pads, chemicals and other items;
vii) washing equipment;
viii) waste disposal;
ix) dining facilities for personnel;
x) office space.

Article 6.4.5.

Recommendations applicable to the operation of poultry establishments

1. **All establishments (poultry farms and hatcheries)**
   
   a) There should be good communication between all those involved in the poultry production chain from breeding to production and consumption to ensure that steps are taken to minimise dissemination of infectious disease agents. Personnel should have access to basic training in biosecurity relevant to poultry production and food safety.

   b) Traceability at all levels of the poultry production chain should be possible.

   c) Records of production should be maintained. On farm, this includes treatment, vaccination, flock history, mortality and disease surveillance data. This should be maintained on an individual flock basis. In hatcheries, relevant records include fertility, hatchability, vaccination and treatment. Records should be readily available for inspection.

   d) A veterinarian should be responsible for monitoring poultry health on the establishment.

   e) Access to the establishment should be controlled to ensure only authorised persons and vehicles enter the site.

   f) Establishments should be free from unwanted vegetation and debris.

   g) Procedures for the prevention of entry of wild birds, and the control of vermin such as rodents and arthropods should be implemented on a routine basis.

   h) All personnel and visitors entering an establishment should follow a biosecurity procedure. The preferred procedure is for visitors and personnel to shower and change into clean clothes and footwear provided by the establishment. Where this is not practical, clean outer garments (coveralls or overalls, hats and footwear) should be provided.

   Before entering and after leaving a poultry house, personnel and visitors should wash their hands with soap and water and use a properly maintained disinfectant footbath. The disinfectant solution in the footbath should be changed on a regular basis to ensure its efficacy, according to the manufacturer’s instructions.
i) Personnel and visitors should not have had recent contact with other poultry, poultry waste, or poultry processing plant(s). This time period should be based on the level of risk of transmission of infectious disease agents. This will depend on the poultry production purpose, biosecurity procedures and disease status (e.g. the time between visiting a breeder flock and then another broiler flock would be less than the time between visiting a broiler flock and then a breeder flock).

j) Delivery vehicles should be cleaned, and disinfected before loading each consignment of hatching eggs, day-old birds or poultry.

2. Additional measures for all poultry farms

a) Animals, other than poultry of the appropriate (resident) species and age, should not be permitted access to poultry houses. No animals should have access to other buildings (e.g. those used to store feed or eggs).

b) The water supply to poultry houses should be potable according to the World Health Organization or to the relevant national standard, and microbiological quality should be monitored if there is any reason to suspect contamination. The water delivery system should be disinfected between flocks when the poultry house is empty.

c) Birds used to stock a poultry house should preferably be obtained from breeder flocks and hatcheries that are free from vertically transmitted infectious disease agents.

d) Heat treated feeds with the addition of bacteriostatic or bactericidal treatments is recommended (e.g. organic acids). Where heat treatment is not possible, the use of bacteriostatic or bactericidal treatments is recommended.

Feed should be stored in a manner to prevent access by wild birds and rodents. Spilled feed should be cleaned up immediately to remove attractants for wild birds and rodents.

e) The litter in the poultry house should be kept dry and in good condition.

f) Dead birds should be removed from poultry houses as quickly as possible or at least daily. These should be disposed of in a safe and effective manner.

g) Personnel involved in the catching of birds should be adequately trained in bird handling and basic biosecurity procedures.

h) Poultry should be transported in well ventilated containers and should not be over crowded. Exposure to extreme temperatures should be avoided.

i) Containers should be cleaned and disinfected between each use.

j) When a poultry house is depopulated, it is recommended that all faeces and litter be removed from the house and disposed of in a manner approved by the Veterinary Services.

If litter is not removed and replaced between flocks then the litter should be treated in a manner to inactivate infectious disease agents, to prevent the dissemination of infectious disease agents from one flock to the next.

After removal of faeces and litter, cleaning and disinfection of the building and equipment should be done in accordance with Chapter 4.13.
All litter removed from a *poultry* house should be disposed of in a safe manner to prevent the dissemination of infectious agents.

k) For *poultry flocks* that are allowed to range outdoors, attractants to wild birds should be minimised e.g. feeders should be kept inside the *poultry* house. *Poultry* should not be allowed access to sources of contamination (e.g. household waste, other farm animals, stagnant water and litter storage areas). The nesting area should be inside the *poultry* house.

l) To avoid the development of antimicrobial resistance, antimicrobials should be used according to relevant directions of the *Veterinary Services* and manufacturer’s instructions and in accordance with *Terrestrial Code* Chapters 6.8, 6.9., 6.10. and 6.11.

3. **Additional measures for breeder farms**

a) Nest box litter and liners should be kept clean.

b) *Hatching eggs* should be collected at frequent intervals, at least daily, and placed in a new or clean and *disinfected* packaging material.

c) Grossly dirty, broken, cracked, or leaky eggs should be collected separately and should not be used as *hatching eggs*.

d) *Hatching eggs* should be cleaned and sanitised as soon as possible after collection using an approved sanitising agent, in accordance with the manufacturer’s instructions.

e) *Hatching eggs* or their packaging materials should be marked to assist traceability and veterinary investigations.

f) The sanitised *hatching eggs* should be stored in a dedicated room as soon as possible after collection. Storage conditions should minimise the potential for microbial contamination and growth and ensure maximum hatchability. The room should be well ventilated, kept clean, and regularly *disinfected* using disinfectants approved for this purpose.

4. **Additional measures for hatcheries**

a) Dead in shell embryos should be removed from hatcheries as soon as they are found and disposed of in a safe and effective manner.

b) All hatchery waste, garbage and discarded equipment should be contained or at least covered while on site and removed from the hatchery and its environs as soon as possible.

c) After use, hatchery equipment, tables and surfaces should be promptly and thoroughly cleaned and *disinfected* with an approved disinfectant.

d) Egg handlers, chick sexers and chick handlers should wash their hands with soap and water before commencing work and between working with batches of *hatching eggs* or *day-old birds* from different breeder flocks.

e) *Hatching eggs* and *day-old birds* from different breeder flocks should be kept separate during incubation, hatching, sorting and transportation.

f) *Day-old birds* should be delivered to the farm in new *containers* or in clean, *disinfected containers*. 
Article 6.4.6.

Prevention of further dissemination of infectious disease agents of poultry

When a flock is determined to be infected, in addition to the general biosecurity measures described previously, management procedures should be adjusted to effectively isolate the infected flock from other flocks on the establishment and other epidemiologically related establishments. The following measures are recommended:

1. Personnel should be trained in the management of infected flocks to prevent the dissemination of infectious disease agents to other flocks and establishments, and to humans (relevant measures include: handling of an infected flock separately, last in sequence and the use of dedicated personnel and clothing and equipment).

2. Epidemiological investigations should be carried out to determine the origin and route of transmission of the infectious disease agent.

3. Poultry litter/faeces and other potentially contaminated farm waste should be disposed of in a safe manner to prevent dissemination of infectious disease agents.

4. Depending on the epidemiology of the disease, the results of a risk assessment, and public and animal health policies, culling may be used to manage infected flocks. When infected flocks are destroyed or slaughtered they should be processed in a manner to minimise exposure of humans and other flocks to the infectious disease agent, and in accordance with recommendations of the Veterinary Service and relevant Chapters in the Terrestrial Code. Based on risk assessment, non-infected, high risk flocks may be culled. Movement of culled poultry should only be allowed for slaughter or destruction.

Before restocking, the poultry house or establishment should be cleaned, disinfected and tested to verify that the cleaning has been effective. Special attention should be paid to feed equipment and water systems.

Microbiological monitoring of the efficacy of disinfection procedures is recommended when pathogenic agents have been detected in the previous flock.

5. Depending on the epidemiology of the disease, risk assessment, vaccine availability and public and animal health policies, vaccination is an option to minimise the dissemination of the infectious disease agent. When used, poultry should be vaccinated in accordance with the directions of the Veterinary Services and the manufacturer’s instructions. Recommendations in the Terrestrial Manual should be followed as appropriate.

Article 6.4.7.

Recommendations to prevent the dissemination of infectious disease agents from live bird markets

1. Personnel should be educated on the significance of infectious disease agents and the need to apply biosecurity practices to prevent dissemination of these agents. Education should be targeted to personnel at all levels of operations in these markets (e.g. drivers, owners, handlers, processors). Programmes should be implemented to raise awareness of consumers of the risks associated with activities of live bird markets.
2. Personnel should wash their hands with soap and water before and after handling birds.

3. All containers and vehicles should be cleaned and disinfected every time they leave the market.

4. Live birds that leave the market should be housed separately from other birds for a period of time to minimise the potential dissemination of infectious disease agents of poultry.

5. Periodically the market should be emptied, cleaned and disinfected. This is of particular importance when an infectious disease agent of poultry deemed significant by the Veterinary Services has been identified in the market or the region.

6. Where feasible, surveillance should be carried out in these markets to detect infectious disease agents of poultry, especially those agents of zoonotic significance. The surveillance programme should be determined by the Veterinary Services, and in accordance with recommendations in relevant disease specific chapters of the Terrestrial Code.

7. Attempts should be made to ensure the possibility of tracing all birds entering and leaving the markets.