

SOUTH AFRICAN POULTRY ASSOCIATION



CODE OF PRACTICE JUNE 2022

Contents

| | | |
|-------|--|----|
| 1 | Background and Introduction | 5 |
| 2 | Definitions | 7 |
| 3 | Poultry Housing, Stocking Densities and Product Identification | 8 |
| 3.1 | Breeder Housing Systems | 8 |
| 3.1.1 | Breeding Stock kept in Barn Systems | 8 |
| 3.1.2 | Breeding Stock kept in Cage Systems | 8 |
| 3.2 | Pullet Rearing and Egg Production Systems | 8 |
| 3.2.1 | Commercial Pullets reared in Cage Systems | 9 |
| 3.2.2 | Commercial Pullets reared in Barn Systems | 9 |
| 3.2.3 | Commercial Layers kept in Cage Systems | 9 |
| 3.2.4 | Commercial Layers kept in Enriched Cage Systems | 9 |
| 3.2.5 | Commercial Layers kept in Barn Systems | 9 |
| 3.2.6 | Commercial Layers kept in Free Range Systems | 9 |
| 3.3 | Broiler Production Systems | 9 |
| 3.3.1 | Broilers reared in Barn Systems | 9 |
| 3.3.2 | Broilers reared in Free Range Systems | 9 |
| 3.3.3 | Broilers reared in Cage Systems | 9 |
| 4 | Management Practices | 10 |
| 4.1 | Preparation of Housing Facilities | 10 |
| 4.2 | Receiving of Stock | 10 |
| 4.3 | Feed Management | 10 |
| 4.4 | Water Management | 11 |
| 4.5 | Environmental Temperature and Ventilation | 11 |
| 4.6 | Light Control | 12 |
| 4.7 | Egg Collection | 12 |
| 4.7.1 | Collection of Hatching Eggs | 12 |
| 4.7.2 | Collection of Eggs for Human Consumption | 13 |
| 5 | Stock Supervision | 14 |
| 6 | Euthanasia of Birds and Chicks | 15 |
| 6.1 | Disposal of Small Numbers of Birds on the farm | 15 |
| 6.1.1 | Cervical Dislocation | 15 |
| 6.1.2 | Use of a Burdizzo | 15 |

| | | |
|--------|---|----|
| 6.1.3 | Use of a Captive Bolt..... | 15 |
| 6.1.4 | Stunning followed by Cervical Dislocation or Severing of the Arteries | 15 |
| 6.1.5 | Gas Killing..... | 15 |
| 6.2 | Disposal of Non-saleable Chicks and Hatch Debris..... | 16 |
| 6.2.1 | Gassing | 16 |
| 6.2.2 | Maceration..... | 16 |
| 6.3 | Mass Euthanasia in the case of a Disease Outbreak..... | 16 |
| 7 | Live Bird Sales..... | 19 |
| 8 | Special Management Practices | 20 |
| 8.1 | Beak Treatment | 20 |
| 8.2 | Moulting of Layer and Breeding Stock..... | 20 |
| 8.3 | Artificial Insemination..... | 20 |
| 9 | Transportation of Broilers, Pullets and End of Lay Birds | 21 |
| 10 | Health Control..... | 23 |
| 10.1 | The Establishment and Biosecurity..... | 23 |
| 10.2 | Flock Health..... | 23 |
| 10.3 | Records..... | 24 |
| 10.4 | Vaccination..... | 24 |
| 10.5 | Disease Monitoring and Testing | 24 |
| 10.6 | Parasite and Vermin Control..... | 24 |
| 11 | Day Old Chick Hatcheries | 26 |
| 11.1 | Hatchery Buildings | 26 |
| 11.1.1 | Location of hatcheries..... | 26 |
| 11.1.2 | Building design | 26 |
| 11.2 | Egg Quality and Hatching Egg Storage..... | 26 |
| 11.2.1 | Egg Quality | 27 |
| 11.2.2 | Handling of Hatching Eggs | 27 |
| 11.2.3 | Sanitation of Hatching Eggs | 27 |
| 11.3 | Hatchery Hygiene and Chick Health | 27 |
| 11.3.1 | Chick Health | 27 |
| 11.3.2 | The Hatchery Building and Hygiene..... | 28 |
| 11.3.3 | Staff and Visitors | 28 |
| 11.4 | Handling of Chicks..... | 28 |

| | | |
|--------|---|----|
| 11.4.1 | Chick Take-off..... | 28 |
| 11.4.2 | Chick Sexing..... | 29 |
| 11.4.3 | Chick Holding..... | 29 |
| 11.5 | Morphological Alteration of Chicks | 29 |
| 11.5.1 | Dubbing | 29 |
| 11.5.2 | Toe Removal..... | 29 |
| 11.5.3 | De-Spurring | 29 |
| 11.6 | Disposal of Non-Saleable Chicks and Hatch Debris..... | 30 |
| 11.7 | Transportation of Chicks | 30 |
| 11.8 | Biosecurity in Chick Hatcheries – People | 31 |
| 12 | Appendixes..... | 32 |
| 12.1 | Appendix 1 | 32 |
| 12.2 | Appendix 2 | 33 |
| 12.3 | Appendix 3 | 34 |
| 12.4 | Appendix 4 | 35 |
| 12.5 | Appendix 5 | 36 |
| 12.6 | Appendix 6 | 37 |
| 12.7 | Appendix 7 | 38 |
| 12.8 | Appendix 8 | 40 |
| 12.9 | Appendix 9 | 42 |
| 12.10 | Appendix 10 | 43 |
| 12.11 | Appendix 11 | 45 |
| 12.12 | Appendix 12 | 46 |
| 12.13 | Appendix 13 | 48 |
| 12.14 | Appendix 14 | 52 |
| 12.15 | Appendix 15 | 56 |

1 Background and Introduction

This Code of Practice has been compiled by the Southern African Poultry Association as an objective guide for all poultry and poultry products produced in South Africa and it is an endeavour to lay down accepted norms for the poultry industry, incorporating various legal requirements where necessary and applicable.

Where possible the Code provides defined minimum standards for the wellbeing of poultry in commercial operations, research and educational facilities. The recommendations are to be used as a guide and do not necessarily consider all possible conditions.

The minimum standards outlined in this Code are intended to assist producers and people involved in the care and management of poultry to adopt standards of husbandry that are acceptable in the light of current knowledge and changing attitudes. It is intended to serve as a guide for people responsible for the welfare and husbandry of domestic poultry and recognizes that the basic requirement for welfare of poultry is a husbandry system appropriate for their physiological needs.

In addition, cognisance needs to be taken of the following five freedoms as accepted internationally to be striven for:

- Freedom from thirst, hunger and malnutrition;
- Freedom from discomfort;
- Freedom from pain, injury and disease;
- Freedom to express normal behaviour;
- Freedom from fear and distress;

The Code considers safe and wholesome food for human consumption to be of the highest priority and therefore fully supports the implementation of applicable measures to comply with the requirements for safe food of poultry origin, as approved by the relevant Health Authorities and Regulations.

Adequate facilities and resources must be available to supply proper housing, the supply of quality feed and water, attendance to sick and injured chickens and all else to ensure the wellbeing of the animals. Financial costs should not be a reason for neglecting of chickens that are obviously in distress or for failing to secure prompt and appropriate medical treatment or other care which may be necessary.

The Code emphasizes that, whatever the form of husbandry, managers, employees and others responsible for the day to day needs of the stock have a responsibility to care for the birds under their control. The importance of good stockman-ship in animal welfare cannot be over-emphasized. Persons responsible for the care of poultry should be well trained, experienced and dedicated. Staff should be encouraged to undertake appropriate training in poultry management and husbandry. Knowledge of the normal appearance and behaviour of the birds under their control is essential for the stock to be treated effectively and efficiently and with consideration.

Assistance in the establishment of poultry farms and production facilities and on the management of poultry should be obtained from qualified advisers with experience in private or government employment. Veterinary advice should also be sought when birds are in ill-health.

The Code is based on practical and scientific knowledge and technology in poultry production available at the time of publication but does not replace the need for experience and common-sense in the husbandry of domestic poultry.

The Code does not substitute any regulatory requirements and should where applicable, be read and applied in conjunction with all relevant laws, by-laws, regulations and compulsory specifications including the following:

- Animal Improvement Act (Act no 62 of 1998)
- Animal Disease Act (Act no 35 of 1984)
- Animal Protection Act (Act no 71 of 1962)
- Meat Safety Act (Act no 40 of 2000)
- Agriculture Products Standards Act (Act 119 of 1990)
- Foodstuffs, Cosmetic and Disinfectant Act (Act 54 of 1972)
- National Health Act (Act 62 of 2003)
- Occupational and Safety Act (Act 85 of 1993)
- Fertilizer, Farm Feeds, Agriculture Remedies and Stock Remedies Act (Act 36 of 19947)
- GMO Act and Regulation (Act 36 of 1983)
- Livestock Brands Act (Act 25 of 1977)
- Sterilization Facility Act (Act 36 of 1947)
- Water Treatment Chemicals for Use in the Food Industry (SANS 1827)
- Cleaning Chemicals for Use in the Food Industry (SANS 1828)
- Disinfections and Detergent – Disinfections for use in the Food Industry (SANS 1853)
- Application of Pesticides in Food-Handling, Food-Processing and Catering Establishments (SANS 10133)
- Food Hygiene Management (SANS 1049)
- Food Safety Management Systems – Requirements for Organizations throughout the Food Chain (ISO 22000)
- Requirement for HACCP Systems (SANS 10330)

2 Definitions

Layer Breeders: - Layer Breeders are breeding stock that have been bred for the purpose of producing hatching eggs from which commercial egg producing chicks will be hatched.

Broiler Breeders: - Broiler Breeders are breeding stock that have been bred for the purpose of producing hatching eggs from which broiler chicks will be hatched.

Commercial Layers: - Commercial Layers are birds that are kept specifically for the production of eggs intended for human consumption.

Broilers: - Broilers are poultry stock that are reared specifically for the purpose of slaughter intended for human consumption.

Commercial Pullets: - Commercial Pullets are poultry stock that are reared specifically for the production of eggs intended for human consumption.

Cage System: - Birds in Cage Systems are continuously housed in specially designed cages within a shed in which birds have free access to feed and water.

Enriched Cage System: - Birds in Enriched Cage Systems are continuously housed in specially designed cages within a shed in which birds have free access to feed and water and where the cages include a nest box, a dust bath and perches.

Barn System: - Birds in Barn systems are free to roam within the confines of a shed which may have more than one level. The floor may be covered entirely with litter or partially and the rest of the floor area incorporating other material such as slats or wire mesh.

Free Range System: - Birds in Free Range System are free to roam within the confines of a shed which may have more than one level. The floor may be covered entirely with litter or partially and the rest of the floor area incorporating other material such as slats or wire mesh and the birds must have access to an outdoor range. Free range birds should never have been confined to cage production systems.

Day Old Chick: - A day old chick is a newly hatched chick intended to be reared for layer or broiler breeding purposes, as a broiler or as a point of lay pullet.

Hatchery: - A chick hatchery is a specially designed operation equipped with machines and equipment to incubate eggs produced by breeder farms and thereby produce day old chicks.

End of Lay Birds: - End of lay birds (also commonly referred to as spent hens) are birds from breeder farms and commercial layer farms that have completed their production cycle.

Cull birds: - Cull birds are birds that are unproductive or injured birds that are removed from the flock on a regular basis as and when they are detected and disposed of in a humane manner.

Brooding: - Brooding refers to special management of day old chicks in the period when additional heating has to be provided until the chicks are fully feathered and are capable of maintaining body temperature.

3 Poultry Housing, Stocking Densities and Product Identification

This section covers the various systems used in keeping poultry in the production of hatching eggs, commercial eggs for human consumption and the rearing of chickens for the purpose of slaughter and processing for human consumption.

Whatever the system being used, poultry housing shall be designed to provide chickens with a safe environment. The chicken house must be so constructed that it provides for the welfare needs of the birds, whilst simultaneously providing protection from inclement weather conditions and both physical and thermal discomfort.

Poultry producers should be aware of the responsibility to farm with disease free birds since the products produced should at all times be fit for human consumption. An effective program should be in place to prevent infectious and vertically transmittable diseases being transmitted within the poultry production chain and especially diseases and pathogens which could affect consumers of eggs, egg products and poultry meat.

Chicken house flooring shall allow for effective cleaning and disinfection, preventing significant buildup of parasites and other pathogens. The floor should be concrete that is well maintained.

Staff shall be able to understand and accept responsibility to prevent unnecessary suffering of birds in their care. Operators shall be satisfied that staff responsible for birds have the skills necessary to perform any required procedure without causing suffering.

The stocking density, feed and drinker space as well as nesting space guidelines where applicable for the various production systems commonly applied in the poultry industry are presented below.

3.1 Breeder Housing Systems

This section covers the systems used in the production of hatching eggs intended for the production of day old chicks.

3.1.1 Breeding Stock kept in Barn Systems

The stocking density and space guidelines for layer and broiler breeders kept in barn systems are set out in Appendix 1 below.

3.1.2 Breeding Stock kept in Cage Systems

The stocking density and space guidelines for layer and broiler breeders kept in cage systems are set out in Appendix 2 below.

3.2 Pullet Rearing and Egg Production Systems

This section covers the systems used in rearing commercial pullets from day old till point of lay for the production of commercial eggs and egg products. It covers the systems for keeping birds in conventional cages, enriched cages as well as free range and barn systems for the production of eggs for domestic consumption as well as the use in the production of egg products.

Producers are to be aware that eggs are marketed under the Agricultural Product Standard Act, 1990 (Act No 119 of 1990) and that under this act the regulations regarding the grading, packing and marketing of eggs destined for sale in the republic of South Africa need to be adhered to.

3.2.1 Commercial Pullets reared in Cage Systems

The stocking density and space guidelines for commercial pullets being reared in cage systems is set out in Appendix 3 attached below.

3.2.2 Commercial Pullets reared in Barn Systems

The stocking density and space guidelines for commercial pullets being reared in barn systems is set out in Appendix 4 attached below.

3.2.3 Commercial Layers kept in Cage Systems

The stocking density and space guidelines for commercial layers being kept in cage systems is set out in Appendix 5 attached below.

3.2.4 Commercial Layers kept in Enriched Cage Systems

The stocking density and space guidelines for commercial layers being kept in enriched cage systems is set out in Appendix 6 attached below.

3.2.5 Commercial Layers kept in Barn Systems

The stocking density and space guidelines for commercial layers being kept in barn systems is set out in Appendix 7 attached below.

3.2.6 Commercial Layers kept in Free Range Systems

The stocking density and space guidelines for commercial layers being kept free range systems is set out in Appendix 8 attached below.

3.3 Broiler Production Systems

This section covers the systems used in the production of broilers from day old until the age of slaughter.

3.3.1 Broilers reared in Barn Systems

The stocking density and space guidelines for broilers being reared in barn systems is set out in Appendix 9 attached below.

3.3.2 Broilers reared in Free Range Systems

The stocking density and space guidelines for broilers being reared in free range systems is set out in Appendix 10 attached below.

3.3.3 Broilers reared in Cage Systems

The stocking density and space guidelines for broilers being reared in cage systems is set out in Appendix 11 attached below.

4 Management Practices

4.1 Preparation of Housing Facilities

Attention should be paid to thorough cleaning of the building following depopulation and should include complete removal and disposal of manure and litter from the poultry building and surrounding area.

Following cleaning and disinfection of the building (including all equipment contained within the building) a sanitary break will assist in avoiding any carry-over of disease to the next flock. A minimum break of 7 days after cleaning and disinfecting of the facilities is completed and placement of the next flock is recommended.

Preparation of the building and equipment for the next batch of chickens should always be complete and all equipment fully maintained and operational in time to receive the next group of birds.

4.2 Receiving of Stock

The building should have been prepared in accordance with above before placement of stock.

The equipment should be operational and in the case of placement of day old chicks, the building should have been pre-warmed to the required temperature.

Optimum temperature varies with age as well as for different species and breeds and the operators and staff who care for the birds should be aware of the specific requirement for the stock under their control.

The stock shall be removed carefully from the transport containers and placed into the appropriate areas and or cages. Older birds should be handled by supporting them under the body or grabbing by both legs. This is of special importance in the case of heavy breed birds and males. Adult birds shall not be carried by more than three birds in one hand and shall be carried by holding both legs.

Stock that may have been injured during the transport must be placed in a separate area to recover, or if impractical or recovery is unlikely, must be humanely killed by any of the procedures mentioned under the heading Euthanasia and Disposal of Stock.

The appropriate number of birds shall be placed to comply with the density guides above under the heading Poultry Housing and Stocking Densities.

4.3 Feed Management

Birds should have access to fresh feed at all times and only under specific circumstances where controlled feeding needs to be applied, such as in rearing and keeping of broiler breeding stock, should feed be withheld for any length of time.

The feed must contain adequate nutrients to meet the daily requirement for good health and vitality and in sufficient quantity to enable an increase in body weight gain and production which is in accordance with the breed specifications.

Where controlled feeding practices are applied in order to maintain satisfactory production efficiencies and control of body weight in heavy breeds, sufficient feed space as prescribed by the breeder or at least in accordance with the guides set out in the appropriate Appendix should be allowed for all birds to feed simultaneously. Care should be taken that feed is distributed to all parts of the feeder system within a

time period of 3 minutes. In order to maintain good health and productivity during rearing, "skip-a-day" feeding of broiler breeder birds is an accepted industry practice.

Feed should preferably be stored in closed containers and not allow access to vermin and wild birds.

4.4 Water Management

Birds should have access to sufficient potable water to meet their physiological requirements.

Birds shall not be deprived of water except for necessary management of vaccine application and therapeutic purposes.

In hot weather conditions the water should be below a temperature at which birds refuse to drink.

The water should be regularly tested for chemical content as well as microbial contamination.

4.5 Environmental Temperature and Ventilation

Subject to housing insulation, breed and seasonal variations, supplementary heat at gradual decreasing levels is to be applied in the rearing of chicks until no longer required. This is generally referred to as the brooding period.

Bird behaviour is the best indicator of bird comfort.

As birds mature and become fully feathered, they can withstand and adapt to wider temperature fluctuation in maintaining body temperature. Where extreme high temperatures are experienced, especially under climatic conditions of high humidity, procedures such as increased ventilation and air flow over birds, evaporative cooling equipment, reduced stocking density and supply of cool water, should be considered to deal with such extremes.

Low temperature conditions should not be overcome at the expense of minimum rates of ventilation.

Recognizing the extremes possibilities of weather conditions, house conditions within temperature range of 15°C to 33°C and maximum relative humidity of 80% should be aimed at for fully feathered birds.

It is advisable to have a temperature alarm system installed to warn operators of high and low temperature conditions for corrective action to be taken.

It is advisable to record daily maximum and minimum house temperature levels.

A minimum rate of ventilation is required at all times to provide fresh air and to remove moisture and other metabolic gases from the building. This minimum rate of ventilation would be dependent on the biomass in the building and the operator shall be aware thereof. In rearing of birds the minimum ventilation rate required therefore needs regular adjustment as the birds grow and increase in body weight.

With forced ventilation systems, the operator shall be fully trained in how to set up and control the ventilation system. With open-sided buildings the operator shall be fully trained in how to set the curtains and ventilation control under varying climatic conditions or age of the stock.

Carbon dioxide levels should be kept below 3000 ppm (3%).

The presence of ammonia is usually a reliable indicator of build-up of noxious gasses. A level of 10 to 15 ppm of ammonia can be detected by smell and once this level is reached, corrective action should be taken.

Mechanical ventilated buildings should have a back-up power supply or alternative emergency ventilation systems linked to an alarm system to warn operators of power failure.

4.6 Light Control

Various light programs and light intensity are prescribed by suppliers of breeding stock and the operator shall be aware of the appropriate program to be applied.

In breeders and commercial layers, the light programs are used to control sexual maturity and in so doing ensure that the age at which production commences is in accordance with the breed standard. Notwithstanding, the total light period of less than 8 hours during rearing of breeder and commercial layer birds should be discouraged.

For broiler rearing, various rearing light programs are prescribed by suppliers of breeding stock in order to control body weight gain within acceptable limits. Total light period of less than 12 hours during rearing of broiler chicks should be discouraged.

Notwithstanding the above, the total light period (artificial plus natural light in open sided houses) shall not exceed 20 hours in the 24-hour day once chicks have learnt to find the feed and drinkers.

In closed buildings chicks that are reared for egg production would normally be started at higher light intensity (around 20 lux) for the first week or two in order to learn to find the feed and drinker systems. Thereafter the light intensity would be reduced depending on the housing conditions and breed to keep the birds calm. When production is about to commence, the light intensity would be increased again.

Whatever is applied, the light intensity should be adequate to allow for birds to feed normally and allow for thorough inspection of the flock.

4.7 Egg Collection

4.7.1 Collection of Hatching Eggs

Eggs produced by breeding stock contain live embryos and should be handled accordingly.

Eggs should be collected regularly from the nests (at least 2 times per day) and placed in clean and dry handling equipment.

Nest material should be kept clean and dry and adequate in quantity.

Hatching eggs are to be handled gently.

Dirty, broken, cracked leaking and any other abnormal eggs should be collected in separate equipment and should not be used for hatching purposes.

It is advisable not to use floor eggs for hatching purposes.

Hatching eggs should be sanitized as soon as possible after collection by an appropriate method prescribed by a veterinarian or knowledgeable person.

Clean sanitized hatching eggs should be stored in suitably constructed cool rooms that will ensure that the air temperature remains below the embryonic threshold temperature of 24°C.

4.7.2 Collection of Eggs for Human Consumption

Eggs produced by all the production systems are intended to be used for human consumption and should be handled accordingly.

Eggs should be collected regularly from the system (at least once per day) and placed in clean and dry handling equipment.

In the case of cage systems, the cage floors and the egg handling system should be kept clean.

In Free Range and Barn systems the nest boxes and nest material should be kept clean.

Eggs are to be handled gently so as to avoid fine cracks.

Dirty, broken, cracked leaking and any other abnormal eggs should be collected in separate equipment and should not be used for human consumption.

Eggs should be stored in appropriate holding rooms in which temperature fluctuation is kept to the minimum.

Egg producers are specifically referred to the fact that eggs are marketed under the Agricultural Product Standard Act, 1990 (Act No 119 of 1990) and that under this act the regulations regarding the grading, packing and marketing of eggs destined for sale in the republic of South Africa need to be adhered to. See Appendix 12 for further detail.

5 Stock Supervision

Supervision and care of the stock should only be performed by adequately trained staff.

Although the frequency and level of inspection should be in accordance with the welfare risk of the birds, a thorough inspection should occur at least twice per day for every flock.

Inspection frequency should be increased during periods of adverse conditions such as high or low temperature or ill health.

During such checks, particular attention should be given to bird comfort and proper functioning of all equipment. Any malfunctioning equipment should be attended to and corrected immediately.

In floor systems, any wet litter should be removed immediately and corrective action taken as to the cause of the wet litter. Litter should not be allowed to become caked and hard.

During flock inspections, any sick or injured birds are to be treated promptly or killed humanely by either methods described under the heading Euthanasia of Birds and Chicks.

Dead chickens are to be removed daily and disposed of in an appropriate manner.

Flock supervision should include periodic checks for the presence of internal and external parasites. Should such parasites be detected, corrective treatment must be administered immediately.

Live chickens with clinical signs of disease or flocks with abnormal high mortality rates shall be handed over to a veterinarian or diagnostic laboratory for diagnosis and recommendations for treatment should be followed immediately. Such birds shall be humanely transported in a container which is appropriate to the needs of the bird.

In the event where administration of a suitable drug for strategic treatment of a disease is necessary, only drugs prescribed by a qualified veterinarian and which are registered in terms of the relevant Acts will be used and the prescribed withdrawal period that may be applicable will be adhered to.

The use of antimicrobials is covered more comprehensively in Appendix 13.

6 Euthanasia of Birds and Chicks

6.1 Disposal of Small Numbers of Birds on the farm

Various methods of disposing of small numbers of birds on the farm during normal stock inspection are considered as being acceptable.

6.1.1 Cervical Dislocation

Cervical dislocation is carried out by applying stretching pressure and bending of the neck and thereby dislocating the spinal column at the junction with the head, resulting in both the separation of the spinal column and the major vessels in the neck. It can be done by hand and is useful when smaller birds are to be culled and disposed of as soon as possible on the farm during the daily procedure of bird inspection. This should only be performed by staff who have been properly trained in the procedure. While cervical dislocation by hand is an effective and humane method of killing poultry, the operator needs to be experienced and competent to ensure that the outcome is humane, reliable and sustainable.

6.1.2 Use of a Burdizzo

The use of a Burdizzo is a mechanical alternative which removes some of the manual skill required by operators and is also useful in instances where farms have to kill and dispose of larger birds such as broiler breeder males. While cervical dislocation using a Burdizzo is an effective and humane method of killing poultry, the operator needs to be trained and experienced to ensure that the outcome is humane, reliable and sustainable.

6.1.3 Use of a Captive Bolt

Birds can also be killed by use of a Captive Bolt, but it must be noted that injuries may be possible, so training should be provided. The principle behind the use of captive bolt stunning is a forceful strike on the skull using a bolt which usually penetrates into the brain cavity and induces unconsciousness. Captive Bolt guns designed specifically for use in the ostrich industry are commercially available. Captive Bolt is a useful alternative recommended in culling and euthanizing small numbers of large birds such as broiler breeder males during normal daily routine inspection of the flock.

6.1.4 Stunning followed by Cervical Dislocation or Severing of the Arteries

Although neck dislocation without prior stunning is an approved method of killing poultry under the South African Poultry Association Code of Practice, stunning of the bird prior to cervical dislocation may be considered by some welfare protagonists as being more humane. Stunning by use of small electric stunner boxes must induce immediate unconsciousness without causing pain or suffering, which is then followed by the rupture of the carotid arteries during the cervical dislocation procedure or severing of the arteries, thereby interrupting the blood supply to the brain causing a loss of consciousness and rendering the bird insensible to external stimuli.

6.1.5 Gas Killing

The use of small containers or portable containers in which birds are killed by using CO₂ or mixtures of gasses as explained below, could also be considered in the killing and disposing of small numbers of birds on the farm during normal stock inspection.

6.2 Disposal of Non-saleable Chicks and Hatch Debris

Whatever procedure described below is followed in the chick hatchery, the dead chicks and hatch debris should be transported in closed containers to municipal dumps or other storage facilities which would not allow for any contamination of ground water.

Drowning, smothering and thermal exhaustion or any other inhumane methods are not acceptable under any circumstances.

There must be adequate fly control in the storage area where hatch debris is kept during the hatching process.

6.2.1 Gassing

Gassing of chicks with CO₂ or a mixture of CO₂ and Argon gas is accepted in the process of disposal of non-saleable chicks. Containers or chambers must be designed to allow continual refilling of gas to maintain the correct levels of the gas.

Chicks disposed of through this method must be placed in a container prefilled with gas and in such a way so as to ensure good exposure to the gas and prevent suffocation.

Chicks must be exposed to the gas for a long enough period so as to cause death. Research has shown that chickens become unconscious very quickly in high concentrations of CO₂.

All un-hatched chicks must be dead before disposal.

6.2.2 Maceration

High speed maceration of chicks using properly designed macerators is a practical and accepted method of euthanasia and the disposal of non-saleable chicks as well as live embryos and unhatched chicks that are still within the egg at the time of removing the rest of the chicks from the chick trays. This system is practical and if done by machines that have been specially designed and properly maintained, chicks are killed instantaneously. It does however remain aesthetically displeasing to some.

This procedure should be carried out as soon as is practically possible after removal of the chicks from the hatcher machine so as to avoid undue suffering of the chicks that are still within the egg shell.

6.3 Mass Euthanasia in the case of a Disease Outbreak

The logistics of disposing of a large number of birds that may require to be undertaken during a disease outbreak require careful consideration. A variety of factors need to be considered including the technical and operational advantages and disadvantage of the procedure that is to be followed, the resources available and required expertise, personal and emotive reasons, contracted agreements and options, locality of the farm and the disposal of the dead birds. Authorities such as state veterinarians and welfare representatives would also be involved.

Whatever the method used, it must cause rapid death or rapid loss of consciousness lasting until death or, if loss of consciousness occurs more slowly, it must be induced in a manner that does not cause pain or panic. Methods which are considered acceptable for euthanasia and on-farm depopulation when properly applied include: -

- Cervical dislocation
- Captive Bolt
- Gassing of birds placed in containers filled with CO₂ gas or mixtures of CO₂ and Argon gas.
- Use of Gas-filled High Expansion Foam

Whatever the procedure used, birds must be confirmed to be dead prior to disposal. Any birds found to be still alive must be rapidly euthanized in an acceptable manner.

This Code cannot be considered as being prescriptive and procedures that are to be followed when disposing of large numbers of birds will have to be considered on a case by case basis, depending on the resources and manpower available.

Cervical dislocation or the use of a captive bolt as explained above are agreed methods of disposing of small numbers of birds and depending on the size of the operation could be considered when having to dispose of larger number of birds during a disease outbreak. They are however not practical when very large numbers of birds need to be disposed of. The procedure should only be performed by individuals who have been properly trained. While cervical dislocation by hand or use of a captive bolt are effective and humane methods of killing poultry, the operator needs to be experienced and competent to ensure that the outcome is humane, reliable and sustainable.

Gassing of birds in containers filled with CO₂ gas or mixtures of CO₂ and Argon gas as well as the use of gas-filled high expansion foam to euthanize large numbers of birds in the poultry shed are acceptable for poultry infected with a potentially zoonotic disease; or that are experiencing an outbreak of a rapidly spreading infectious disease that, in the opinion of state, cannot be contained by conventional or currently accepted means of depopulation; or that are housed in structurally unsound buildings that would be hazardous for human entry, such as those that may result from a natural disaster.

Sealing of a building and switching off the ventilation system so as to allow birds to suffocate is not accepted as being a humane method of disposing of birds.

Whole house gassing of birds as well as constructing a tent within the building have been done in other countries, but have proven to have limited success in that it is often difficult to effectively get the building or tent area sufficiently sealed and gas-tight and larger quantities of gas is required to get the area up to sufficiently high levels of gas.

Water-based foam, as well as other foam types, has been used for submerging the birds in the poultry sheds in the United States, Australia and other countries during avian influenza outbreaks. An advantage of this procedure is that birds that are being reared on the floor, need not be caught and handled since the application of the foam is done in the poultry shed. The procedure cannot be performed in cage systems. The effectiveness of this method depends on proper consistency and bubble size of the foam. The addition of CO₂ or N₂ is often advised to fill foam bubbles and thereby enhance the efficacy of the procedure and reports from Australia would indicate that compressed air, aerated foam nozzles and modified high expansion foam generator system have been used successfully.

Guidelines to be considered for euthanasia and on-farm depopulation of entire flocks would include:

- All workers involved in euthanasia and on-farm depopulation must receive training to carry out the method to be used in a skillful, safe, and compassionate manner in accord with these guidelines.
- Methods must cause rapid death or rapid loss of consciousness lasting until death.
- Birds must be confirmed to be dead prior to disposal. Any individual birds found to be still alive must be rapidly euthanized in an acceptable manner such as cervical dislocation.

When using atmosphere killing by using bins or any larger container or receptacle into which gas is introduced to kill birds, the following additional points should be observed:

- The container should be moved into close proximity to the birds, and birds should be placed directly into the container with as little stress as possible.
- The system must be designed to ensure that all birds are exposed to sufficient quantity of vaporized gas to rapidly induce and maintain unconsciousness until death.
- To render birds rapidly unconscious, the container should be pre-charged with gas prior to introducing birds. Because the gas would tend to escape when birds are introduced the containers should be designed and equipped to enable the addition of gas when required during and after loading as needed to ensure that the birds do not revive.
- Use of containers to kill birds without adding an adequate amount of gas that causes death is unacceptable.
- The gas should be added to the container slowly to ensure correct levels the gas. The gas should be introduced in such a manner that it is evenly distributed throughout the container.
- The process should include continual observations to determine the effectiveness of the system. For this purpose, the container should include windows or transparent doors constructed of material that enables visual monitoring of bird movement inside without having to open the container.
- Where containers are of a nature that requires constant vertical filling, the birds inside the container must be unconscious before introducing any additional birds on top of them.
- After the last birds have been placed in the container and sufficient gas has been added to kill the birds, the container should be left closed for a sufficient period of time to ensure that all birds are dead. Birds must be confirmed to be dead before removal from the container.
- Producers must document the amount of gas used and the number of birds killed for each house that is depopulated.

7 Live Bird Sales

The disposal of end of lay birds as well as selling of live broilers is covered more comprehensively in Appendix 14, Live Bird Sales Code of Conduct.

Of particular note for producers involved in the breeder farms is to conduct live bird sales away from the breeder farm, especially in the case of multi-aged operations and not allow live bird buyers onto or close to the farming operations. The same considerations apply to any birds that are culled mid cycle.

8 Special Management Practices

8.1 Beak Treatment

The practice of professionally performed beak-treatment is internationally recognized as being a humane alternative to the appalling effects of cannibalism and feather pecking which is associated with intensive poultry production systems be they cage or any of the alternate systems being used. The continuing need for beak-treatment is being constantly reassessed and it is accepted that as soon as alternate means of preventing cannibalism have been identified, the phasing out of this practice will be a welcome development.

On breeder farms the potential damage to females during mating also requires beak-treatment of males to be applied.

When beak-treatment is to be applied, it should be by any one of the following two methods:

- Day old Laser Treatment performed in the hatchery by the technique of using specialized Laser Treatment machines which results in the cauterization of the tip of the beak.
- Use of specialized precision machines utilizing hot blade cutting and cauterization of the tip of the beak not later than the age of 10 days.

Only under exceptional circumstances and then also only under the guidance of a Veterinarian should beak trimming be performed at an age older than 10 days.

Beak trimming must be performed only by trained operators who are completely competent in the procedures and the use of the appropriate equipment that has been properly maintained.

8.2 Moulting of Layer and Breeding Stock

Methods of moult inducement which deprive birds of water for more than 24 hours or feed for more than 48 hours shall not be allowed.

The use of high fibre diets is acceptable provided that birds consume at least 40 to 60 g per day.

Induced moulting shall only be carried out on healthy birds under close management supervision and conditions that will not cause undue stress.

Moulting shall not be artificially induced in any Free Range or Barn production.

8.3 Artificial Insemination

Artificial insemination is a highly skilled procedure and should be carried out only by competent, trained personnel maintaining a high standard of hygiene and taking care to avoid injury or unnecessary disturbance of birds.

9 Transportation of Broilers, Pullets and End of Lay Birds

The driver of the vehicle transporting poultry shall be a responsible person with a valid and appropriate driver's license and trained in the transporting of livestock.

The drivers of vehicles used for transporting livestock shall be trained in the transporting of livestock and shall have telephone numbers of the owners of the animals and emergency telephone numbers at all times during a journey.

Drivers shall at all times be able to perform their duties in an expert and responsible manner.

Drivers shall not handle a vehicle in a manner that might cause the transported animals to slip, fall or suffer injury. The safety and welfare of the animals shall never be ignored or disregarded.

Chickens shall be transported in roadworthy vehicles.

Stops in-route shall only be made when absolutely necessary. When stops are made in hot weather, the vehicle must be parked in the shade where possible or for very short periods when in the sun.

In the case of a truck breakdown without a standby facility causing a subsequent rise in temperature in the load space, the load shall be off-loaded if the system permits or at least spaced to accommodate the circumstances where possible.

Vehicles used for the transportation of live poultry over long distances must be constructed to protect the poultry against adverse weather conditions during transportation.

The chickens should be loaded into clean standardized transporting crates.

All the containers should have a lid or door that can be secured to prevent the chickens from escaping.

Birds should be caught individually and handled by both legs or fully support of the body. Not more than 4 birds per hand may be carried per person at any one time. In the case of larger birds such as breeders and adult hens not more than three birds per hand may be carried per person. At all times, both legs are to be held in the hand.

The containers should prevent protrusion of the head, wings and legs. The number of chickens per crate should correspond to the floor space and body size of the transported chickens, with due regard to environmental conditions and duration of transport. The maximum density should not exceed 70kg body mass per square meter.

The journey should not exceed 24 hours.

Portable transporting crates with live chickens should preferably be moved in a horizontal position. Crates or birds should not be thrown or dropped.

A tie-down device preventing containers from overturning is advisable.

All the containers should have a lid or door that can be secured to prevent the chickens from escaping.

The containers should prevent protrusion of the head, wings and legs.

The number of chickens per crate should correspond to the floor space and body size of the transported chickens, with due regard to environmental conditions and duration of transport. The maximum density should not exceed 55kg body mass per square meter.

10 Health Control

10.1 The Establishment and Biosecurity

Strick biosecurity measures are important in all levels of poultry production but should receive special attention in the case of breeder operations whereby the following basic rules should be applied:

- Breeder facilities should preferably be well separated and isolated from other poultry farms.
- Breeder facilities should preferably be single purpose entities and ideally operated on an all-in, all-out replacement basis with single age groups.
- The establishment should be fenced off by at least a stock fence and no grazing animals allowed within the perimeters of such fence.
- The area immediately surrounding the poultry houses should be free of vegetation and debris and if grass is grown between buildings, it should be kept short.
- For establishments importing breeding material into South Africa, the quarantine site regulations and rules as prescribed in the Animal Diseases Act shall apply.
- Appropriate security measures for all staff and visitors entering the premises, which include showering and changing of clothes must be adopted.
- Buildings housing breeding stock should be free of vermin and not accessible to wild birds.
- Vermin and wild birds should not have access to feed storage.
- Stores where hatching eggs are kept should be free of vermin and wild birds.
- Domestic animals should not be allowed access to the fenced area.
- Biosecurity on breeder operations is of the utmost importance to ensure healthy flocks perform according to the required standards and to prevent transmission of diseases to the progeny. A biosecurity plan as compiled by a veterinarian with experience in poultry must be in place.
- People movement is one of the main means of transmitting disease between flocks or farms. There are different aspects of biosecurity relating to people movement in poultry operations including physical biosecurity and procedural biosecurity. Appendix 15 sets out a general practice to be followed.

10.2 Flock Health

Management should have ready access to a veterinarian with poultry experience. This veterinarian shall be responsible for compiling and supervision of a health plan for the operation.

The environment provided must be conducive to good flock health as well as providing the necessary protection from pain, injury and disease.

Operators responsible for the care and wellbeing of poultry should be aware of the signs of ill-health or distress and corrective action implemented immediately.

Where causes of ill-health or distress cannot be identified professional advice from veterinarians or other trained and qualified advisers should be sought.

All medication should be prescribed by a qualified veterinarian and such medication should be applied strictly in accordance with manufacturer's instruction unless otherwise advised by the veterinarian concerned.

The use of antimicrobials is covered more comprehensively in Appendix 13.

Birds with an incurable disease or disorder which is causing suffering shall be removed from the flock and killed humanely by a competent person properly trained to do so.

10.3 Records

Vaccination, health and any laboratory records shall be kept for all breeder flocks.

Such records shall be kept for inspection for a period of at least 3 years.

10.4 Vaccination

Producers involved in the production of parent stock should operate an effective vaccination program as advised by a veterinarian with poultry experience.

Vaccinations and other treatments applied should only be undertaken by properly trained and skilled staff.

10.5 Disease Monitoring and Testing

Serological testing of flocks under quarantine is controlled under the rules as prescribed under the Animal Diseases Act.

Acceptable control measures and serological tests must prevail in all flocks producing hatching eggs to assist in the prevention of vertical (transovarial) transmission of the following diseases: -

Mycoplasma gallisepticum

Mycoplasma synoviae

Salmonella Pullorum, *S. Gallinarum*, *S. Enteritides* and *S. Typhimurium*.

Avian Influenza

Leucosis

Avian *encephalomyelitis*

Egg Drop Syndrome

Newcastle disease

For serological tests a representative sample is deemed to be at least:

16 samples from a house with up to 5000 chickens, or

32 samples from a house with over 5000 chickens

As soon as a change in the health status of the farm has become apparent, the customer of the hatching eggs must be notified.

10.6 Parasite and Vermin Control

Breeder birds kept on litter floor systems are prone to internal parasite infection. Appropriate control measures as advised by a veterinarian should be in place to combat such infestation.

Effective control of coccidiosis is possible by including suitable medication via the feed or vaccinating the flock at a young age.

Birds should be constantly monitored for other internal parasites such as worms and corrective treatment measures taken as prescribed by a veterinarian.

A well-planned vermin control program should be in place taking in account particular circumstances of the operation.

A fly control program should be in place.

The cleaning and disinfection program followed at the end of the cycle should incorporate the application of an insecticide to control litter beetle infestation.

11 Day Old Chick Hatcheries

This section covers the process of incubation of fertile hatching eggs to produce day old chicks within the production chain of commercial poultry and poultry products.

Poultry producers involved in the production of day old chicks should be aware of the responsibility to produce disease free chicks. An effective program should be in place to prevent infectious and vertically transmissible diseases being transmitted within the poultry production chain.

Staff shall be able to understand and accept responsibility to prevent unnecessary suffering of chick embryos and live chicks. Hatchery operators shall be satisfied that staff responsible for handling eggs and live chicks have the skills necessary to perform any required procedure without causing suffering.

11.1 Hatchery Buildings

11.1.1 Location of hatcheries

The choice of a suitable isolated geographical location will facilitate hygiene and disease control and the hatchery building should therefore be preferably located as far away as possible from other poultry and livestock.

The hatchery building should be fenced off or constructed in such a way to facilitate control of traffic and access to the facilities.

Wild birds, domestic and other animals must be excluded from the hatchery area.

11.1.2 Building design

The hatchery should be designed to enable suitable workflow and air circulation principles.

The work flow of the incubation process should preferably be in one direction from hatching egg receiving and storage to dispatching of chicks and disposal of hatchery debris.

Flow of air through the hatchery should also preferably be in this direction.

Wash water drains should also divert wash water in this direction.

The building should include physical separation of the main work areas comprising egg receiving and storage, incubation rooms, chick hatching rooms, chick handling rooms and hatchery debris disposal area.

The materials used in constructing the building should be smooth and easily cleaned to facilitate hygiene control and disinfection.

11.2 Egg Quality and Hatching Egg Storage

The hatchery should source hatching eggs only from reputable breeder farms of which the disease status of the birds is known and documented.

Dirty, broken, cracked leaking and any other abnormal eggs should not be used for hatching purposes.

It is advisable not to use floor eggs for hatching purposes.

Only clean, sanitized hatching eggs received in a clean and suitable handling system and that have been properly stored at temperatures below the embryonic threshold temperature of 24°C should be used.

Hatching eggs should preferably be handled as little as possible and when handled this should be gentle.

Personnel handling hatching eggs should wash their hands with soap and water before handling eggs or use an appropriate hand disinfectant such as alcohol gel.

11.2.1 Egg Quality

Hatching eggs should be sanitized by a suitable method as prescribed by a veterinarian with poultry experience.

Staff should be skilled in the application of the procedures prescribed by the veterinarian.

11.2.2 Handling of Hatching Eggs

Eggs produced by breeding stock contain live embryos and should be handled accordingly.

Eggs should be collected regularly from the nests (at least 2 times per day) and placed in clean and dry handling equipment.

Nest material should be kept clean and dry and adequate in quantity.

Hatching eggs are to be handled gently.

Dirty, broken, cracked leaking and any other abnormal eggs should be collected in separate equipment and should not be used for hatching purposes.

It is advisable not to use floor eggs for hatching purposes.

Hatching eggs should be sanitized as soon as possible after collection by an appropriate method prescribed by a veterinarian or knowledgeable person.

Clean sanitized hatching eggs should be stored in suitably constructed cool rooms that will ensure that the air temperature remains below the embryonic threshold temperature of 24°C.

11.3 Hatchery Hygiene and Chick Health

11.3.1 Chick Health

Chicks should only be incubated from eggs sourced from reputable breeder farms of which the disease status of the birds is known and documented by a veterinarian or accredited laboratory.

Acceptable control measures must prevail to assist in the prevention of vertical (transovarial) transmission of the following diseases: -

Mycoplasma gallisepticum

Mycoplasma synoviae

Salmonella Pullorum, *S. Gallinarum*, *S. Enteritides* and *S. Typhimurium*.

Avian Influenza

Leucosis

Avian *encephalomyelitis*

Egg Drop Syndrome

Newcastle disease

In addition, chick hatcheries shall do regular tests for Salmonella.

As soon as a change in the health status of the chicks has become apparent, the customer of the chicks must be notified

11.3.2 The Hatchery Building and Hygiene

The hatchery should have a comprehensive cleaning, disinfection and hygiene monitoring system in place as advised by a competent veterinarian or knowledgeable person.

All staff involved in the incubation processes should be aware of and fully skilled in the application of the hygiene program as may apply to their respective areas of responsibility.

Corrective action should be taken immediately should the monitoring process indicate any deviation from the standard.

11.3.3 Staff and Visitors

Clean overalls, hair cover nets (or other suitable headgear) and footwear should be provided for all personnel and visitors entering the hatchery.

A disinfectant foot-bath at strategic points within the hatchery as advised by a veterinarian or knowledgeable person will assist in combating the possible transfer of bacteria from one section to another within the building.

Frequent washing of hands in a disinfectant solution or the use of alcohol gel should be encouraged.

During chick take-off, especially staff movement from the hatching section to the egg rooms and setter section should be discouraged.

11.4 Handling of Chicks

11.4.1 Chick Take-off

Every person working in the hatchery shall be able to understand and accept responsibility to prevent any unnecessary suffering of chicks.

Hatchery operators shall be satisfied that staff responsible for handling live chicks have the skills that are necessary to perform any required procedure without causing suffering to the chicks.

During take-off, hatching trays with chicks shall be handled in the horizontal position only and chicks removed from the hatching tray as gently as possible without excessive jarring of trolleys and handling systems.

Staff handling chicks should wash and disinfectant their hands before commencing work as well as frequently as is practically possible between different batches of chicks.

Any cull chicks should be removed as soon as possible and humanely disposed of by neck dislocation, gassing by utilizing suitable bottled gas such as carbon dioxide or maceration.

During the chick take-off process the body temperature of the chicks should not be allowed to drop unduly.

11.4.2 Chick Sexing

In hatcheries where vent sexing is applied, this should be performed only by skilled and appropriately trained staff.

Feather and colour sexing requires less skill than vent sexing but staff performing such procedures should be adequately trained and competent in performing these tasks as gently as possible.

11.4.3 Chick Holding

Only first grade chicks with no deformities or other abnormality are to be boxed into clean containers specifically designed for the transport of chicks.

Chicks with any sign of abnormality are to be disposed of in an appropriate manner as soon as possible after hatching and selection as described elsewhere in this Code.

Rooms in which chicks are to be held before dispatch should be adequately ventilated and temperature controlled to ensure that chicks remain comfortable.

Chicks should be dispatched as soon as possible to ensure that they receive food and water within 48 hours of hatching.

11.5 Morphological Alteration of Chicks

11.5.1 Dubbing

Dubbing of male chicks should only be done when advised to be necessary by a veterinarian or the supplier of the applicable genetic stock.

Should this practice be deemed necessary it must only be carried out by a skilled person who is competent and trained in this procedure.

The procedure should be well documented and underwritten by the veterinarian.

11.5.2 Toe Removal

The removal of the terminal segment of each inward pointing toe of breeding male chicks to avoid damage to the females may be done at the advice of a veterinarian or the supplier of the applicable genetic stock.

Should this practice be deemed necessary it must only be carried out by a skilled person who is competent and trained in this procedure.

The procedure should be well documented and underwritten by the veterinarian

11.5.3 De-Spurring

The cauterizing of the spur of breeding male chicks to avoid damage to females during mating may be performed at the advice of a veterinarian or the supplier of the applicable genetic stock.

Should this practice be deemed necessary it must only be carried out by a skilled person who is competent and trained in this procedure.

The procedure should be well documented and underwritten by the veterinarian

11.6 Disposal of Non-Saleable Chicks and Hatch Debris

The disposal of non-saleable chicks and hatch debris has been described above under the section Euthanasia of Birds and Chicks. Whatever procedure followed, dead chicks and hatch debris should be transported in closed containers to municipal dumps or other storage facilities which would not allow for any contamination of ground water.

Drowning, smothering and thermal exhaustion or any other inhumane methods are not acceptable under any circumstances.

There must be adequate fly control in the storage area where hatch debris is kept.

11.7 Transportation of Chicks

Only healthy and vigorous chicks shall be dispatched in clean containers or boxes specifically designed for handling and transport of day old chicks.

Containers must be stacked in such a manner that free airflow between stacks of containers is not hampered.

As a rule, the chick box/container should allow for 20 cm² per chick but environmental temperature, duration of the journey as well as design of the chick truck shall be considered when determining the density of chicks in the containers.

Containers with live chicks shall not be tilted from more than 20 degrees from horizontal during any stage of loading or unloading.

Containers should always be moved smoothly and never thrown or dropped.

A tie-down device preventing containers from overturning is advisable in the chick truck.

Chick trucks should be designed in such a way that sufficient airflow is achieved to all containers within the truck and that adequate temperature control is achieved for the duration of the delivery.

Vehicles used for the transportation of live chicks over long distances must be constructed to protect the chicks against adverse weather conditions during the entire journey.

The driver of the vehicle transporting chicks shall be a responsible person with a valid and appropriate driver's license and trained in the welfare issues that could affect the chicks during transportation.

The drivers shall have telephone numbers of the owners of the chicks and emergency telephone numbers at all times during a journey.

Drivers shall at all times be able to perform their duties in an expert and responsible manner.

Drivers shall not handle a vehicle in a manner that might cause the chick containers to slip or fall causing suffering. The safety and welfare of the chicks shall never be ignored or disregarded.

Chicks shall be transported in roadworthy vehicles.

Stops in-route shall only be made when absolutely necessary. When stops are made in hot weather, the vehicle must be capable of maintaining sufficient ventilation and temperature within the truck.

In the case of a truck breakdown without a standby facility causing a subsequent rise in temperature in the load space, the load shall be off-loaded if the system permits or at least spaced to accommodate the circumstances where possible.

In the event that day old chicks are transported by air, arrangements need to be made with the carrier to ensure that the chicks are not kept in draughty areas and are transported as quickly as possible.

In the event of international transport, all paperwork including import permits and health certificates need to be in order to prevent unnecessary delays.

Enough space needs to be left between pallets to ensure adequate ventilation. It is unacceptable to leave chicks on the tarmac prior to loading.

11.8 Biosecurity in Chick Hatcheries – People

Biosecurity in chick hatcheries is of the utmost importance to ensure healthy chicks.

People movement and the movement of egg trays and other equipment is one of the main means of transmitting disease between farms and hatcheries. There are different aspects of biosecurity relating to people movement in chick hatcheries including physical biosecurity and procedural biosecurity.

Appendix 15 sets out a general practice to be followed.

12 Appendixes

12.1 Appendix 1

Stocking density, feeder, drinker and nesting space requirement for breeding stock kept in Barn Systems

Space Requirement for Layer Breeder Type Birds

| Age (Weeks) | Weight (g) | Hens Per m ² | Feed Trough (cm/hen) | Water Trough (cm/hen) | Nipple Drinkers (Hens/drinker) |
|-------------|------------|-------------------------|----------------------|-----------------------|--------------------------------|
| 0 – 6 | 500 | 20 | 2.5 (1) | 1.25 (2) | 20 |
| 7 – 18 | 1400 | 12 | 3.5 (1) | 1.25 (2) | 12 |
| Mature | 1500 + | 7 | 6.0 (1) | 1.25 (2) | 8 |

Space Requirement for Broiler Breeder Type Birds

| Age (Weeks) | Weight (g) | Hens Per m ² | Feed Trough (cm/hen) | Water Trough (cm/hen) | Nipple Drinkers (Hens/drinker) |
|-------------|------------|-------------------------|----------------------|-----------------------|--------------------------------|
| 0 – 6 | 750 | 20 | 2.5 (1) | 1.25 (2) | 20 |
| 7 – 14 | 1600 | 10 | 8.0 (1) | 1.25 (2) | 12 |
| 15 to 20 | 2300 | 10 | 10.0 (1) | 1.25 (2) | 8 |
| Mature | 2500 + | 6 | 15.0 (1) | 1.25 (2) | 8 |

- (1) Linear measure with birds being able to feed from both sides of the trough.
- (2) Linear measure with birds being able to drink from both sides of the trough.

Space requirements increase as the birds approach maturity.

The houses shall be designed to provide chickens with a safe environment.

Chicken house flooring shall allow for effective cleaning and disinfecting, preventing significant build-up of parasites and other pathogens. Where possible the floor should be concrete that is well maintained.

Bedding of suitable quality should cover the entire floor area at a depth of around 5 cm to allow for dilution of faeces.

Round feeders (tube feeders or pans) can replace open troughs and the guide for these types of feeders is 14 to 16 broiler breeders and 20 to 30 layer breeders for the standard 35 cm pan feeder.

Nesting space shall be provided to accommodate hens without them having to crowd. Twenty individual nests shall be provided per 100 hens. For colony nests at least 1 M² of nest box area shall be provided per 100 hens.

Nests should have a floor substrate that encourages nesting behaviour and should be kept clean and dry.

12.2 Appendix 2

Stocking density for breeding stock kept in Cage Systems

When layer type breeders with body weight less than 4.5 kg are housed in cage systems the space allowed per bird shall be not less than 550 cm² per bird when housed in 3 or more birds per cage, 600 cm² per bird when housed in 2 bird cages and 1000 cm² per bird when housed in single bird cages.

When broiler breeder type birds with body weight more than 4.5 kg are housed in colony cage systems the maximum live weight per unit of floor area shall be 46 kg/m².

12.3 Appendix 3

Stocking density, feeder and drinker space requirement for rearing commercial pullets in Cage Systems

| Age (Weeks) | Weight (g) | Cm ² per bird | Feed Trough (cm/bird) | Water Nipples (Birds/nipple) |
|----------------|---------------|--------------------------------|-----------------------------|------------------------------------|
| 0 – 6 | 500 | 150 | 2.25 (1) | 15 (2) |
| 7 – 18 | 1450 | 300 | 4.5 (1) | 8 (2) |

(1) Linear measure of feed trough with birds being able to from one side of the trough fitted to the cage

(2) Birds must have access to at least two nipple drinkers

Space requirements increase as the birds approach maturity.

Cage height shall permit standing chickens free head movement.

The cage doors shall allow for easy insertion and removal of birds.

Cage floors shall not cause any injury or deformity during the rearing of pullets.

Cage floors shall preferably be covered with temporary supportive flooring such as paper or matting for the chicks during the early brooding period.

Chicken house flooring shall allow for effective cleaning and disinfecting, preventing significant build-up of parasites and other pathogens. Where possible the floor should be concrete that is well maintained.

12.4 Appendix 4

Stocking density, feeder and drinker space requirement for rearing commercial pullets in Barn Systems

| Age (Weeks) | Mass/m ² | Feed Trough (Linear cm/hen) | Water Trough (Linear cm/hen) | Nipple Drinkers (Hens/nipple) |
|----------------|---------------------|--------------------------------|---------------------------------------|-------------------------------------|
| 0 – 8 | 15 | 2.5 (1) | 1.25 (2) | 20 |
| 8 – Transfer | 20 | 3.5 (1) | 1.25 (2) | 12 |

- (1) Linear measure with birds being able to feed from both sides of the trough.
- (2) Linear measure with birds being able to drink from both sides of the trough.

Transfer must take place before 20 weeks of age.

Space requirements increase as the birds approach maturity.

The houses shall be designed to provide chickens with a safe environment.

Round tube or pan feeders could be used and as a rule 3 feeders of 35 cm diameter would apply for birds up to 18 weeks of age.

Chicken house flooring shall allow for effective cleaning and disinfecting, preventing significant build-up of parasites and other pathogens. Where possible the floor should be concrete that is well maintained.

Bedding of suitable quality should cover the entire floor area at a depth of around 5 cm to allow for dilution of faeces.

12.5 Appendix 5

Stocking density, feeder and drinker space requirement for Commercial Layers kept in Cage Systems

The cage density shall be as follows in accordance with the year of installation:

- For Cage Systems installed after 1 January 2019 the minimum cage floor area will be 550 cm² per bird in addition the minimum feed space allowed shall be 8.5cm per bird.
- For Cages Systems installed prior to 1 January 2019 the minimum cage floor area will be 450 cm² per bird and this will apply until January 2039.
- As of 1 January 2039, a minimum cage floor area of 550 cm² per bird will apply to all cage system irrespective of the year of installation.
- For cages installed prior to 1 January 2019 the minimum feed trough space shall be 8.5 cm per bird and this will apply until 1 January 2039.
- As of 1 January 2039 the minimum feed space allowed shall be 10 cm per bird irrespective of year of installation.
- As of 1 January 2039, Birds shall have access to at least two drinker points and manufacturer recommendations should be referred to and not be exceeded in this respect.
- The slope of the cage floor in cages installed after 1 January 2019 shall not exceed 8°.

Houses and cages shall be designed to provide chickens with a safe environment.

The cage doors shall allow for easy insertion and removal of birds and be free of protrusions permitting the removal of birds without causing injury. Doors shall not be less than 20cm wide and 20 cm high.

Cage floors shall not cause any injury or deformity to develop.

12.6 Appendix 6

Stocking density, feeder and drinker space requirement for Commercial Layers kept in Enriched Cage Systems

Enriched cages should provide for the following requirements:

- Each laying hen must have:
 - At least 750 cm² of cage space
 - Access to a nest
 - Access to litter
 - Appropriate perches of at least 15 cm
- A feed trough that may be used by the birds without restriction must be provided. Its length must provide for feeder space of at least 12 cm per bird.
- The cages must have an appropriate drinker system
- There must be a minimum aisle width of 90 cm between tiers of cages and a space of at least 35 cm must be provided between the floor and the bottom tier of cages.
- Cages should be fitted with appropriate claw shortening devices.

Houses and Cages shall be designed to provide chickens with a safe environment in which birds can be easily inspected and managed.

Cage height shall permit standing chickens free head movement.

The cage doors shall allow for easy insertion and removal of birds and be free of protrusions permitting the removal of birds without causing injury.

Cage floors shall not cause any injury or deformity.

The cage floor shall allow eggs to roll out freely without getting stuck or damaged

Chicken house flooring shall allow for effective cleaning and disinfecting, preventing significant buildup of parasites and other pathogens. The floor should be concrete that is well maintained.

Escapee birds should not be placed into cages which already contain the correct number of birds.

12.7 Appendix 7

Stocking density, feeder and drinker space requirement for Commercial Layers kept in Barn Systems

Space Requirement for poultry sheds used for Barn Egg Production will be as follows:

| Age (Weeks) | Birds/m ² | Feed Trough (Linear cm/bird) | Pan or Tube Feeder (Birds/feeder) | Water Trough (cm/bird) | Bell Drinker (Birds/drinker) | Water Nipples (Birds/cup or nipple) |
|----------------|----------------------|---------------------------------|---|------------------------------|---------------------------------|--|
| Adult | 10 (1) | 5 | 40 | 1.25 | 100 | 10 |

(1) Increase to 12 if sufficient perching of 15 cm per bird is available

The chicken house must be so constructed that it provides for the welfare needs of the birds, whilst simultaneously providing protection from inclement weather conditions and both physical and thermal discomfort.

Whilst concrete floors are desirable, these are not mandatory, provided that whatever flooring is used allows for effective cleansing.

Where open-type housing structures in excess of 6 meters wide are used, provision should be made for ridge openings to facilitate ventilation. Mechanical assistance to natural ventilation (e.g. fans) is an acceptable practice.

Where housing is predominantly enclosed, ventilation by fans with a minimum airflow of 8 cubic meters per hour per adult hen is required.

Litter must be provided on at least 33% of the floor area. Such litter must be of sufficient quality and quantity to allow for the proper dilution of droppings and to allow birds to dust bathe.

Stocking densities must be adequate to accommodate the birds' normal behaviour. A maximum stocking density of 10 adult hens per square meter of available floor space is permitted. Such floor space shall exclude the area occupied by the egg collection/service area and in addition, shall exclude the area occupied by the enclosed portion of nest boxes where effective access to the area directly below is prevented.

In houses with appropriate perching/roosting facilities, stocking densities may be increased to 12 birds per square meter. Such perches must be provided at not less than 15 cm per hen and must incorporate a gap on either side of no less than 1.5 cm in order to allow hens to grip the perches without injury to their claws. For the purposes of interpretation, perches will include the alighting rail immediately in front of nest boxes (if applicable).

Adequate nesting facilities must be provided (egg production only) in order to discourage birds from laying eggs on the floor. Where individual nest boxes are provided, this should not be less than 1 nest per 8 hens. Where communal nests are provided, this should not be less than 1 square meter nest floor per 125 adult hens.

A lighting system for the provision of a minimum period of 9 hours continuous light in each period of 24 hours must be provided. Such light will either be artificial or via access to daylight. A minimum light intensity of 10 lux throughout the house during this time must be maintained. A minimum period of 8 hours continuous darkness per 24-hour cycle must also be provided in order to accommodate the birds' requirement for adequate rest.

If using chain, trough or box feeders, which can be accessed from both sides, then a maximum of one adult hen per 5 cm of feeder length, may be housed. If only one side is accessible, then 10 cm per hen must be provided. If pan or tube feeders are used, a maximum of 40 adult hens per feeder may be housed.

12.8 Appendix 8

Stocking density, feeder and drinker space requirement for Commercial Layers kept in Free Range Systems

Internal Environment

Space Requirement for poultry sheds used for Free Range Egg Production will be as follows:

| Age (Weeks) | Birds/m ² | Feed Trough (Linear cm/bird) | Pan or Tube Feeder (Birds/feeder) | Water Trough (cm/bird) | Bell Drinker (Birds/drinker) | Water Nipples (Birds/cup or nipple) |
|-------------|----------------------|------------------------------|-----------------------------------|------------------------|------------------------------|-------------------------------------|
| Adult | 10 (1) | 5 | 40 | 1.25 | 100 | 10 |

(1) Increase to 12 if sufficient perching of 15 cm per bird is available

The chicken house must be so constructed that it provides for the welfare needs of the birds, whilst simultaneously providing protection from inclement weather conditions and both physical and thermal discomfort.

Whilst concrete floors are desirable, these are not mandatory, provided that whatever flooring is used allows for effective cleansing.

Where open-type housing structures in excess of 6 meters wide are used, provision should be made for ridge openings to facilitate ventilation. Mechanical assistance to natural ventilation (e.g. fans) is an acceptable practice.

Where housing is predominantly enclosed, ventilation by fans with a minimum airflow of 8 cubic meters per hour per adult hen is required.

Litter must be provided on at least 33% of the floor area. Such litter must be of sufficient quality and quantity to allow for the proper dilution of droppings and to allow birds to dust bathe.

Stocking densities must be adequate to accommodate the birds' normal behaviour. A maximum stocking density of 10 adult hens per square meter of available floor space is permitted. Such floor space shall exclude the area occupied by the egg collection/service area and in addition, shall exclude the area occupied by the enclosed portion of nest boxes where effective access to the area directly below is prevented.

In houses with appropriate perching/roosting facilities, stocking densities may be increased to 12 birds per square meter. Such perches must be provided at not less than 15 cm per hen and must incorporate a gap on either side of no less than 1.5 cm in order to allow hens to grip the perches without injury to their claws. For the purposes of interpretation, perches will include the alighting rail immediately in front of nest boxes (if applicable).

Adequate nesting facilities must be provided (egg production only) in order to discourage birds from laying eggs on the floor. Where individual nest boxes are provided, this should not be less than 1 nest per

8 hens. Where communal nests are provided, this should not be less than 1 square meter nest floor per 125 adult hens.

A lighting system for the provision of a minimum period of 9 hours continuous light in each period of 24 hours must be provided. Such light will either be artificial or via access to daylight. A minimum light intensity of 10 lux throughout the house during this time must be maintained. A minimum period of 8 hours continuous darkness per 24-hour cycle must also be provided in order to accommodate the birds' requirement for adequate rest.

If using chain, trough or box feeders, which can be accessed from both sides, then a maximum of one adult hen per 5 cm of feeder length, may be housed. If only one side is accessible, then 10 cm per hen must be provided. If pan or tube feeders are used, a maximum of 40 adult hens per feeder may be housed.

External Environment

These external environment conditions would apply to Free Range and not Barn Systems

The stocking rate of the external range should not exceed 20000 per hectare. It is recognized that the prevalence of livestock theft is a reality, which restricts the provision of more extensive ranges.

The range must be maintained in a manner that allows for a minimum of 50% living vegetation present at all times. It is acknowledged that certain climatic conditions and locations make it difficult for this vegetation to always be green, but that this should be the objective.

The practice of rotational grazing is a desirable management tool, which allows for the active management of damaged ground, as well as minimizing the risk of a build-up of parasites.

External shade by way of either trees or artificial structures must be provided at the rate of 4 square meters shade per 1 000 birds.

In locations where overhead predators frequently occur, provision must be made for outside cover to reduce stress reactions from such sightings.

Fencing should be adequate to provide protection from indigenous terrestrial predators. Domestic animals such as dogs and cats must not be allowed into the enclosed range area.

12.9 Appendix 9

The space guidelines for broiler rearing in Barn Systems

| Measure | Density |
|----------------------------|------------------------------------|
| <u>Bird density</u> | Not to exceed 40 kg/m ² |
| <u>Feeder space</u> | |
| Pans with diameter of 30cm | 70 birds per pan |
| Trough feeders | 2.5 cm/bird |
| <u>Water drinker space</u> | |
| Troughs | 2.0 cm/bird |
| Bell drinkers | 1/100 birds |
| Nipple and cup drinkers | 1 /10 to 20 birds |

Houses shall be designed to provide chickens with a safe environment.

Chicken house flooring shall allow for effective cleaning and disinfecting, preventing significant buildup of parasites and other pathogens. Where possible the floor should be concrete that is well maintained.

Light intensity for the first 3 days shall be sufficient to encourage chicks to start eating normally. Thereafter light intensity shall provide a period of adequate illumination for normal daily feed and water intake.

Heating and ventilation systems shall maintain the recommended temperature and ventilation with reasonable accuracy in order to prevent either overheating or chilling of the chickens.

Chickens raised in floor pens shall have enough freedom of movement to be able to stand normally, turn around and stretch their wings without difficulty.

The density of 40 kg live mass per square meter is the maximum density that should be applied under conditions of good ventilation and cooling systems by mechanical means. Where ventilation is supplied by natural convection, the density should be reduced appropriately

12.10 Appendix 10

The space guidelines for broiler rearing in Free Range Systems.

Internal Environment

| Age (Weeks) | Birds/m ² | Feed Trough (cm/bird) | Pan or Tube Feeder (Birds/feeder) | Water Trough (cm/bird) | Bell Drinker (Birds/drinker) | Water Nipples (Birds/cup or nipple) |
|-------------|----------------------|-----------------------|-----------------------------------|------------------------|------------------------------|-------------------------------------|
| Adult | 15 | 5 | 40 | 1.25 | 100 | 10 |

The chicken house must be so constructed that it provides for the welfare needs of the birds, whilst simultaneously providing protection from inclement weather conditions and both physical and thermal discomfort.

Whilst concrete floors are desirable, these are not mandatory, provided that whatever flooring is used allows for effective cleansing.

Where open-type housing structures in excess of 6 meters wide are used, provision should be made for ridge openings to facilitate ventilation. Mechanical assistance to natural ventilation (e.g. fans) is an acceptable practice.

Where housing is predominantly enclosed, ventilation by fans with a minimum airflow of 5 cubic meters per hour per kg of bird mass is required.

Litter must be provided on entire floor area. Such litter must be of sufficient quality and quantity to allow for the proper dilution of droppings and to allow birds to dust bathe.

Stocking densities must be adequate to accommodate the birds' normal behaviour. A maximum stocking density of 15 broiler birds per square meter of available floor space is permitted.

Light intensity for the first 3 days shall be sufficient to encourage chicks to start eating normally. Thereafter light intensity shall provide a period of adequate illumination for normal daily feed and water intake.

If using chain, trough or box feeders, which can be accessed from both sides, then a maximum of bird per 5 cm of feeder length, may be housed. If only one side is accessible, then 10 cm per bird must be provided. If pan or tube feeders are used, a maximum of 40 birds per feeder may be housed.

External Environment

These external environment conditions would apply to Free Range Broiler Production.

The stocking rate of the external range should not exceed 20000 per hectare. It is recognized that the prevalence of livestock theft is a reality, which restricts the provision of more extensive ranges.

The range must be maintained in a manner that allows for a minimum of 50% living vegetation present at all times. It is acknowledged that certain climatic conditions and locations make it difficult for this vegetation to always be green, but that this should be the objective.

The practice of rotational grazing is a desirable management tool, which allows for the active management of damaged ground, as well as minimizing the risk of a build-up of parasites.

External shade by way of either trees or artificial structures must be provided at the rate of 4 square meters shade per 1 000 birds.

In locations where overhead predators frequently occur, provision must be made for outside cover to reduce stress reactions from such sightings.

Fencing should be adequate to provide protection from indigenous terrestrial predators. Domestic animals such as dogs and cats must not be allowed into the enclosed range area.

12.11 Appendix 11

The space guidelines for broiler rearing in Cage Systems

| Age (Weeks) | Weight (g) | Cage floor area (cm ² /bird) | Feed Trough (cm/bird) | Water Trough (cm/bird) | Nipple Drinkers (birds/drinker) |
|-------------------------|---------------|---|--------------------------|---------------------------|------------------------------------|
| 0 – 3 | 850 | 250 | 2.5 | 1.25 | 15 |
| 4 weeks to slaughter | 2000 | 450 | 6.0 | 1.25 | 10 |

Houses and Cages shall be designed to provide chickens with a safe environment.

Cage height shall permit standing chickens free head movement.

The cage doors shall allow for easy insertion and removal of birds.

Cage floors shall not cause any injury or deformity during the rearing of the birds.

Cage floors shall preferably be covered with temporary supportive flooring such as paper or matting for the chicks during the early brooding period.

Chicken house flooring shall allow for effective cleaning and disinfecting, preventing significant buildup of parasites and other pathogens. Where possible the floor should be concrete that is well maintained.

12.12 Appendix 12

Farming Methods and Product Identification - Eggs

Producers are to be aware that eggs are marketed under the Agricultural Product Standard Act, 1990 (Act No 119 of 1990) and that under this act the regulations regarding the grading, packing and marketing of eggs destined for sale in the republic of South Africa need to be adhered to. In accordance with these regulations producers need to ensure that any claim made on packaging requires to be defined, either through definition in accordance with this Code of Practice or through registration of specific Brands or Trade Names by individual producers. In case of the latter the full definition and protocol shall be printed on the pack. If not it shall be made available to the public or inspectors by providing a website address, telephone helpline or postal address. These contact details must be printed on the carton.

Definitions

Eggs – means eggs of the species *Gallus domesticus* (domesticated fowls) that are kept in any production system.

Enriched Cage Eggs – means eggs that are produced by poultry that are continuously housed in cages within a shed where the cages include a nest box, a perch and a dust bath.

Barn Eggs – means eggs that are produced by poultry that are free to roam within a shed which may have more than one level. The floor may be based on litter and/or other materials such as slats or wire mesh.

Free-range Eggs – means eggs that are produced by poultry that are housed in sheds in which they are free to roam on litter and have daily access to an outdoor range.

Organic Eggs – means eggs that are produced by poultry that are housed in sheds in which they are

- free to roam on litter
- Fed a feed in which the raw ingredients have been Organically-grown.
- have daily access to an outdoor range on which only organic fertilizer is used
- fed feed that that has been composed from organically-grown raw materials, feed that contains no animal by-product, no ingredients that have been genetically modified and no antibiotics.

Grain Fed, All Grain and Mixed Grain Eggs – means eggs that have been produced by poultry housed in any production system and the birds have been fed on feed free of any fish meal or animal by-products provided that

- the ration contains a minimum of two sources of cereal grain, of which the second cereal should be no less than 10% of the ration
- the ration contains a minimum of two sources of vegetable proteins, of which the second vegetable protein source should be no less than 3% of the ration
- records of the purchase and incorporation rate of the specific cereals and vegetable protein be kept for a minimum of 3 years and
- words to the effect that the ration fed to the poultry was free of any fish meal or animal protein be displayed on the pack.

Cereal Fed Eggs – means eggs produced by poultry fed a feed

- in which cereals account for at least 60% in weight of the feed formula, of which no more than 15% of cereal by-product may be part
- without prejudice to the minimum of 60% referred to in point above, where reference is made to a specific cereal, it shall account for at least 30% of the feed formula used
- if reference is made to more than one cereal, each shall account for at least 5% of the feed formula.

12.13 Appendix 13

Judicious Use of Antimicrobials in Poultry Production

INTRODUCTION

The use of drugs in poultry is fundamental to poultry health and well-being. Antimicrobials are needed for the relief of pain and suffering in animals. For poultry, the gains that have been made in food production capacity would not have been possible without the ability for reliable drugs to contain the threat of disease to birds. The World Health Organization stated, "Antimicrobials are vital medicines for the treatment of bacterial infections in both humans and animals. Antimicrobials have also proved to be important for sustainable livestock production and for the control of animal infections that could be passed on to humans." The benefit to human health in the proper use of antibiotics in food animals is related to the ability for these drugs to combat infectious bacteria that can be transferred to humans by either direct contact with the sick animal, consumption of food contaminated with pathogens from animals, or proliferation into the environment. However, the use of antimicrobials in food animals is not without risks.

Resistance to antimicrobials existed even before antimicrobials were used. The vast majority of drug-resistant organisms have however emerged as a result of genetic changes, acquired through mutation or transfer of genetic material during the life of the microorganisms, and subsequent selection processes. Resistance can also develop as a result of transfer of genetic material between bacteria. Resistance depends on different mechanisms and more than one mechanism may operate for the same antimicrobial. Microorganisms resistant to a certain antimicrobial may also be resistant to other antimicrobials that share a mechanism of action or attachment. Such relationships, known as cross-resistance, exist mainly between agents that are closely related chemically, but may also exist between unrelated chemicals. Microorganisms may be resistant to several unrelated antimicrobials. Use of one such antimicrobial will therefore also select for resistance to the other antimicrobials.

JUDICIOUS USE

Whenever poultry or human host is exposed to antimicrobials, there will be some degree of selection for a resistant bacterial population. Selection will depend upon the type of antimicrobial used, the number of individuals treated, the dosage regimen, and the duration of treatment. Therefore, it is vital to limit therapeutic antimicrobial use in animals and humans to those situations where they are needed.

The Southern African Poultry Association shares the concerns of the public, governmental departments, the South African Veterinary Association and public health community regarding the broad issue of antimicrobial resistance and specifically the potential risk of resistance developing in poultry with subsequent transfer to humans. Because of that concern and to maintain the long-term effectiveness of antimicrobials for poultry and human use and to increase the possibility of future antimicrobial drug approvals for the treatment of poultry, the Southern African Poultry Association committed to judicious use of antimicrobials by the poultry industry for the prevention, control, and treatment of poultry diseases to ensure safe food for humans and better welfare for poultry.

When the decision is reached to use antimicrobials as growth promoters or for therapy, it should be prescribed by veterinarians who should strive to optimize therapeutic efficacy and minimize resistance to antimicrobials to protect public and poultry health.

Judicious use of antimicrobials is an integral part of good farming practice and should be applied in the poultry industry. It is an attitude to maximize therapeutic efficacy and minimize selection of resistant microorganisms. Judicious use principles are a guide for optimal use of antimicrobials. They should not be interpreted so restrictively as to replace the professional judgment of veterinary practitioners or to compromise poultry health or welfare. In all cases, poultry should receive prompt and effective treatment as deemed necessary by the prescribing or supervising veterinarian.

Judicious Use Principles for Poultry

Preventive strategies, such as appropriate husbandry and hygiene, routine health monitoring, and immunization, should be emphasized.

The foundation of the success in the poultry industry is through disease prevention management. Farms utilizing all-in-all-out production minimize the presence of multiple ages of flocks on farms to help in disease prevention. Biosecurity programs in place on poultry farms prevent the introduction of diseases. The use of shower/transit facilities and dedicated protective clothing prevents the introduction and spread of disease within and between farms. Preventative disease programs based on vaccination strategies reduce disease outbreaks in poultry. The poultry industry is the leader in novel vaccination procedures for vaccination of large numbers of poultry. Breeder, layer and broiler flocks are monitored for protective response to vaccinations. Serological monitoring of disease exposure forms the basis of strategic vaccination programs.

Other therapeutic options should be considered prior to antimicrobial therapy.

The poultry industry approaches the treatment of diseases with antimicrobial agents very seriously. Because of the cost of disease treatment with antimicrobials, therapeutic antimicrobial intervention is used only as a tool to treat active disease. Management adjustments are made when disease outbreaks occur by reacting to environmental temperature, ventilation, and litter moisture to minimize the impact of any disease condition in flocks. Supportive therapy with vitamins and electrolytes are utilized in some cases of disease outbreaks. All of the above strategies help in preventing the use of antimicrobials for treatment.

Judicious use of antimicrobials, when under the direction of a veterinarian, should meet all requirements of a valid veterinarian-client-patient relationship.

Poultry veterinarians, in integrated companies or contracted to poultry operations, closely monitor antimicrobial use in their poultry flocks. They maintain close contact with service technicians and managers related to the use of antimicrobials. Veterinarians are involved in the training of all individuals that will ultimately be following veterinary directions for antimicrobial use. Antimicrobials are used always under the direction and knowledge of the company veterinarian or veterinary consultant.

Prescription (Medicines and Related Substances Control Act, no. 101 of 1965) use of antimicrobials.

Veterinarians in integrated poultry companies or contracted to poultry operations are responsible for the prescription and supervision of the use of these products in the poultry industry.

Extra label or compounded antimicrobial therapy must be prescribed only in accordance with the Veterinary and Para-veterinary professions Act, no. 19 of 1982, Medicines and Related Substances Control Act, no. 101 of 1965 and Pharmacy Act, no. 35 of 1974 with their relevant regulations.

Veterinarians in integrated poultry companies or contracted to poultry operations strive to use antimicrobials at labeled indications and dosage. With the abuse of antimicrobials, especially those registered under Act 36 of 1947, resistance developed to many of the products, which from time to time necessitates the extra label use of other registered products or for products to be compounded to treat specific disease problems in specific flocks. When prescribing, extra label or compounded antimicrobials, it is performed in compliance with the relevant acts and guidelines.

Over The Counter – (OTC) (FERTILIZERS, FARM FEEDS, AGRICULTURAL REMEDIES AND STOCK REMEDIES Act 36 of 1947) antimicrobials and feed additives must be applied according to the indications, dosage and withdrawal periods specified by the registration holder.

Feed additives and certain in feed as well as water medication are available over the counter in South Africa. The use of these products is not by law under veterinary supervision which led to the abuse of certain antimicrobials with resultant development of resistance to the active pharmaceutical compounds. It is therefore of the utmost importance that the poultry industry uses these products in a responsible way.

Antimicrobials considered important in treating refractory infections in human or veterinary medicine should be used in poultry only after careful review and reasonable justification. Consider using other antimicrobials for initial therapy.

SAPA recognize the importance of antimicrobial resistance in both human and veterinary medicine. Important antimicrobials used in both poultry and humans are held in reserve to minimize the rate of resistance development. Antimicrobials such as the quinolone-group should be held in reserve for the treatment of bacterial disease refractory to other antimicrobials.

Utilize culture and susceptibility results to aid in the selection of antimicrobials when clinically relevant.

Before antimicrobial therapy is initiated, based on mortality and morbidity, typically affected birds are euthanized and samples taken for bacterial culture and susceptibility testing (either antibiograms or Minimum Inhibitory Concentration – MIC). This is common practice in the poultry industry today. The poultry veterinarian uses this information to make informed decisions regarding the appropriate antimicrobial therapy to be initiated. This information is kept as part of the flock and farm history as information to determine changes in antimicrobial susceptibility patterns on farms.

Therapeutic antimicrobial use should be confined to appropriate clinical indications. Inappropriate uses such as for uncomplicated viral infections should be avoided.

Viral, fungal and other non-bacterial infections are not treated in poultry with antimicrobials. Veterinarians pay special attention to disease outbreaks to determine if, and when antimicrobial therapy is warranted. Every effort is made to address disease outbreaks with other disease management strategies prior to the initiation of antimicrobial therapy. Mortality and morbidity are closely monitored; diagnostic evaluations are performed to confirm bacterial involvement prior to antimicrobial therapy.

Therapeutic exposure to antimicrobials should be minimized by treating only for as long as needed for the desired clinical response.

Due to the cost of antimicrobial use in poultry, veterinarians and service technicians closely monitor antimicrobial treatments to minimize antimicrobial therapeutic exposure in flocks. Flocks are treated for the desired clinical response avoiding prolonged use of antimicrobials. Morbidity and mortality are used to base clinical judgments as to duration of therapy.

Limit therapeutic antimicrobial treatment to ill or at risk animals, treating the fewest animals indicated.

In population medicine involving flocks, it is recognized that in a disease outbreak, all birds are not infected at the same time with the disease to which antimicrobial therapy is warranted. However, birds in the same house are "at risk" to the same primary disease that often results in secondary bacterial infections. Only birds within the same house ill or at risk are treated. Adjacent houses, not clinically affected with disease, are not treated. If therapeutic antimicrobial intervention isn't cost effective and a low number of birds are infected per house, the cost of treatment will usually dictate that no antibiotics be used at all.

Minimize environmental contamination with antimicrobials whenever possible.

Every effort is made to avoid environmental contamination with antimicrobials. The cost of antibiotics generally ensures that the antimicrobial be used specifically in the diseased flock and not introduced into the environment unnecessarily.

Accurate records of treatment and outcome should be used to evaluate therapeutic regimens.

Record keeping is an integral part of the integrated poultry industry. Production records including medication costs, evaluation and outcome are kept and placed in the history of the farm for future reference in determining any changing antimicrobial susceptibility patterns.

LIVE BIRD SALES CODE OF CONDUCT

INTRODUCTION

The purpose of this document is to regulate and improve conditions relating to the sale and handling of live birds which may include culls during production, end of lay culls and live broiler sales.

It is intended that all SAPA members who are live bird sellers will display a poster sized copy of this code at their sale premises and that a copy of this code will be given to live bird buyers with each live bird sale. Where there is a fixed purchase arrangement between a live bird buyer and the seller it is not necessary to hand out a copy of this Code with each sale but only initially and whenever the Code is amended. The sellers will also hand out copies of the NSPCA pamphlets to their customers for onward transmission to the live bird retailers.

The live bird sellers are also required to keep a register of birds sold with the register containing the quantity of birds sold, the purchaser's details (sufficient that it is possible to contact the buyer) and the health records/status of the birds sold (defined as copies of all records held on farm).

Invoices and the normal health records for birds should suffice for this register as long as they contain the information in the attached declaration else this declaration may be used. Initially this information should be supplied quarterly and SAPA will collate this information and compile a national register of live bird buyers. SAPA will thereafter, in consultation with the NSPCA, use it to attempt to educate the live bird buyers and their customers on proper animal husbandry practices at their lairages. Once we have practical experience of the use of this Code the frequency of submission might be reduced.

As a general bio-security condition it is recommended that for all multi age sites live bird sales take place from a dedicated sale area outside of the bio secure zone and that no live bird buyers are allowed into the production facilities. In the case of single age sites the additional costs and welfare risks of multiple movements should be weighed up against the bio-security risks.

The requirement for vaccination and health declarations may seem onerous but as these birds are transported across provincial boundaries it is in the industry's own interest to better manage the transmission of diseases around South Africa.

This code is designed to apply to both the sale of live broilers, culls during production, depleted broiler and layer breeders and depleted commercial laying hens. As the weight of broiler breeders and commercial laying hens and layer breeders differs considerably there are separate specifications where applicable to allow for these weight differences.

CODE

1. All paperwork should be completed prior to catching and loading so that the vehicle may leave the premises immediately after loading is complete.
2. With each batch of birds the depleted bird buyer will receive a health declaration stating that the birds originate from a flock which conforms to the requirements as per the following DAFF approved documents:
 - Movement control protocol in case of an outbreak of Newcastle disease
 - Movement control protocol in case of an outbreak of *Salmonella* Enteritidis or *Salmonella* Gallinarum / Pullorum
 - Contingency plan in the case of an outbreak of Notifiable Avian Influenza and
 - Are free of visible signs of disease at the time of catching
3. During hot weather, birds should be loaded and transported during the cooler parts of day either in the early morning, late afternoon or at night.
4. The birds should not be deprived of feed and water before transport. During the transport phase the birds must not be without food or water for more than an absolute maximum of 24 hours measured from the time of last feeding / drinking to placement in the retail live bird seller's lairage with accessible feed and water. This condition must be applied with discretion as the welfare implications of handling birds immediately post feeding must also be considered.
5. The birds are to be transported in clean and sanitised standard size crates (770mm long, 500mm wide, 300mm high), in trolleys or in containers that qualify for use in terms of the relevant part of SAPA's Code of Practice. This applies to both the producer and the live bird buyer. Live bird sellers should not allow the loading of birds into damaged or otherwise unsuitable containers and are also responsible to ensure that stocking densities do not exceed the guideline limits.
6. The number of birds per standard sized crate should not exceed 6 broiler breeder birds and 10 layer birds. During hot weather the number should be reduced to 5 for broiler breeders and 9 for layer birds. If other containers are used a similar stocking density should be applied.
7. Birds are to be treated with respect and dignity.
8. Birds injured on the farm must be killed humanely, cervical dislocation being an acceptable practice, conditional to the farm having staff competent to carry out the procedure. Any birds injured during transport may not be sold but must be humanely disposed of.
9. Birds must be caught individually. Birds will only be handled by their legs and not any other part of the body. Not more than 4 hens may be carried per person at any one time.

10. The legs of the birds will not be tied as a measure of restraint when sold by any of the live bird sellers, live bird buyers or the retail live bird sellers.
11. The onus is on the live bird buyer to insist on healthy birds and not accept any visibly sick (or injured) birds.
12. The live bird buyer must ensure that the containers are properly secured on the vehicle before it leaves the premises and ensure the birds cannot escape from crates/containers during transport.
13. The birds must be taken to a lairage where food, water and shelter is provided or to an abattoir.
14. All birds must be kept in similar conditions to those in which they lived their productive lives i.e. floor based birds must be kept on floor systems and caged birds must be kept in cages. If held for longer than 24 hours in a facility, broiler breeders must be allowed free movement in a pen large enough for the purpose, this being defined as 6 birds/ m² (ca. 27kg/m²). If layer hens are to be held for longer than 24 hours in a facility they should be kept in cages complying with the SAPA Code of Practice specifications (currently 450cm²/bird floor space).
15. When abnormal rates of mortality occur after receipt of birds, the local State Veterinarian, or the Poultry Reference Centre at the Faculty of Veterinary Science, Onderstepoort or a consulting veterinarian should be requested to investigate the cause of the mortalities and to report to the original seller as well as the buyer.
16. All mortalities should be disposed of in line with local health regulations.
17. No mortalities will be sold or made available for human consumption.
18. At lairages instant decapitation (or cervical dislocation if competent staff are on site) is accepted as a means of culling injured or sick birds.

DECLARATION WITH REGARD TO LIVE BIRD SALES

We hereby affirm, that at the time of catching, the flock from which the live birds to which this declaration pertains:

- 1) Were free of visible signs of disease and no abnormal mortalities have been reported in the flock of origin in the preceding 30 days.
- 2) Have been tested for notifiable Salmonellae according to the "Salmonella Movement Protocols" and complies with the requirements in the protocol.
- 3) Have been tested for notifiable Avian Influenza according to the "Contingency Plan in the case of an outbreak of notifiable avian influenza (NAI)" and complies with the requirements in the document.
- 4) Have been tested for Newcastle Disease according to the "Movement Control Protocol in case of Newcastle disease" and complies with the requirements in the protocol.
- 5) Have been handled in accordance with the current SAPA Code of Practice for Live Bird Sales.

Date & time of feed withdrawal:

Date & time of water withdrawal:

Date & time of departure from farm of origin:

SELLER'S DETAILS

Type of stock: Broiler breeders / Broilers/ Layer breeders/ Spent layer birds

(strike through whichever is not applicable)

House of origin:

Site of origin:

Farm of origin:

Magisterial district:

Responsible person:

Contact details: (tel / cellphone number) Signature: :

BUYER'S DETAILS

Destination:

Magisterial district:

Responsible person: Signature:

BIOSECURITY ON POULTRY OPERATIONS - PEOPLE

Biosecurity in all poultry operations is of the utmost importance to ensure healthy flocks perform according to the required standards.

People movement is one of the main means of transmitting disease between flocks or farms. There are different aspects of biosecurity relating to people movement in poultry operations including physical biosecurity and procedural biosecurity.

- Geographical situation and lay-out of poultry operations.
- Restricted admission (e.g. functional fence with gates that can be locked, access control, visitors allowed only on appointment).
- Transit facilities (e.g. at the office) where private clothes and foot wear are exchanged for farm clothes and foot wear, reduce the risk of diseases being carried onto the farm on clothing or shoes.
- Shower facilities must provide effective separation between the “private clothes area” and the “site clothes area”
- Leave watches cell phones etc. outside the site.
- Spectacles must be disinfected.
- If vehicles are not disinfected, it must be left at a safe parking area a distance away from the poultry houses.
- Managers/visitors/service personnel should preferably restrict themselves to only one farm per day. The generally accepted practice of moving between flocks in a sequence from young to old or from healthy to sick unfortunately presents some risk as well. (Young birds may be infected with infectious agents not present in older birds; clinically healthy birds may be asymptomatic carriers of disease) However, moving in this sequence is undoubtedly better than moving at random
- Golden Rule: Restrict visitors to the absolute minimum.
- Unfortunately it is sometimes inevitable that visitors (e.g. Veterinarians, technicians, electricians etc.) have to visit more than one site per day. In these instances they must preferably shower in and out at every site. They must work in a young-to-old and/or healthy-to-sick sequence. NOBODY should be allowed to visit a healthy site after they have been to a diseased site.
- Foot wear disinfection or changeover of foot wear should be in place where required.

The people movement matrix can be used as a guideline to manage people movement between poultry and poultry related operations to minimise the risk of disease transmission by people.

| FROM / TO | GP Quarantine | GP Rearing | GP Laying | GP Hatchery | Breeder Hatcheries | Breeder Rearing | Breeder Laying | Broilers / Pullet Rearing | Commercial Layers | Processing plants |
|--|---------------|------------|------------|-------------|---|-------------------------------------|-------------------------------------|---|---|-------------------|
| GP Quarantine | 2 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs |
| GP Rearing | Next day | Next day | Next day | Same day | Next day | Next day | Next day | Next day | Next day | Same day |
| GP Laying | 2 x 24 hrs | 2 x 24 hrs | Next day | Same day | Next day | Next day | Next day | Next day | Next day | Same day |
| GP Hatchery | 2 x 24 hrs | 2 x 24 hrs | Next day | Same day | Next day | Next day | Next day | Next day | Next day | Same day |
| Outside company: Poultry/Hatchery/Processing | 4 x 24 hrs | 4 x 24 hrs | 4 x 24 hrs | 4 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | Next day | Next day | Same day |
| Feed Mills | 4 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | Next day | Next day | Same day |
| Breeder Rearing (Young to Old) | 4 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | Same day | Same day on same farm (max 2 sites) | Same day on same farm (max 2 sites) | Next day | Next day | Same day |
| Breeder laying (Young to Old) | 4 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | Same day | Next day | Same day | Next day | Next day | Same day |
| Breeder Hatcheries | 4 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | Same day | 2 x 24 hrs | Next day (to known positive sites) | Same day | Same day | Same day |
| Broilers / Pullet Rearing | 4 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | Next day (or same day with Veterinary approval) | 2 x 24 hrs | 2 x 24 hrs | Same day (Young to Old Healthy to Sick) | Next day | Same day |
| Commercial Layers | 4 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | Next day (or same day with Veterinary approval) | 2 x 24 hrs | 2 x 24 hrs | Next day | Same day (Young to Old Healthy to Sick) | Same day |
| Processing plants | 4 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | 3 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | 2 x 24 hrs | Same day |
| From any disease positive site | 5 x 24 hrs | 5 x 24 hrs | 5 x 24 hrs | 5 x 24 hrs | Next day plus 2 x 24 hrs (Own farm hatchery 1x18 hrs) | Next day plus 2 x 24 hrs | Next day plus 2 x 24 hrs | Next day plus 1 x 24 hrs | Next day plus 1 x 24 hrs | Same day |