



Humane Farm Animal Care  
Animal Care Standards  
August 2014

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# CHICKENS

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## **HUMANE FARM ANIMAL CARE**

Humane Farm Animal Care is a non-profit charity whose mission is to improve the lives of farm animals by providing viable, credible, duly monitored standards for humane food production and assuring consumers that certified products meet these standards.

Humane Farm Animal Care is approved by a consortium of Animal Protection Organizations, Individuals, and Foundations, such as the American Society for the Prevention of Cruelty to Animals and the Humane Society of the United States.

The Humane Farm Animal Care Standards have been developed to provide the only approved standards for the rearing, handling, transport and slaughter of Laying Hens for use in the Certified Humane® program. These standards incorporate scientific research, veterinary advice, and the practical experience of farmers. The standards are based on the Royal Society for the Prevention of Cruelty to Animals (RSPCA) guidelines, current scientific information and other practical standards and guidelines recognized for the proper care of animals.

Animal welfare is improved when livestock managers adhere to the following:

- Access to wholesome and nutritious feed
- Appropriate environmental design
- Caring and responsible planning and management
- Skilled, knowledgeable, and conscientious animal care
- Considerate handling, transport, and slaughter

**HUMANE FARM ANIMAL CARE'S SCIENTIFIC COMMITTEE**

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## **PART 1: INTRODUCTION**

### **A. The Certified Humane Label**

The Certified Humane® program was developed to certify products from animals of farms that adhere to these standards. Upon satisfactory application and inspection, farmers and ranchers will be certified and may use the Certified Humane Raised and Handled® logo. Program participants are inspected and monitored by Humane Farm Animal Care annually. Charges levied are to cover inspections and program costs which include promotional materials which help promote the products of the producers that are Certified Humane®.

### **B. Guide to the Use of the Animal Care Standards**

- The broad objectives of the standards are described at the beginning of each section. These objectives must be met.
- The numbered requirements are the standards, all of which must be complied with.
- These standards are written to cover facilities in varying geographic and temperature regions and facilities utilizing different systems. Therefore, not all sections in these standards will apply to each facility.
- Boxed sections provide additional information or may highlight areas where the standards will be reviewed in the future.
- Farmers must also comply with any local, state or federal mandates for egg and poultry production that affect the environment or safety of their product, as well as the Veterinary Practices Act in their state.

## PART 2: FEED AND WATER

**OBJECTIVES:** *Chickens must have access to fresh water and a diet designed to maintain full health and promote a positive state of well-being. Feed and water must be distributed in such a way that chickens can eat and drink without undue competition.*

### A. Feed

#### **FW 1: Wholesome, nutritious feed**

Chickens must be fed a wholesome diet which is:

1. Appropriate to their age and species;
2. Fed to them in sufficient quantity to maintain them in good health; and
3. Formulated to satisfy their nutritional needs as established by the National Research Council (NRC) and as recommended for their geographic area.

#### **FW 2: Free access to feed**

Chickens must have free access to nutritious feed each day, except:

1. When required by a flock veterinarian.
2. Prior to processing (see T 6)

#### **FW 3: Feeding systems that prevent health problems**

Nutrient content and feeding regimes must be carefully controlled to prevent leg abnormalities and other welfare problems associated with rapid growth.

#### **FW 4: Feed records**

- a. Producers must have a written record of the feed ingredients and nutrient content of each feed used, as declared by the feed mill/manufacturer/supplier.
- b. Producers must make feed records available to *Humane Farm Animal Care* during inspection and at other times, upon request.

#### **FW 5: Substances prohibited in feed**

- a. No feedstuffs containing mammalian- or avian-derived protein are permitted with the exception of eggs and egg products.
- b. The use of growth promoters is prohibited.
- c. Antibiotics, including coccidiostats, may only be administered for therapeutic reasons (disease treatment) and only under the direction of a veterinarian

#### **FW 6: Fresh feed**

Feed must not be allowed to remain in a contaminated or stale condition.

- a. Feed Storage bins must be:
  1. Clean;
  2. Dry;
  3. Vermin proof; and
  4. Well Maintained

- b. Old feed from previous flocks must be removed from bins and disposed of properly.

**FW 7: Easy availability of feed**

In all cases, there must be sufficient feeder space distributed throughout the house or enclosure to allow all chickens to eat without undue competition, Feed distribution must ensure uniform feed availability throughout the entire feeder system.

**FW 8: Positioning feed and water stations**

Chickens must not have to travel more than 13 feet anywhere in the house to reach Feed or water.

**B. Water**

**FW 9: Water supply**

- a. Chickens must have continuous access to an adequate supply of clean, fresh drinking water at all times, except when required by a veterinarian.
- b. Provisions must be made for supplying water when temperatures are below freezing.

**FW 10: Number of drinkers**

The minimum number of drinkers that must be provided is as follows:

1. Bell: 1 per 100 chickens
2. Nipple: 1 per 10 chickens
3. Cup: 1 per 28 chickens

**FW 11: Placement and design of drinkers**

In order to reduce water spillage and prevent consequent problems with litter management, drinkers must:

1. Be placed at optimum height for the size and age of the birds; and
2. Be of an appropriate design, and
3. Be checked and maintained regularly.

**FW 12: Preventing water spills**

When a new drinking system is being installed, bell drinkers or other open water trough systems that allow water spillage and soaking of litter should not be used.

**FW 13: Emergency water supply**

A method for providing clean, fresh water for a period of at least 24 hours during a shut off of the main water supply must be available on-site.

## PART 3: ENVIRONMENT

**OBJECTIVES:** *The environment in which chickens are kept must take into account their welfare needs and be designed to protect them from physical and thermal discomfort, fear, and distress, and allow them to perform their natural behavior.*

### A. Buildings

#### **E 1: Records of features of facilities that promote animal welfare**

For all separate groups of chickens, a notice containing a checklist of the key points relating to welfare must be available to the HFAC inspector and be amended accordingly. This must include:

1. Total floor area available to the birds;
2. Total number of birds placed in house;
3. Total number of drinkers and total number of feeders or total linear feeder space;
4. Feeding program;
5. Target air quality and temperature parameters;
6. Lighting levels and regimes; and
7. Emergency procedures, i.e. actions in the case of fire, flood, failure of automatic equipment, and when temperatures move outside acceptable ranges.

#### **E 2: Facility design**

To ensure that there are no sharp edges or protrusions likely to cause injury or distress to the birds, the interior of any building to which the chickens have access, including the floor, must be:

1. Carefully designed and constructed and
2. Well maintained and inspected.
3. Housing and equipment must be designed so that all the chickens can be clearly seen by caretakers

#### **E 3: Internal walls**

Internal walls must be smooth, unobstructed, and constructed of a durable material capable of withstanding clean-out procedures.

#### **E 4: Preventing contact with toxic substances in buildings**

Chickens must not come into contact with fumes, paints, wood preservatives, disinfectants, or other substances that are toxic to them.

#### **E 5: Electrical installations**

All electrical installations at main voltage must be:

1. Inaccessible to the chickens;
2. Well insulated;
3. Safeguarded from rodents;
4. Properly grounded; and
5. Tested regularly for stray voltage.

**E 6: Nearby environs**

- a. The area immediately surrounding the outside of the house must be kept clean and tidy and must not offer shelter to wild birds or rodents.
- b. If the area immediately surrounding the house is covered with vegetation, the plants must be kept short and well managed.

**B. Floor and litter**

**E 7: Design of floors**

Chicken house flooring must allow for effective cleansing and disinfection, preventing a significant build-up of parasites and other pathogens. Concrete floors are preferable to earthen floors because they can be more effectively cleaned and disinfected.

**E 8: Concrete floors**

- a. When internal house floors are concrete they must be of a solid, smooth, hard construction.
- b. There must be no significant cracks in the floor (any cracks must be adequately repaired).

**E 9: Litter**

The floor of all houses must be completely covered in litter. Chickens must have access to the litter area at all times. The litter must:

1. Be of a suitable material and particle size;
2. Be of good quality (clean, dry, dust-free, and absorbent);
3. Be managed to maintain it in a dry, friable condition;
4. Be of a sufficient depth for dilution of feces;
5. Allow birds to dust bathe; and
6. Be skimmed and topped up as necessary with fresh litter.

**E 10: Prohibited Housing**

Housing in cages, or on wire or slatted floors, is not permitted.

**E 11: Litter storage**

Fresh litter must be stored indoors in a clean vermin proof area.

**E 12: Contaminated litter**

- a. Litter that is wet, infested with mites, or otherwise contaminated must not be introduced into chicken housing.
- b. Wet or otherwise contaminated litter, or caked litter must be replaced promptly.
- c. Wet litter from accidental flooding must be replaced

**E 13: Understanding the importance of litter**

- a. Growers must be aware of the welfare problems associated with poor litter management.
- b. Growers must understand the factors that affect litter condition e.g. moisture, nitrogen content, ventilation and stocking density, and caking or slipperiness.

*Hock and foot pad burns are caused by contact with litter which is both wet and contains a high level of ammonia from feces. Such burns can cause pain, act as a gateway for bacterial infection and have been shown to be associated with lameness. Management practices seem to be the most important factor in preventing the occurrence of poor litter condition and therefore reducing these burns.*

*Excessive ammonia has also been associated with eye problems.*

## **C. Lighting**

### **E 14: Designing a lighting program**

The lighting program used in the chicken house must be designed to decrease leg problems and provide adequate rest time.

### **E 15: Light period**

The lighting system in the chicken house must provide in each period of 24 hours:

1. A minimum period of 8 hours of light, by the provision of either artificial light or access to daylight; and
2. A minimum period of 6 continuous hours of darkness in every 24-hour cycle, except when the natural period of darkness is shorter. This requirement need not apply during the first few days of rearing and the last three days prior to slaughter.

### **E 16: Prior approval for other lighting programs**

Producers wishing to use other lighting programs to decrease leg problems must submit their plan to the *Humane Farm Animal Care* office and obtain written permission to do so prior to using the proposed lighting program.

### **E 17: Recording light periods**

Lighting patterns in all houses must be recorded and records must be made available to *Humane Farm Animal Care* during the inspection and at other times, upon request.

### **E 18: Light intensity**

- a. Daytime lighting levels must allow birds to see and be inspected without difficulty.
- b. The lighting system in chicken houses must be designed and maintained in order to give an average minimum illumination of 2 foot candles (20 lux) throughout the house (except in shaded areas.)

### **E 19: Sufficient light for inspection**

Adequate lighting, whether fixed or portable, must be available to enable the chickens to be thoroughly inspected at any time.

## D. Space Allowance

### E 20: Stocking density

Sufficient freedom of movement - all chickens must have sufficient movement to be able to without difficulty, to stand normally, turn around and stretch their wings.

- a. The maximum stocking density must be calculated on the weight of birds per available floor space.
- b. This density allowance must not exceed 6 lbs/ft<sup>2</sup> (30 kg/m<sup>2</sup>).

- *Humane Farm Animal Care is currently reviewing the maximum stocking density requirements. It is possible that producers who demonstrate their ability to operate to the very highest standards of welfare, as determined by criteria like flock mortality, air quality, incidence of leg problems, bird foot health, and reasons for culling, might be permitted to adopt a higher density on a case by case basis. Conversely, if producers are unable to reach the expected welfare level they would be required to decrease the stocking density.*

### E 21: Records of space allowances

To ensure that the maximum housing density is not exceeded:

1. A plan of every house must be available to the assessor that indicates:
  - a) The total floor area available to the chickens;
  - b) The space allowance per bird (taking weight at market age into account), and
  - c) The maximum number of birds permitted within the house.
2. Records must be kept that enable the stocking density to be verified easily by the producer/Assessor at any time. These must include:
  - a) Records of the current number of birds in each house;
  - b) The daily mortality;
  - c) The number culled (including reason for culling); and
  - d) Average weight of birds at market age.

## E. Thermal environment and ventilation

### E 22: Air quality

- a. Provisions must be made to ensure that aerial contaminants do not reach a level at which they are noticeably unpleasant to a human observer
- b. Ammonia concentration at bird height must be recorded in each house at least once every 2 weeks, and records made available to *Humane Farm Animal Care* during inspection and at other times, upon request.
- c. The ammonia concentration at bird height should be less than 10 ppm and must not exceed 25 ppm except during brief periods of severe inclement weather when ventilation is affected.

- *It is recommended that the following air quality measures also be monitored and maintained:*
- *Hydrogen sulfide levels should generally be less than 0.5 ppm and should not exceed 2.5 ppm.*



- • Carbon dioxide levels should generally be less than 3000 ppm and should not exceed 5000 ppm.
- • Carbon monoxide should generally be less than 10 ppm and should not exceed 50 ppm.
- • Dust should generally be less than 1.7 mg/m<sup>3</sup> (for respirable dust) and 3.4 mg/m<sup>3</sup> (for total dust) and should not exceed 5 mg/m<sup>3</sup> (for respirable dust) and 15 mg/m<sup>3</sup> (for total dust), averaged over an 8 hr period.

### **E 23: Ventilation**

Ventilation systems, whether natural or mechanical, must be designed to maintain air quality parameters under all foreseeable climatic conditions.

### **E 24: Maintenance of ventilation equipment**

- a. Ventilation equipment must be regularly maintained.
- b. Alarm systems must be installed to provide managers and caretakers with notification of failure of ventilation equipment resulting in a thermal environment outside the acceptable range.

- *The thermal environment that the birds actually experience (that is, the effective environmental temperature) represents the combined effects of several variables, including air temperature, humidity, air speed, surrounding surface temperatures, insulating effects of the surroundings, stocking density, and the age and state of production of the bird. All of these factors should be considered in the selection and operation of ventilating systems.*

### **E 25: Thermal conditions**

- a. Provisions must be made to ensure that chickens have access to a thermally comfortable environment at all times so that heat/cold stress does not occur.
- b. The ventilation system and rate must be such that it maintains the birds in a comfortable effective environmental temperature appropriate to their age and stage of growth.
- c. In climates where possible, relative humidity should be kept between 40 and 80%. The recommended range is 50-75%.

### **E 26: Managing the thermal environment**

- a. The design of buildings must be such that risks of overheating are minimized.
- b. Maximum and minimum temperatures in each house, or primary rest area for pasture raised chickens, must be recorded daily at bird height.
- c. Records must be made available to *Humane Farm Animal Care* during inspection and at other times, upon request.
- d. Efforts must be made to avoid extremes of temperature within the house.

A chicken functions most effectively at a body temperature of about 104°F (41°C). Any deviation from this will have increasingly severe consequences to its welfare: a rise in body temperature of only 7 -9°F (4 -0 5°C) is invariably fatal

**E 27: Cooling systems**

Buildings constructed after 2006, must be fitted with a cooling system (e.g., evaporative cooling pads, high pressure fogging, etc.)

**F. Environmental Enrichment**

**E 28: Stimulating environment**

Provisions must be made to keep indoor chickens active by enriching their environment.

- a. Environmental enrichment should be used to stimulate exploratory, foraging and locomotive behavior and minimize injurious pecking. This requirement need not be applied during the first 10 days of brooding.
- b. Managers must be able to demonstrate to the *Humane Farm Animal Care* Inspector that they are using safe and effective methods of environmental enrichment throughout the rearing period.
- c. The inclusion of environmental enrichment has been shown scientifically to improve the bird health and welfare by encouraging birds to be more active, thereby promoting improved leg health.
- d. The following is a list of approved enrichments: ramps, low perches, pecking blocks, straw bales, scattering of whole grains, cabbages, cauliflowers, sprouts, broccoli, rounded tubes, hanging wooden blocks.
- e. If chickens are provided with edible material contained in their litter, they will be actively engaging in foraging behavior for extended periods. Pecking and scratching against a rough textured surface will help to prevent beak and claw over-growth. Young chickens appear to enjoy the opportunity to engage in “worm running” when given twisted strips of paper.
- f. Guidance for the placement of enrichment objects throughout the house: for every 1000 birds there should be: 1.5 standard sized long chopped straw bales, 2m of perch space and one pecking objects (peck a blocks, cabbage, cauliflower, sprouts, broccoli and wooden blocks.)

- *Possible methods of providing environmental enrichment include:*
- *Providing hay or straw bales;*
- *Perches appropriate to the size and weight of the birds;*
- *Enriching the litter with grain and long-cut straw;*
- *Lengths of rope, hung with the ends at bird height;*
- *Visual subdivision of the available space (e.g. using vertical plastic mesh panels approximately 30 inches wide with 0.25 inch mesh size); and*
- *Providing access to living vegetation.*

## G. Free-range/Pasture

- *The Animal Care Standards for Chickens Used in Broiler Production do not require that chickens have access to range. In free-range systems, where birds have access to the outdoors, the following Animal Care Standards must be met.*

### E 29: Outdoor area

- a. Must consist mainly of living vegetation. Coarse grit must be available to aid digestion of vegetation
- b. The pasture must be designed and actively managed to:
  1. Encourage birds outside, away from the popholes, and to use the area fully;
  2. Prevent and/or minimize heavily degraded, muddy/sodden, or worn areas;
  3. Minimize any build-up of agents (e.g. parasites, bacteria, virusus) that may cause disease;
  4. Prevent chickens from coming into contact with any toxic substances.
- c. The minimum outdoor space requirement is 2.5 acres (1 hectare)/1000 birds. Land used for cropping (except grass or hay) is not accepted as part of the Pasture Raised space allowance and must be excluded from space calculations.

### E 30: Well-drained resting area

Chickens with access to range must have access to a well-drained area for resting while outside the building.

### E 31: Exits

- a. When chickens are kept in free-range systems the house must have sufficient exit areas appropriately distributed to ensure that all birds have ready access to the range.
- b. Each exit area must be no smaller than 1 ½ feet high and 1 yd wide to allow the passage of more than one chicken at any one time.
- c. There must be a sufficient number of exit areas to allow the birds to enter and leave the building freely.

### E 32: Access to range

- a. Chickens kept in free-range systems must have access to the range by 4 weeks of age and for a minimum of 8 hours each day except when the natural daylight period is less.
- b. All exit areas must normally be open during this time, except when this is precluded by inclement weather conditions, disease outbreak or veterinary emergency.

### E 33: Shade

In warm months a shaded area must be accessible that has sufficient space that the chickens do not have to crowd together (thereby risking further heat stress.)

### E 34: Protection from predators

Protection must be provided from predators and birds should be closed in the house at night.

## HFAC DOES NOT HAVE STANDARDS FOR BREEDERS

### H. Specific Provisions for Chicks

#### **E 35: Day old chicks**

- a. Day old chicks must be handled carefully and placed in an appropriate environment.
- b. Care must be taken to avoid thermal stress, particularly during transport from the hatchery and when chicks are at maximum stocking density.

#### **E 36: Brooder surrounds**

Brooder surrounds and feeding and watering equipment within the surround must be designed and constructed such that chicks can move freely toward or away from the brooder.

#### **E 37: Brooder heaters**

Particular care must be taken in the placement and maintenance of brooder heaters to ensure against:

1. Risk of fire; and
2. Emission of carbon monoxide.

#### **E 38: Feeders and drinkers in brooders**

- a. Care must be taken to ensure that feeders and drinkers inside the brooder surround do not become hot, especially when metal or plastic containers are used.
- b. Supplementary feed trays and small water containers must be provided in addition to the automatic feeders and drinkers at the start of brooding.

#### **E 39: Thermal requirements**

- a. The brooder must be suspended above the center of the surround.
- b. The temperature under the brooder must be adjustable to ensure that the chicks are maintained at a comfortable temperature.

- *If necessary, supplementary lighting should be hung next to the brooder for the first few days after placement to attract chicks to the heat source and provide extra illumination of feeders and drinkers.*

#### **E 40: Adjusting the brooder as chicks grow**

The behavior of the chicks must be closely monitored throughout the brooding period and the brooders adjusted accordingly.

#### **E 41: Keeping feeders and drinkers clear**

Feeders and drinkers must be kept clear and free from litter.

**E 42: Breeder's management guidelines**

For brooding and rearing of chicks, the breeder's management guidelines for placement and number of feeders and drinkers, space allowances, air quality, ventilation, and lighting should be followed.

## PART 4: MANAGEMENT

**OBJECTIVES:** *Empathy and responsible management are vital to ensure good animal welfare. Managers and caretakers must be thoroughly trained, skilled and competent in animal husbandry and welfare, and have a good working knowledge of their system and the chickens under their care*

### A. Managers

#### M 1: Understanding the standards

Managers must ensure that all caretakers:

1. Have a copy of the current Humane Farm Animal Care, *Animal Care Standards for Broiler Chickens*;
2. They are familiar with the standards, and
3. They understand their contents.

#### M 2: Management and record keeping activities

Managers must:

1. Develop and implement a suitable training program for caretakers, with regular updates and opportunities for continuing professional development.
  - a) Managers must be able to demonstrate that staff with responsibilities for chicken care have the relevant and necessary skills to perform their duties. When deficiencies are noted, managers must provide appropriate training to ensure that all caretakers have the required skill.
  - b) That staff participate in an appropriate form of training as needed;
2. Develop and implement plans and precautions to prevent/cope with emergencies such as fire, flood, breakdown of environmental control or interruption of supplies (e.g. food, water, electricity);
  - a) Provide an Emergency Action Notice Plan next to a telephone, highlighting the procedures to be followed by those discovering an emergency (e.g. fire, flood, power failure);
  - b) Post emergency contact number by phones and entrances to buildings.
3. Ensure that the Animal Health Plan (see H2) is:
  - a) Implemented;
  - b) Regularly updated; and
  - c) That the required data are recorded appropriately.
4. Maintain and make available to the Humane Farm Animal Care inspector records of production data and use of medications. These records must be dated and include documentation on:
  - a) Incoming and outgoing birds;
  - b) Mortality (reasons must be stated);
  - c) Culling (reasons must be stated), and recorded separately from mortality;
  - d) Feed provided;
  - e) Water consumption;
  - f) Maximum and minimum temperatures at bird level;

- g) Ventilation (including settings and any necessary changes); and
- h) Ammonia levels.
- 5. Develop and implement a plan for transporting birds to the processing plant that minimizes waiting time for the birds; and
- 6. Comply with all local, state and federal regulations.

### **M 3: Abilities of the caretakers**

Managers must take into account the abilities of the caretakers when deciding on housing densities in present systems or when considering expanding the unit or installing more complex equipment.

### **M 4: Complaints to Operators**

- a. To be certified, an Operation must maintain systems for receiving, responding to, and documenting complaints alleging the Operations' failure to comply with HFAC standards (ISO §15).
- b. Whenever an Operator receives a complaint, the Operator must:
  - 1. Take appropriate action to respond to the complaint and
  - 2. Correct any deficiency in the products or services that affect their compliance with the requirements for certification.
- c. Written records must be retained by the Operation for a minimum of 3 years from the date of the records' creation. Records must contain information documenting:
  - 1. All complaints received (written or verbal),
  - 2. The actions taken by the operator to respond to the complaint.
- d. These records must be made available to *Humane Farm Animal Care* upon request. *Humane Farm Animal Care* will review these records at least annually, during the operation's annual inspection.
- e. Operators must notify *Humane Farm Animal Care* if an adverse ruling (such as suspension or revocation of certification, fine, or sanction) related to the operation's humane management practices is levied against the operation by another certifier or by a governmental program which regulates the industry.

## **B. Caretakers**

### **M 5: Mitigating problems**

- a. Caretakers must know the normal behavior of chickens and understand the signs that indicate good health and welfare.
- b. They should be able to recognize an impending problem in its earliest stages, as this may enable them to identify the cause and correct the problem promptly.
- c. When an outbreak of abnormal animal behavior occurs, it must be addressed promptly by appropriate changes in the system of management.

### **M 6: Awareness of welfare problems**

Caretakers must be aware of welfare problems such as those associated with poor litter management, e.g. burnt hocks, footpad lesions, breast blisters, respiratory and eye problems.

**M 7: Training**

- a. Prior to being given responsibility for the welfare of chickens, caretakers must be properly trained and be competent to:
  1. Recognize signs of common diseases and know when a veterinarian should be contacted for assistance;
  2. Recognize signs of normal behavior, abnormal behavior and fear;
  3. Understand the environmental requirements for chickens; and
  4. Handle chickens in a positive and compassionate manner.
- b. This training must be documented and the competence of the caretakers must be verified.

**M 8: Compassionate treatment**

- a. Caretakers must be able to demonstrate their competence in handling animals in a positive and compassionate manner.
- b. Caretakers must be able to demonstrate their proficiency in procedures that have the potential to cause suffering.

**C. Inspection**

**M 9: Monitoring**

- a. Birds, and the facilities on which birds depend, must be inspected a minimum of two times daily.
- b. At least one of these inspections must be sufficiently thorough to identify a bird that is showing signs of sickness or injury.
- c. Records must be kept of these inspections.
- d. Any welfare problems seen during an inspection by the caretakers must be dealt with appropriately and without delay.

*Welfare problems of sufficient severity that they should have been noticed and dealt with by the caretaker on previous daily inspections, will be taken by the Humane Farm Animal Care Inspector as evidence of negligence of duties by the caretaker.*

**M 10: Records of ill, injured, and dead birds**

- a. On completion of inspection, records must be kept of ill, injured and dead birds.
- b. The records must:
  1. Be available to *Humane Farm Animal Care* during the inspection and at other times, upon request;
  2. Be dated;
  3. Be signed by the caretaker making the animal inspection;
  4. Contain the time of inspection;
  5. Note the causes of illness and injury, when known; and
  6. Record the reasons for culling.



## **D. Handling**

### **M 11: Quiet Handling**

Work routines and practices must be developed, and when necessary modified, to ensure that chickens do not become fearful and are not frightened in avoidable ways. For example, all movement throughout the unit must be slow and deliberate both to alleviate fear and reduce possible injury to the birds.

## **E. Equipment**

### **M 12: Automatic equipment**

- a. Caretakers must inspect the equipment, including the automatic equipment, upon which chickens depend, at least once daily to check that there is no defect in it.
- b. When a defect is found (whether on inspection or at any other time):
  1. The defect must be rectified promptly;
  2. If this is impracticable, such measures as are required to safeguard the chickens from suffering unnecessary pain or distress as a result of the defect must promptly be taken, and shall be maintained until the defect is rectified.

### **M 13: Alarms for critical systems**

- a. All automatic systems that are critical for the welfare of the birds, i.e. drinkers and ventilation, must have an alarm to indicate failure, unless there are automatic back-up systems in place.
- b. It must not be possible to switch the alarms off
- c. The alarms must be checked daily to ensure they are in correct working order.

### **M 14: Backup ventilation systems**

Additional equipment or means of ventilation must be available which, in the event of a failure of the ventilation system, will provide adequate ventilation so as to prevent the birds from suffering unnecessary distress as a result of the failure.

### **M 15: Auxiliary power supply**

- a. An auxiliary power supply, capable of providing instant start and power supply to critical electrical equipment within the house for a 24-hour period, must be located on site.
- b. The power supply must be checked at the frequency recommended by the manufacturer, and these checks must be documented.

### **M 16: Using equipment**

For existing or new equipment used in poultry management, e.g. heaters, lighting, ventilation (flaps/fans), feeders and drinkers, caretakers must be able to:

1. Demonstrate the ability to operate the equipment;
2. Demonstrate the ability to carry out routine maintenance;
3. Recognize common signs of malfunction; and
4. Demonstrate knowledge of action to be carried out in event of failures.

## **F. Pests and predators**

### **M 17: Protection from pests and predators**

Humane precautions must be taken to protect chickens from predators/ pests. Specifically:

1. The intrusion of wild birds into houses for chickens without access to free range must be prevented with netting or similar material over roof ventilation ducts, windows, curtain openings, etc.;
2. Predators, including dogs and cats, must not be permitted in the chicken house.
3. Monitoring for Rodent and Fly Activity
  - a. Monitoring for rodents must be conducted, and when monitoring indicates unacceptable rodent activity within a chicken house, appropriate methods of rodent control must be used.
  - b. Monitoring of flies must be conducted, and when monitoring indicates unacceptable fly activity within a chicken house, an appropriate method of control must be used.

## PART 5: HEALTH

**OBJECTIVES:** *Chickens must be protected from pain, injury and disease. The environment in which chickens are housed must be conducive to good health. All producers must develop a health plan for their birds, in consultation with a veterinarian.*

### A. Health Care Practices

#### H 1: Selecting birds for good health

During selection of birds, care must be taken to select birds for high welfare traits and avoid genetic strains with undesirable traits.

#### H 2: Animal Health Plan

- a. An Animal Health Plan (AHP) must be drawn up and regularly updated in consultation with a veterinarian.
- b. The AHP must include:
  1. Details of any vaccinations;
  2. Information on treatments and other aspects of flock health;
  3. Causes of morbidity and mortality, when known;
  4. Tolerance limits on overall flock performance;
  5. Bio-security provisions.
  6. Cleaning and disinfection policy

#### H 3: Quality Assurance Program for Feed Safety

A recognized Quality Assurance Program for the control of Salmonella, Campylobacter, and other organisms that cause Feed safety concerns should be adopted and followed.

#### H 4: Preventing recurring injuries

- a. There must be no recurring injuries seen on the birds attributable to physical features of their environment or to handling procedures.
  1. Recurring injuries are those seen on a number of birds, with sufficient similarity to suggest that they have a common cause.
  2. Injury is described as damage severe enough for the formation of granular scar tissue or defective bones or joints, and to an extent significantly greater than would be caused by accidental bumps or scratches.
- b. Attention must be paid to foot lesions.
- c. If such injuries are found, a program of preventive action must be specified.

#### H 5: Flock performance data

- a. Flock performance data must be continuously monitored for indicators of disease or production disorders.
- b. If any flock performance parameters fall outside tolerance limits identified in the AHP, the veterinarian must be informed and the AHP revised to include a program of action that will remedy the problem.

**H 6: Care of sick and injured animals**

Sick chickens and any chickens suffering from injury such as open wounds or fractures must be

1. Segregated; and
2. Treated without delay; or
3. If necessary, humanely killed.

**H 7: Preventing leg problems**

- a. Management plans must be implemented to prevent chickens from suffering from chronic joint disease or leg deformation.
- b. Leg weakness and deformity are serious welfare problems in growing chickens, whether caused by infectious agents or growth abnormalities. The presence of more than a few overtly lame birds will be taken as noncompliance with the Animal Care Standards.
- c. Any overtly lame bird must be treated promptly or, if necessary, humanely killed.

**H 8: Lameness**

- a. Any chicken, which due to leg problems or other physical conditions, has difficulty in reaching feed and water must be promptly removed from the flock and, if necessary, humanely killed.

*Lameness in birds can be assessed by observing the bird's walking ability and scoring the bird using a gait scoring system such as that presented by J.P. Garner et.al. 2002 in British Poultry Science 43:355-363*

*A plan of corrective actions should be implemented for all birds with a gait score of more than 1 to address possible causes and alleviate the problem.*

*Birds with a gait score of 4 or above should be humanely culled.*

<i>Gait score</i>	<i>Degree of impairment</i>	<i>Gait scoring system</i>
0	None	Smooth, fluid locomotion. The foot is furred while raised.
1	Detectable, but unidentifiable abnormality	The bird is unsteady, or wobbles when it walks. However, the problem leg is unclear, or cannot be identified in the first 20 s of observation. The bird readily runs from the observer in the pen. The foot may remain flat when raised but the rest of the stride is fluid and appears unimpaired.
2	Identifiable abnormality, that has little impact on overall function	The leg producing the gait defect can be identified within 20 s of observation. If a problem leg is identified after 20 s of observed locomotor behavior then the bird is classed as gait score 1. However, the defect seems to have only a minor impact on biological function. Thus the bird will run from the observer spontaneously or if touched or nudged with the padded stick. If the bird does not run at full speed, it runs, walks, or remains standing for at least 15 s after the observer in the pen has ceased to move towards or nudge it. Birds in this, and previous scores, are often observed to scratch their face with their feet-again indicating little impact on function. (The most common abnormality in this score is for the bird to make short, quick, unsteady steps with on leg, where the foot remains flat during the step.)
3	Identifiable abnormality which impairs function	Although the bird will move away from the observer when approached or touched, or nudged, it will not run, and squats within 15 s or less of the observer in the pen ceasing to approach or nudge it. If the bird squats after 15 s have elapsed it is classified as gait score 2.
4	Severe impairment of function, but still capable of walking	The bird remains squatting when approached or nudged. This criterion is assessed by approaching the bird, and if it remains squatting, gently nudging or touching the animal for 5 s. Animals may appear to rise but still be resting upon their hocks. Only rising to stand on both feet within 5 s of handling is counted-a bird which takes longer than 5 s to rise, or which does not rise at all is cored as 4, while a bird that rises in 5 s or less is counted as a 3 (or lower if its gait is good). Nevertheless, the bird can walk when picked up by the observer and placed in a standing position, but squats immediately following one or two steps. (Squatting often involves a characteristic ungainly backwards fall.)
5	Complete lameness	The bird cannot walk, and instead may shuffle along on its hocks. It may attempt to stand when approached but is unable to do so, and when placed on its feet is unable to complete a step with one or both legs.

**H 9: Monitoring records of leg problems**

- a. Records of culls due to leg abnormalities and/or deformities must be assessed weekly to ensure that the problem is not increasing.
- b. When an increasing problem is identified, veterinary guidance must be sought to alleviate the problem and prevent further deaths.

**H 10: Segregation of sick or injured birds for treatment**

If sick or injured birds are to be treated, facilities must be available to segregate them from the rest of the flock.

### **H 11: Physical alterations**

The Humane Farm Animal Care, *Standards for Chickens* do not allow:

1. Beak trimming;
2. Toe clipping;
3. Caponizing;
4. Dubbing; or
5. Other surgical alterations.

### **H 12: Veterinary investigations of mortality**

- a. If the mortality level within a house is in excess of ½% in 24 hours, a veterinary investigation must be conducted.
- b. Investigation of lower mortality levels is at the discretion of the attending veterinarian.
- c. As soon as the investigation is complete, the producer must report the results to the *Humane Farm Animal Care* office.

### **H 13: Cleaning and disinfection**

Following depopulation, all houses must be thoroughly cleansed, disinfected and tested free from infectious agents as specified in the Animal Health Plan.

### **H 14: Genetically Modified Chickens**

The use of genetically modified and/or cloned chickens and their offspring are prohibited

## **B. Emergency Euthanasia**

### **H 15: Euthanasia**

- a. Each farm must have provisions for emergency humane slaughter without delay, either by on-farm methods carried out by a named, trained competent member of staff, or by a processor or a veterinarian.
- b. If there is any doubt as to how to proceed, the veterinarian must be called at an early stage to advise whether treatment is possible or whether humane slaughter is required to prevent suffering. If a bird is in severe pain that is uncontrollable, then the bird must be promptly euthanized.
- c. The following methods of emergency euthanasia are permitted:
  - Hand held electrical stunning, immediately followed by neck cutting;
  - Cervical dislocation; to be used in an emergency or for killing a very small number of birds. Cervical dislocation must involve stretching the neck to sever the spinal cord and cause extensive damage to the major blood vessels. Equipment that crushes the neck including killing pliers or burdizzos is neither quick nor humane and must not be used;
  - Carbon dioxide or a mixture of carbon dioxide or argon, delivered in an appropriate container at acceptable concentrations.

### **H 16: Carcass disposal**

- a. Following a euthanasia procedure, birds must be carefully examined to ensure that they are dead.

- b. All carcasses must be disposed of through outlets or in accordance with state and local laws.
- c. Off-farm carcass disposal:
  - 1. Carcasses must be disposed of through approved outlets.
  - 2. A record must be kept of the name of the outlet through which all such carcasses are disposed of.
- d. On farm carcass disposal: if carcasses are disposed of on farm, a record of the method of disposal must be maintained.

## PART 6: TRANSPORTATION

**OBJECTIVES:** *Animal transport systems must be designed and managed to ensure chickens are not caused unnecessary distress or discomfort. The transport and handling of chickens must be kept to an absolute minimum. Personnel involved in transport must be thoroughly trained and competent to carry out the tasks required of them.*

### A. Depopulation

#### **T 1: Culling unfit birds prior to loading**

- a. Caretakers must inspect the flock shortly before loading and cull any unfit birds
- b. Birds that are visibly unfit before loading must not be transported; they must be euthanized promptly.

#### **T 2: Preparing for depopulation**

- a. All feeders, drinkers, and other obstacles must be raised or removed from the house prior to catching birds to minimize risk of bruising.
- b. Access routes to the chicken house must be adequately designed and maintained to permit safe passage of transport vehicles
- c. House doors and passages must be large enough to allow safe removal of birds.
- d. Vehicles must be parked as near as practically possible to the house being de-populated.

#### **T 3: Training**

Managers must ensure that all personnel involved in catching and transportation of birds are properly trained and competent.

#### **T 4: Providing instructions for the operation**

- a. Managers must communicate with the processor, transporter and catching crew to identify the number of birds to be transported and the birds' weight.
- b. Managers must establish the stocking density to be used during transport.
- c. Managers must prepare full and detailed written instruction for the catching staff
  1. All catching staff must have a copy of these instructions; and
  2. The catchers must be aware of their duties.

#### **T 5: Monitoring welfare during depopulation**

A nominated member of the catching crew must be made responsible for supervising, monitoring, and maintaining high Animal Care Standards throughout the depopulation of the house and loading of birds onto the transport vehicle.

#### **T 6: Ensuring sufficient time for compassionate care**

Catching crews must never put speed of operation before bird welfare. Sufficient time must be made available to ensure birds are handled with care.



**T 7: Adequate ventilation**

- a. Adequate ventilation at bird height must be provided for uncaught birds up to the time of loading
- b. During loading, steps must be taken to protect birds from:
  1. Adverse weather conditions;
  2. Sources of heat; and
  3. Condensation.

**T 8: Mitigating unnecessary suffering**

- a. During the catching process, chickens must not suffer prolonged:
  1. Hunger,
  2. Thirst, or
  3. Deprivation of rest.
- b. Specifically, birds must have access to water up to the time of catching. Water must be given regularly to uncaught birds by periodically lowering the drinkers
- c. Birds must not be deprived of feed for more than 12 hours in total, including the period up to the time of processing.
- d. All feeders, drinkers and other obstacles must be raised or removed from the house prior to catching to minimize the risk of bruising.
- e. House doors and passages must be large enough to allow safe removal of birds.

**T 9: Catching birds**

- a. Catching must take place in low lighting to minimize fear reactions of the birds.
- b. Chickens must be caught individually and carried by both legs.
- c. No more than three birds should be carried in one hand.

*It is preferable to carry one bird at a time, with the bird held carefully in an upright position. However if the birds are carried in groups, care must be taken to ensure birds can be held comfortably without distress or injury, and carrying distances must be kept to a minimum.*

**T 10: Preventing crowding**

- a. During depopulation, actions must be taken to prevent chickens from crowding together.
- b. When crowding occurs, catching must be stopped, and the birds spread out calmly and quietly, then allowed to settle before catching is resumed.

**T 11: Access for transport vehicles used during depopulation**

- a. Access routes to the chicken house must be adequately designed and maintained to permit the safe passage of transport vehicles
- b. Vehicles must be parked as near as practically possible to the house being de-populated/

## Modular Transport Systems

*The use of modular transport systems for chickens is recommended as they can improve bird welfare compared to fixed crate systems. It is recognized that, at the present time many growers use fixed crate systems. When these are used, transporters are urged to consider investing in a modular transport system.*

### **T 12: Using modular transport systems**

- a. Before depopulation begins, the person appointed to supervise depopulation and loading must verify that modular transport trays:
  1. Have completely open tops with a depth of not less than 8.5" (26 cm)
  2. Permit adequate ventilation and protect birds from adverse climatic conditions;
  3. Are thoroughly clean;
  4. Are well maintained; and
  5. Have no sharp edges or protrusions that could cause injury to birds.
- b. Chickens must be put in transport modules in the house.
- c. A catcher must place one bird at a time into the transport tray.
- d. Birds must be placed carefully into the module drawer-birds must not be dropped or thrown into the drawer.
- e. When loading, one hand must lift the birds by the legs, and the other hand must support the breast; birds must not be lifted by just the wing or the neck.
- f. Stocking density must be reduced when birds are being transported during hot weather (in excess of 77°F or 25°C).
- g. As each drawer is filled, it must be closed carefully to ensure that the birds' heads, wings, or legs are not trapped.
- h. Modules must be taken from the shed slowly and care must be taken to ensure no damage is caused to the birds.

## Fixed Crate Transport System

### **T 13: Using fixed crate transport systems**

- a. The person appointed to supervise depopulation and loading must verify that fixed crate vehicles:
  1. Have adequate ventilation and protect birds from adverse climatic conditions;
  2. Are thoroughly clean;
  3. Are well maintained;
  4. Have doors that closed securely; and
  5. Have no sharp protrusions on the vehicle or crates that could cause injury to the birds.

- b. Facilities must be provided for catchers that ensure they are able to load birds onto the vehicle from a position that gives them easy access to all crates (e.g., loading platform or steps).
- c. Catchers must not lift birds above the catcher's head height when loading them onto the vehicle.
- d. Birds must be loaded into the fixed crate carefully; birds must not be thrown into the crate.
- e. When loading, one hand must lift the bird by the legs, and the other hand must support the breast; birds must not be lifted by just the wing or the neck. Birds should be loaded one at a time.
- f. Stocking density must be reduced when birds are transported during hot weather (in excess of 77°F [25°C]).
- g. The floor of each fixed crate must prevent feces falling on birds beneath but must not hinder ventilation inside the crate.
- h. The person responsible for supervising depopulation and loading must ensure that the door of each crate is securely fastened, and the wings, head, or legs of any bird are not trapped in the door or any part of the fixed crate.

*The mechanical harvesting of birds has been shown to offer some welfare advantages compared with traditional manual catching. Units considering using such a system must notify the Humane Farm Animal Care office and obtain written permission prior to use of mechanical harvesting system.*

## **B. Transport**

### **T 14: Competent staff**

Personnel in charge of chicken transporters must be able to demonstrate their competence in:

- 1. Handling chickens;
- 2. Securing the load;
- 3. Maintaining an appropriate thermal environment for the birds while in transit;
- 4. Driving and parking safely; and
- 5. Following emergency procedures

### **T 15: Investigating mortality during transport**

- a. Levels of transportation mortality (in chickens from any single source) in excess of 0.3% in any three-month period must be promptly investigated by the producer.
- b. When causes of mortality have been identified, prompt action must be taken to prevent further deaths, injury or suffering from occurring.
- c. These records must be made available to the Humane Farm Animal Care inspector during the inspection.

### **T 16: Limiting the period of transport**

- a. The time between the start of loading and the completion of unloading of transport trays must be less than 10 hours.
- b. Every effort must be made to ensure journeys are completed without unnecessary delays:
  - 1. Drivers must make an effort to be aware of any potential traffic problems; and

2. Drivers must plan their journey to minimize its duration.
- c. The person supervising the catching and loading of birds must communicate clearly and work closely with the processing plant to minimize the time birds spend on the vehicle after transport to the processing plant.

**T 17: Minimizing noise**

Noise levels, from all sources, must be minimized during loading, unloading and transport.

**T 18: Avoiding thermal stress**

- a. If it is necessary to keep birds on a stationary vehicle, the driver must take action to avoid thermal stress to the birds. In hot weather, one of the most effective methods of providing a cooling draft is to keep the vehicle moving.
- b. At times of high ambient temperature or when high humidity poses a threat to the birds, catching, loading and transportation create particular risks of heat stress. In such cases, producers must make advance plans and take appropriate action to reduce the risk to the birds. Plans must include the daily receipt of meteorological forecasts of predicted temperatures.
- c. In periods of hot weather, chickens must be transported at night or in the coolest parts of the day.
- d. Chickens reared in houses with tunnel ventilation may need to be pre-adapted to warmer temperatures if they are to be transported during hot weather. Pre-adaptation programs must be submitted to the *Humane Farm Animal Care* office for approval prior to implementation.

**T 19: Ventilation**

- a. The transport vehicle must be equipped with suitable curtains that can be opened/closed by a single operator.
- b. When the weather is hot, a central passageway must be left free of birds/trays to allow increased ventilation.
- c. Vehicles must be equipped with fan-operated ventilation.

*The technology is now becoming available to monitor temperature and humidity onboard transport vehicles. This allows drivers to take appropriate action to maintain ideal conditions for birds. The use of such equipment is encouraged. Humane Farm Animal Care will monitor the development of such technology and review its use for future inclusion in these standards.*

**T 20: Shelter from extreme weather**

When necessary, shelter from extremes of weather, including cold and rain during transport must be provided, such as curtains or panels.

## PART 7: PROCESSING

**OBJECTIVES:** *All processing systems must be designed and managed to ensure that poultry are not caused unnecessary distress or discomfort. The pre-slaughter handling of chickens must be kept to an absolute minimum. Personnel involved in slaughter must be thoroughly trained and competent to carry out the tasks required of them.*

### A. Inspection

#### P 1: Monitoring condition

- a. To assist in the monitoring of on-farm welfare, routine assessments must be made of birds at the processing plant and records made available to *Humane Farm Animal Care* Inspector during the inspection, and at other times, upon request.
- b. This monitoring should involve the assessment and recording of
  1. Birds dead on arrival (DOA's);
  2. Bird foot health, e.g. the incidence of footpad dermatitis; and
  3. The incidence of hock burn/breast blisters.
- c. All transport trays must be examined on arrival at the slaughterhouse to identify any birds suffering from injury, heat or cold stress.
- d. Immediate action must be taken to prevent suffering and ensure that similar occurrences are prevented.
- e. Any bird identified as suffering from injury, heat or cold stress must be slaughtered promptly and humanely.

### B. Training

#### P 2: Implementing an animal welfare policy

- a. Managers must develop and implement an animal welfare policy covering processing. This must include written descriptions for:
  1. Maintenance of animal welfare in the processing plant;
  2. The responsibilities and duties of staff; and
  3. Emergency procedures.
- b. The animal welfare policy must be reviewed and updated at least annually.

#### P 3: Animal Welfare Officer

- a. Managers must appoint at least one trained Animal Welfare Officer (AWO), who is responsible for the implementation of the animal welfare policy during processing.
- b. The AWO must make frequent checks throughout the day to ensure that birds are being effectively stunned and are insensible throughout the slaughter operation.
- c. When this is found not to be the case, the AWO must take prompt remedial action

#### P 4: Training staff about processing procedures

- a. Managers, in conjunction with the AWO, must develop and implement a training program for all staff handling and slaughtering birds.

- b. They must ensure that staff are properly trained to carry out their duties and be competent to perform them.
- c. This training should be documented.

*A number of processing plants have installed closed circuit television (CCTV) monitors within the pre-slaughter handling and slaughter areas. This allows those responsible for animal welfare within the abattoir to ensure that Animal Care Standards are maintained. Humane Farm Animal Care recommends the installation of CCTV systems.*

## **C. Holding Areas**

### **P 5: Humane treatment in the holding area**

- a. Chickens should be placed in an environmentally controlled holding area promptly on arrival at the processing facility.
- b. All birds at the processing facility awaiting slaughter must be:
  - 1. Protected from direct rays of sun and from adverse weather, e.g. wind, rain, hail, snow; and
  - 2. Provided with adequate ventilation (this includes regular monitoring and maintenance of temperature and humidity in the holding area and within chicken loads); and
  - 3. Humanely killed promptly, if found to be suffering.
- c. The holding area must have reduced lighting.

### **P 6: Minimizing waiting time**

- a. All chickens must be slaughtered as soon as possible after arriving at the processing facility.
- b. Slaughter must occur:
  - 1. No more than 12 hours after the time feed was withdrawn on the farm; and
  - 2. Within 4 hours of the birds' arrival at the plant
- c. Once chickens have arrived at the premises at which they are going to be slaughtered, they must not be moved on to other premises for slaughter.

### **P 7: Emergency breakdowns**

Standby equipment, e.g. a generator, must be available for emergency breakdowns.

### **P 8: Unloading Chickens from fixed crate vehicles**

When chickens are unloaded from fixed crate vehicles:

- 1. Staff must be provided with facilities or equipment that provide access to all the crates in each tier.
- 2. Care must be taken when removing birds from crates.

### **P 9: Monitoring condition**

- a. All transport trays or fixed crates must be examined on arrival at the processing plant to identify any birds suffering from injury, heat, or cold stress.
- b. Immediate action must be taken to prevent suffering and ensure that similar occurrences are prevented.

- c. Any bird identified as suffering from injury, heat, or cold stress, must be slaughtered promptly and humanely.

**P 10: Recording and reporting deaths and injuries**

- a. All deaths and injuries of birds must be recorded and reported to the AWO and the farm manager before the next consignment from the same source is collected.
- b. Records must be made available to *Humane Farm Animal Care* during the inspection and at other times, upon request.

**D. Shackling**

**P 11: Training staff**

Shackling teams must be thoroughly trained to handle the birds in such a way as to avoid injury.

**P 12: Sufficient personnel**

Processing Plant managers must ensure that sufficient personnel are employed on shackling lines at all times to facilitate due care and diligence.

**P 13: Shackling procedure**

- a. Chickens must be hung without causing them unnecessary pain or distress by using:
  - 1. Shackles of a suitable size and type, and
  - 2. An appropriate slaughter line speed.
- b. Birds must be hung on the shackles by both legs, with each leg placed on a separate shackle.

**P 14: Keeping birds in the correct position for stunning**

Appropriate measures must be taken to prevent wing flapping and birds raising their heads before reaching the stunning bath, such as:

- 1. Use of a breast bar;
- 2. Curtains;
- 3. Reduction in noise;
- 4. Low light intensity;
- 5. Running a hand down birds at shackling; and
- 6. Avoiding bends in the line between shackling and stunning.

**P 15: Preventing escape**

- a. Care must be taken to ensure that birds cannot escape from the holding area or fall from the shackle line.
- b. When loose birds are found they must be:
  - 1. Taken promptly to the hanging on area; or
  - 2. If injured, promptly humanely destroyed away from the line.

**P 16: Limiting time birds are suspended**

Chickens must not be suspended for more than 90 seconds before they are stunned.

**P 17: Checking crates**

All crates must be checked to ensure no chickens are left inside them.

**E. Stunning**

**P 18: Stunning equipment**

The following types of stunning equipment are acceptable:

1. Electrically live stunning bath;
2. Dry stunner incorporating an electrically live metal grid or bar;
3. Hand-operated stunner;

**P 19: Limiting un-stunned birds' view**

- a. Un-stunned birds must not be able to see dead birds.
- b. The line to the stunner must be darkened.

**P 20: Electrical water stunning bath**

When an electrical water stunning bath is used:

1. The stunning bath must be set at a height appropriate for the size and number of birds. In particular, the height must be set such that the heads of all birds make effective contact with the water bath.
2. When chickens are electrically stunned or killed a current sufficient to induce insensibility in all birds prior to neck-cutting must be used.
3. The water bath used for stunning or killing chickens must be of sufficient size and depth and the water must not overflow at the entrance. The electrode immersed in the water must extend the length of the water bath.
4. The water bath stunner must be designed and set up to prevent birds receiving pre-stun shocks.
5. The water bath must be fitted with an ammeter to accurately monitor current flow through the bath when loaded with birds.

**P 21: Electrical hand-held stunners**

When electrical hand-held stunners are used:

1. Chickens must be restrained in a cone or on a shackle;
2. Birds must be stunned immediately after being restrained;
3. Care must be taken to ensure that the stunning electrodes are applied in the optimum position (i.e. applied firmly to either side of the head between the eye and ear);
4. The current used must be sufficient to render birds unconscious immediately.
5. The stunner must be applied until initial wing flapping ceases (or if held in a cone, until legs become rigid and extended); and
6. Neck cutting must be performed immediately using a ventral neck cut to ensure that both carotid arteries are severed.



**Halal Slaughter Exception:**

Under the auspices of the local Muslim authority for an immediate post-cut stun.

The following conditions must be met:

1. neck cutting must sever both the carotid arteries
2. electrical stunning should be applied within 5 seconds of neck cut
3. the applied electric current should render birds immediately unconscious and they should remain so until death occurs.

**P 22: Maintaining and monitoring equipment**

- a. All stunning and bleeding equipment must be:
  1. Regularly maintained,
  2. Frequently cleaned; and
  3. Checked daily to ensure that it is in proper working order.
- b. Any problems must be:
  1. Reported to the AWO; and
  2. Rectified promptly.

**P 23: Dealing with unavoidable delays**

There must be contingency plans made to deal with occasions when unavoidable delays may occur and it is not possible to process birds. Specifically, if the slaughter line is stopped, for more than 3 minutes, birds between the point of shackling and the slaughter must be removed and any birds that have already been stunned must be humanely killed.

**P 24: Checking birds leaving the stunner**

- a. All birds leaving the stunner must be checked to ensure they have been effectively stunned or killed.
- b. Birds that are not properly stunned must be humanely slaughtered before entering the scalding tank.
- c. Staff must be trained to recognize the signs of an effective stun.

*The most reliable indicator that a bird is properly stunned by the low voltage method is the electroplectic fit. The characteristics of this condition are:*

- *neck arched with head directed vertically*
- *open eyes*
- *wings held close to the body*
- *rigidly extended legs and constant rapid body tremors.*

*The physical conditions of the electroplectic fit are shorter lasting and less pronounced when cardiac arrest is induced at stunning. They are followed by:*

- *completely limp carcass*

- *no breathing*
- *loss of nictitating membrane reflex*
- *dilated pupils*
- *no response to comb pinch*

## **F. Controlled Atmosphere Systems**

*Humane Farm Animal Care believes that the use of gas under controlled conditions (controlled atmosphere systems (CAS) or controlled atmosphere killing (CAK)) as a means of killing birds can provide many welfare benefits, such as reduced manual handling and avoiding the need to shackle live birds. However, there are still a number of unresolved humane issues surrounding the proper gas mixture to be used and when unconsciousness occurs. Until these issues are investigated through scientific study, including the onset of unconsciousness at different gas concentrations, HFAC requires that any operation which uses CAS submit their full protocol for review by our scientific committee. CAS must be designed to kill the birds and must not be used as a stunning method.*

Where processing facilities use, or intend to use, gas as a method of killing, the following conditions must be met:

### **P 25: Proper instruction**

Every person involved in gas killing must be properly instructed as to:

- a. the method of operation of the CAS
- b. the procedures for any necessary flushing of the CAS with atmospheric air, and
- c. the procedures for any necessary evacuation of birds from the CAS.

### **P 26: Mixing of gas supply**

Where more than one type of gas is used, the gases must be thoroughly mixed prior to supply into the CAS.

### **P 27: Daily checks**

Daily checks must always be undertaken to ensure that there is a sufficient supply of gas to kill all birds to be received, prior to the start of the process.

### **P 28: Gas monitors/sensors**

The gas concentrations and delivery of gas must be constantly monitored by sensors which are:

- a. Fitted in different locations along the equipment,
- b. Clearly marked and readily identified,
- c. Linked to an audible and visual alarm system,
- d. Calibrated at regular intervals, according to the manufacturers' advice, using certified calibration gases to ensure that correct concentrations are maintained. Documentation of these calibrations must be made available to the *Humane Farm Animal Care* Inspector.

**P 29: Prior to entry**

- a. Birds must not be subjected to any of the gas mixture prior to entry into the CAS. Appropriate equipment, such as an extractor must be fitted to the entrance to ensure no gas exposure prior to entry.
- b. Birds must not enter the equipment until the correct gas concentration has been established. This must be controlled automatically.

**P 30: Ensuring a humane kill**

- a. Birds must be immersed into approved gas mixtures and held there until they are dead.
- b. On exiting the CAS, all birds must be inspected immediately to ensure they are dead.
- c. Any birds found to be conscious on exiting the CAS must be removed and humanely killed immediately. Records of all instances of birds recovering consciousness after exposure to gas mixture must be kept.

**P 31: Causes of injury**

On exiting the CAS, birds must be checked to identify any signs of damage or injury which could have been caused while inside the CAS. If such damage or injury is found, then:

- a. the cause of the injury must be investigated to determine where and how it took place,
- b. if the injury took place while the birds were still conscious,
  1. immediate action must be taken to rectify the problem, and
  2. recorded in the corrective actions log.

**P 32: Contingency for failure or delays**

- a. In case of failure, a back-up method of humane slaughter must be available and ready for use at all times, which is capable of dealing with all birds awaiting slaughter.
- b. A contingency plan must be written and made available to the *Humane Farm Animal Care* Inspector, which includes details of actions taken if a breakdown occurs while birds are still in the CAS, to avoid prolonged delays.

**G. Bleeding**

**P 33: Cutting the blood vessels**

- a. Carotid arteries and jugular veins must be effectively severed using a ventral cut.
- b. This cut must be checked by the appointed member of staff who must be given sufficient time to sever the blood vessels manually, if necessary.

**P 34: Time between stunning and neck cutting**

No more than 10 seconds must elapse between stunning and neck cutting.

**P 35: Checking birds before they are scalded**

- a. All birds must be accessible to workers before they enter the scalding tank so that workers can deal with any birds showing signs of recovery of consciousness and
- b. Birds must be checked to ensure that they are dead before entering the scalding tank.

**P 36: Time between neck cutting and scalding or plucking**

Chickens must not be immersed in a scalding tank or plucked until at least 90 seconds have elapsed since the major blood vessels in their necks have been severed.

## REFERENCES

- Bizeray, D., I. Estevez, C. Letierrier, and J.M. Faure. 2002. "Influence of increased environmental complexity on leg condition, performance, and level of fearfulness in broilers." *Poultry Science* 81: 767-773.
- California Poultry Workgroup. 1998. *Animal Care Series: Broiler Care Practices*. University of California Cooperative Extension, Davis CA. Available online at [http://www.vetmed.ucdavis.edu/vetext/INF-PO\\_BroilerCarePrax.pdf](http://www.vetmed.ucdavis.edu/vetext/INF-PO_BroilerCarePrax.pdf).
- Carlyle, W.W., H.J. Guise, and P. Cook. 1997. "Effect of time between farm loading and processing on carcass quality of broiler chickens." *Veterinary Record* 141: 364.
- Code of Recommendations for the Welfare of Livestock: Meat Chickens and Breeding Chickens*. 2002. Department for Environment, Feed and Rural Affairs, London, UK. Available online at <http://www.defra.gov.uk/animalh/welfare/farmed/meatchks/meatchkscode.pdf>.
- Cornetto, T., I. Estevez, and L.W. Douglass. 2002. "Using artificial cover to reduce aggression and disturbances in domestic fowl." *Applied Animal Behaviour Science* 75: 325-336.
- Euthanasia of Poultry: Considerations for Producers, Transporters, and Veterinarians*. 1998. Center for Animal Welfare, University of California, Davis, CA. Available online at <http://animalwelfare.ucdavis.edu>.
- Fiscus LeVan, N., I. Estevez, and W.R. Stricklin. 2000. "Use of horizontal and angled perches by broiler chickens." *Applied Animal Behaviour Science* 65: 349-365.
- Garner, J.P., C. Falcone, P. Wakenell, M. Martin, and J.A. Mench. 2003. "Reliability and validity of modified gait score system and its use in assessing tibial dyschondroplasia in broilers." *British Poultry Science* 43: 355-363.
- Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching*. 1999. 1<sup>st</sup> Revised Edition. Federation of Animal Science Societies, Savoy, IL.
- Farm Animal Welfare Council. 1992. *Report on the Welfare of Broiler Chickens*. London, UK.
- Hester, P.Y. 1994. "The role of environment and management on leg abnormalities in meat-type fowl." *Poultry Science* 73: 904-915.
- Julian, R.J. 1998. "Rapid growth problems: ascites and skeletal deformities in broilers." *Poultry Science* 77: 1773-1780.
- Jones, R.B., D.G. Satterlee, and G.G. Cadd. 1998. "Struggling responses of broiler chickens shackled in groups on a moving line: effects of light intensity, hoods, and `curtains'." *Applied Animal Behaviour Science* 58: 341-352.
- Kannan, G., and J.A. Mench. 1996. "Influence of different handling methods and crating periods on plasma corticosterone concentrations in broilers." *British Poultry Science* 37:231
- Lacy, M.P., and M. Czarick. 1998. "Mechanical harvesting of broilers." *Poultry Science* 77: 1794-1797.

- Mitchell, M.A., and P.J. Kettlewell. 1998. "Physiological stress and welfare of broiler chickens in transit: solutions not problems!" *Poultry Science* 77: 1803-1814.
- Martrenchar. A., J.P. Morisse, D. Huonnic, and J.P. Cotte. 1997. "Influence of stocking density on some behavioural, physiological and productivity traits of broilers." *Veterinary Research* 28: 473-480.
- National Research Council. 1994. "Nutrient requirements of chickens." In *Nutrient Requirements of Poultry*, 9<sup>th</sup> Revised Edition. National Academic Press, Washington, DC.
- Newberry, R.C. 1999. "Exploratory behaviour of young domestic fowl." *Applied Animal Behaviour Science* 63: 311-321.
- Newberry, R.C., J.R. Hunt, and E.E. Gardiner. 1988. "Influence of light intensity on behavior and performance of broiler chickens." *Poultry Science* 67: 1020-1025.
- Raj, M. 1998. "Welfare during stunning and slaughter of poultry." *Poultry Science* 77: 1815-1819.
- RSPCA Animal Care Standards for Chickens*. 2006. Royal Society for the Prevention of Cruelty to Animals. Southwater, West Sussex, UK.
- Sanotra, G.S., J.D. Lund, and K.S. Vestergaard. 2002. "Influence of light-dark schedules and stocking density on behaviour, risk of leg problems and occurrence of chronic fear in broilers." *British Poultry Science* 43: 344-354.
- Sorensen, P., G. Su, and S.C. Kestin. 2000. "Effects of age and stocking density on leg weakness in broiler chickens." *Poultry Science* 79: 864-870.
- Stub, C., and K.S. Vestergaard. 2001. "Influence of zinc bacitracin, light regimen and dustbathing on the health and welfare of broiler chickens." *British Poultry Science* 42: 564-568.
- Su, G., P. Sorensen, and S.C. Kestin. 2000. "A note on the effects of perches and litter substrate on leg weakness in broiler chickens." *Poultry Science* 79: 1259-1263.
- The Welfare of Chickens kept for Meat Production (Broilers)*. 2000. Report of the Scientific Committee on Animal Health and Animal Welfare. European Commission, Brussels, Belgium. Available online at [http://europa.eu.int/comm/Food/fs/sc/scah/out39\\_en.pdf](http://europa.eu.int/comm/Food/fs/sc/scah/out39_en.pdf).



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