



Humane Farm Animal Care
Animal Care Standards
Edition 22

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.

The Humane Farm Animal Care Standards have been developed to provide the only approved standards for the rearing, handling, transport, and slaughter of chickens 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

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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 that 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. Compliance with all of the standards is mandatory, except where a standard is deemed not applicable (these standards are written to cover facilities in varying geographic and temperate regions, and facilities using 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 that 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.

FW 2: Free access to feed

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

1. When required by a flock veterinarian; or
2. Prior to processing (see T 8).

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 (4 meters) 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;
2. Be of an appropriate design; and
3. Be checked and maintained regularly.

FW 12: Preventing water spills

Any drinking systems must not cause water spillage and soaking of litter.

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, be designed to protect them from fear, distress, and physical and thermal discomfort, and allow them to perform their natural behaviors.*

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

- a. To ensure that there are no sharp edges or protrusions likely to cause injury or distress to the birds, any facility structures (e.g., building interiors, fences, floors, equipment) must be:
 1. Carefully designed and constructed; and
 2. Well maintained and inspected.
- b. 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: Surrounding area

- 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 dirt floors because they can be more effectively cleaned and disinfected.

E 8: Concrete floors

- a. When internal house floors are concrete, they must be made 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 monitored and replaced 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, caked, or otherwise contaminated 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, stocking density).

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.

Lighting can increase the rate of feed consumption and thereby the growth rate of birds. When chicks grow too fast they can develop leg problems. Alternatively, if the lighting program changes to an increased amount of lighting later in the chicken's lifespan to increase feed intake later in life, the birds may go from a low level of activity to a high level, causing leg problems since their bones are not used to that level of activity.

E 15: Light period

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

1. A minimum period of 8 hours of light; and
2. A minimum period of 6 continuous hours of darkness or the natural period of darkness, if 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

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

- a. The maximum stocking density must be calculated based on the weight of birds per available floor space.
- b. This stocking density must not exceed 6 lbs/ft² (30 kg/m²).

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:

- a. A plan of every house must be available to the inspector that indicates:
 1. The total floor area available to the chickens;
 2. The space allowance per bird (taking weight at market age into account); and
 3. The maximum number of birds permitted within the house.
- b. Records must be kept that enable the stocking density to be verified easily by the producer/inspector at any time. These must include:
 1. Records of the initial and current number of birds in each house;
 2. The daily mortality (reasons must be stated, or a clear indication given when reasons are unknown);
 3. The number culled (including reasons for culling); and
 4. Average weight of birds at market age.

E. Thermal Environment and Ventilation

E 22: Air quality

- a. Aerial contaminants must not reach a level at which they are noticeably unpleasant to a human observer.
- b. The ammonia concentration at bird height:
 1. Must be no more than 10 ppm on average.
 2. Must not exceed 25 ppm except during brief periods of severe inclement weather when ventilation is affected. When ammonia concentrations exceed 25 ppm, reasons must be recorded and corrective actions must be taken and recorded.
 3. Must be objectively (i.e., via ammonia strips, an electronic reader, or an ammonia gun) measured in each house at least once every 2 weeks. These records must be made

available to *Humane Farm Animal Care* during the inspection and at other times, upon request.

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 0.05 mg/ft³ (1.7 mg/m³) for respirable dust and 0.1 mg/ft³ (3.4 mg/m³) for total dust. Over an 8-hour period it should not exceed 0.15 mg/ft³ (5 mg/m³) for respirable dust and 0.42 mg/ft³ (15 mg/m³) for total dust.*

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 monitored and maintained daily.
- b. Alarm systems must be installed to notify managers and caretakers 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 stage 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 that is appropriate to their age and stage of growth.
- c. In climates where possible, relative humidity must be kept between 40 and 80%.

The recommended range for relative humidity is 50-75%.

E 26: Managing the thermal environment

- a. The design of buildings must minimize the risks of overheating.
- 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 (4-5°C) is invariably fatal.

F. Environmental Enrichment

The inclusion of environmental enrichment has been shown scientifically to improve bird health and welfare by encouraging birds to be more active, thereby promoting improved leg health.

E 27: Stimulating environment

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

- a. Environmental enrichment should minimize injurious pecking and be used to stimulate exploratory, foraging, and locomotive behaviors. 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. Enrichment must be distributed throughout the system to allow chickens access from any area of the house.

Possible methods of providing environmental enrichment include:

Providing hay or straw bales;

Ramps;

Pecking blocks or hanging wooden blocks;

Perches appropriate to the size and weight of the birds;

Enriching the litter with grain, long-cut straw, or vegetables;

Lengths of rope, hung with the ends at bird height;

Rounded tubes;

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.

Recommendations for the placement of enrichment objects throughout the house is the following:

For every 1000 birds there should be: 1.5 standard sized long chopped straw bales; 2 meters of perch space; or one pecking object.

If chickens are provided with edible material 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 overgrowth.

G. Free-Range and Pasture-Raised

The Animal Care Standards for Chickens do not require that birds have access to outdoors or be raised on a range. Pasture-Raised and Free-Range systems are optional. Where laying hens have access to range or the outdoors, the following definitions and standards must be met to use a Free-Range or Pasture-Raised claim.

Free-Range is a management system where adult birds have access to a range area that is mainly covered with vegetation. The birds have free-choice access through exits from their housing units. They are all kept indoors at night for protection from predators. The minimum range space requirement is 1 sq ft (0.09 sq meters) per bird.

Pasture-Raised is a management system where birds spend more than half of their lives on pasture, mainly covered with living vegetation. The available pasture area adjacent to the housing unit must allow for freedom of movement and regeneration of the pasture itself. There must be enough space to support the coverage in rooted vegetation year-round.

Alternatively, birds could be housed in a sheltered mobile housing unit that provides a round-the-clock pasture. These units are open at their base exposing birds to a continuous supply of fresh vegetation as the house itself is gradually rotated around the pasture. Additionally, they provide protection overhead by shielding birds from predators and weather extremes, even during the day as well overnight.

E 29: Pasture or range area quality

- a. This must consist mainly of living vegetation. Coarse grit must be available to aid digestion of vegetation.
- b. The range or pasture must be designed and actively managed to:
 1. So birds are attracted to it and use the area fully;
 2. Prevent and/or minimize heavily-degraded, muddy, or worn areas;
 3. Minimize exposure or build-up of agents (e.g., parasites, bacteria, viruses) that may cause disease; and
 4. Prevent chickens from coming into contact with any toxic substances
- c. Land used for cropping (except grass or hay) is not accepted as part of the outdoor 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 and pasture-raised 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 (0.45 meters) high and 2 feet (0.6 meters) wide to allow the passage of more than one chicken at a time.
- c. There must be a sufficient number of exit areas to allow the birds to enter and leave the building freely without creating a bottleneck effect at the exits due to an excessive number of birds attempting to exit at once.

E 32: Access to range

- a. Chickens kept in outdoor 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. If birds are kept indoors for longer, reasons must be documented.
- b. Chickens in pasture-raised systems must be outdoors 12 months per year (and 6 months per year for seasonal pasture), every day for a minimum of 6 hours per day. In an emergency, birds may be confined in fixed or mobile housing 24 hours per day for no more than 14 consecutive days.
- c. Producers are permitted to keep chickens inside in the cases of disease, higher-than-average mortality due to predation, or extreme weather.
- d. All exit areas must normally be open during outdoor access hours, except when this is precluded by inclement weather conditions, disease outbreak or veterinary emergency.

Extreme weather is defined as:

1. *Temperatures outside of the birds temperature-humidity index;*
2. *Precipitation (e.g., snow, rain); or*
3. *Natural disasters*

E 33: Shade

- a. When chickens do not have access to the indoors, shaded area must be accessible that has sufficient space that the chickens do not have to crowd together (thereby risking further heat stress).
- b. When chickens have access to the indoors, shaded area must accommodate 30% of the birds at one time.
- c. Shade must be distributed throughout the range area in a way that encourages chickens to utilize the entire outdoor space.

E 34: Protection from predators

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

HFAC DOES NOT HAVE STANDARDS FOR BREEDERS.

H. Mobile Systems for Meat Chickens

Birds in this system are in a round-the-clock pasture-raised environment as the mobile units used for housing are open at their base, providing continuous access to fresh pasture. Birds are sheltered from predators, disease, and the elements at all times.

E 35: Range Mobile Coops or Sheltered Pasture-Raised Systems

- a. Houses must be constructed without flooring so they are completely open to the pasture at the base.
- b. Adult birds must be assured daily exposure and access to the pasture floor, an area that is mainly covered with living vegetation 12 months of the year.
- c. The design must allow birds to be moved about the pasture safely, maximizing the birds' access to the fresh regrowth. Birds should never be standing on denuded land or overly moist ground.
- d. The enclosure must meet all standards related to environmental enrichment, feed, and water.
- e. Mobile units must have the ability to mitigate exterior temperature extremes (e.g., using misters).
- f. The stocking density must not exceed 5 lbs/ft (24.4 kg/m²).

Birds kept on continuous, fresh, protected pasture experience decreased predation compared to extensive systems, and they benefit from improved air quality compared to completely indoor systems.

I. Specific Provisions for Chicks

E 36: 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 37: 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 38: 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 39: 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.
- c. Upon placement in brooders, chicks must be trained to the feeders and drinkers unless previously-placed birds are present to facilitate learning.

E 40: 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 41: 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 42: Keeping feeders and drinkers clear

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

E 43: 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 must 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:

1. All caretakers have a copy of the current Humane Farm Animal Care, *Animal Care Standards for Chickens*;
2. They and the caretakers are familiar with the standards; and
3. They and the caretakers understand the standards.

M 2: Management and record keeping activities

Managers must:

- a. Develop and implement plans and precautions to prevent and cope with emergencies such as fire, flood, breakdown of environmental control, or interruption of supplies (e.g., food, water, electricity).
- b. Provide emergency contact numbers to all caretakers.
- c. Provide an Emergency Action Plan, highlighting the procedures to be followed by those discovering an emergency (e.g. fire, flood, power failure). The EAP must be sited in an easily accessible location.
- d. Ensure that the Animal Health Plan (see H2) is:
 1. Implemented;
 2. Regularly updated; and
 3. Recorded appropriately with the required data.
- e. Maintain and make available to the Humane Farm Animal Care inspector records of production and health data. These records must be dated and include documentation on:
 1. Incoming and outgoing birds;
 2. Mortality (reasons must be stated, or clear indication given when reasons are unknown);
 3. Culling (reasons must be stated), recorded separately from mortality;
 4. Feed consumption;
 5. Water consumption;
 6. Treatments and vaccinations;
 7. Maximum and minimum temperatures at bird level;
 8. Ventilation (including settings and any necessary changes); and
 9. Ammonia levels.
- f. Develop and implement a plan for transporting birds to the processing plant that minimizes waiting time for the birds.
- g. Comply with all local, state, and federal regulations.

M 3: 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.
- 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 that regulates the industry.

B. Caretakers

M 4: Mitigating problems

- a. Caretakers must know the normal behavior of chickens and understand the signs that indicate good health and welfare.
- b. Caretakers must 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, and corrective actions must be recorded.

M 5: Awareness of welfare problems

- a. Caretakers must be aware of welfare problems such as those associated with poor litter management (e.g., burnt hocks, footpad lesions, breast blisters, respiratory disease, and eye problems).
- b. Caretakers must understand the factors that affect litter condition (e.g., moisture, ammonia build-up in the house, nitrogen content, ventilation, and stocking density).

M 6: Training

- a. Managers must develop and implement a suitable training program specific to HFAC standards for caretakers with regular updates and opportunities for continuing professional development.
- b. Caretakers with responsibilities for chicken care must 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 skills.
- c. Prior to being given responsibility for the welfare of chickens, caretakers must be properly trained and be competent to:

1. Recognize signs of normal behavior, abnormal behavior and fear;
 2. Recognize signs of common diseases and know when a veterinarian should be contacted for assistance;
 3. Understand the environmental requirements for chickens;
 4. Handle chickens in a positive and compassionate manner; and
 5. Euthanize chickens when necessary.
- d. This training must be documented, and the competence of the caretakers must be verifiable.

M 7: 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 (e.g., euthanasia).

C. Inspection

M 8: 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 9: Records of ill, injured, and dead birds

- a. On completion of daily inspections, records must be kept of ill, injured, and dead birds.
- b. The records must:
 1. Be available to *Humane Farm Animal Care* during the HFAC 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 10: 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 11: Equipment

- a. Caretakers must inspect the equipment, including the automatic equipment, upon which chickens depend, at least once daily to check that there are no defects.
- b. When a defect is found (whether on inspection or at any other time), the defect must be rectified promptly. If this is not possible, such measures as are required to safeguard the chickens from suffering unnecessary pain or distress because of the defect must promptly be taken and maintained until the defect is rectified.

M 12: 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 13: 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 to prevent the birds from suffering unnecessary distress as a result of the failure.

M 14: 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 15: Using equipment

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

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

F. Pests and predators

M 16: Protection from pests and predators

Humane precautions must be taken to protect chickens from predators and pests.

- a. 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, or curtain openings;
- b. Predators, including dogs and cats, must not be permitted in the chicken house.

Monitoring for rodent and fly activity

Monitoring for rodents and flies must be conducted, and when monitoring indicates unacceptable rodent or fly activity within a chicken house, appropriate methods of pest 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 breeds for positive welfare traits

During selection of bird breeds, care must be taken to choose birds that meet welfare outcomes when managed in a particular environment, thereby avoiding genetic strains with undesirable welfare traits. Welfare outcomes must include the following:

- a. Total flock mortality less than 6%
- b. Dead-On-Arrivals (DOAs) less than 0.3%
- c. Average gait scores less than or equal to 2*
- d. Average hock burn scores less than or equal to 1[†]
- e. Average footpad dermatitis scores less than or equal to 1[‡]

*Gait scores are based off of the 6-point Gait Scoring System by the University of Bristol. See Appendix 2.

[†]Hock burn scores are based off of the 5-point scoring system by Colas at Institut Technique de l'aviculture France. See Appendix 3.

[‡]Footpad dermatitis scores are based off of the 5-point scoring system by A. Butterworth at the University of Bristol. See Appendix 4.

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 (or clear indication given when reasons are unknown);
 4. Tolerance limits on overall flock performance;
 5. Biosecurity provisions; and
 6. A cleaning and disinfection policy.

H 3: Biosecurity and food safety

- a. A recognized Quality Assurance Program for the control of Salmonella, Campylobacter, and other organisms that cause food safety concerns should be adopted and followed.
- b. To ensure the health of their flocks, producers must follow reasonable biosecurity measures, which may include personal protective equipment, foot bath stations, visitor logs, and walking the flocks from youngest to oldest.

Biosecurity is closely tied to animal welfare. Without effective biosecurity, animals can be exposed to disease, which in some cases can cause the death of entire flocks. For this reason, in order to have positive animal welfare, producers must follow adequate biosecurity procedures.

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 given 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. Producers must monitor at a minimum:
 - 1. Mortality and culling;
 - 2. Body weight;
 - 3. Feed consumption; and
 - 4. Water consumption.
- b. If any flock performance parameters fall outside tolerance limits identified in the Animal Health Plan, 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

- a. Sick chickens and any chickens suffering from injury such as open wounds or fractures must be segregated and treated without delay or, if necessary, humanely killed.

H 7: Preventing and addressing leg problems

- a. Management plans must be implemented to prevent chickens from suffering from chronic joint disease or leg deformation.
- b. The presence of more than a few overtly lame birds is not permitted.
- c. Any chicken that has difficulty in reaching feed or water due to leg problems or other physical conditions must be promptly removed from the flock, treated promptly, and if necessary, humanely killed.

Leg weakness and deformity are serious welfare problems in growing chickens, whether caused by infectious agents or growth abnormalities.

Lameness in birds can be assessed by observing the bird's walking ability and scoring the bird using a gait scoring system (see Appendix 2).

HFAC Standards for Chickens

<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 one 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.

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.

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 0.5% 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:
 1. Handheld electrical stunning, immediately followed by neck cutting;
 2. 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;
3. Carbon dioxide or a mixture of carbon dioxide or argon, delivered in an appropriate container at acceptable concentrations.
 - d. Following a euthanasia procedure, birds must be carefully examined to ensure that they are dead.

H 16: Carcass disposal

- a. All carcasses must be disposed of through approved outlets and using methods that meet state and local laws.
- b. A record of the disposal method and carcass disposal service 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: Flock Thinning

Flock thinning is not permitted.

T 3: Preparing for depopulation

- a. All feeders, drinkers, and other obstacles must be raised or removed from the house prior to catching birds to minimize the risk of bruising or other injury.
- 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 4: Training

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

T 5: 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 6: 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 7: 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 that birds are handled with care.

T 8: 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 9: Mitigating unnecessary suffering

- a. During the catching process, chickens must not suffer prolonged hunger, thirst, or 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 10: Catching birds

- a. Catching must take place in low lighting to minimize fear reactions of the birds. Catchers must otherwise ensure that birds do not experience unnecessary stress during catching.
- b. Chickens must be caught individually and carried by both legs.
- c. No more than three birds must be carried in one hand, and carrying distances must be kept to a minimum.

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 stress, and carrying distances must be kept short.

T 11: Mechanical catching

- a. Mechanical catching equipment must be operated at a speed that does not cause injury or stress to the birds.
- b. Unnecessary stopping and starting of the loading belts must not cause wing flapping that results in bird injury.
- c. The mechanical catcher must be adjusted so the birds are placed in the transport crates without bumping against the upper wall or drawer.

The mechanical catching of birds has been shown to offer some welfare advantages compared with traditional manual catching. Specifically, modern catching machines gather and transport chickens in an upright position and make direct handling unnecessary. This reduces stress during catching, resulting in fewer injuries and improved animal welfare. Furthermore, mechanical harvesters can minimize stress from hot weather and uneven lighting. Finally, mechanical harvesting avoids worker fatigue, which detrimentally impacts animal welfare during catching.

T 12: Preventing crowding

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

T 13: 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.

<i>The use of modular transport systems for chickens is recommended as they can improve bird welfare compared to fixed crate systems.</i>
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T 14: 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, and 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. Transport crates must provide sufficient space for all birds to lie down at once. 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.

T 15: 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 close 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 16: 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 17: 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 18: 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 that 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 that birds spend on the vehicle after transport to the processing plant.

T 19: Minimizing noise

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

T 20: 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 21: 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 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.

T 22: Shelter from extreme weather

When necessary, shelter (i.e., curtains, panels) from extremes of weather, including cold and rain during transport, must be provided

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.

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.

APPENDIX 1: Record-Keeping

At the inspection, you must be prepared to show the HFAC Inspector the following at his/her visit to the Unit:

- Death/mortality records and reasons for mortality (or a clear indication if reasons are unknown)
- Culling records and reasons for culling
- Medicine records retained for 1 year (including reason for use, drug used, and withdrawal/safe sale date)
- Stocking rates
- Feed and feed ingredient records for previous year (must have current and previous tags on hand)
- Movement records (bought and sold dates)
- Production data (feed consumption, water consumption if possible)
- Record of vital automatic equipment maintenance checks
- List of routine farm maintenance checks
- Training and/or experience of all staff involved in the poultry enterprises
- Demonstrate safe, hygienic, well-maintained buildings/environment, handling equipment and automatic equipment.
- Emergency contacts
- Record of actions taken on complaints about the operation's compliance with HFAC standards
- For birds with outdoor access ONLY:
 - Amount of time kept outdoors/indoors
 - Range management plan (including rotational grazing plan, if applicable)

APPENDIX 2

Gait Scores referenced in standard H 1 are based off of the 6-point Gait Scoring System by the University of Bristol, which is summarized below:

Gait Score	Description (not all characteristics of a score must be observed)
0	• No detectable abnormality • Feet are picked up and put down smoothly • Each foot lands under the bird's center of gravity • Toes partially coiled while foot is in the air • Bird is agile and can balance • Bird can walk backward or change direction easily
1	• Defect that is subtle but would still deter breeders from breeding it for gait score • Abnormally large strides that cause an uneven gait
2	• Definite and identifiable defect in gait • Lesion does not hinder bird from moving or competing for resources • Rolling gait that does not compromise acceleration, maneuverability, or speed,
3	• Obvious gait defect that affects ability to move around • Limp • Unsteady or uneven stride • Severe splaying of one leg • Bird prefers to squat • Compromised acceleration, maneuverability, and speed
4	• Severe gait defect • Walk with difficulty or when forced to • Squat down at first available opportunity • Severely compromised acceleration, maneuverability, and speed
5	• Incapable of sustained walking • Locomotion only achieved with assistance of wings or by crawling on the shanks

APPENDIX 3

Hock Burn scores are based off of the 5-point scoring system by ©Colas and ITAVI at Institut Technique de l'aviculture France.

Score	Description	Appearance
0	No evidence of hock burn	
1	Very minimal evidence of hock burn	
2	Minimal evidence of hock burn	
3	Significant evidence of hock burn	
4	Very significant evidence of hock burn	

APPENDIX 4

Footpad dermatitis scores are based on the 5-point scoring system by A. Butterworth at the University of Bristol.

Score	Description	Appearance
0	No evidence of footpad dermatitis	
1	Very minimal evidence of footpad dermatitis	
2	Minimal evidence of footpad dermatitis	
3	Significant evidence of footpad dermatitis	
4	Very significant evidence of footpad dermatitis	

REFERENCES

Bizeray, D., I. Estevez, C. Leterrier, 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.

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, Food 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. 1st 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*, 9th 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.

Revision Table

Standard	Old	New	Notes
G. Free-range and Pasture-raised (definitions and requirements)	Free-Range required 2 sq ft of range area	Free-Range requires 1 sq ft of range area	
	Pasture-Raised did not cover 24 hours a day sheltered mobile units	Pasture-Raised requires that birds spend more than half their lives on pasture covered with living vegetation	Now that the USDA/FSIS have defined Pasture-Raised to mean birds spend more than half their lives on pasture, the sheltered mobile units also meet the requirements since they are open at the base and give birds a pastured environment day and night.
E. 29 Outdoor area	E. 29 Outdoor area	E. Pasture or range area quality	Removed redundant text covered in Free-Range and Pasture-Raised definition
G. Free-range and Pasture-raised	n/a	Added another line to cover pasture space as to support quality of vegetative coverage	Actual new text with addition: Pasture-Raised is a management system where birds spend more than half of their lives on ^[L] _[SEP] pasture, mainly covered with living vegetation. The available pasture area adjacent to the ^[L] _[SEP] housing unit must allow for freedom of movement and regeneration of the pasture itself. There must enough space to maintain the coverage in rooted vegetation year-round.



Humane Farm Animal Care
Animal Care Standards
Edition 22

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