



Recommended code of practice for
the care and handling of farm animals

Chickens, Turkeys and Breeders from Hatchery to Processing Plant



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Available from

Chicken Farmers of Canada
1007-350 Sparks Street
Ottawa, ON
K1R 7S8
Telephone: 613-241-2800
Facsimile: 613-241-5999

For information on the process for the development of a Code, please write to

Canadian Agri-Food Research Council
Heritage House
Building No. 60
Central Experimental Farm
Ottawa, Ontario
K1A 0C6
Telephone: 613-234-2325
Facsimile: 613-234-2330
Internet: www.carc-crac.ca

Also available in French

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the care and handling of farm animals**

Chickens, Turkeys and Breeder flocks from Hatchery to Processing Plant

Coordinated by

Canadian Agri-Food Research Council (CARC)
CARC Canada Committee on Animals
CARC Expert Committee on Animal Welfare and Behaviour
Canadian Federation of Humane Societies

Review Committee

Participants are listed in Appendix B

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Acknowledgments

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Preface

The Codes of Practice are nationally developed guidelines for the care and handling of the different species of farm animals. The Codes contain recommendations for housing and management practices for farm animals as well as transportation and processing. Institutions maintaining flocks for research should also be in compliance with the relevant Canadian Council on Animal Care guidelines and policies.

The Codes are voluntary and are intended as an educational tool in the promotion of sound management and welfare practices. The Codes contain recommendations to assist farmers and others in the agriculture and food sector to compare and improve their own management practices. It should be noted, however, that voluntary Codes have been accepted as the standard of practice and have been recognized as such by the courts. This code will be updated from time to time.

In 1980, the Canadian Federation of Humane Societies began co-ordinating the process of development of draft Codes of Practice for all livestock species with the introduction of a ***Recommended Code of Practice for Handling of Poultry from Hatchery to Slaughterhouse***. The federal minister of Agriculture and Agri-Food Canada (AAFC) provided financial support for the undertaking at that time.

All Codes of Practice are presently developed by review committees with representatives from farm groups, animal welfare groups, veterinarians, animal scientists, federal and provincial governments, related agricultural sectors and interested individuals.

In 1993, Agriculture and Agri-Food Canada asked the Canadian Agri-Food Research Council (CARC) and its Canada Committee on Animals and Expert Committee on Farm Animal Welfare and Behaviour to take the lead in cooperation with the Canadian Federation of Humane Societies in updating existing Codes and developing new Codes. CARC officially agreed to take on this responsibility in February 1995 upon confirmation of funding from Agriculture and Agri-Food Canada.

In 1996, CARC with the support of the provincial governments began producing four page factsheets in both

English and French for such uses as teaching agriculture in the classroom, agricultural fairs and exhibitions.

Codes developed to date:

Species	Original	Revision
Poultry	1983	1989
Pullets, Layers, and Spent Fowl	-	2003
Chickens, Turkeys and Breeders		2003
Pigs SEW Addendum	1984 2003	1993 -
Veal Calves	1988	1998
Ranched Mink	1988	-
Ranched Fox	1989	-
Dairy Cattle	1990	-
Beef Cattle	1991	-
Sheep	1995	-
Farmed Deer	1996	-
Horses	1998	-
Bison	2001	-
Transport	2001	-

Further information on the process of Code development and revision can be obtained from the Canadian Agri-Food Research Council (CARC), Heritage House, Building 60, Central Experimental Farm, Ottawa Ontario K1A 0C6. Requests for copies of the Codes can be addressed to the Canadian Food Inspection Agency and/or specific provincial organizations.

The CARC Home Page is www.carc-crac.ca for further information.

Disclaimer

Information contained in this publication is subject to periodic review in light of new technologies, enhanced husbandry and/or changing transportation practices, government requirements and regulations. No subscriber or reader should act on the basis of any such information without referring to applicable laws and regulations and/or without seeking appropriate professional advice. Although every effort has been made to ensure accuracy, the Review Committee shall not be held responsible for loss or damage caused by errors, omissions, misprints or misinterpretation of the contents hereof. Furthermore, the Review Committee expressly disclaims all and any liability to any person, whether the purchaser of this publication or not, in respect of anything done or omitted, by any such person in reliance on the contents of this publication.

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READERS' COMMENTS AND SUGGESTIONS

The Canadian Agri-Food Research Council would like to receive your comments and suggestions on the Recommended Code of Practice for the Care and Handling of Farm Animals - Chickens, Turkeys and Breeders from Hatchery to Processing Plant. Please send the completed questionnaire to the Canadian Agri-Food Research Council at Building 60, Central Experimental Farm, Ottawa, Ontario, K1A 0C6, or fax: (613) 234-2330. Feedback will be considered in future editions.

1. My work involves:
 - a) commercial transportation of chickens, turkeys or breeders
 - b) raising chickens, turkeys or breeders
 - c) chickens, turkeys or breeders care/handling at an auction market
 - d) other (please specify)

2. The chickens, turkeys and breeder code is relevant or useful in my work.:
 - a) highly
 - b) to some degree
 - c) not

Additional comments:

3. The organization of the code contents:
 - a) is appropriate
 - b) needs improvement (please specify)

4. The topics contained in the code cover all appropriate aspects of chickens, turkeys or breeders care and management:
 - a) yes
 - b) no (please specify)

Introduction

Codes of Practice strive to promote acceptable standards of animal husbandry and handling. This code is intended to achieve a workable balance between the best interests of the animals and the poultry industry. This code recognizes the basic principle that the humane treatment of animals is the prime consideration in animal husbandry and handling and that animals, which are treated well and protected from stress, are growing in far better physical and mental condition. This translates into significant benefits and economic advantages to producers and processors as well.

As discussed in the preface, the code is voluntary. All provincial and federal acts and regulations take precedence. The word *must* is used to emphasize the importance of a specific practice or where there may be an enforceable statutory requirement.

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 behaviour;
- light of appropriate duration and intensity;
- flooring that neither harms the animals nor causes undue stress;
- prevention, or rapid diagnosis and treatment, of abnormal behaviour, injury, parasitic infestation, and disease;
- prevention of infection contagious to others by the adoption of biosecurity measures;
- avoidance of unnecessary injury; and
- emergency arrangements to cover outbreaks of fire, the breakdown of essential mechanical services, and the disruption of supplies and unwanted visitors.

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 should 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. Technological advancements or increased automation in some applications can improve the flock's physiological comfort and well-being through less handling, improved speed in handling, better control over environmental conditions or improved uniformity and efficiency in feed or water distribution and sanitary condition. However, any system that results in greater restriction imposed on the animal or greater complexity in design or control over the environment must have safeguards built into the system to compensate for the possible increase in chance of suffering in the event of mechanical or electrical failure.

New technologies should only be installed only where farm personnel are adequately skilled in both animal husbandry and in the use of the equipment. Management should ensure that its personnel are trained to take full advantage of these systems and their fail-safe systems. The size and 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 other factors 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 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.

Section 1 ◊ Hatcheries

1.1 Generalities

Hatcheries concentrate their efforts on maximizing hatchability of fertile eggs and on marketing healthy high quality chicks to their 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 hatcheries favour the best care of marketable chicks, as this has an influence on the birds' future performance.

1.2 Training of Personnel

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 personnel responsible for handling live chicks have the skills and training 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.)

1.3 Handling of Chicks

1.3.1 Hatching trays with live chicks should always be moved smoothly. Tipping of trays to remove chicks and unhatched refuse must be done smoothly and slowly in such a way that the chicks do not pile or become trapped. Mechanical systems for separating chicks from unhatched refuse, transporting, vaccinating, counting or boxing chicks must be designed and maintained in such a way that the chicks are handled without causing injury or avoidable distress.

1.3.2 Chicks should never be squeezed, except for the purpose of excreta ejection during sexing by vent examination. 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.

1.4 Vaccination of Chicks

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

1.5 Morphological Alterations

- 1.5.1 Morphological alterations to the beak, toes, combs and snoods should be avoided, except when it is necessary to prevent either self-inflicted injury or injury to others in later stages.
- 1.5.2 Only competent persons should perform any such procedures. Generally, the method and timing of any of the above procedures should minimize the total number and duration of handlings, be performed as early in life as practical, minimize the production of secondary effects and correspond as closely as possible with the shortest recovery. Adaptation of new technologies or methodologies that can improve on these areas should be encouraged.

1.6 Identification Devices Attached to Chickens

- 1.6.1 Competent persons should conduct wing banding.
- 1.6.2 Identification devices that are permanently or temporarily attached to the chicken bodies must be lightweight and safe to both the identified chicken and to other chickens in the flock.

1.7 Euthanasia and Disposal of Nonsaleable Chicks

- 1.7.1 Live chicks that are to be disposed of must be handled in a manner comparable to the handling of saleable chicks.
- 1.7.2 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.
- 1.7.3 High-speed maceration of chicks is a practical and humane method of euthanasia. When properly designed macerators are used, death occurs instantaneously. In addition, the method is safe for workers.

- 1.7.4 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.
- 1.7.5 All macerators must be designed and operated to ensure immediate and complete destruction of every chick.
- 1.7.6 Carbon dioxide and/or combination with gases such as argon have been found to be suitable methods for euthanasia of unwanted chicks. High concentrations of carbon dioxide are required because day-old chicks are relatively resistant to the gas.
- 1.7.7 Containers or chambers used to euthanize chicks must be charged with gas before chicks are introduced.
- 1.7.8 Chicks must be put into the containers or chambers loosely to allow penetration of the gas.
- 1.7.9 Containers or chambers must be designed to allow continual refilling with carbon dioxide to maintain correct levels of the gas.
- 1.7.10 Chicks must be exposed to carbon dioxide gas for enough time to cause death or a state of unconsciousness that does not permit recovery.
- 1.7.11 In the design and operation of equipment using this method of chick euthanasia, it is essential that operator safety be duly considered.
- 1.7.12 For small number of birds, decapitation or cervical dislocation is acceptable when performed by competent personnel.
- 1.7.13 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.
- 1.7.14 Other methods of euthanasia may be considered, but regardless of which method is chosen, it must meet the criteria for euthanasia established in sections 1.7.1 and 1.7.2, and must allow for the pre-euthanasia handling of chicks without causing undue panic, pain, or distress.
- 1.7.15 Death by drowning, suffocation by piling chicks in disposal containers, chloroform, ether, cyanide, thermal exhaustion, or any other method resulting in an inhumane death is not acceptable.

1.8 Euthanasia and Disposal of Unhatched Embryos

- 1.8.1 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.
- 1.8.2 High-speed maceration is a practical, humane method of euthanizing a large number of unhatched embryos. (See sections 1.7.2-1.7.5).
- 1.8.3 Rapid cooling and freezing is an acceptable way of euthanizing unhatched embryos. Current industry practice is to expose embryos to temperatures less than 0°C until embryos show no signs of life. The length of exposure to cold varies, depending on the size and capacity of the freezer and the number of embryos being introduced. Equipment to be used must be of sufficient capacity to reduce the temperature to ensure euthanasia. Operators must verify the effectiveness of their procedures on a regular basis.
- 1.8.4 Crushing of unhatched embryos is acceptable, providing that, all unhatched embryos placed in the crusher, mechanically or vacuum operated, are crushed instantly and totally.

1.9 Transportation of Chicks

- 1.9.1 At hatching approximately 30% of the original nutrient reserve of the yolk will still be available and this lipid-rich depot will continue to be a major source of energy for the newly hatched chick during the first few days after hatching. Chicks held at a hatchery must be provided with an appropriate environment and should be placed within 48 h from the pull of the hatch. For young poultry (chicks) consumption of feed and water during transport is not always easy to arrange. It is noted, however, that some options are available, for example, fluid or water matrix product for chicks when necessary.

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

- 1.9.2 Delivery boxes, unless designed as paperless, should have clean, dry absorbent floor pads and should allow efficient ventilation. Transportation of delivery boxes containing live chicks should be conducted in environmentally controlled vehicles.
- 1.9.3 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 21cm²

(3 in²) per chick. The maximum group size for a single compartment should be approximately 100 chicks and should be adjusted according to the equipment specifications.

- 1.9.4 Boxes with live chicks should not be tilted more than 20 degrees from horizontal at any stage of loading and unloading the vehicle. Boxes should always be moved smoothly and never be thrown or dropped.
- 1.9.5 If, during transportation, boxes are to be transferred between vehicles, the change in environment should be minimized.
- 1.9.6 Chick vehicles should be equipped to prevent overheating or chilling of chicks and provide adequate air exchange to minimize stress. Temperature should be appropriately monitored and the condition of chicks on pickup and delivery should be noted.

Section 2 ◇ Production of Hatching Eggs

This section refers to multiplier flocks and includes broiler breeders and commercial egg-type breeders raised for hatching egg production. When the term “chicken breeders” is used, it includes both categories. 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.

2.1 Receiving of 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 chicks. Barns should be pre-heated to proper brooding temperature in advance of the arrival of the chicks.
- 2.1.2 Boxes of live chicks should always be handled in a level position and never thrown. The chicks can be removed 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.

During the growth period providing light controlled houses with 0.5 to 1 foot candles (5-10 lux) is recommended. Day length is strictly controlled to enable good light stimulation coming into lay. Note that it is not uncommon practice in the pullet period to distribute feed in the lights-off period to encourage more even distribution and less "rushing" from the flock. The birds will eat and drink in the dark once properly started.

- 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 for the first week of life should range from 29° to 32°C (84°-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°-23°C (70°-75°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 behaviour of chickens in a pen or brooding cage can be used as a reliable indicator of thermal comfort. The crowding of young chicks 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 behavioural signs that indicate too high a temperature are panting, frequent spreading of the wings, frequent wing flapping, and the occurrence of pasty excreta on the cloacal area. 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. 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.

Automatic heating and ventilation system fitted with alarms and fail safe devices including alternate power supply should be tested on a regular basis.

- 2.2.4 An emergency plan in the event of fire or natural disaster for each premise housing pullets and layers should be prepared and every attendant should be familiar with it.
- 2.2.5 Generators should be available as backup in the event of electrical failure to ensure all electrically dependent mechanical systems necessary for bird health and well-being continue to operate during a hydro failure.
- 2.2.6 Chicken breeders of all age groups should be protected against drafts or cold areas in the pen.
- 2.2.7 Chicken breeders should have enough freedom of movement to be able to stand normally, turn around, and stretch their wings without difficulty.
- 2.2.8 Chicken breeders should be provided with the following minimum feed, water and floor space per bird (Tables 1 & 2).

Feed and water space for broiler breeders should be similar to egg layer birds until the feed restrictions begin. With feed restrictions, feeder space must be increased and progressively maintained so that all birds are able to feed simultaneously.

Table 1 Broiler Breeders

Floor Space*						
	Weight	Weight	Litter	Litter	1/2 - 3/4 Slat or Wire Flooring	
	g	lb	m ²	ft ²	m ²	ft ²
Age (weeks)						
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	0.149	1.6	n/a	n/a
Mature	3600+	8.0+	0.186	2	0.167	1.8
Nesting Densities**	1 nest per every 5 hens					
Feed Space	Pans = 12 - 16 birds / pan					
	Troughs = 10 linear cm (4") per bird					
Water Space	Up to 50 chicks/cup with drinkers progressively increased to 25 birds/cup at 20 weeks					
•Fountains/cups						
•Nipples	Up to 20 birds/nipple with drinkers progressively increased to 10 birds/nipples at 20 weeks					
•Bell Drinkers	Up to 100 birds/bell					

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

Note: ** Equipment manufacturers' documentation should be consulted for best results.

Table 2 Commercial Egg-Type Breeders

Floor Space			
	Litter		
Age	m ²	ft ²	
Mature	0.081	0.9	
Nesting Densities*	Number of nests adequate to ensure that eggs laid on the floor are kept to a minimum		
Feed Space	Pans = 70 birds/pan		
	Troughs = 5 linear cm (2") per bird		
Water Space	2.5 linear cm/bird (1")		
•Fountain/cups			
•Nipples	5 to 20 birds/nipple		
•Bell Drinkers	Up to 120 birds/bell		

*Note: * Equipment manufacturers' documentation should be consulted for best results.*

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. The watering device needs to be at a level suitable for the size of the birds and adjusted as the birds grow, with the allocation of waterers progressively increased.

Nesting space should be provided to accommodate hens without crowding. Allocations of community or rollaway nests should be based on the behaviour 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. The base of nest boxes and the roosts should not be more than 50 cm (20 in.) above the floor. If it is not possible, then access ramps or roosts should be provided.

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

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 (80°, 84°, or 86°F), any interruption of water supply should not exceed 12, 6 or 2 hours, respectively. The temperature of 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 any diet proved harmful to the chickens or to marketed products.
- 2.3.3 When controlled restriction of feed and 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 chicken to feed at the same time. Increasing feed and water space in such cases prevents severe social competition or aggression.
- 2.3.3.1 Restrictions longer than those described in section 2.3.1 and 2.3.2 must be avoided. Controlled-molting induced through feed and water deprivation is not currently practiced in Canada and is not recognized as a good production practice in broiler breeders.

2.4 Personnel

- 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 instructed and be knowledgeable of the basic needs of the chickens entrusted to their care. Attendants should be able to recognize obvious behavioural 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 undertaken when buildings are empty.
- 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 particularly important when the light intensity or noise is greater outside the pen than inside.
- 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, biosecurity precautions must be enforced. Visitors must talk and move quietly.

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 Supervision and Protection of Breeders

- 2.5.1 Breeders' flocks should be observed and monitored at least twice a day to ensure the well being of birds. The physical arrangement of a broiler breeder pen should permit easy inspection of all birds.
- 2.5.2 Mechanical and electronic devices that affect the welfare of breeders should be inspected daily.
- 2.5.3 Sick or injured chickens must be promptly treated or killed humanely. Cervical dislocation is an acceptable humane method. Dead chickens must be removed immediately and disposed of in an appropriate manner or according to regulations as they may apply.
- 2.5.4 Personnel should periodically check breeders 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 birds from various parts of a pen, by attention to behavioural

signs that indicate the presence of parasites, by attention to excreta, or by post-mortem examination of chickens suspected of infestation.

- 2.5.5 Live breeders 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 or notifiable disease must be brought immediately to the notice of a Canadian Food Inspection Agency (CFIA) veterinarian.
- 2.5.6 Breeders must be protected from other animals. This protection should prevent both direct and visual contact with animals that cause fear in breeders.
- 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 breeder premises should be a continuing practice using appropriate, humane methods.

2.6 Litter Maintenance

- 2.6.1 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. Piled excreta below raised floors must be out of the breeders' reach.
- 2.6.2 Breeder pens should be cleaned between each flock. Before pens are restocked, litter or droppings should be removed and pens and equipment cleaned and disinfected.

2.7 Handling of Breeders

- 2.7.1 Broiler breeders should be handled in a manner to minimize stress. When breeders are being held they should be in a comfortable body position. Holding or carrying time in a vertical position with the head down should be minimized, and all movements with breeders should be smooth. Broiler breeders should be carried by both legs or both wings.
- 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 breeders in the pen and must be avoided. The recommended method of release is to set the breeders on the floor, preferably on their feet.

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 behaviour 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.
- 2.8.2 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.
- 2.8.3 In breeding flocks, ensure an appropriate male-to-female ratio to avoid 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 behaviour is poorly understood. Reducing the male-to-female ratio, reducing the density, reducing light intensity, and providing environment enrichment (distractants) can reduce feather pecking. 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 Chicks on the Premises

- 3.1.1 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 chicks. It is recommended that the barn be pre-heated in advance of the arrival of the chicks.

- 3.1.2 Boxes of live chicks should always be handled in a level position and never thrown. The chicks can be removed 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. In order to avoid panic and pileup during power failures, there should be a period of darkness in each 24-h cycle.
- 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°-23° C (70°-75° 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 behaviour of chickens in a pen or brooding cage can be used as a reliable indicator of thermal comfort. The crowding of young 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 behavioural signs that indicate too high a temperature are the occurrence of panting, frequent wing flapping, frequent spreading of the wings, and pasty excreta on the cloacal area. 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. 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.

- 3.2.4 Automatic heating and ventilation systems fitted with alarms and fail safe devices including alternate power supply should be tested on a regular basis.
- 3.2.5 An emergency plan in the event of fire or natural disaster for each premise housing chicken should be prepared and every attendant should be familiar with it.
- 3.2.6 Generators should be available as backup in the event of electrical failure to ensure all electricity dependent mechanical systems necessary for bird health and well-being continue to operate during a power failure.
- 3.2.7 Chickens of all age groups should be protected against drafts or cold areas in the pen.
- 3.2.8 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.
- 3.2.9 Broilers and roasters should be provided with adequate space to feed and drink without restriction. The number and type of feeders and waterers need to be appropriate to the size of the birds and to manufacturer's recommendations.
- 3.2.10 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 and/or toxic.

Table 3 Suggested Feed and Water Space*

Containers	Bird Density
Feeders	
pans	70 birds per pan
troughs	5 cm (2 in.) per bird
Waterers	
troughs / cups	2.5 cm (1 in.) per bird
bell drinkers	1 per 120 birds
nipples	5-20 birds per nipple

** The recommended weight per unit of floor space is 31 kg/m² (6.35 lb/ft²). However, variations in stocking density up to 38 kg/m² (7.78 lb/ft²) are acceptable if justified by adequate husbandry programs, feeding and watering equipment, ventilation systems, lighting programs and litter materials. Extra space is recommended in hot summer weather.*

3.2.11 Broilers are not normally reared in cages in Canada. 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 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. It must be recognized that, in nature, chickens may go without water for short periods of time, however when pen temperature is over 26°, 28°, or 30°C (80°, 84° or 86°F), any interruptions of water supply should not exceed 12, 6 or 2 hours, 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. The diet must not contain ingredients that can cause illness or suffering. The producer must be prepared to replace immediately any diet proven to be harmful to the chickens or to marketed products.

3.4 Personnel

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 be knowledgeable of the basic needs of the chickens entrusted to their care. Attendants should be able to recognize obvious behavioural 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.
- 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, biosecurity precautions should be enforced. Visitors must talk and move quietly.

3.5 Supervision and Protection of Chickens

- 3.5.1 Chicken flocks should be observed and monitored at least twice a day. The physical arrangement of a chicken pen should permit easy inspection of all chickens to ensure the well being of birds.
- 3.5.2 Mechanical and electronic devices that affect the welfare of chickens should be inspected daily.
- 3.5.3 Sick or injured chickens must be promptly treated or killed humanely. Cervical dislocation is an acceptable humane method. Dead chickens must be removed immediately and disposed of in an appropriate manner or according to regulations as they may apply.
- 3.5.4 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 behavioural signs that indicate the presence of parasites, by attention to excreta, or by post-mortem examination of chickens suspected of infestation.

- 3.5.5 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 or a notifiable disease must be brought immediately to the notice of a veterinarian of the Canadian Food Inspection Agency (CFIA).
- 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 Litter Maintenance

- 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.

3.7 Handling of Chickens

- 3.7.1 Chickens should be handled in a manner to minimize stress. 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 minimized, 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 behaviour 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.

- 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 (as per Table 4).
- 3.8.3 Feather pecking can be a problem in chicken flocks, especially if it develops into cannibalism. The underlying cause of this behaviour is poorly understood. Reducing the density, reducing light intensity, and providing environment enrichment (distractants) can reduce feather pecking. Make sure that the diet is nutritionally balanced. Beak trimming may be necessary to control feather pecking in small outside backyard flocks. It should be noted that beak trimming is not done for commercial broiler flocks.

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 Poults on the Premises

- 4.1.1 Prior to receiving poults, 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 poults. It is recommended that barns be pre-heated prior to the arrival of poults.
- 4.1.2 Boxes of live poults should always be handled in a level position and never thrown. The poults can be removed 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 on a littered floor more than 30 cm (12 in.).
- 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-hour 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 for the first week 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 behaviour 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 behavioural signs that indicate high temperature include panting, frequent spreading of the wings, frequent wing flapping, and the occurrence of pasty excreta on the cloacal area. Signs of low environmental temperature include huddling, feather ruffling, rigid posture, trembling, 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. 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.
- 4.2.4 Automatic heating and ventilation systems fitted with alarms and fail safe devices including alternate power supply should be tested on a regular basis.
- 4.2.5 An emergency plan in the event of fire or natural disaster for each premise housing turkeys and breeders should be prepared 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.

- 4.2.6 Generators should be available as backup in the event of electrical failure to ensure all electricity dependent mechanical systems necessary for bird health and well-being continue to operate during a hydro failure.
- 4.2.7 Turkeys of all age groups should be protected against drafts and cold areas in the barn.
- 4.2.8 Turkeys are grown in total confinement, semi-confinement, or on range. Finished market live weights for broiler turkeys, hen turkeys, light tom turkeys and heavy tom turkeys vary as follows:

Table 4 Turkey Live Weights

Category	Live kg	Live lbs
Broilers	Under 6.2 kg	Under 13.7 lbs
Hens	6.2 kg and under 9.8 kg	13.7 lbs. and under 21.6 lbs.
Light Toms	9.8 kg and under 13.3 kg	21.6 lbs and under 29.3 lbs
Heavy Toms	13.3 kg and over	29.3 lbs and over

Because of various rearing practices, and the four different weight categories of turkey grown, the stocking densities 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, final market weight and breed of turkey. In some situations the stocking density can be adjusted during rearing by marketing some birds in advance.

Table 5 Turkey Recommended Stocking Densities

Category	M ² /Bird	Kg/m ²
Broilers	0.19 m ² (2.0 ft ²)	32.6 kg/m ² (6.9 lb/ft ²)
Hens	0.19 m ² to 0.28 m ² (2.0 ft ² to 3.0 ft ²)	32.6 kg/m ² to 35.0 kg/m ² (6.9 lb/ft ² to 7.2 lb/ft ²)
Light Toms	0.28 m ² to 0.37 m ² (3.0 ft ² to 4.0 ft ²)	35.0 kg/m ² to 35.8 kg/m ² (7.2 lb/ft ² to 7.3 lb/ft ²)
Heavy Toms	0.37 m ² (4.0 ft ²)	35.8 kg/m ² (7.3 lb/ft ²)

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 must 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.

- 4.2.9 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, nipple/disc drinkers 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. An adequate number of waterers should be provided during hot weather, when consumption can increase significantly.
- 4.2.10 Caution must be exercised in choosing any materials used in the barn to which the turkeys have access. Such materials should not contain compounds that are harmful and/or toxic.

4.2.11 Semi-confined and Range Production

- 4.2.11.1 Shelters or natural shade are recommended for ranged production. If shelters are provided they must be adequate in number/space to avoid the overcrowding of birds.
- 4.2.11.2 Turkeys should be protected as best possible from other animals. This protection should prevent direct contact with wild animals that may cause fear or injury to turkeys. Fencing used for enclosures should be checked regularly and any holes sealed.
- 4.2.11.3 If possible, piping used for supplying water to birds should be buried underground to ensure that drinking water is kept fresh, clean and cool.
- 4.2.11.4 Enclosures must be kept free of all debris (e.g. fallen trees, branches); otherwise it may provide a sanctuary for pests, wild birds and animals.
- 4.2.11.5 Dead or sick birds must be removed immediately as they can attract wild birds and animals.

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. It must be recognized that, in nature,

turkeys may go without water for short periods of time, however 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 hours, 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. The diet must not contain any ingredients that can cause illness or suffering. The producer must be prepared to replace immediately any diet proven to be harmful to the turkeys or to marketed products.

4.4 Turkey Breeders

- 4.4.1 In general, the care of breeder turkeys is similar to the care required in raising commercial birds. In addition, the following guidelines should be followed.
- 4.4.2 Controlled-molting is not currently practiced in Canada. However, in the event of a situation that endangers the survival of a strain or line, threatens the supply of hatching eggs and consequently where the life of a breeder flock must be extended, controlled-molting may be undertaken on healthy birds and under the supervision of an independent poultry veterinary practitioner. The supervision is to include regular, on-site monitoring of the bird's health and well being.
- 4.4.3 Feed and water restrictions longer than those described in sections 4.3.1 and 4.3.2 are to be avoided, except in the case of controlled molting. Turkeys that have not been in good health or did not produce at a high rate during the laying cycle are not to be considered for controlled molting.
- 4.4.4 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.
- 4.4.5 In the case of artificial insemination, high standards of hygiene should be maintained at all stages of the program, and competent personnel should perform procedures. Care should be taken to use only birds that are in good physical condition.
- 4.4.6 In breeding flocks where natural mating is practiced, ensure an appropriate male-to-female ratio to avoid excessive fighting among males and injury to females.
- 4.4.7 Nesting space should be provided to accommodate birds without crowding. One nest is recommended for every seven (7) to eight (8) birds. Variance from these guidelines may be required because of the nesting equipment being used.

- 4.4.8 In assessing stocking densities for breeder turkeys it is important to consider the weight of the birds, which can range from 11-12 kg for hens and up to 35 kg for breeder toms. Recommended minimum stocking densities for breeder hens is 5 to 6 sq. ft/bird during the lay period and for breeder toms is, 7-8 sq. ft/bird during the breeding period. Variance from these guidelines may be required because of differing husbandry practices, barn and nesting equipment, and the final weight of the birds.
- 4.4.9 Because of the size and weight breeder turkeys can reach, it is highly recommended that during catching they be handled with extra care to prevent injury. If being caught manually, birds should be caught one bird at a time.

4.5 Personnel

- 4.5.1 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 be knowledgeable of the basic needs of the turkeys entrusted to their care. Attendants should be able to recognize obvious behavioural signs that indicate health problems and discomfort.
- 4.5.2 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.
- 4.5.3 It is highly recommended that workers, before entering the barn, 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 barn 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.)
- 4.5.4 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.
- 4.5.5 Admittance of visitors into the pen should be kept to a minimum. However, if their entry is necessary, biosecurity precautions required by the owner/operator should be enforced. Visitors must talk and move quietly.

4.6 Supervision and Protection of Turkeys

- 4.6.1 Turkey flocks should be observed and monitored at least twice a day to ensure the well being of birds. The physical arrangement of a turkey pen should permit easy inspection of all turkeys.
- 4.6.2 Mechanical and electronic devices that affect the welfare of turkeys should be inspected daily.
- 4.6.3 Sick or injured turkeys must be promptly treated or euthanized humanely. Sick or injured birds with no hope of recovery should be euthanized in an acceptable manner to prevent needless suffering and distress. Cervical dislocation, when performed by trained and competent personnel is an acceptable, humane method of disposing of younger turkeys. A quick firm blow to the head, administered by trained personnel, after the bird has been properly restrained, is recommended for euthanizing larger birds. Dead turkeys must be removed immediately and disposed of in an appropriate manner or according to regulations as they may apply.
- 4.6.4 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 barn, by attention to behavioural signs that indicate the presence of parasites, by attention to excreta, or by post-mortem examination of turkeys suspected of infestation.
- 4.6.5 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 or notifiable disease must be brought immediately to the notice of a veterinarian of the Canadian Food Inspection Agency (CFIA).
- 4.6.6 Turkeys should be protected from other animals. This protection should prevent both direct and visual contact with animals that cause fear in turkeys.
- 4.6.7 Precautions should be taken to minimize the presence of wild birds inside and around turkey buildings, as they may be carriers of infectious diseases.
- 4.6.8 Rodent control on turkey premises should be a continuing practice using appropriate, humane methods.

4.7 Litter Maintenance

- 4.7.1 Turkey barns should be cleaned and disinfected between each flock. Before barns are restocked, litter and droppings should be removed and equipment cleaned and disinfected.
- 4.7.2 Litter quality in barns should be monitored daily. If the quality is inadequate (i.e. too wet or too dry), corrective measures should be taken promptly.

4.8 Handling of Turkeys

- 4.8.1 Turkeys should be handled in a manner to minimize stress. When turkeys are being held they should be in a comfortable body position. Holding or carrying time in a vertical position with the head down should be minimized, and all movements with turkeys should be smooth. Heavy turkeys should be carried by both legs and one wing.
- 4.8.2 Smaller turkeys that can be picked up by hand may be set down on their feet. The recommended method for heavier turkeys is to set the turkeys on the floor, preferably on their breast.

4.9 Social Environment

- 4.9.1 The formation of a social hierarchy in a small group of turkeys is normally associated with a temporary increase in aggressive behaviour 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.
- 4.9.2 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, and an adequate and predictable supply of feed and water.
- 4.9.3 Although the underlying cause of feather pecking is poorly understood, it can be a problem in turkey flocks, especially if it develops into cannibalism. Feather pecking can be reduced by increasing feed availability, reducing group size, reducing light intensity, adding litter, and providing distractants such as straw bales. Make sure that the diet is nutritionally balanced. Beak trimming may be necessary, and is an acceptable practice, 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. These guidelines 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. For the purpose of this code, the transportation process commences with the planning, the scheduling, the processor-producer coordination and the catching of the birds.

Note: Any provisions pertinent to transportation of chicks are dealt with in Section 1 of this Code. Furthermore, general information regarding transportation of poultry (including emergency procedures) are covered in the *Recommended Code of Practice for the Care and Handling of Farm Animals: Transportation*.

5.1 Facilities for and Handling of Poultry

- 5.1.1 Owners and operators of poultry operations have a responsibility to provide facilities and equipment to make bird handling, loading and unloading possible without causing unnecessary injury or suffering to the birds. **Producer or a representative should be available throughout the catching and loading process.**
- 5.1.2 All poultry do not have the same equipment and facility requirements. Equipment specific to the species should be used.
- 5.1.3 Proper building design and accessibility to transport vehicles greatly improves the humane handling of loose-housed poultry. Producers are responsible for ensuring proper interior and exterior design of buildings to facilitate loading and unloading of poultry. Owners and operators should therefore ensure the following:

Barn Design

- building design discourages needless transfer of birds between handlers;
- building design should be adapted to the catching and loading equipment used and have sufficient number and size of doors or openings. For example, in the case of broiler chickens, barns where birds are loaded in crates, the building design should incorporate a door every 15m (49 ft.) of building length, and doors on first, second and third floors are not less than 120 cm (48 in.) and not less than 200 cm (78 in.) high, and;

- when birds have to be handed through floor openings, the openings are not less than 1 m² (10 sq. ft.) for chickens and not less than 1.2 m² (13 sq. ft.) for turkeys, and no obstructions, such as floor joists, hinder the transfer of birds.

Farm Access

- Laneway entrances should be of sufficient road-top width to accommodate a tractor-trailer. A minimum of 15.2 meter (50 ft.) at its widest point is proposed so the truck does not have to swing across the centreline and into oncoming traffic in order to come into the lane.
- Laneways should be constructed to support the weight and dimensions of the vehicles used to load birds under all weather conditions. A width of 3.7 m (12 ft) is proposed when tractor-trailers are to be used.

Barn Access

- The traveled portion of the yard and lane should be free of all overhead objects such as branches or wires to a height of 4.5 m (15 ft.) from the surface of the lane and yard.
- Snow should be removed from the driveways and loading/unloading areas and, when necessary, sand and salt should be applied before trucks arrive.

Loading/Unloading Areas

- Appropriate access to loading and unloading areas of poultry barns should be provided.
- Loading and unloading areas and ramps should be designed to permit proper bird handling.
- Loading areas should be designed and located to permit transport vehicles to turn around, to reach them without having to back in off a public road, and to leave them without having to back out onto a public road.
- Loading areas should be level and should be long enough to allow loading along the entire length of the vehicle being loaded.
- Feeders, drinkers, and heating pipes that are obstructions should be lifted to ceiling height or removed before birds are loaded.
- Fans in use immediately adjacent to loading doors should be turned off while birds are being loaded.
- When flooding problems occur in buildings, dry bedding should be provided to prevent shipping wet birds.

5.2 Catching and Loading

- 5.2.1 All members of catching and transporting crews should be properly instructed and knowledgeable about the basic aspects of animal welfare and in handling birds. An experienced supervisor should supervise all catching crews. Proper training and evaluation of personnel is the responsibility of the

employer. Catching and loading should take place in a timely and efficient manner to prevent bird injury.

- 5.2.2 Co-ordination between producer and processor should take place to determine the most appropriate feed withdrawal protocol.
- 5.2.3 Careless catching of birds can be a source of injury. Injured birds are particularly susceptible to transportation stress. In cold conditions, wet birds should not be loaded. This is inhumane and increases the loss of marketable product. Sick or injured birds should be disposed of humanely.
- 5.2.4 Piling of birds in corners can cause injury or mortality. Steps must be taken to prevent this from occurring.
- 5.2.5 The two most common procedures which facilitate easier catching of birds, are:
- lowering the light intensity in the pen or using blue bulbs to provide adequate illumination for humans but not for poultry; and
 - corralling chickens with a net or screen/turkeys with solid partition at the loading door.
- 5.2.6 Turkeys can be loaded more easily by moving them in small groups.
- 5.2.7 When birds are transported in crates or modules, the design, construction available space 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 vehicles.
- 5.2.8 Crate doors and panels on liner trucks should be large enough to permit easy passage of birds, thus avoiding injury.
- 5.2.9 Construction of crates and modules should provide adequate, uniform ventilation but prevent protrusion of the head, wings and legs of birds.
- 5.2.10 When loaded into modules or crates, birds must be in an upright position to avoid smothering.
- 5.2.11 The number of birds per crate or module depends on available floor space, body size of birds, and prevailing environmental conditions at time of transport. Maximum density per crate or bin should permit all 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.

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

Chickens:	63 kg / m ² (139 lbs / 10 sq. ft.)
Chicken Breeders:	66 kg / m ² (145 lbs / 10 sq. ft.)
Broiler Turkeys:	98 kg / m ² (216 lbs / 10 sq. ft.)
Heavy Hens:	98 kg / m ² (216 lbs / 10 sq. ft.)
Heavy Toms:	98 kg / m ² (216 lbs / 10 sq. ft.)

These maximum values are recommended for winter conditions and should be reduced during summer months by 15 - 20% for chickens.

In extreme cold weather, (-15°C and below), broiler chickens (1.8 kg and under) could be loaded up to 68 and 70 kg/m² for spent hens.

5.2.13 Birds should be protected from becoming wet, in cold conditions during loading. Covers on the trucks should be used to protect birds from adverse weather conditions. Extreme changes in temperature should be minimized to the extent possible.

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

5.2.15 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. Loaded crates must not be thrown or dropped. They should be moved smoothly during loading, transport, and unloading.

5.2.16 One possible way to alleviate catching and loading problems and to avoid the potential for damage to the birds is to collect the birds mechanically. Producers, catchers, and transporters should keep themselves informed of new technology. Only devices proven to be humane should be considered for use in gathering birds.

5.3 Transport

5.3.1 The driver should check the load and surrounding area for loose birds before departing.

- 5.3.2 The driver of the vehicle is responsible for the care and welfare of all birds during transport. The driver must take into consideration climatic conditions and must adjust coverings to allow birds to warm up or cool off, as required.
- 5.3.3 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 hours when facilities are unavailable for protection from the weather at, for example, truck stops and border crossings.

- 5.3.4 The air temperature in a load of live poultry should be maintained between 5°C (42°F) and 30°C (86°F). Development and installation of environmental monitoring devices on live haul trailers should be encouraged to provide drivers with continual information on the load. Drivers should use this information in conjunction with his/her experience to respond appropriately.
- 5.3.5 To keep the temperature from dropping below 5°C (42°F) during cold weather, the load may have to be covered with protective material.
- 5.3.6 During hot weather (as mentioned in section 5.2.12), the number of birds per crate or bin may have to be reduced in order to keep load temperature 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 minutes. The vehicle should be driven at a minimum speed of 30 km/h (20 miles/h) for a short distance. When this is possible, the truck should be kept in shade and an alternative method of air circulation should be provided.

5.4 Emergency Procedures

- 5.4.1 The transporters should have a contingency plan and drivers aware of its content. If a transport truck is involved in an accident, the transporters should contact the identified, specialised catching crew as soon as possible.
- 5.4.2 If crates (cages) have been spilled and birds are still inside, turn the crates upright as soon as possible, ensure no heads, wings or legs are protruding from the opening and stack them neatly by the side of the road away from the vehicle as quickly as possible.
- 5.4.3 Birds may be severely affected by extremes of cold or heat. In cold weather, there will be weather protection in place on poultry trucks. Birds in a disabled truck may suffocate if the weather

protection is left in place on a stationary load. The birds must be closely monitored and weather protection should be adjusted if necessary to provide increased ventilation.

- 5.4.4 In the event of an accident involving a poultry transport truck or a roll-over of a poultry transport truck, the load should be pulled upright by a competent wrecker service as soon as it is safe to do so. If experienced handlers are available, rely upon their advice. Poultry shippers should usually provide catching crews to the accident site quickly. Birds should not be chased or caused to fly. It may be possible to gently, quietly and calmly herd or direct a small group of birds in a specific direction.

Severely injured birds should be humanely killed after dealing with the uninjured birds. Recommended methods include use of CO₂ euthanizing chambers by experienced personnel or cervical dislocation properly performed in a secure quiet area away from public view.

Section 6 ◊ Processing Operations

Law requires the prevention of unnecessary suffering of birds before and during slaughter. 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 Appropriate arrangements must be made by processing plant operators 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. Adequately trained personnel should be available to receive and monitor live birds. Shelters should be provided and be capable of protecting the birds from the elements in winter and provide sufficient shade and ventilation in summer months. A shelter also protects from rain.
- 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. Loaded crates must not be thrown or dropped. They should be moved smoothly during loading, transport, and unloading.
- 6.1.3 All birds should be removed from the transporting crates, modules, dolly carts 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.
- 6.1.6 Stressed loads must, if at all possible, take precedence in the slaughter schedule. Flocks observed to be in distress during the transport or while awaiting slaughter at the abattoir should be slaughtered on a priority basis. Generally, it is accepted practice to schedule slaughter based on crate time.
- 6.1.7 Upon arrival at the plant, the driver should advise the receiver of any special instructions regarding tarping and the condition of the load.

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;
 - gas stunning.
- 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 of Procedures* published by the Canadian Food Inspection Agency.
- 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.

Section 7 ◊ Areas for Further Research

During its review of the previous version the Recommended Code of practice for the care and handling of chicken, turkeys and breeders from hatchery to processing plant, the revision committee has identified the following points where research is needed to improve the welfare of the birds raised for human consumption.

- 7.1 Morphological alterations to chicks should be avoided but in certain circumstances they are necessary to prevent either self-inflicted injury or injury to others in later stages. Research should continue into new technologies and methodologies that can further enhance the morphological alterations in order to minimize pain and stress.
- 7.2 For various reasons, hatchery operators must dispose of a number of nonsaleable hatched and unhatched chicks on a daily basis. Standardized guidelines should be developed to ensure adequate equipment is used to ensure that no viable hatched or unhatched chicks remain live once submitted to the procedure.
- 7.3 Although controlled-molting is not practiced in Canada in the poultry meat production industry, the potential for exceptional circumstances, which would threaten the supply of hatching eggs, exists. In those cases, the life of breeder flocks must be extended. Research should be encouraged to develop alternative methods to controlled-molting involving feed deprivation.
- 7.4 Continuing nutritional research is recommended to promote on-going poultry health and welfare in areas such as skeletal strength and appetite management.
- 7.5 Although transportation of animals is regulated in Canada, changing weather conditions confront transporters with constant challenges to maintain optimal conditions in bringing live poultry from the farms to the plants. Research has been suggested to develop monitoring equipment for birds in transit, which would alert the drivers of changing conditions.
- 7.6 With respect to housing conditions for broiler and roaster production, changes in management techniques require that further research be conducted to provide accurate recommendations for ammonia, CO₂ and humidity levels and their correlation with density and ventilation rates to ensure the welfare of birds.

APPENDICES

Appendix A ◊ 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 B ◇ Participants

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

<i>Representative</i>	<i>Organization</i>
Dr. Derek Anderson	CARC Canada Committee on Animals, Chairperson,
Alan Bentley (Chairperson)	
Bernadette Cox	Canadian Egg Marketing Agency
Ed De-Jong	Canadian Broiler Hatching Egg Marketing Agency
Conrad Van Dijk	Canadian Veterinary Medical Association
Dr. Gordon Doonan	Canadian Food Inspection Agency
Dr. Ian J. H. Duncan	Canadian Society of Animal Science
Dr. Gilly Griffin	Canadian Council on Animal Care
Dr. S. K. Ho	Agriculture and Agri-Food Canada
Murray Hundt	Canadian Poultry and Egg Processors Council
Waldie Klassen	Chicken Farmers of Canada
Yves Labbé	Chicken Farmers of Canada
Penny Lawlis	Ontario Ministry of Agriculture and Food Representing the Provinces
Steve Leech	Chicken Farmers of Canada
Rachel Ouckama	Canadian Poultry and Egg Processors Council
Al Schaefer	Agriculture and Agri-Food Canada Meat Research Section, Lacombe
Sateesh Singh	Canadian Turkey Marketing Agency
Dr. Gary Thiessen	Canadian Food Inspection Agency
Robert Van Tongerloo	Canadian Federation of Humane Societies

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