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Recommended code of practice for the care and handling of poultry from hatchery to processing plant

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Preface

Welfare codes are intended to encourage livestock producers, stock-keepers, handlers, transporters, and processors to adopt the highest standards of animal husbandry and handling.

In 1980 the Canadian Federation of Humane Societies (CFHS) began coordinating the process of drafting codes of practice for all livestock species with the drafting of a code of practice for handling chickens and the agreement of the federal Minister of Agriculture to provide financial support for the undertaking. Subsequently, at the request of the Agricultural Institute of Canada (AIC) and the Canadian Veterinary Medical Association (CVMA), the Canadian Society of Animal Science (CSAS) undertook to prepare draft codes of practice for handling other livestock species. The CSAS and the AIC agreed that the successful CFHS coordination of the drafting process should continue, and the draft codes were turned over to that organization. The process has involved representatives of agricultural industries and their organizations, federal and provincial government departments, associations of animal science, representatives of the animal welfare movement, and interested individuals. As a result of this work, the following codes of practice have been published: *Recommended Code of Practice for Handling Chickens from Hatchery to Slaughterhouse* (1983); *Recommended Code of Practice for Care and Handling of Pigs* (1984); *Recommended Code of Practice for the Care and Handling of Special Fed Veal Calves* (1988); *Recommended Code of Practice for the Care and Handling of Mink* (1988); *Recommended Code of Practice for the Care and Handling of Ranched Fox* (1989).

This code is an updated version of the 1983 publication on the care and handling of chickens, and has been expanded to include recommendations for the care and handling of turkeys. Each section pertaining to a particular type of poultry (eggs, broilers and roasters, and turkeys) is to be considered as a self-contained entity, to be used by the industry in question. For that reason, information is often repeated in the various sections. For this voluntary code to be fully effective, those involved in the care and handling of poultry should accept and adopt the code's recommendations.

Introduction

There is an increasing awareness that currently accepted moral standards of our society call for the prevention of any avoidable suffering. Domestication and artificial selection have made farm animals dependent on humans. Consequently, according to the existing principles of ethics, humans must accept this dependence as a commitment for humane conduct toward domestic animals in all stages of their life.

Nearly all livestock husbandry systems impose restrictions on livestock, and some of these can cause an unacceptable degree of discomfort or distress by preventing the animals from fulfilling their basic needs. Meeting these needs, and others that must be considered, includes providing the following:

- comfort and shelter;
- readily accessible fresh water and a diet to maintain the animals in full health and vigor;
- opportunity for reasonable movement;
- company of other animals, particularly of like kind;
- opportunity to exercise most normal patterns of behavior;
- light of appropriate length and intensity;
- flooring that neither harms the animals nor causes undue strain;
- prevention, or rapid diagnosis and treatment, of abnormal behavior, injury, parasitic infestation, and disease;
- avoidance of unnecessary mutilation; and
- emergency arrangements to cover outbreaks of fire, the breakdown of essential mechanical services, and the disruption of supplies.

The recommendations in this code are provided in an attempt to define high standards of bird handling and well-being in commercial, research, educational, or small-scale operations. The recommendations do not claim to be comprehensive for all circumstances, but rather they provide information and guidelines that may encourage operators in the poultry industry to examine or improve their own managerial routines.

Consideration should be given to the question of animal welfare before installing new equipment or adopting new husbandry systems. In general, the greater the restriction imposed on an animal and the greater the complexity of the system or the degree of control that is exercised over temperature, air flow, or food supply, the less the animal is able to use its instinctive behavior to modify the effect of unfavorable conditions and the greater the chance of suffering if mechanical or electrical failure occurs.

Thus, systems with a high degree of control over the environment should be installed only where conscientious personnel, skilled in both animal husbandry and in the use of the equipment, are readily available. The size or complexity of an operation should not be changed unless the welfare of the individual bird can be safeguarded.

Adequate facilities and resources must be available to supply proper housing, a consistent, appropriate, and reliable source of feed and water, treatment for injured or sick birds, and everything else necessary to ensure the well-being of the animals. Financial costs should not be considered a reason for neglecting a bird obviously in distress or for failing to secure prompt and appropriate medical treatment or other care when necessary.

This code has been prepared with a recognition of current practices. It identifies the areas where the welfare of the animals could be at risk unless precautions are taken. The code sets out what these precautions should be, bearing in mind the importance to animals of a total environment and the fact that there is often more than one way in which their welfare can be safeguarded.

Although the term "must" is used occasionally to emphasize the importance of a specific practice, the code is voluntary. It is intended to be used by the industry, by scientists, and by animal welfare groups as an educational tool in the promotion of sound husbandry and welfare practices. It should also be recognized that new scientific discoveries and changing economic conditions will necessitate updating the code as required.

Section 1. Hatcheries

Commercial hatcheries concentrate their efforts on maximum hatching of fertile eggs and on marketing viable chicks adapted to customer requirements. Environmental conditions for incubation are controlled automatically and are safeguarded by supplementary mechanisms activated in case of unexpected malfunction or disruption of energy sources. High standards of sanitation are essential for the production of high-quality chicks. Generally, economic interests of industrial hatcheries favor the best care of marketable chicks, as this has an influence on the birds' future performance.

Every person working with birds in a hatchery should be able to understand and accept his/her responsibility to prevent avoidable suffering. Before duties are assigned, hatchery operators should be satisfied that attendants responsible for handling live chicks have the skills necessary to perform any required treatment or procedure without causing unnecessary pain, suffering, or distress to the chicks.

(Unless otherwise stated, "chicks" as referred to in this section applies to both chicks and poults.)

1.1 Handling of neonatal chicks

1.1.1 Removal of the chicks from hatching trays (including those rejected for marketing) should not be done by tipping the trays. Hatching trays with live chicks should be moved smoothly and only in a level position. They should not be thrown or dropped. Precautions should be taken to prevent chicks from falling off the hatching trays onto the floor.

1.1.2 Chicks should never be squeezed, except for the purpose of excreta ejection during sexing by vent examination. When chicks are lifted up, individually or in groups, their bodies should be supported. Lifting by the head is unacceptable. When chicks are held for vaccination, treatment, banding, and other procedures the hand or mechanical device used should hold the chicks with care. Chicks being released should not be placed or dropped from a distance or in a way that is likely to cause injury. Flexible rubber or soft padding can be used to cushion the impact.

1.2 Vaccination of neonatal chicks

1.2.1 Vaccination programs must follow accepted veterinary practice. Persons conducting such procedures must be competent.

1.3 Elective surgery for morphological alterations

1.3.1 Elective surgery for morphological alterations such as beak trimming, dubbing, removal of distal parts of the toes, and de-snooding should be avoided, except when it is necessary to prevent either self-inflicted injury or injury to others in later stages.

1.3.2 Any such procedure should be performed only by competent persons. Generally, the timing of any of the above procedures should correspond as closely as possible with the shortest recovery period.

1.4 Identification devices attached to chickens

1.4.1 Wing banding should be conducted by competent persons.

1.4.2 Identification devices that are permanently or temporarily attached to the chickens' bodies must be lightweight and safe to both the identified chicken and to other chickens in the flock.

1.5 Euthanasia and disposal of nonsalable chicks

1.5.1 Live chicks that are to be disposed of must be handled in a manner comparable to the handling of salable chicks.

1.5.2 In all circumstances the planned termination of life must be humane and must be done in a manner that produces total and irreversible loss of consciousness, with a minimum level of distress to the chicks and to the person performing euthanasia.

1.5.3 High-speed maceration of chicks is a practical and humane method of euthanasia. When properly designed macerators are used, death occurs almost instantaneously. In addition, the method is safe for workers.

1.5.4 Chicks must be delivered to the macerator in a way that prevents a backlog of chicks at the point of entry into the macerator and without causing injury or avoidable distress to the chicks before maceration.

1.5.5 All macerators must be designed and operated to ensure immediate and complete destruction of every chick.

1.5.6 Carbon dioxide has been found to be a suitable agent for euthanasia of unwanted chicks. High concentrations of carbon dioxide are required because day-old chicks are relatively resistant to the gas.

1.5.7 Containers or chambers used to euthanize chicks must contain 60–70% carbon dioxide before chicks are introduced.

1.5.8 Chicks must be put into the containers or chambers loosely to allow penetration of the gas.

1.5.9 Containers or chambers must be designed to allow continual refilling with carbon dioxide to maintain correct levels of the gas.

1.5.10 Carbon dioxide must be heated to room temperature before it is introduced into containers or chambers. Special heaters are available for that purpose.

1.5.11 Chicks must be exposed to carbon dioxide for enough time to cause death or a state of unconsciousness that does not permit recovery.

1.5.12 In the design and operation of equipment using this method of chick euthanasia, it is essential that operator safety be duly considered.

1.5.13 Decapitation or cervical dislocation, although humane when performed by trained and competent personnel, are not practical methods in commercial operations.

1.5.14 Carbon monoxide gas and electrocution, although humane when performed by trained and competent personnel in an appropriate setting, are not recommended for reasons of human safety.

1.5.15 Other methods of euthanasia may be considered, but regardless of which method is chosen, it must meet the criteria for euthanasia established in sections 1.5.1 and 1.5.2, and must allow for the pre-euthanasia handling of chicks without causing undue panic, pain, or distress.

1.5.16 Death by drowning, suffocation by piling chicks in disposal containers, chloroform, ether, cyanide, thermal exhaustion, or any other method resulting in an inhumane death are not acceptable.

1.6 Euthanasia and disposal of unhatched embryos

1.6.1 Attention to the humane disposal of unhatched embryos must be a high priority of the hatchery. All unhatched embryos must be dead before disposal. The processing of unhatched embryos for disposal should be carried out without undue delay.

1.6.2 High-speed maceration is a practical, humane method of euthanizing a large number of unhatched embryos. (See sections 1.5.5–1.5.7.)

1.6.3 Rapid cooling and freezing are acceptable ways of euthanizing unhatched embryos. The length of exposure to cold varies, depending on the size and capacity of the freezer and the number of embryos being introduced.

1.6.4 Crushing of unhatched embryos is acceptable, providing that all unhatched embryos placed in the crusher, mechanically or vacuum operated, are crushed instantly and totally.

1.7 Transportation of neonatal chicks

1.7.1 Chicks held at a hatchery must be provided with an appropriate environment and should not be held longer than 48 h from time of hatch.

1.7.2 Delivery boxes should have clean, dry excelsior floor pads or absorbent mats and should allow efficient ventilation. Transportation of delivery boxes containing live chicks should be conducted in environmentally controlled vehicles.

1.7.3 Outside temperature and duration of transport should be considered when determining the optimum density of chicks in the delivery boxes. The area of box floor space should not be less than 21 cm^2 (3 $in.^2$) per chick. The maximum group size for a single compartment should be approximately 100 chicks.

1.7.4 Boxes with live chicks should not be tilted more than 20° from horizontal at any stage of loading and unloading. Boxes should always be moved smoothly and never be thrown or dropped.

1.7.5 Transportation from hatcheries to growing premises should be initiated properly. Although healthy neonatal chicks are capable of fasting, the transporting process should be swift and should not extend beyond 48 h.

1.7.6 When boxes with live chicks are stacked, attention should be paid to temperature, ventilation, and spacing.

1.7.7 If, during transportation, boxes are to be transferred between vehicles, the change in environment should be minimized.

1.7.8 During all stages of handling and transportation, chicks should not be subjected to excessive, stressful, or harmful noise.

Section 2. Production of table and hatching eggs

Research reports and experience of successful producers indicate that a high standard of bird care is a basic requirement if egg production is to achieve its full potential. High standards of bird care, however, have to encompass both the metabolic needs of a particular species and other factors that evidently contribute to the well-being of animals.

The housing of laying hens in cages is currently the most widely accepted confinement system used by producers of table eggs in Canada. Although this system is receiving most of the criticism for failing to meet all the defined acceptable standards of animal welfare, it may provide more advantages to bird health than other systems.

Nevertheless, there remains a need for research and development of housing systems that consider bird well-being, particularly with reference to concerns about restricted movement and lack of outlet for natural behavior.

Further basic and applied research is required to provide factual data on space requirements per bird; stocking density; and size, configuration, and construction of cages and other confinement systems. Such research should consider economic, production, health, thermal, and behavioral factors and should provide a basis for recommendations on optimum confinement of poultry under Canadian conditions.

2.1 Receiving of neonatal chicks on the premises

2.1.1 Housing facilities should be prepared to receive the chickens at the time of their arrival. The brooding area should be cleaned and disinfected, and the heating equipment should be operating at the level necessary to maintain an environmental temperature suitable for neonatal chicks.

2.1.2 Boxes of live chicks should always be handled in a level position and never thrown. Chicks should not be removed by dumping the box. The chicks can be removed by tilting the box slightly and pushing them out carefully or by inclining the box slowly and then withdrawing it from under them with a smooth, swift movement. When removed by hand (with the hands forming a scoop) the chicks must not be squeezed. They should not be dropped more than 15 cm (6 in.) on a hard floor or 30 cm (12 in.) on a soft floor.

2.1.3 Proper attention should be given to prevent chicks from crowding or piling on top of each other in the corners of floor pens.

2.2 Housing

2.2.1 Light intensity for the first 3 days of life should not be less than 20 lux (2 foot candles) to encourage chicks to start eating normally. Thereafter, light intensity in pens should provide adequate illumination for normal feed and water intake and normal activity.

2.2.2 The heating and ventilating systems should be able to maintain the recommended temperature with reasonable accuracy in order to prevent either overheating or chilling of the chicks.

Depending on the type of housing used, brooding temperature on the first day of life should range from 28 to 32°C (82–90°F) at the eye level of the chicks. Thereafter, the temperature should be lowered by 2–3°C (4–6°F) each week, down to approximately 21°C (70°F) at the age of 6 weeks, and thereafter preferably maintained relatively steady within the range of 10–27°C (50–80°F). Various strains of chickens can vary in their optimum temperature requirements. For this reason, the behavior of chickens in a pen or brooding cage can be used as a reliable indicator of thermal comfort. The crowding of chickens outside the perimeter of the heating zone usually indicates too high a temperature and, conversely, the gathering of chickens in close proximity to the heat source usually indicates too low an environmental temperature. A temperature close to optimal is present when the chickens are evenly distributed throughout the whole brooder area. Other behavioral signs that indicate too high a temperature are the occurrence of pasty excreta on the cloacal area, frequent spreading of the wings, frequent wing flapping, and panting. Signs of low environmental temperature include feather ruffling, rigid posture, trembling, huddling, distress vocalization, and piling on top of each other.

2.2.3 Chicken buildings should be capable of maintaining an adequate microclimate (as related to vapor condensation, dust level, ammonia, and carbon dioxide) over normal weather fluctuations in a given locality.

2.2.4 Chickens of all age groups should be protected against drafts or cold areas in the pen.

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

2.2.6 Chickens raised in floor pens should be provided with the following minimum feed and water space (Tables 1 and 2), and bird density should not exceed the following recommended maximum.

Feed and water space for broiler breeders should be the same as for light breeds until feed restriction begins. At this point, feeder space must be increased and progressively maintained so that all birds are able to feed simultaneously. A minimum of 10 cm (4 in.) per bird is recommended. For waterers, a space of 2.5 cm (1 in.) is recommended for broiler breeders from 6 to 20 weeks and 4.0 cm (1.6 in.) for adults.

Table 1 Light breeds (White Leghorn type)

Age	Weight (max)		Floor space: birds per		Floor space: per bird		Feed trough		Water trough	
(weeks)	g	lb	m^2	ft^2	m^2	ft^2	cm	in.	cm	in.
0–6	500	1.0	20	1.0	0.05	0.5	2.5	1.0	1.0	0.4
6–20	1400	3.0	7	0.75	0.14	1.5	7.5	3.0	2.0	0.8
mature	1800	4.0	5	0.5	0.2	2.0	10.0	4.0	4.0	1.6

Note: For heavier egg-type chickens, such as the brown-egg varieties, the above space allowances should be increased by 20%.

Table 2 Broiler breeders

Age (weeks)	Weight		Floor space: Litter		Floor space: 1/2–2/3 slat or wire flooring	
	g	lb	m^2	ft^2	m^2	ft^2
0–6	750	1.6	0.047	0.5	n/a	n/a
6–14	1600	3.6	0.116	1.25	n/a	n/a
14–20	2300	5.0	0.149	1.60	n/a	n/a
Mature	3600+	8.0+	0.186	2.0	0.167	1.8

Note: Dwarf broiler breeders may be allocated 20% less than the above space.

In assessing feeder space, it can be assumed that birds feed at both sides of open-trough feeders, i.e., one unit length of trough provides two units of feeder space. Round (tube or pan) feeders can replace open troughs, with each unit of diameter equaling 1.5 units of double-sided open-trough or chain feeder. For example, one pan feeder that is 40 cm (16 in.) in diameter provides the same feed space as 60 cm (24 in.) of chain feeder.

Water fountains, cups, or nipples are frequently used instead of open troughs. Chicks require two 4-L (1 gal) fountains or similar appliances for every 100 chicks. Up to 50 birds per cup, or 20 per nipple, is a suitable level for chicks, with the allocation of waterers progressively increased, so that at 20 weeks there are 25 birds per cup, or 10 per nipple. One bell-type fountain may be used for every 100 adult birds.

Nesting space should be provided to accommodate hens without crowding. Twenty individual nests are required for every 100 hens, and allocations of community or roll-away nests should be based on the behavior and comfort of the birds. Flocks with inadequate nesting space will lay excessive numbers of eggs on the floor, with a consequent loss of quality, cleanliness, and potential value.

2.2.7 Caution must be exercised in choosing any materials used in the pen to which the chickens have access. Such materials should not contain compounds that are harmful.

2.2.8 To prevent hysteria in chickens, the base of nest boxes and the roosts should not be more than 50 cm (20 in.) above the floor. If this is not possible, then access ramps or roosts should be provided.

Chickens housed in cages

2.2.9 The cage environment (Table 3) provides protection from predators, from the social effects of large groups, and from the extremes of the outside environment. It also provides reliable access to feed and water. Birds are separated from their own excreta, thus eliminating the possibility of many diseases and parasitic infestations.

Space requirements increase as the birds approach their mature weight, and allowance must be made for this in providing cage, feed trough, and watering allocations. The following recommendations apply to laying birds housed in multiple bird cages (three or more adults).

Table 3 Chickens housed in cages

Age (weeks)	Maximum body weight		Cage floor (area/bird)		Feed trough (length/bird)		Water (birds/ cup or nipple)
	lb	g	in.^{2}	cm^2	in.	cm	
0–8	1.4	650	34	220	1	2.5	15
8–16	2.6	1200	40	260	2	5	10
16–20	3.2	1450	47	300	3	8	6
20–adult	4.0	1800	64	410	4	10	4
20–adult	4.8	2200	70	450	4	10	4

Cage sizes for other weights may be determined by extrapolation.

Where only one or two adult birds occupy a single cage, larger dimensions must apply. Less than 20 cm wide × 40 cm deep (8 in. × 16 in.) is unacceptable for a single bird; for two birds, 30 cm wide × 40 cm deep (12 in. × 16 in.) should be regarded as the minimum size. Colony sizes greater than seven adult birds are not recommended.

Considerable research has shown that space allowances less than those quoted result in increased mortality and lower rates of egg production. Conversely, allowing more floor and feeder space may permit higher rates of production.

2.2.10 Cages should be designed to provide the chickens with a safe and comfortable environment. Cage height should permit standing chickens free head movement anywhere in a cage. The cage doors should be designed for easy insertion and removal of chickens. Cage doors for breeding stock should be large enough for manipulation of the chickens during artificial insemination. A cage floor that causes injuries or deformities to the chickens' toes during any period of the production cycle is considered unacceptable.

2.2.11 Proper building design and accessibility, as well as placement and appropriate use of cages and equipment, will greatly improve the humane handling of birds. Therefore, owners and managers of a caged-bird operation should ensure that

- cage doors are wide enough and door openings are free from protrusions, permitting the removal of birds without causing injury (doors should not be less than 20 cm (8 in.) wide and 25 cm (10 in.) high); and

- cage depth does not exceed 75 cm (30 in.).

2.3 Feed and water

2.3.1 In normal circumstances, all chickens should have access to water at all times. Drinking water must be fresh and should originate from an uncontaminated source. When pen temperature is over 26, 28, or 30°C (79, 82, 86°F), any interruption of water supply should not exceed 12, 6, or 2 h, respectively. The temperature of the drinking water should not exceed 30°C (86°F).

2.3.2 In normal circumstances, all chickens should receive feed on a regular, daily basis. When feeding restriction is necessary, any interruption of feed only should not exceed 48 h. The diet must not contain ingredients that can cause illness or suffering. The producer must be prepared to replace immediately a diet proved harmful to the chickens or to marketed products.

2.3.3 Chicken facilities must be equipped to prevent death caused by starvation or dehydration when normal supplies of feed or water are interrupted in emergency situations.

2.3.4 When controlled restriction of feed or water is applied, the available feeding and watering space should be increased according to the degree of restriction. Whenever the amount of feed provided is restricted to less than 75% of the average ad libitum intake, space allowances should permit all the chickens to feed at the same time. Increasing feed and water space in such cases prevents severe social competition or aggression.

2.3.5 Restrictions longer than those described in sections 2.3.1 and 2.3.2 should be avoided, except in the case of controlled molting. As a general rule, molting programs should aim at a loss in body weight not exceeding 30% of the initial, premolt weight. Some increased mortality will result from the molting procedure, but if mortality reaches 3% in 14 days, the program should be terminated or modified to avoid further losses. Chickens that have not been in good health or did not produce at a high rate during the laying cycle should not be considered for controlled molting.

2.4 Attendants

2.4.1 Persons working with chickens must understand and accept their responsibility to prevent any form of avoidable suffering. Before they are assigned their duties, workers should be adequately instructed and proved knowledgeable of the basic needs of the chickens entrusted to their care. Attendants should be able to recognize obvious behavioral signs that indicate health problems and discomfort.

2.4.2 To minimize excitement of the chickens, attendants working with the same groups of chickens should wear clothing of uniform appearance during the whole production cycle. Activities of attendants should be consistent and performed according to a schedule. Movement of people and equipment within the pens should be quiet and smooth. Pen alterations should be avoided during the production cycle.

2.4.3 It is highly recommended that workers, before entering a pen, give an easily perceptible signal to the chickens to prevent their being startled. This practice is particuarly important when the light intensity or noise is greater outside the pen than inside. (One of the simplest signals, to which chickens can become easily conditioned, is a consistent number of distinct knocks on the door just before entry.)

2.4.4 Movement of equipment and personnel between buildings should be minimized, but if it is unavoidable, precautions should be taken to maintain sanitary conditions. On premises where strict sanitary measures (complete change of clothing after a shower) are not enforced, employees should generally avoid contact with poultry stock from other premises.

2.4.5 Admittance of visitors into the pen should be kept to a minimum. However, if their entry is necessary, they should wear clothes that match those worn by the attendants. Visitors must talk and move quietly.

2.5 Supervision and protection of chickens

2.5.1 Chicken flocks should be observed at least twice each day. The physical arrangement of a chicken pen should permit easy inspection of all chickens. This is particularly important when one attendant is responsible for a large number of chickens.

2.5.2 Sick or injured chickens must be promptly treated or killed humanely. Financial costs should not be a reason for delaying medical treatment or neglecting injured chickens. Dead chickens must be removed immediately and disposed of in an appropriate manner or according to regulations as they may apply.

2.5.3 Attendants should periodically check the chickens for external and internal parasites. If parasites are detected, corrective treatment must be administered as soon as possible. Parasites can be detected by examination of a random sample of chickens from various parts of a pen, by attention to behavioral signs that indicate the presence of parasites, by attention to excreta, or by postmortem examination of chickens suspected of infestation.

2.5.4 Live chickens with clinical signs suggesting disease or flocks with abnormal mortality rates should be submitted to a veterinarian or diagnostic laboratory for diagnosis and recommendations for treatment. Confirmation or suspicion of a reportable disease must be brought immediately to the notice of an Agriculture Canada veterinarian.

2.5.5 Mechanical devices, especially those associated with a life-supporting system, should be inspected daily. Chicken premises should have an emergency plan, and every attendant should be familiar with it. Chicken facilities should also have arrangements for immediate repair of defective mechanisms by their own staff or by service persons under contract.

2.5.6 Chickens should be protected from other animals. This protection should prevent both direct and visual contact with animals that cause fear in chickens.

2.5.7 Precautions should be taken to minimize the presence of wild birds inside and around chicken buildings, as they may be carriers of infectious diseases.

2.5.8 Rodent control on chicken premises should be a continuing practice using appropriate, humane methods.

2.6 Cleaning of chicken pens

2.6.1 Chicken pens should be cleaned periodically. The length of time between cleaning depends on the type of housing facilities, pen arrangement, ventilation system, and other factors that affect air quality in the pen. However, under all circumstances, piled excreta below raised floors or cages must be out of the chickens' reach.

2.6.2 Litter quality in floor pens should be monitored daily. If the quality is inadequate (i.e., too wet or too dry), corrective measures should be taken promptly.

2.6.3 Chicken pens should be cleaned between each flock. Before pens are restocked, litter or droppings should be removed and pens and equipment cleaned and disinfected.

2.6.4 The concentration of ammonia in the air should not exceed 25 ppm as a maximum level, in order to maintain an adequate level of air quality. At this level, discomfort to attendants is generally evident. If the concentration is found to exceed this limit, corrective measures should be taken immediately.

2.7 Handling of chickens

2.7.1 Handling can be stressful to chickens if conducted improperly. When chickens are being held, they should be in a comfortable body position. Broiler breeders over 14 weeks of age should be carried either by both legs or both wings. Holding or carrying time in a vertical position with the head down should be avoided, and all movements with chickens should be smooth.

2.7.2 In floor pens, chickens with adequate feathering on their wings can be released from a short height provided they can land normally, feet first. Release that requires "flying" can excite or even panic other chickens in the pen and must be avoided. The recommended method of release is to set the chickens on the floor, preferably on their feet.

2.7.3 If possible, caged chickens should be inserted through cage doors head first and should be removed from the cage feet first, by both legs. They should never be handled by the head, neck, or one wing alone.

2.8 Social environment

2.8.1 The formation of a social hierarchy in a small group of chickens is normally associated with a temporary increase in aggressive behavior as individuals compete to determine their position in the hierarchy. To minimize readjustments in the hierarchy once formed, avoid movement of chickens between groups as much as possible. In large flocks, avoid disruptions that result in extensive movement of individuals around the pen.

2.8.2 An elevated level of social aggression can occur when chickens are forced to compete for inadequate resources. To avoid this, make sure that the chickens are provided with sufficient feeding and watering space, an adequate and predictable supply of feed and water, and an adequate number of nest boxes and roosts.

2.8.3 In breeding flocks, ensure an appropriate male-to-female ratio to avoid excessive fighting among males and injury to females.

2.8.4 Feather pecking can be a problem in chicken flocks, especially if it develops into cannibalism. The underlying cause of this behavior is poorly understood, but it is thought to be a form of redirected feed-searching behavior. Feather pecking can be reduced by increasing feed availability, reducing group size, adding litter, and providing distractants such as straw bales. Make sure that the diet is nutritionally balanced. In some cases, beak trimming may be necessary to control feather pecking.

Section 3. Broiler and roaster production

Research reports and experience of successful producers indicate that a high standard of bird care is a basic requirement if poultry production is to achieve its full potential. High standards of bird care, however, have to encompass both the metabolic needs of a particular species and other factors that evidently contribute to the well-being of animals.

3.1 Receiving of neonatal chicks on the premises

3.1.1 Housing facilities should be prepared to receive the chicks at the time of their arrival. The brooding area should be cleaned and disinfected, and the heating equipment should be operating at the level necessary to maintain an environmental temperature suitable for neonatal chicks.

3.1.2 Boxes of live chicks should always be handled in a level position and never thrown. Chicks should not be removed by dumping the box. The chicks can be removed by tilting the box slightly and pushing them out carefully or by inclining the box slowly and then withdrawing it from under them with a smooth, swift movement. When removed by hand (with the hands forming a scoop) the chicks must not be squeezed. They should not be dropped more than 15 cm (6 in.) on a hard floor or 30 cm (12 in.) on a soft floor.

3.1.3 Proper attention should be given to prevent chicks from crowding or piling on top of each other in the corners of floor pens.

3.2 Housing

3.2.1 Light intensity for the first 3 days of life should not be less than 20 lux (2 foot candles) to encourage chicks to start eating normally. Thereafter, light intensity in the pens should provide adequate illumination for normal feed and water intake and normal activity.

3.2.2 The heating and ventilating systems should be able to maintain the recommended temperature with reasonable accuracy in order to prevent either overheating or chilling of the chicks.

Depending on the type of housing used, brooding temperature on the first day of life should range from 28 to 32°C (82–90°F) at the eye level of the chicks. Thereafter, the temperature should be lowered by 2–3°C (4–6°F) each week, down to approximately 21°C (70°F) at the age of 6 weeks, and thereafter preferably maintained relatively steady within the range of 10–27°C (50–80°F). Various strains of chickens can vary in their optimum temperature requirements. For this reason, the behavior of chickens can be used as a reliable indicator of thermal comfort. The crowding of chickens outside the perimeter of the heating zone usually indicates too high a temperature and, conversely, the gathering of chickens in close proximity to the heat source usually indicates too low an environmental temperature. A temperature close to optimal is present when the chickens are evenly distributed throughout the whole brooder area. Other behavioral signs that indicate too high a temperature are the occurrence of pasty excreta on the cloacal area, frequent spreading of the wings, frequent wing flapping, and panting. Signs of low environmental temperature include feather ruffling, rigid posture, trembling, huddling, distress vocalization, and piling on top of each other.

3.2.3 Chicken buildings should be capable of maintaining an adequate microclimate (as related to relative humidity, dust level, ammonia, and carbon dioxide) over normal weather fluctuations in a given locality.

3.2.4 Chickens of all age groups should be protected against drafts or cold areas in the pen.

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

3.2.6 Broilers and roasters should be provided with the following minimum feed and water space (Table 4), and bird density should not exceed the following recommended maximum.

In assessing feeder space, it can be assumed that birds feed at both sides of open-trough feeders, i.e., one unit of length of trough. Where water fountains, cups, or nipples are used instead of open troughs, up to 50 birds per cup or 20 birds per nipple for chicks, decreasing to 25 birds per cup or 15 birds per nipple, should be considered.

3.2.7 Caution must be exercised in choosing any materials to which the chickens have access. Such materials should not contain harmful compounds.

Table 4 Feed and water space*

Containers	Bird density
Feeders	
pans	70 birds per pan
troughs	5 cm (2 in.) per bird
Waterers	
troughs	2.5 cm (1 in.) per bird
red drinkers	1 per 120 birds
nipples	5–20 birds per nipple

* Maximum weight per unit of floor space: 31 kg/m^2 (6.28 lb/ft^2).

3.2.8 Broilers in Canada are not reared in cages. If cages are being considered as an option, they should be designed to provide the birds with a safe and comfortable environment. The shape of the cages should permit free head movement of standing birds anywhere in the cage. The cage doors should be designed for easy insertion and removal of birds. A cage floor that causes injuries or deformities to the birds' legs, feet, and toes during any period of the production cycle is considered unacceptable.

3.3 Feed and water

3.3.1 In normal circumstances, all chickens should have access to water at all times. Drinking water must be fresh and should originate from an uncontaminated source. When pen temperature is over 26, 28, or 30°C (80, 84, or 86°F), any interruption of water supply should not exceed 12, 6 or 2 h, respectively. The temperature of drinking water should not exceed 30°C (86°F).

3.3.2 In normal circumstances, all chickens should receive feed on a regular, daily basis. When feeding restriction is necessary, any interuption of feed only should not exceed 48 h. The diet must not contain ingredients that can cause illness or suffering. The producer must be prepared to replace immediately any diet proved harmful to the chickens or to marketed products.

3.3.3 Chicken facilities must be equipped to prevent death caused by starvation or dehydration when normal supplies of feed or water are interrupted in emergency situations.

3.4 Attendants

3.4.1 Persons working with chickens must understand and accept their responsibility to prevent any form of avoidable suffering. Before they are assigned their duties, workers should be adequately instructed and proved knowledgeable of the basic needs of the chickens entrusted to their care. Attendants should be able to recognize obvious behavioral signs that indicate health problems and discomfort.

3.4.2 To minimize excitement of the chickens, attendants working with the same groups of chickens should wear clothing of uniform appearance during the whole production cycle. Activities of attendants should be consistent and performed according to a schedule. Movement of people and equipment within the pens should be quiet and smooth. Pen alterations should be undertaken when buildings are empty.

3.4.3 It is highly recommended that workers, before entering a pen, give an easily perceptible signal to the chickens to prevent their being startled. This practice is particularly important when the light intensity or noise is greater outside the pen than inside. (One of the simplest signals, to which chickens can become easily conditioned, is a consistent number of distinct knocks on the door just before entry.)

3.4.4 Movement of equipment and personnel between buildings should be minimized, but if it is unavoidable, precautions should be taken to maintain sanitary conditions. On premises where strict sanitary measures (complete change of clothing after a shower) are not enforced, employees should generally avoid contact with poultry stock from other premises.

3.4.5 Admittance of visitors into the pen should be kept to a minimum. However, if their entry is necessary, they should wear clothes that match those worn by the attendants. Visitors must talk and move quietly.

3.5 Supervision and protection of chickens

3.5.1 Chicken flocks should be observed at least twice a day. The physical arrangement of a chicken pen should permit easy inspection of all chickens. This is particularly important when one attendant is responsible for a large number of chickens.

3.5.2 Sick or injured chickens must be promptly treated or killed humanely. Financial costs should not be a reason for delaying medical treatment or neglecting injured chickens. Dead chickens must be removed immediately and disposed of in an appropriate manner or according to regulations as they may apply.

3.5.3 Attendants should periodically check the chickens for external and internal parasites. If parasites are detected, corrective treatment must be administered as soon as possible. Parasites can be detected by examination of a random sample of chickens from various parts of a pen, by attention to behavioral signs that indicate the presence of parasites, by attention to excreta, or by postmortem examination of chickens suspected of infestation.

3.5.4 Live chickens with clinical signs suggesting disease or flocks with abnormal mortality rates should be submitted to a veterinarian or diagnostic laboratory for diagnosis and recommendations for treatment. Confirmation or suspicion of a reportable disease must be brought immediately to the notice of an Agriculture Canada veterinarian.

3.5.5 Mechanical devices, especially those associated with a life-supporting system, should be inspected daily. Chicken premises should have an emergency plan, and every attendant should be familiar with it. Chicken facilities should also have arrangements for immediate repair of defective mechanisms by their own staff or by service persons under contract.

3.5.6 Chickens should be protected from other animals. This protection should prevent both direct and visual contact with animals that cause fear in chickens.

3.5.7 Precautions should be taken to minimize the presence of wild birds inside and around chicken buildings, as they may be carriers of infectious diseases.

3.5.8 Rodent control on chicken premises should be a continuing practice using appropriate, humane methods.

3.6 Cleaning of chicken pens

3.6.1 Chicken pens should be cleaned between each flock. Before pens are restocked, litter or droppings should be removed and pens and equipment cleaned and disinfected.

3.6.2 Litter quality in floor pens should be monitored daily. If the quality is inadequate (that is, too wet or too dry), corrective measures should be taken promptly.

3.6.3 The concentration of ammonia in the air should not exceed 25 ppm as a maximum level, in order to maintain an adequate level of air quality. At this level, discomfort to attendants is generally evident. If the concentration is found to exceed this limit, corrective measures should be taken immediately.

3.7 Handling of chickens

3.7.1 Handling can be stressful to chickens if conducted improperly. When chickens are being held they should be in a comfortable body position. Roasters should be carried by both legs. Holding or carrying time in a vertical position with the head down should be avoided, and all movements with chickens should be smooth.

3.7.2 In floor pens, chickens with adequate feathering on their wings can be released from a short height provided they can land normally, feet first. Release that requires "flying" can excite or even panic other chickens in the pen and must be avoided. The recommended method of release is to set the chickens on the floor, preferably on their feet.

3.8 Social environment

3.8.1 The formation of a social hierarchy in a small group of chickens is normally associated with a temporary increase in aggressive behavior as individuals compete to determine their position in the hierarchy. To minimize readjustments in the hierarchy once formed, avoid movement of chickens between groups as much as possible. In large flocks, avoid disturbances that result in extensive movement of individuals around the pen.

3.8.2 An elevated level of aggression can occur when chickens are forced to compete for inadequate resources. To avoid this, make sure that the chickens are provided with enough feeding and watering space, an adequate and predictable supply of feed and water, and an adequate number of nest boxes and roosts.

3.8.3 In breeding flocks, ensure an appropriate male-to-female ratio to avoid excessive fighting among males and injury to females.

3.8.4 Feather pecking can be a problem in chicken flocks, especially if it develops into cannibalism. The underlying cause of this behavior is poorly understood, but it is thought to be a form of redirected feed-searching behavior. Feather pecking can be reduced by increasing feed availability, reducing group size, adding litter, and providing distractants such as straw bales. Make sure that the diet is nutritionally balanced. In some cases, beak trimming may be necessary to control feather pecking.

Section 4. Turkey production

The successful breeding and production of turkeys depends on a high standard of bird husbandry that provides not only the essentials of life but also those elements that contribute to the well-being of the birds.

4.1 Receiving of neonatal poults on the premises

4.1.1 Housing facilities should be prepared to receive the poults at the time of their arrival. The brooding area should be cleaned and disinfected, and the heating equipment should be operating at the level necessary to maintain an environmental temperature suitable for neonatal poults.

4.1.2 Boxes of live poults should always be handled in a level position and never thrown. Poults should not be removed by dumping the box. The poults can be removed by tilting the box slightly and pushing them out carefully or by inclining the box slowly and then withdrawing it from under them with a smooth, swift movement. When removed by hand (with the hands forming a scoop) the poults must not be squeezed. They should not be dropped more than 15 cm (6 in.) on a hard floor or 30 cm (12 in.) on a soft floor.

4.1.3 Proper attention should be given to prevent poults from crowding or piling on top of each other in the corners of floor pens.

4.2 Housing

4.2.1 Light intensity for the first 3 days of life should not be less than 50 lux (5 foot candles) to encourage poults to start eating normally. Thereafter, light intensity in the pens should provide adequate illumination for normal food and water intake and normal activity. For turkeys older than 3 weeks of age, in order to avoid panic and pileup during power failures, there should be a period of uninterrupted darkness in each 24-h cycle.

4.2.2 The heating and ventilating systems should be able to maintain the recommended temperature with reasonable accuracy in order to prevent either overheating or chilling of the turkeys.

Depending on the type of housing, brooding temperature on the first day of life should range from 32°C to 35°C (90–95°F) at the eye level of the poults. Thereafter the temperature should be lowered 2–3°C (4–6°F) per week down to approximately 21°C (70°F) at the age of 6 weeks, and thereafter preferably maintained relatively steady within the range of 10–24°C (50–75°F). Various strains of turkeys can vary in their optimal temperature requirements. For this reason, the behavior of turkeys can be used as a reliable indicator of thermal comfort. The crowding of turkeys outside the perimeter of the heating zone usually indicates too high a temperature, and conversely, the gathering of turkeys in close proximity to the heat source usually indicates too low an environmental temperature. A temperature close to optimal is evidenced by the even distribution of turkeys throughout the whole brooder area. Other behavioral signs that indicate high temperature include the occurrence of pasty excreta on the cloacal area, frequent spreading of the wings, frequent wing flapping, and panting. Signs of low environmental temperature include feather ruffling, rigid posture, trembling, huddling, and piling on top of each other.

4.2.3 Turkey buildings should be capable of maintaining an adequate microclimate (as related to relative humidity, dust level, ammonia, and carbon dioxide) over normal weather fluctuations in a given locality.

4.2.4 Turkeys of all age groups should be protected against draft and cold areas in the pen.

4.2.5 Turkeys are grown in total confinement, semiconfinement, or on range. Finished market liveweights for broiler turkeys, heavy hen turkeys, and heavy tom turkeys are approximately 5.0 kg (11.0 lb), 7.5 kg (16.5 lb), and 12.7 kg (28 lb). Because of various rearing practices, and the three different types of turkey grown, the recommendations below should be viewed as guidelines. Variance from these guidelines may be required because of differing husbandry programs, feeding and watering equipment, ventilation systems, lighting programs, litter materials, and breed of turkey.

In a total confinement situation, floor space allotments should be in the order of 0.19 m^2 (2.0 ft^2) per bird for broilers, 0.28 m^2 (3.0 ft^2) per bird for heavy hens, and 0.37 m^2 (4.0 ft^2) per bird for heavy toms. These space allotments equate to a density of 27.7 kg/m^2 (5.5 lb/ft^2) for broilers and heavy hens, and 35.8 kg/m^2 (7 lb/ft^2) for heavy toms. Actual space allotments or densities should be determined considering the above listed variables and growth stage of the turkey. In all cases, turkeys grown in confinement should have enough space to be able to stand normally, turn around, and stretch their wings without difficulty. Extra space is recommended in hot summer weather. Shelters or natural shade are recommended for range production.

4.2.6 Turkey feeding equipment includes a variety of sizes of hanging tube feeders, automatic troughs, and high-capacity tanks. Water is provided through bell-type waterers, automatic troughs, and range bowls. Actual feeding and drinking space per bird depends on the factors outlined above, including the growth stage of the turkey, as well as on the equipment design and size. Space allotment for feeding and drinking must be sufficient to allow the birds ease of access. Additional waterers should be provided during hot weather, when consumption can increase significantly.

4.2.7 Caution must be exercised in choosing any materials to which the turkeys have access. Such materials should not contain harmful compounds.

4.2.8 The base of nest boxes and roosts should not be more than 60 cm (24 in.) above the floor. If this is not possible, access ramps or roosts should be provided.

4.3 Feed and water

4.3.1 In normal circumstances, all turkeys should have access to water at all times. Drinking water must be fresh and should originate from an uncontaminated source. When pen temperature is over 26, 28, or 30°C (80, 84, or 86°F), any interruption of water supply should not exceed 12, 6, or 2 h, respectively. The temperature of drinking water should not exceed 30°C (86°F).

4.3.2 In normal circumstances, all turkeys should receive feed on a regular, daily basis. When feeding restriction is necessary, any interruption of feed should not exceed 48 h. The diet must not contain any ingredients than can cause illness or suffering. The producer must be prepared to replace immediately any diet proved harmful to the turkeys or to marketed products.

4.3.3 Turkey facilities must be equipped to prevent death from starvation or dehydration when normal supplies of feed or water are interrupted in emergency situations.

4.3.4 When controlled restriction of feed or water is applied, the available feeding and watering space should be increased according to the degree of restriction. Whenever the amount of feed provided is restricted to less than 75% of the average ad libitum intake, space allowances should permit all the turkeys to feed at the same time. Increasing feed and water space in such cases prevents severe social competition or aggression.

4.3.5 Restrictions longer than those described in sections 4.3.1 and 4.3.2 should be avoided, except in the case of controlled molting. As a general rule, controlled-molting programs that cause mortality above 3% in 14 days should be terminated or modified to prevent further losses. Turkeys that have not been in good health or did not produce at a high rate during the laying cycle should not be considered for controlled molting.

4.4 Attendants

4.4.1 Persons working with turkeys must understand and accept their responsibility to prevent any form of avoidable suffering. Before they are assigned their duties, workers should be adequately instructed and proved knowledgeable of the basic needs of the turkeys entrusted to their care. Attendants should be able to recognize obvious behavioral signs that indicate health problems and discomfort.

4.4.2 To minimize excitement of the turkeys, attendants working with the same groups of turkeys should wear clothing of uniform appearance during the whole production cycle. Activities of attendants should be consistent and should be performed according to a schedule. Movement of people and equipment within the pens should be quiet and smooth. Pen alterations should be avoided during the production cycle.

4.4.3 It is highly recommended that workers, before entering the pen, give an easily perceptible signal to the turkeys to prevent their being startled. This practice is particularly important when the light intensity or noise is greater outside the pen than inside. (One of the simplest signals, to which turkeys can become easily conditioned, is a consistent number of distinct knocks on the door just before entry.)

4.4.4 Movement of equipment and personnel between buildings should be minimized, but if it is unavoidable, precautions should be taken to maintain sanitary conditions. On premises where strict sanitary measures (complete change of clothing after a shower) are not enforced, employees should generally avoid contact with poultry stock from other premises.

4.4.5 Admittance of visitors into the pen should be kept to a minimum. However, if their entry is necessary, they should wear clothes that match those worn by the attendants. Visitors must talk and move quietly.

4.5 Supervision and protection of turkeys

4.5.1 Turkey flocks should be observed at least twice a day. The physical arrangement of a turkey pen should permit easy inspection of all turkeys. This is particularly important when one attendant is responsible for a large number of turkeys.

4.5.2 Sick or injured turkeys must be promptly treated or killed humanely. Financial costs should not be a reason for delaying medical treatment or neglecting injured turkeys. Dead turkeys must be removed immediately and disposed of in an appropriate manner or according to regulations as they may apply.

4.5.3 Attendants should periodically check the turkeys for external and internal parasites. If parasites are detected, corrective treatment must be administered as soon as possible. Parasites can be detected by examination of a random sample of turkeys from various parts of a pen, by attention to behavioral signs that indicate the presence of parasites, by attention to excreta, or by postmortem examination of turkeys suspected of infestation.

4.5.4 Live turkeys with clinical signs suggesting disease or flocks with abnormal mortality rates should be submitted to a veterinarian or diagnostic laboratory for diagnosis and recommendations for treatment. Confirmation or suspicion of a reportable disease must be brought immediately to the notice of an Agriculture Canada veterinarian.

4.5.5 Mechanical devices, especially those associated with a life-supporting system, should be inspected daily. Turkey premises should have an emergency plan, and every attendant should be familiar with it. Turkey facilities should also have arrangements for immediate repair of defective mechanisms by their own staff or by service persons under contract.

4.5.6 Turkeys should be protected from other animals. This protection should prevent both direct and visual contact with animals that cause fear in turkeys.

4.5.7 Precautions should be taken to minimize the presence of wild birds inside and around turkey buildings, as they may be carriers of infectious diseases.

4.5.8 Rodent control on turkey premises should be a continuing practice using appropriate, humane methods.

4.6 Cleaning of turkey pens

4.6.1 Turkey pens should be cleaned between each flock. Before pens are restocked, litter and droppings should be removed and pens and equipment cleaned and disinfected.

4.6.2 Litter quality in floor pens should be monitored daily. If the quality is inadequate (i.e., too wet or too dry), corrective measures should be taken promptly.

4.6.3 The concentration of ammonia in the air should not exceed 25 ppm as a maximum level, in order to maintain an adequate level of air quality. At this level, discomfort to attendants is generally evident. If the concentration is found to exceed this limit, corrective measures should be taken immediately.

4.7 Handling of turkeys

4.7.1 Handling can be stressful to turkeys if conducted improperly. When turkeys are being held they should be in a comfortable body position. Hen and tom breeders should be carried by both legs and one wing. Holding or carrying time in a vertical position with the head down should be avoided, and all movements with turkeys should be smooth.

4.7.2 In floor pens, turkeys with adequate feathering on their wings can be released from a short height provided they can land normally, feet first. Release that requires "flying" can excite or even panic other turkeys in the pen and must be avoided. The recommended method of release is to set the turkeys on the floor, preferably on their feet.

4.7.3 In the case of artificial insemination, high standards of hygiene should be maintained at all stages of the program, and procedures should be performed by competent personnel.

4.8 Social environment

4.8.1 The formation of a social hierarchy in a small group of turkeys is normally associated with a temporary increase in aggressive behavior as individuals compete to determine their position in the hierarchy. To minimize readjustments in the hierarchy once formed, avoid movement of turkeys between groups as much as possible. In large flocks, avoid disturbances that result in extensive movement of individuals around the pen.

4.8.2 An elevated level of aggression can occur when turkeys are forced to compete for inadequate resources. To avoid this, make sure that the turkeys are provided with enough feeding and watering space, an adequate and predictable supply of feed and water, and an adequate number of nest boxes and roosts.

4.8.3 In breeding flocks, ensure an appropriate male-to-female ratio to avoid excessive fighting among males and injury to females.

4.8.4 Feather pecking can be a problem in turkey flocks, especially if it develops into cannibalism. The underlying cause of this behavior is poorly understood but it is thought to be a form of redirected feed-searching behavior. Feather pecking can be reduced by increasing feed availability, reducing group size, adding litter, and providing distractants such as straw bales. Make sure that the diet is nutritionally balanced. In some cases, beak trimming may be necessary to control feather pecking.

Section 5. Handling and transportation of live poultry

These code provisions are intended as a guide for the transportation of poultry. They emphasize the responsibilities of the poultry producer, the catching crew, and the transporter. They are intended to encourage humane, efficient, and considerate treatment of birds so that transport stress and injury are minimized at all stages of handling and transport.

5.1 Facilities for and handling of caged poultry

5.1.1 Owners and operators of poultry operations have a responsibility to provide facilities and equipment that make bird handling, loading, and unloading possible without causing unnecessary injury or suffering to the birds.

5.1.2 Proper building design and accessibility to transport, as well as placement and appropriate use of cages and equipment, greatly improve the humane handling of poultry. Owners and managers of caged poultry operations should therefore ensure the following:

- Appropriate access to loading and unloading areas of poultry houses is provided (see Appendix A).

- Loading and unloading areas and ramps are designed to permit proper bird handling.

- Lights of appropriate brightness are provided in all loading and unloading areas. Ideally, lighting should be adjustable to facilitate both positioning of trucks and loading of the poultry.

- Poultry houses are easily accessible at each end of the cage rows.

- Poultry houses exceeding 100 m (328 ft) in length, in addition to the doors at each end, have side doors located halfway down each side of the building.

- Aisles between cages are not less than 75 cm (30 in.) wide to facilitate unobstructed movement of poultry.

- Cage doors are wide enough to permit the removal of birds without causing injury, and door openings are free from protrusions. Doors should not be less than 20 cm (8 in.) wide and 25 cm high (10 in.).

- Cage depth does not exceed 75 cm (30 in.).

5.2 Facilities for and handling of loose-housed poultry

5.2.1 Proper building design and accessibility to transport vehicles greatly improves the humane handling of loose-housed poultry. Owners and operators should therefore ensure the following:

- Appropriate access to loading and unloading areas of poultry barns is provided (see Appendix A).

- Loading and unloading areas and ramps are designed to permit proper bird handling.

- Building design discourages needless transfer of birds between handlers.

- Building design incorporates a door for every 15 m (49 ft) of building length, and doors on first, second, and third floors are not less than 120 cm wide (48 in.) and not less than 200 cm (78 in.) high.

- When birds have to be handed through floor openings, the openings are not less than 1 m^2 (10 ft^2) for broilers and not less than 1.2 m^2 (13 ft^2) for turkeys, and no obstructions, such as floor joists, hinder the transfer of birds.

- Feeders, drinkers, and heating pipes that are obstructions are lifted to ceiling height or removed before birds are loaded.

- Fans in use immediately adjacent to loading doors are turned off while birds are being loaded.

- When flooding problems occur in buildings, dry bedding is provided to prevent shipping wet birds.

5.3 Catching and loading

5.3.1 All members of catching and transporting crews should be properly instructed on and knowledgeable about the basic aspects of animal welfare and skillful in handling birds.

Proper training and evaluation of personnel is the responsibility of the employer.

5.3.2 It is advisable not to feed birds for 3–6 h before loading.

5.3.3 Careless catching of birds is a common source of injury. Injured birds are particularly susceptible to transportation stress. Not only is this inhumane but it also increases the loss of marketable product.

5.3.4 Piling of birds in corners can cause injury or mortality. Steps must be taken to prevent this from occurring.

The two most common procedures that facilitate easier catching of loose-housed birds are lowering the light intensity in the pen or using blue bulbs to provide adequate illumination for humans but not for poultry; and corraling birds with a net or screen at the loading door.

The most common procedure that facilitates easier catching of cage-housed birds is lowering the light intensity in the barn to provide adequate illumination for humans but not for birds.

Range birds can be loaded more easily by moving them in small groups.

5.3.5 When birds are transported in crates or bins, the design, construction and state of repair should allow the birds to be loaded, conveyed, and removed without injury. Birds should be loaded only into clean transporting crates and clean vehicles.

5.3.6 The crate doors and the panels on liner trucks should be large enough to permit easy passage of birds, thus avoiding injury.

5.3.7 The construction of the crates and bins should provide adequate, uniform ventilation but prevent protrusion of the head, wings, and legs of birds.

5.3.8 When loaded into bins or crates, birds must be positioned to avoid smothering.

5.3.9 The number of birds per crate or bin depends on available floor space, body size of the birds, and prevailing environmental conditions at time of transport. Maximum density per crate or bin should permit all the birds to rest on the floor at the same time if they are evenly distributed.

Birds should be able to move their heads freely when sitting on the floor.

5.3.10 Weather conditions should be considered when determining load densities. For growing and adult birds, the recommended maximum liveweight loading densities for crates and bins in cold weather are as follows:

chickens: 63 kg/m^2 (139 lb/10 ft^2)

broiler turkeys: 98 kg/m^2 (216 lb/10 ft^2)

heavy hens: 98 kg/m^2 (216 lb/10 ft^2)

heavy toms: 98 kg/m^2 (216 lb/10 ft^2)

These maximum values are recommended for winter conditions and should be reduced during summer. On hot summer days, loading of turkeys at midday should be avoided. When temperatures exceed 32°C (90°F), birds should not be loaded unless they are scheduled for same-day delivery.

5.3.11 When birds are being transported in crates or bins, the driver should check the load for loose birds before departing.

5.3.12 Covers should be used to protect birds in crates from wind, rain, and adverse weather conditions.

5.3.13 Whenever possible, birds should be protected from getting wet. During loading they should be protected from sources of heat and steam to minimize the effect of exposure to a sudden drop in temperature.

5.3.14 Eavestroughs should be continuous across loading areas to prevent birds from getting wet during transfer from building to truck.

5.3.15 Birds should not be held in crates or containers for longer than 36 h unless they are provided with food and water.

5.3.16 Ideally, crates with live birds should be moved in a horizontal position. If a conveyor is used for loading crates of live birds, the conveyor angle should prevent tilting of crates that causes birds to pile up. Crates should not be thrown or dropped. They should be moved smoothly during loading, transport, and unloading.

5.3.17 One possible way of alleviating the catching and loading problems, and of avoiding the potential for damage to the birds, is to collect the birds mechanically. A number of mechanical poultry harvesters are currently being developed or marketed. Producers, catchers, and transporters should keep themselves informed on this technology. Only devices proven to be humane should be considered for use in gathering birds.

5.4 Transport

5.4.1 The driver of the vehicle is responsible for the care and welfare of all birds during transport. The driver should take into consideration climatic conditions and should adjust coverings to allow birds to warm up or cool off, as required.

5.4.2 To minimize adverse transportation effects on birds, trucks should proceed immediately after loading, and proper care should be taken during transportation.

Birds in transit should not be required to sit in a parked vehicle for more than 2 h when facilities are unavailable for protection from the weather as, for example, at truck stops and border crossings.

5.4.3 The air temperature in a load of live poultry should be maintained between 5°C (42°F) and 30°C (86°F).

5.4.4 To keep the temperature in the load from dropping below 5°C (42°F) during cold weather, the load may have to be covered with protective material.

5.4.5 During hot weather, the number of birds per crate or bin may have to be reduced in order to keep load temperatures within the acceptable range. When the temperature of the load exceeds 30°C (86°F), the vehicle should not be left stationary for more than 45 min. The vehicle should be driven at a minimum speed of 30 km/h (20 miles/h) for a short distance. When this is not possible, the truck should be kept in shade and an alternative method of air circulation should be provided.

Section 6. Processing plants

The prevention of unnecessary suffering of birds before and during slaughter is required by law. In addition to welfare concerns, improper handling at this stage can seriously impair meat quality, visual appearance, and attractiveness to the consumer.

6.1 Receiving and handling of poultry

6.1.1 Processing plants must make arrangements for the holding and monitoring of birds upon arrival and, while waiting for unloading from transport vehicles, live birds must be protected against adverse weather conditions. When the need occurs, forced-air circulation or other means must be provided to minimize overheating of the birds.

6.1.2 Ideally, crates with live birds should be moved in a horizontal position. If a conveyor is used for unloading crates of live birds, the conveyor angle should prevent tilting of crates that causes birds to pile up. Crates should not be thrown or dropped. They should be moved smoothly during loading, transport, and unloading.

6.1.3 Birds should be removed from the transporting crates or liner trucks with all possible care to avoid injury. The birds should not be lifted by the head, neck, or wings.

6.1.4 Birds that escape during unloading should be caught as soon as possible to prevent injury by a moving truck or other vehicle.

6.1.5 All mechanical devices used for unloading and removing birds from transportation crates must be demonstrated to be humane before they are installed.

6.2 Slaughter of poultry

6.2.1 In preparation for slaughter and during slaughter, birds should not be subjected to any unnecessary suffering and should be hung carefully to avoid injury.

6.2.2 The *Meat Inspection Act and Regulations* permit the following methods for the slaughtering of poultry:

- the application of an electrical current in a manner that causes immediate loss of consciousness and that ensures the birds do not regain consciousness before death;

- electrocution;
- decapitation;
- ritual slaughter in accordance with Jewish or Islamic law.

6.2.3 All poultry-processing plants that are not subject to the *Meat Inspection Act and Regulations* should use only the same methods in accordance with recommendations outlined in the *Meat Hygiene Manual* published by Agriculture Canada.

6.2.4 All instruments used to render birds unconscious and to slaughter them must be of an approved type and at all times must be maintained and functioning in a manner that avoids any unnecessary suffering.

6.2.5 Persons who use instruments to render birds unconscious or to slaughter them must have the appropriate skills and attitude to use the instruments without inflicting unnecessary suffering.

Appendix A Poultry code subcommittee on trucking

Farm access recommendations

1. Loading areas should be designed and located to permit transport vehicles to turn around, to reach them without having to back out of a public road, and to leave them without having to back into a public road.

2. Laneway entrances should be of sufficient road-top width to accommodate a tractor trailer—a minimum of 6 m (20 ft) is proposed.

3. Laneways should be constructed to support the weight and dimensions of the vehicles used to load birds under all weather conditions—3.65 m (12 ft) is proposed.

4. Loading areas should be level and should be long enough to allow loading along the entire length of the vehicle being loaded.

5. Snow should be removed from loading area and, where necessary, sand or salt should be applied before trucks arrive to load.

Appendix B Wind-chill factors

The following is a list of some actual air temperatures, wind speeds, and resulting wind-chill factors that can adversely affect unprotected poultry in transit.

Wind speed (km/h)	Actual air temperature (°C)						
	10	4	–1	–7	–12	–18	–23
	Wind-chill factor						
8	9	2	–3	–8	–15	–21	–26
16	4	–2	–8	–15	–22	–29	–34
24	2	–5	–12	–21	–28	–34	–41
32	0	–8	–16	–23	–31	–37	–45
40	–1	–9	–18	–26	–33	–39	–48
48	–2	–11	–21	–28	–36	–42	–51
56	–3	–12	–21	–29	–37	–44	–54
64	–3	–12	–22	–29	–38	–47	–56
72	–4	–13	–22	–30	–39	–48	–57
80	–4	–13	–23	–31	–40	–48	–58

Appendix C Participants

Representatives of the following organizations contributed, at various stages, to the drafting of this code. However, the code does not necessarily have the unequivocal endorsement of any agency.

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