

Recommended code of practice for care and handling of pigs



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CONVERSION FACTORS

Metric units	Approximate conversion factors	Results in:
LINEAR		
millimetre (mm)	x 0.04	inch
centimetre (cm)	x 0.39	inch
metre (m)	x 3.28	feet
kilometre (km)	x 0.62	mile
AREA		
square centimetre (cm ²)	x 0.15	square inch
square metre (m ²)	x 1.2	square yard
square kilometre (km ²)	x 0.39	square mile
hectare (ha)	x 2.5	acres
VOLUME		
cubic centimetre (cm ³)	x 0.06	cubic inch
cubic metre (m ³)	x 35.31	cubic feet
	x 1.31	cubic yard
CAPACITY		
litre (L)	x 0.035	cubic feet
hectolitre (hL)	x 22	gallons
	x 2.5	bushels
WEIGHT		
gram (g)	x 0.04	oz avdp
kilogram (kg)	x 2.2	lb avdp
tonne (t)	x 1.1	short ton
AGRICULTURAL		
litres per hectare (L/ha)	x 0.089	gallons per acre
	x 0.357	quarts per acre
	x 0.71	pints per acre
millilitres per hectare (mL/ha)	x 0.014	fl. oz per acre
tonnes per hectare (t/ha)	x 0.45	tons per acre
kilograms per hectare (kg/ha)	x 0.89	lb per acre
grams per hectare (g/ha)	x 0.014	oz avdp per acre
plants per hectare (plants/ha)	x 0.405	plants per acre

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PREFACE


Domestication and artificial selection of livestock have made farm animals dependent on humans. Consequently, according to currently accepted moral and ethical standards of our society, humans have no choice but to accept this dependence as a commitment to practice humane conduct toward domestic animals and to prevent avoidable suffering at all stages of their lives. This voluntary code of practice represents a step toward meeting that commitment.

Coordination of the process of drafting codes of practice for all livestock species by the Canadian Federation of Humane Societies (CFHS) was agreed upon in 1980 by the federal Minister of Agriculture, as well as representatives of agricultural industry organizations and associations of animal science. A code of practice for handling chickens was published in September 1983.

In 1980 Dr. J. F. Hurnik, Professor of Animal Science at the University of Guelph, submitted a draft code of practice for handling pigs to the Canadian Society of Animal Science. In 1981, at the request of the Ontario Pork Producers' Marketing Board, Dr. Hurnik agreed to assist the board in drafting a code, which was received by them in October 1982. Subsequently both agencies provided codes to CFHS, which then coordinated several meetings of individuals representing the broadest spectrum of the pig industry to cooperate in producing a final version of this code of practice. The organizations represented were those of pig producers, transporters, and processors; professional agricultural and veterinary associations; the faculties of agriculture and veterinary medicine at universities; and research and production and inspection branches of Agriculture Canada and the Ontario Ministry of Agriculture and Food; as well as animal care and welfare organizations.

During the drafting process, the sections of the code dealing with transportation and processing were greatly expanded from the original draft by subcommittees representing both those sectors of the industry. They are presented in this code in separate sections to facilitate ready access by individuals involved in those activities.

This voluntary code is intended to be used by the industry, scientists, and animal welfare groups as an educational tool in the promotion of sound husbandry and welfare practices. The recommendations do not claim to be comprehensive for all circumstances but attempt to define high standards of pig production and well-being in commercial, research, educational, and other farm operations. As a guideline, the code can serve operators in the various sectors of the pig industry to compare or improve their own managerial routines. It should, however, be understood that new scientific discoveries and changing economic conditions will make it necessary to update the code.



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Recommended code of practice for care and handling of pigs

Coordinated by

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Ottawa, Ontario, K1S 4P3

SECTION I PRODUCERS

I 1 Introduction

- 1.1 Background: Since about 1950, pig husbandry in the industrialized countries has evolved rapidly toward the so-called "intensive" or "confinement" systems that currently predominate in Canada. Most Canadian pig housing now consists of indoor facilities that involve some restriction of movement, especially for breeding sows. Manure is commonly handled in liquid form in channels beneath the animal pens, and bedding materials have been eliminated from many production units. A number of factors have contributed to the rapid change toward intensive systems. The high cost and low availability of experienced farm labor have forced producers to use labor-saving methods even when they involve higher capital expenditures. Concerns over environmental pollution have encouraged the use of liquid manure handling. This trend, plus the lack of straw in many pig-producing areas, has led to reduced use of bedding. In addition, with harsh Canadian winter conditions, producers have not had the option of using the low-cost outdoor systems that are possible in more moderate climates.

In certain respects, these changes have undoubtedly led to improved health and reduced animal suffering. The use of warm, insulated buildings provides a healthier environment for pigs of suckling and weaning ages. Confinement of the sow during farrowing is credited with reducing the amount of accidental injury to the piglets. Individual housing and feeding of pregnant sows eliminates bullying and competition for food. Furthermore, an indoor environment can provide better control over the spread of infectious diseases, in particular parasitic diseases.

- 1.2 Confinement problems: Current confinement housing leaves a number of problems unsolved, and involves a number of features that are often

thought to have a negative effect on animal well-being. There remains a great need for further improvement and development of comfortable flooring, elimination of manure gases, avoidance of excessive heat, and resolution of problems associated with restricted movement and lack of outlet for natural behavior. Two controversial issues require particular comment.

- 1.3 Confinement of pregnant sows: One of the most disputed aspects of intensive pig housing is the close confinement of pregnant ("dry") sows. Formerly, most dry sows were housed in groups, often in bedded pens, and could be run out-of-doors during part of the year. However, a method of individual feeding is required to ensure that the less competitive animals receive adequate feed and that the more aggressive animals do not overeat. One way of achieving this is the use of individual feeding stalls adjacent to the group pen, but this requires considerable barn space and extra labor to move the sows between the pens and stalls each day. However, the use of feeding stalls does not safeguard against the chronic bullying of some animals in the group pens that is seen in certain cases.

The most common alternative involves keeping the sows in individual stalls throughout most of the pregnancy (about 3 months). This close confinement affects the animals' behavior, and in some studies has been shown to influence their health, although this undoubtedly depends on the standard of husbandry. Nonetheless, many producers feel that individual penning is, on average, better for sow health and well-being than the older group-housing systems. There is an urgent need for studies of the well-being of dry sows housed under different conditions, and for development and testing of viable alternatives (*See Section I, 8*).

- 1.4 Bedding: A second major controversy has arisen over the lack of bedding in intensive husbandry. In older housing systems, bedding provided diverse benefits including thermal insulation, absorption of moisture, and greater floor comfort; and it served as an outlet for exploratory activities and as a source of dietary fiber. In addition, studies have shown that provision of straw can reduce the incidence of tail-biting and allow for partial expression of the sow's nest-building behavior before farrowing. On the other hand, some types of bedding (e.g., certain kinds of wood shavings) have been found to harbor organisms that are harmful to pigs. Research is needed to identify the effects of systems with and without bedding on the well-being of pigs, and to find alternative ways of supplying the benefits of bedding in intensive housing (*See Section I, 4.7, 7.7*).

I 2 Housing

- 2.1 Pigs should be housed in conditions conducive to good health, growth, and performance at all stages of their lives.

- 2.2 Buildings intended for confinement housing of pigs should be insulated by a suitable material and ventilated to maintain an adequate environment, particularly regarding temperature, vapor condensation, dust, and ammonia, carbon dioxide, hydrogen sulfide, methane, and other noxious gases during the normal weather fluctuations in a given locality.*
- 2.3 Pigs of all ages should be protected from cold areas and cold drafts, especially when the climatic temperature is below the comfort zone of the pigs. This is very important for piglets up to 2 weeks of age and for sick pigs, especially when housed in systems that prevent them from avoiding such areas. Cold air movement in the resting area should not be faster than 0.2 m/sec (0.66 ft/sec) in the pens at the level of the pig.
- 2.4 All floors must be safe for the pigs. Floors that, for whatever reason, increase injuries or deformities or cause detectable discomfort are not acceptable. Floors must be effectively drained. Flooring materials differ in suitability depending on the age of the pigs. In general, pigs past weaning age appear to prefer floors that provide good traction. Piglets' preferences appear to be based on comfort factors such as void-to-solid ratio and floor temperature.
- 2.5 All materials used in the pen to which the pigs have access, including preservatives and surface paint, should not contain any chemical compounds harmful to the pig or which may contaminate the meat products. The surfaces should be easy to clean and disinfect.
- 2.6 Interiors of pig buildings, pens, holding crates, and alleyways accessible to pigs should not have sharp edges or projections that may cause injury.
- 2.7 If it is a practice to use single holding units, the design of the units should always allow the pigs freedom to stand up and lie down comfortably. The height and width of the unit should be sufficient for the pigs to stand freely without touching the sides. The length of a holding unit should allow a centrally positioned pig enough room to move forward and backward, for the necessary muscular activity of the limbs and neck. The gates must be designed for easy entry and exit by the pig. The interior of the unit must be free from sharp edges, protrusions, and openings which may cause the pigs injury or detectable discomfort.
- 2.8 Since tethering has been shown to be less than desirable, it is to be discouraged and should be eliminated wherever feasible. While it is still being used, tethering must be safe for the sows and must not interfere with their freedom to stand up or lie down. Tethers must also provide opportunity for the necessary muscular activity of the limbs and neck.

*The publication *Environmental control for reducing energy waste in farm buildings*, available through Ontario Hydro, recommends that thermostatically controlled fans in insulated windowless buildings should have capacity to deliver 15, 20, 38, 70, and 130 L/sec for each weanling, grower, finisher, dry sow, and lactating sow, respectively.

- 2.9 In the case of group pens, the amount of recommended pen floor space per pig depends on several factors, mainly body size, floor construction, and environmental temperature. In all circumstances, the amount of space should provide opportunity for all pigs in the pen to be resting at the same time. Values suggested (Appendix A) are for a moderate climate and effectively drained floors. If for any reason a floor is not being effectively drained, the space allowance should be increased by 20%. Minimum space should not be less than 0.09 m² (1 sq ft) for every 11 kg (25 lb) of live weight (*See also Section 7.1*).
- 2.10 Noise level of machinery and equipment should be minimized.
- 2.11 Interiors of newly built or renovated buildings should be designed with due regard to measures necessary to deal with emergency situations, whether these be fire, flood, or electrical or mechanical breakdown.

I 3 Water and feed

- 3.1 Drinking water must be fresh and free from contamination. The diet should correspond to the basic nutritional requirements of given categories of pigs.* The producer should be prepared to replace immediately water or a feed suspected of being harmful to the pigs.
- 3.2 In normal circumstances, all pigs should receive food and water regularly on a daily basis. Feed restriction for longer than 24 hours should be avoided. Water supply should not be interrupted for longer than 24 hours. When the temperature in the pen is over 28°C (82°F), interruption of water supply should not exceed 12 hours.
- 3.3 When limited feeding or water restriction, or both, are applied to group-housed pigs, the available feeding and watering space should be increased according to the restriction. Whenever the amount of feed provided is less than 90% of the average free-choice (ad lib) intake, space allowance should enable all the pigs to eat at the same time.
- 3.4 Contingency arrangements should be available to prevent mortality from starvation or dehydration caused by unexpected interruption of feed or water supply.
- 3.5 Additives and growth promotants should not be used to mask unacceptable husbandry practices. When required, they must be of approved efficacy and be properly administered in the amount legally** permitted according to age and body weight. Proper withdrawal time before pigs are marketed must be strictly observed.

*For details see *Nutrient requirements for swine*, U.S. National Research Council, Washington, D.C. 20418, 1979.

**Food and Drug Act; Agriculture Canada Feeds Act.

I 4 Farrowing facilities

- 4.1 Farrowing facilities should be clean and sanitary. In particular, floors for farrowing crates should be maintained as clean and dry as possible.
- 4.2 Construction of farrowing crates should provide effective protection for piglets (e.g., rails or attached creeps), and be sufficiently comfortable for the sow in accordance with Section 2.7.
- 4.3 The internal arrangement of farrowing facilities should enable auditory contact between sows. Visual contact may also be desirable.
- 4.4 Water should be available to the sow at all times and, preferably separately, also to the piglets.
- 4.5 Arrangement of farrowing facilities should enable easy visual inspection of sows and piglets for early detection of problems.
- 4.6 Ideally, room temperature in the farrowing facilities should be 18–20°C (65–68°F) with a supplementary source of floor-level heat for the piglets. A reliable indicator of optimal temperature is comfortable resting of piglets in the heated area. Crowding, piling on each other, or shivering of piglets indicates low temperature. Avoidance of the heated zone or resting at its perimeter indicates high temperature. Air movement in shelters for piglets should not be more than 0.2 m/sec (0.66 ft/sec) at the level of the piglets, except when the temperature is above 28°C (82°F).
- 4.7 Some pregnant females are instinctively inclined to build a nest before farrowing. Thwarting of this behavioral activity, especially in first-litter sows (gilts), makes them restless during farrowing. As one remedy, provision of a small quantity of safe bedding material permits partial expression of this instinctive desire and, in some cases, reduces problems (*See Section 1.4*).

I 5 Delivery and postnatal care

- 5.1 It is advantageous to wash the sow or gilt with disinfectant before placing her in farrowing quarters, provided that temperature conditions and facilities are suitable. It is beneficial to allow sows and gilts to adjust to their farrowing quarters for at least 2 days before farrowing.
- 5.2 Some sows and gilts need assistance during farrowing. If a piglet becomes stuck in the birth canal, or if it needs help to begin breathing, assistance should be provided by a competent attendant familiar with high standards of hygiene. When necessary, start normal respiration by clearing mucus from nostrils and mouth, draining the fluids from the chest by holding the piglet up by the rear legs and shaking it, or by gently applying artificial respiration. If newborn piglets are lifted, they should not experience any pulling on the umbilical cord. A bleeding umbilical cord should be tied off immediately and disinfected.

- 5.3 In some cases a farrowing gilt or sow may snap at or injure piglets that approach her head during and after farrowing. This problem can be overcome in most cases by isolating the piglets and controlling the first few nursing periods. Before the piglets are allowed to start suckling, the mammary gland of such a sow should be massaged until the sow assumes the nursing position, and preferably, also begins nursing vocalizations (grunts) during the first few nursings. The behavior of the sow should be watched to prevent killing of piglets. Previous visual and auditory exposure to young piglets may, in some farrowing gilts, increase the likelihood that they will accept their own young without problems.
- 5.4 Nutrients, drugs, and other medical compounds should be of officially proven* quality and should be administered in recommended quantities by a competent attendant.
- 5.5 Noise level in farrowing quarters should be kept to a minimum. Disturbing noises have a negative effect on nursing behavior. Natural vocalizations of piglets and sows contribute effectively to social facilitation of nursing. This is of particular importance for farrowing gilts to initiate and maintain normal nursing routines.
- 5.6 Within a few hours of birth, cross-fostering should be utilized when practical if there is large variation in litter sizes or birth weights, or if sows are incapable of nursing effectively.
- 5.7 Sows and piglets should be visually inspected at least twice daily for signs of disease or other irregularities. It is recommended that all facilities have accommodation available for such cases as require segregation.

I 6 Weaning

- 6.1 Separation of piglets from their dam is a stressful period for both and, therefore, should be conducted with care. Proper attention should be given to the postweaning feed intake of all piglets and to behavioral signs of discomfort caused by temperature, especially if early weaning is practiced.
- Prior to weaning, the piglets should have sufficient opportunity to consume an appropriate diet and become familiar with feeders and waterers. At weaning, separation of sows and piglets should be complete so that they cannot hear or see each other.
- 6.2 To be considered acceptable, any new technique of early weaning should not cause piglets to show significantly lower performance or higher mortality, or both, than any other current technique.

*Foodstuffs Act; Food and Drug Act.

I 7 Growing

- 7.1 Before they are stocked, all pens should be properly cleaned and disinfected. The practice of maintaining separate litter groups after weaning eliminates the problem of fighting. In confinement housing, group size should preferably not exceed about 20 pigs per pen. In bedded weaner pools or other nonintensive housing, maximum group size is of less concern.
- 7.2 Pens should be properly ventilated but free from drafts (air movement not greater than 0.2 m/sec (0.66 ft/sec)) at pig level, and maintained as dry as possible. The ideal temperature in the pigs' resting zone should be 22–24°C (72–75°F) until they reach a body weight of 22 kg (49 lb). Thereafter, the temperature should be lowered to 18–20°C (65–68°F).
- 7.3 Pens should be kept clean and comfortable. To assist in the control of certain diseases it is advantageous to ensure that manure and urine from one pen cannot reach others.
- 7.4 Light intensity in the pen should be adequate to observe the pigs (100 lux; 9.5 foot-candles). The light and dark periods should each be not less than 6 hours per day.
- 7.5 On days with high temperature, the pens may be equipped with spray cooling to prevent discomfort and maintain good feed conversion efficiency. The system begins cyclically whenever the temperature reaches a preset level. Cooling action should be associated with some sort of prior signal (conditioned stimulus) to enable individual pigs to approach or avoid the sprinkled area. This simple technique reduces the amount of water needed.
- 7.6 When tail-biting occurs, the instigator or instigators should be detected as soon as possible and isolated. The victim should also be removed from the pen and immediately treated according to the seriousness of the injury.
- 7.7 Some environmental factors shown to increase tail-biting are absence of bedding (*See Section 1.4*), increased temperature in the pen, high light intensity, ineffective ventilation, poorly drained floors, and nutritionally unbalanced diets. The main social factors are overcrowding, boredom, frustration, and circumstances conducive to aggression among pigs. Corrective steps should focus on such factors.
- 7.8 Male and female pigs raised for breeding purposes and approaching sexual maturity should be sexually segregated.

I 8 Breeding and gestation

- 8.1 Pregnant dry sows should be housed in individual holding units or in

groups preferably not larger than eight animals per pen. Small group size can reduce the stress produced by larger sows "riding" or bullying smaller ones. As far as possible, the composition of the group should not change. Where individual feeders are used, the number of feeder spaces should correspond to the number of animals in the pen, in order to prevent or reduce social competition. The feeder design should minimize interference between pigs during feeding.

- 8.2 The interior width of individual holding units for pregnant sows should not be less than 60 cm (24 in.). In all other features, holding units should be constructed to provide a proper physical and social environment with regard to the factors mentioned in Section 2.7.
- 8.3 Pens and holding units should be properly drained and be kept comfortable and clean. The slope of the floor in individual holding units should not be less than 2% or more than 4% (2–4 cm/m; ¼–½ in./ft).
- 8.4 Illumination of pens stimulates the manifestation of estrus behavior. For this reason, the duration of the daily light period should be 14–16 hours and the light intensity should be 100 lux or higher (approximately 9.5 foot-candles), that is, about the amount needed for comfortable reading.
- 8.5 Pens for breeding should have a dry, nonslip floor and should be large enough (at least 7.5 m²; 80.7 sq ft) for comfortable movement during breeding activities.

I 9 Boars

- 9.1 The housing pen should be kept clean and have a dry resting area. It also should provide enough space for comfort, allowing the boar to turn around freely and preferably to walk.
- 9.2 A young, sexually inexperienced boar should never be placed together with a group of females (doing so may lead to sexual distraction or, in an extreme case, to some form of psychological impotence).
- 9.3 Disturbances during breeding should be avoided. Punishment should never be used. Prolonged exposure of a boar to strongly aggressive females may have a negative influence on his breeding ability.
- 9.4 To maintain normal patterns of sexual behavior, boars should not be overworked and should be fed a nutritionally balanced diet, adequate for their breeding load.
- 9.5 Castration, *See Section 10, Surgical procedures.*
- 9.6 Tusk trimming, *See Section 10, Surgical procedures.*

I 10 Surgical procedures

- 10.1 Identification: Where it is necessary to mark pigs for permanent identification, the ear may be tattooed, tagged, notched, or punched, or the body may be tattooed. Slapmarking is an acceptable method where identification is required immediately prior to transporting the pigs to slaughter. These operations should be carried out by competent operators, eliminating avoidable pain or distress.
- 10.2 Castration: Due to consumer taste and marketing conditions in Canada, intact boars are not normally accepted at slaughterhouses. Therefore, castration should be carried out within 2 months of birth using acceptable procedures by a competently trained operator. In future it may be possible to market intact young boars. This would be desirable because intact males show a better growth rate and leaner carcass, and the need for castration would be avoided.
 - 10.2.1 Castration of aged boars and breeding culls should be carried out by a veterinarian with the boar under anesthesia. This procedure should be carried out sufficiently in advance of shipping for slaughter to allow healing of the scrotum.
- 10.3 Tail trimming: Tail-trimming has been adopted primarily to reduce the risk of tail biting. The objective should be to avoid the need for this practice, but, where it remains necessary, it should be carried out using acceptable procedures by a competently trained operator.
- 10.4 Tooth trimming: Tooth trimming is used to minimize the risk of damage to the sow's teats and to the littermates. Where it is necessary, this procedure should also be performed using acceptable procedures by a competently trained operator.
- 10.5 Tusk trimming: Tusk trimming is necessary and should be carried out using acceptable procedures by a competently trained operator. Care should be taken to cut the tusks level with the gums without interfering with them.
- 10.6 Backfat measurement: Surgical probing for this measurement is not acceptable for commercial operations.
- 10.7 Nose ringing: Confinement housing has eliminated the need for nose ringing.

I 11 Attendants

- 11.1 To be considered qualified, every person working with pigs should be able to understand and accept his or her responsibility to prevent any avoidable suffering of animals. Prior to assignment of duties, personnel

should be adequately instructed and proven knowledgeable of the basic needs of the animals entrusted to their care. Attendants should be able to recognize behavioral symptoms that indicate discomfort or disease problems and the need to consult a veterinarian.

- 11.2 Working routine of attendants should be consistent and performed where possible on a regular schedule. Movement of people and equipment within pens should be quiet and smooth. To minimize excitement of the pigs, it is advantageous that all attendants wear clothing of similar appearance and provide an easily perceptible signal before entering the barn or room.

I 12 Supervision and protection of pigs

- 12.1 All pigs should be checked at least twice a day. The arrangement of pig pens should enable easy visual inspection of all areas and all housed pigs. This is particularly necessary in situations where one attendant is responsible for a large number of pigs.
- 12.2 Sick or injured pigs should be immediately treated or, depending upon severity of the injury, be humanely destroyed. Financial costs should not be a reason for neglect of pigs in obvious distress or for delay of medical treatment. Dead pigs should be removed immediately and disposed of according to provincial and federal legislation.
- 12.3 Any occurrence of a reportable disease* or suspicion of such a disease should immediately be brought to the notice of a federal veterinarian.
- 12.4 Attendants should regularly check the pigs for parasites. When detected, corrective treatment should be introduced as soon as possible.
- 12.5 Mechanical devices, particularly ventilation, water, and feed delivery systems, should be inspected daily. The manager of pig premises should have an emergency plan for such systems and every attendant should be familiar with it.
- 12.6 Pigs should be protected from harassment and from transmission of infections by other animals or birds. Control of pests, particularly rodents and flies, on pig premises should be practiced continually.

Management practices to avoid introduction of disease into a herd are of primary importance. Appropriate measures should be taken to prevent and control diseases in pigs, including the use of vaccines, medications, and insecticides, as required.

*For more details, see Animal Disease and Protection Act.

I 13 Handling of pigs

- 13.1 Handling can be stressful to pigs if conducted improperly. At all stages of their lives, pigs should be handled with care, gentleness, and patience. When young piglets are being held, they should be in their comfortable body position. Pulling of legs in directions in which they do not normally move must be avoided. Pulling of ears or tail should be minimized.
- 13.2 When restraint is required it should be minimal in degree and time, and such that no injury is inflicted on the pigs.
- 13.3 The use of electrical prods, canvas slappers, and other devices should be kept to a minimum to avoid excitement and injury to pigs.
 - 13.3.1 Prods for moving pigs must not be used in the genital or anal areas and their use should be avoided in the facial area, whenever possible.
 - 13.3.2 Direct 120-volt circuits are not permitted. These are in violation of provincial electric codes and can be fatal to the pig or handler. Induction voltage, applied by use of a transformer that limits amperage, is practical, efficient, and safe.
 - 13.3.3 On induction voltage systems, the recommended settings are 4000 volts and a maximum of 8 milliamperes. By comparison, battery prods provide a range of 2500 to 4000 volts, depending on capacitor design.

I 14 Prevention of social aggression (fighting)

- 14.1 Increased social aggression in most cases is linked with managerial problems. The most common causes are as follows:
 - A. Aggression occurs as a result of insufficient feeding and watering space, reduced amount of feed and water, and inadequate resting space.
 - B. Aggression can result from large group sizes and from overcrowding.
 - C. Aggression linked to frustration can be caused by such factors as high pen temperature, poorly drained floors, an uncomfortable type of floor, and irregularity of feed quality and feeding times.
 - D. Aggression linked to boredom can be caused by the restrictive environment of the pen, and thus, limited opportunities for the pigs to explore their surroundings.
- 14.2 Fighting among animals is generally infrequent if the number of pigs in a group permits individuals to recognize all its members. In pens with more than 20 pigs, division of the pen into separate areas through use of

moveable barriers or other means facilitates subgrouping and reduces the probability of fighting.

- 14.3 The formation of a social hierarchy in a group of pigs is normally associated with a temporary increase in aggressive behavior. To minimize readjustments in the social order, the composition of the pigs in a group should be changed as little as possible. Introduction of new pigs to an established group should be avoided as much as possible. If the housing of pigs must be rearranged, it is essential that new groups be formed from a small number of original groups. The number of pigs from each original group should be balanced and body sizes within each new group be similar. Where possible, place regrouped pigs in a pen that is new to all pigs in the group.
- 14.4 Mixing of pigs from different farms greatly increases social stress and the risk of spreading disease, and should be avoided as much as possible.

SECTION II TRANSPORTERS

II 1 Definitions used in this section of the code

- 1.1 Vehicle: A vehicle is any means of transportation for pigs including truck, railway car, ship, and airplane.
- 1.2 Container: A box constructed for the shipment of pigs, which can be moved from one means of transportation to another.
- 1.3 Unfit animal: A sick, fatigued, or injured pig which cannot be transported without undue suffering unless special precautions are taken (*See Section 10*).

Note: While the term "subject" is generally used to describe an "unfit" pig as described in the preceding definition, in the Ontario context "subject" may also be used for a "light-weight" that is otherwise healthy, and not the object of discussion in Section 10.

II 2 Transportation — general

- 2.1 All members of the transporting crew should be properly instructed and knowledgeable about the basic facts of animal welfare and be skillful in handling pigs under varying climatic conditions.
- 2.2 Drivers of trucks should start, drive, and stop smoothly to prevent animals from being thrown off their feet.

II 3 Loading and unloading

- 3.1 In a new situation or location, all normal, healthy animals are alert and investigative. Every small change or disturbance in their surroundings, such as noise, breezes, movement of objects, and flashes of light, frighten the pigs. It must be realized that their ability to accept such disturbances is not comparable to that of human beings.
- 3.2 The loading zone should be so situated as to safeguard against spread of infections as much as possible. Precautions should be taken to prevent return or escape of loaded pigs from the truck or loading zone back into the building.
- 3.3 The use of battery-operated electric prods, canvas slappers, and other devices should be kept to a minimum to avoid excitement of, and injury to, pigs.
 - 3.3.1 Prods for moving pigs must not be used in the genital or anal areas and their use should be avoided in the facial area, whenever possible.
 - 3.3.2 Direct 120-volt circuits are not permitted. These are in violation of provincial electric codes and can be fatal to the pig or handler. Induction voltage, applied by use of a transformer that limits amperage, is practical, efficient, and safe.
 - 3.3.3 On induction voltage systems, the recommended settings are 4000 volts and a maximum of 8 milliamperes. By comparison, battery prods provide a range of 2500 to 4000 volts, depending on capacitor design.
- 3.4 A pig should not be loaded or unloaded in a way to cause it avoidable injury or suffering. A ramp should be used. Tilting of the box of a dump truck is totally unacceptable.
- 3.5 Loading of pigs can be more easily accomplished if pathways and ramps do not have sharp turns that impede movement and may lead to injury of the pigs. An ideal loading alleyway and ramp should therefore be curved, have solid walls, be properly illuminated, and not be steeper than 25 degrees. Ideally, loading docks should be level with the truck, but in any case should permit the pig to step safely up or down from the truck.
- 3.6 Ramps and chutes should be strong and sides high enough to prevent pigs from falling or jumping off.
- 3.7 No gap should exist between the ramp, its sides, and the railway car, truck, ship, or airplane.
- 3.8 Pigs should be loaded only into vehicles that are suitably clean and disinfected, and which contain proper bedding.
- 3.9 The size of doors should be sufficient to permit pigs to pass easily without bruising or injury.

II 4 Vehicles

- 4.1 Any truck transporting pigs should have sides that are secure, strong, and high enough to prevent them from jumping, falling, or being pushed out.
- 4.2 Provision must be made for drainage or absorption of urine.
- 4.3 Construction should be such as to prevent protrusion of any part of a pig from the vehicle.
- 4.4 Vehicles used to transport pigs must be so constructed as to protect them from adverse weather (*See Sections 11 and 12*).
- 4.5 Vehicles, airplanes, containers, and ships should be cleaned and disinfected after each shipment to prevent spread of disease. Facilities for cleaning and disinfecting should be provided at unloading points during all seasons.

II 5 Space requirements

- 5.1 Pigs should not be crowded in a way that causes injury or suffering, and sufficient floor space should be provided to allow them to stand in their natural position without touching the ceiling or roof. Recommended space requirements for pigs in transit are included in Appendix B. Space requirements vary with temperature.

II 6 Segregation

- 6.1 Pigs of substantially different weights and ages must be separated from each other.
- 6.2 A sow with her suckling litter must be segregated from all other animals during transport.
- 6.3 Groups of detusked boars must be segregated together away from other pigs during transport. Aggressive boars in this group should be segregated individually.
- 6.4 Aged boars that are not detusked must be individually segregated.
- 6.5 Physical injury must never be inflicted to reduce aggression among pigs prior to transport.

II 7 Protecting pigs during transport

- 7.1 Vehicles, airplanes, ships, containers, and crates should be well constructed to transport pigs. Vehicles, boats, and airplanes should have

secure fittings and be free from boltheads, angles, and other projections. The fittings should be adequately padded. There should be adequate ventilation (*See Sections 11 and 12*).

- 7.2 Where vehicle floors do not provide proper footing, pigs need straw, woodshavings, or other bedding material and sand for safe and secure footholds (*See Sections 11 and 12*).
- 7.3 Pigs must be protected from exposure to adverse weather (*See Sections 11 and 12*).

II 8 Containers and crates

- 8.1 Containers and crates used in transporting pigs should be constructed and maintained according to the following specifications:
- They should be clean.
 - They should prevent protrusion of any part of the pig.
 - The doors must be large enough so pigs may pass through easily, without bruising or injury.
 - The pigs can be easily inspected.
 - There is adequate footing and bedding.
 - Any liquid or solid waste is prevented from escaping.
 - They should have adequate ventilation.
 - They should provide protection from adverse weather.
 - Where required, the pigs can be fed and watered without having to be removed (*See Section 9*).
- 8.2 Unless the pigs are easily seen from outside the containers and crates, every container and crate used to transport pigs must have a sign or symbol to indicate that it contains live animals, and to show its upright position.
- 8.3 Containers and crates for transporting pigs must be secured to prevent them from moving during the trip.
- 8.4 There should be adequate space for pigs (*See Section 5 and Appendix B*). Outside temperatures should be considered (*See Sections 11 and 12*).
- 8.5 In placing containers and crates, attention must also be given to temperature, ventilation, and spacing.
- 8.6 Containers and crates should be tilted as little as possible at any stage of loading or unloading. They should always be moved smoothly and never thrown or dropped.
- 8.7 During transportation, sudden changes in environment should be minimized and the pigs should not be subjected to excessive unfamiliar noise.

II 9 Food, water, and rest for pigs in transit

- 9.1 Pigs may not be confined on a vehicle, boat, or airplane, or in containers or crates for longer than 36 hours without food, water, or rest. If the trip is to last longer than 24 hours from the time of loading, the pigs must have been fed and watered within 5 hours of loading.*
- 9.2 Pigs that are unloaded for food, water, and rest must be placed in a suitably covered shelter, provided with enough food and drinkable water, and rested for at least 5 hours.
- 9.3 Transporters must maintain, or have access to, facilities where pigs may be fed, watered, and cared for, and which provide shelter from the extremes of weather.
- 9.4 Ships carrying pigs must provide for the following requirements:
- Carry enough food and water for the expected length of the trip.
 - Provide an additional 2-day supply of food and water for each estimated 8 days of the voyage.
 - Store food and water so that it is sanitary and not exposed to extreme weather.
 - Provide enough water outlets to water the pigs.
- 9.5 Young piglets requiring special food should be provided with such food, as well as water, at least every 18 hours.

II 10 Unfit pigs

- 10.1 Pigs that would probably give birth during the journey cannot be loaded or transported.
- 10.2 A pig that is unsuited for further travel should be taken to the nearest place suitable for proper attention.
- 10.3 An “unfit” pig that can be transported should be separated from the rest, except in cold weather when for reasons of warmth it may be placed in a compartment with half the normal number of pigs.
- 10.4 Unfit pigs should be loaded or unloaded in such a way as to cause the least suffering.
- 10.5 Unfit pigs should be last on and first off a vehicle whenever possible.
- 10.6 Known unfit pigs should be reported to the plant or stockyard receiver before unloading.

*Animal Disease and Protection Act and Regulations, Section 148.

- 10.7 Air and sea carriers must make a report to the veterinary inspector at the port of embarkation stating the cause why any animal died, was killed, or was seriously injured during the trip.

II 11 Precautions in cold weather

- 11.1 Market hogs have little natural protection from the cold. They suffer frostbite quickly, so special precautions are required.

Wind chill can kill hogs. They must be protected from cold wind during travel. Exposed hogs in a truck moving down the road at 80 km/h (50 mph) with the temperature at 4°C (40°F) are exposed to a wind chill of -13°C (8°F). If the truck is traveling into a head wind, the wind chill effect will be even greater (*See Appendix C*).

- 11.2 Cover any openings that allow freezing drafts to enter the vehicle box.

A truck traveling at 90 km/h (55 mph) in -20°C (-4°F) weather creates a blast of cold air in the truck box that will freeze exposed flesh in less than 1 minute. Under these conditions pigs quickly suffer frostbite or freeze to death.

- Replace bottom slats in vehicles to protect pigs from the cold, but allow air to pass over their bodies.
- Close nose vents.
- During winter travel, protect pigs from cold crosswinds.

- 11.3 Observe weather conditions carefully and adjust ventilation accordingly. Too much cold air entering the vehicle could cause frostbite but a completely enclosed box invites the possibility of suffocation. Check load and ventilation while in transit.

- 11.4 Line the sides and floors of metal vehicle boxes with wooden liners or sufficient bedding. A hog's unprotected skin touching frigid bare metal will freeze almost instantly.

- 11.5 Distribute plenty of straw when the temperature is below 16°C (60°F), because it is a good insulator and will help to keep pigs warm. A small amount of sand distributed on the floor will improve footing, depending on floor type. Remove wet bedding after each trip to prevent it from freezing on the trucks.

- 11.6 Freezing rain and temperatures around freezing can be deadly, and pigs need to be protected. Freezing rain can kill pigs in a truck if it blows in through the side and soaks them.

- 11.7 In cold weather, stop and inspect the pigs every so often — every 160 km (100 miles) at a maximum — and allow them to warm up.

- 11.8 In case of breakdowns, accidents, or other delays, take whatever action is necessary to ensure the well-being of the pigs (*See Appendix D*).

II 12 Precautions in hot and humid weather

- 12.1 Hot weather and high humidity are deadly to pigs because they lack sweat glands.
- 12.2 Feeding prior to shipping should be given close attention. Market hogs should *not* be fed immediately before transporting (*except as in Section 9*).
- 12.3 Use sand in trucks where there is no footing. Never use sand containing fertilizer, ashes, or calcium chloride.
- 12.4 Do not bed with straw or shavings as this practice will cause an increased heat buildup.
- 12.5 Reduce loading density by about 10% if temperature is above 16°C (60°F); cutbacks of up to 25% should be considered if the day is extremely hot and humid.
- 12.6 Ensure maximum airflow through the vehicle. To give pigs proper protection from the sun in the case of open-top trucks, use tarpaulins on the top only. Ensure ventilation from sides by not covering slats or openings with tarpaulins or other materials.
- 12.7 Cool pigs by use of water on the floor of pig pens or by use of fine mist spray. Do not pour cold water on pigs as this could cause death by shock. Only those pigs that have been properly cooled out should be loaded.
- 12.8 Load and unload promptly. Minimum stops are desirable. Heat will build up rapidly inside a loaded vehicle that is standing still.
- 12.9 In case of breakdowns, accidents, or other delays, follow prescribed emergency procedures (*See Appendix D for an example*).

II 13 Stress

- 13.1 Pigs showing signs of porcine stress syndrome (PSS) must be allowed to rest or they may die. The signs of PSS include suddenly lying down, panting, and trembling. The skin of these pigs may have a red splotchy appearance.
- 13.2 A pig that has overexerted itself must be allowed to rest. This is a special problem with confinement pigs and it can lead to heart failure. Climbing a loading chute, for instance, will make a pig's heart beat faster. If the heart starts to race, the pig will lie down, bringing the heart rate down to a safe level.

- 13.3 In hot weather, be more careful in handling. Hot weather increases problems of stress, since the heart rate increases in an effort to get rid of excess heat. Wide temperature fluctuations between day and night also increase PSS.
- 13.4 Do *not* throw water on a pig that has collapsed. The shock to the system may kill it. Instead, wet the ground around the pig to provide cooling by evaporation.
- 13.5 Be careful with electric prods. If a pig lies down, do *not* keep prodding it. A pig's heart rate increases with repeated prodding, and it may have a heart attack and die.

II 14 Assembly yards

- 14.1 Unloading of pigs may be accomplished more easily if ramps and alleys do not have sharp angles. An ideal unloading alleyway and ramp, therefore, should be straight or curved, have solid walls, and be not steeper than 25 degrees.
- 14.2 All floors of the pens, alleyways, and chutes must be paved, properly drained, scored or treated to prevent slipping, and not too steeply graded to provide good footing. The slope of the floor in individual holding units should not be less than 2% or more than 4% (2–4 cm/m; ¼–½ in./ft). Drainage grates, where required, should be at the side of the pens, alleyways, or chutes.
- 14.3 Attention should be given to proper illumination of alleyways, receiving ramps, loading ramps, and, if necessary, the entrance of the transport vehicle.
- 14.4 All facilities must be covered and properly ventilated, and pigs must be protected against extreme weather conditions. All assembly yards should be equipped to provide drinking water for pigs. If pigs are to be kept for more than 24 hours, they must also be fed (*See Section 9*).
- 14.5 The provision of gates to prevent pigs from reversing direction is highly desirable.
- 14.6 The facilities should be properly maintained and must be free from protruding nails, bolts, sharp corners, and anything else that would be likely to contribute to the injury or discomfort of the pigs.
- 14.7 Groups of sows, stags, detusked boars, and unfit and crippled pigs must be segregated. Aged boars that have not been detusked must be segregated individually. Any aggressive pig in the above groups should be penned separately.
- 14.8 The pens should not be overcrowded; the amount of space should be sufficient to enable all pigs in the pens to rest at the same time. The

amount of recommended floor space per pig depends on body size and environmental temperatures.

- 14.9 Pigs should be unloaded, penned, held, and loaded in such a way that they are exposed to a minimum of discomfort and excitement.
- 14.10 Crippled, downed, and obviously sick pigs should be kept comfortable, and be dealt with as expeditiously as possible to prevent avoidable suffering.
- 14.11 The use of electric prods, canvas slappers, and other devices should be kept to a minimum to avoid excitement of, and injury to, pigs.

SECTION III PROCESSORS

III 1 Unloading

- 1.1 All trucks arriving at slaughtering plants should comply with Section II of the code (transporters).
- 1.2 To prevent undue delays, delivery should be properly scheduled and an adequate number of unloading ramps be provided. In all cases pigs should be unloaded without delay.
- 1.3 It is preferable to have a flat landing surface at ramp or dock level.
- 1.4 To accommodate vehicles of varying heights, either unloading docks of different heights or adjustable ramps should be provided.
- 1.5 There should not be any unprotected gaps between the vehicle and platform (bottom and sides).
- 1.6 Receiving areas should have adequate lighting and be free from slick surfaces, sharp protrusions, bright sunlight, and dark areas, and wherever possible floor drains should be located at the side of alleyways.
- 1.7 Crippled, downed, suspect, weak, and fatigued pigs are subject to veterinary inspection and are to be handled as defined in Section 8.

III 2 Ramps, alleyways, and chutes

- 2.1 Ramps and alleyways should be wide enough for pigs to be moved effectively with a minimum of stress and excitement, but be narrow enough to prevent the pigs from going past the handlers.
- 2.2 Direct light, shadows, and pools of water are to be avoided.

- 2.3 It is desirable to have alleyways with solid sides. There should be no sharp corners, protrusions, or obstacles that inhibit the movement or cause injury of pigs.
- 2.4 Flooring on ramps, alleyways, and chutes should be designed to prevent slipping, falling, and injury of pigs.
- 2.5 Pigs are to be handled with a minimum of discomfort or excitement.

III 3 Housing

- 3.1 The preslaughter housing of pigs should be covered and provide adequate protection from the elements. The capacity of covered facilities should correspond to normal plant requirements.
 - 3.1.1 Pens should be available in a variety of sizes to minimize mixing of different lots, and thus avoid fighting and hierarchy stress. Dividing (adjustable) gates should be installed in larger pens to reduce fighting and lessen mixing of different lots of pigs.
 - 3.1.2 Ideally, pens should be long and narrow to permit pigs to spread out along the fence line. Pens should be designed to facilitate one-way traffic movement, and have a separate entrance and exit.
 - 3.1.3 Drains should be located so the pigs do not have to cross them during movement to chutes.
- 3.2 Uncovered pens may be used to hold any overflow of pigs; however, the welfare of such animals must be given careful consideration. These uncovered pens may be used only for brief staging periods under suitable climatic conditions.
- 3.3 Crowding is to be avoided; pigs should be able to stand up and lie down comfortably.
- 3.4 Drafts from the elements or ventilation systems should be avoided in resting areas.
- 3.5 Housing facilities should be reasonably clean, and free from protruding nails, bolts, sharp corners, and other conditions that may contribute to the injury or discomfort of the pigs.
- 3.6 In all covered holding pens, pigs should have access to clean water.
- 3.7 If pigs are kept for more than 24 hours, facilities for watering and feeding must be provided.
- 3.8 Sufficient lighting should be provided for routine visual observation.

- 3.9 Hot humid weather increases stress, porcine stress syndrome (PSS), and pale, soft exudative (PSE) pork. Use of sprinklers or foggers, less dense preslaughter housing, and increased time to rest is recommended.
- 3.10 A contingency plan should be available in the event of a breakdown in the ventilation system due to electrical or mechanical failure.

III 4 Crowd pens

- 4.1 Crowd pens (for use prior to exsanguination) should have solid sides, nonslip flooring, and a minimum grade to permit proper drainage.
- 4.2 Crowd pens should be designed to prevent injury, minimize excitement, and provide for the orderly movement of pigs to the infeed chute.
- 4.3 Since a daily washup of this area is required, adequate heating, lighting, and ventilation are required.
- 4.4 The chute leading to the stunning area should have solid sides and be of the proper size to prevent pigs from turning around and reversing direction. Overhead restraining bars are necessary to prevent pigs from jumping on top of each other.
- 4.5 Flooring should provide secure footing and traction to encourage the movement of pigs in an orderly fashion. These features reduce the frequency of prodding and therefore reduce undue stress and excitement.

III 5 Prods

- 5.1 The use of electrical prods, canvas slappers, and other devices should be kept to a minimum to avoid excitement and injury of pigs.
- 5.2 Prods for moving pigs must not be used in the genital or anal areas, and their use should be avoided in the facial area, whenever possible.
- 5.3 Direct 120-volt circuits are not permitted. These are in violation of provincial electric codes and can be fatal to the pig or handler. Induction voltage, applied by use of a transformer that limits amperage, is practical, efficient, and safe.
- 5.4 On induction voltage systems, the recommended settings are 4000 volts and a maximum of 8 milliamperes. By comparison, battery prods provide a range of 2500 to 4000 volts, depending on capacitor design.

III 6 Stunning

- 6.1 In order to ensure that slaughtering is humane, the most important factor is the selection and training of the person doing the stunning.

- 6.2 No pig shall be slaughtered without first being rendered unconscious by an approved humane method.*
- 6.3 Hoisting or bleeding out of pigs not rendered unconscious is illegal.*
- 6.4 Electrical stunning systems must be in good working order and be correctly applied so that the electric current will pass through the brain and cause unconsciousness.
- 6.5 The use of electrical reversible stunning systems requires an expeditious bleed-out to prevent a return to consciousness. It is recommended that the interval from stunning to sticking be not more than 30 seconds.

III 7 Education of personnel

- 7.1 Ignorance of the law is no excuse for the inhumane handling of livestock. There is an obligation on employers to properly train employees on humane handling, equipment use, and livestock care.
- 7.2 Slides, pamphlets, bulletins, and discussions are aids available for instructing employees on their responsibilities and obligations.
- 7.3 A knowledge of basic animal behavior will assist employees to become more tolerant and understanding in their job functions.

III 8 Subjects

- 8.1 Crippled, downed, suspect, weak, and fatigued pigs should be identified and documented as "subjects."
- 8.2 A crippled pig is defined as a pig that is obviously lame but still able to move without assistance.
- 8.3 Cripples are to be off-loaded and placed in their own segregated pen. These pigs should be kept comfortable, properly bedded, and watered (and fed if necessary) pending further evaluation by the veterinarian.
- 8.4 Downed pigs or "downers" are animals that may be suffering from fatigue, injury, or disease that prevents them from being mobile.
- 8.5 The dragging of conscious pigs is not permitted. Downers should undergo veterinary evaluation before being unloaded. Since humane considerations make the presence of a downed pig an emergency situation, in those instances where a veterinarian is not readily available, an inspector may make the evaluation, subject to provincial legislation.

*Humane Slaughter of Food Animals Act.

- 8.6 Downers may be off-loaded by means of a stretcher, cage, or similar equipment, if properly constructed and if the design of vehicle and size of the pig permit this to be done without causing undue pain or suffering. Downers off-loaded in this manner should be dealt with as soon as possible and should be stunned and bled before being moved to the slaughter floor, unless they are conveyed directly from the vehicle to the slaughter floor on a stretcher, cage, or similar equipment. The most desirable means of handling downers is to stun them on the vehicle under the supervision of a veterinarian or inspector, remove them from the vehicle, bleed them, and transport the carcass to the slaughter floor.
- 8.7 Pigs arriving on vehicles as downers are subject to the following requirements:
- A. Evaluation by a veterinarian or inspector.
 - B. Capability to insert downers into the slaughter schedule, such that there will be no undue delays in rendering the pigs unconscious, or in eviscerating the carcasses after slaughter.

Failure to comply with either of the above requirements will necessitate the humane killing of the pig and disposition of the carcass as condemned material.

III 9 Boar handling

- 9.1 Special consideration must be given to the handling of boars weighing 135 kg (300 lb) or more.
- 9.2 Because of the dangers, attention must be directed to employee protection.
- 9.3 Individual pens should be available for a sufficient percentage of the normal number of boars purchased so that the aggressive boars can be isolated.
- 9.4 It is expected that all boars arriving at the plant will have been detusked, either before leaving the farm or during the marketing process.
- 9.5 Boars arriving at the plant will receive special handling, by quick slaughter, directly off the truck, if possible. Ideally, boars should be handled as a group, but individual pens should be provided for aggressive boars, as noted.
- 9.6 Stunning requires special attention; either a captive bolt pistol or an adaptation of the electric stunning procedure for market pigs should be used.

APPENDIX A

Recommended pen floor space for moderate climate and partially (30–50%) slatted floors

Category	Body weight		Pen floor space per pig*	
	kg	lb	m ²	sq ft
Weaners and feeders	less than 25	less than 55	0.25	2.8
	25–50	55–110	0.50	5.6
	50–75	110–165	0.70	7.8
	75–100	165–220	0.85	9.4
Sows	less than 150	less than 330	1.50	17
	150–200	330–440	1.90	21
	200–250	440–550	2.20	24
	more than 250	more than 550	2.40	27
Breeding boars	—	—	7.50	83

* Space recommendations were calculated as a function of body surface for weaners and feeders, half the body surface for sows, and three-quarters the body surface for boars.

APPENDIX B1

Maximum loading rates for pigs in transit (metric)

Size of vehicle or load area	Number of pigs allowed		
	Below 16°C	16–23°C	24°C or higher
1/2 tonne, narrow	8	7	6
1/2 tonne, wide	11	10	9
1 tonne or			
2.7 m × 2.4 m	19	18	16
3.6 m × 2.4 m	26	24	22
4.5 m × 2.4 m	32	29	27
5.2 m × 2.4 m	37	33	31
5.5 m × 2.4 m	39	35	33
6.1 m × 2.4 m	43	39	36
For trailers, carts, or nonstandard-size vehicles, as well as vessels, airplanes, trains, containers, and crates — allow (per pig):			
	0.34 m ²	0.38 m ²	0.41 m ²
6.7 m × 2.4 m	48	43	40
7.3 m × 2.4 m	52	47	44
12.2 m × 2.4 m	86	78	73
13.7 m × 2.4 m	97	88	82
2.6-m floor widths — add 3 pigs for each 6.1 m of length, or:			
6.7 m × 2.6 m	51	46	43
12.9 m × 2.6 m	98	88	82
with 10.4-m deck:	plus 78 = 176	plus 70 = 158	plus 66 = 148
13.7 m × 2.6 m	103	93	87
with 11.6-m deck:	plus 87 = 190	plus 79 = 172	plus 73 = 160
14.0 m × 2.6 m POT			
(2 decks):	195	176	164
Possum-belly trailers (3 decks):			
12.9 m POT	213	192	170
13.4 m POT	227	204	182
13.7 m POT	235	212	188
14.0 m POT	242	218	194

Notes: Calculations are based on approximate weight of 95–104 kg per pig, and on 0.34 m² per animal in weather below 16°C with 10% cutbacks in warm weather and 20% cutbacks on hot days.

The above values are for *maximum* load schedules. Transporters or producers not adhering to these regulations will be assessed any death losses on overloaded shipments. All transporter vehicles and possum-belly trailers must have sufficient partitions so that no more than 30 pigs are penned together at any time.

Source: Ontario Pork Producers' Marketing Board.

APPENDIX B2

Maximum loading rates for pigs in transit (Imperial)

Size of vehicle or load area	Number of pigs allowed		
	Below 60°F	60–74°F	75°F or higher
1/2 tonne, narrow	8	7	6
1/2 tonne, wide	11	10	9
1 tonne or 9 × 8 ft	19	18	16
12 × 8 ft	26	24	22
15 × 8 ft	32	29	27
17 × 8 ft	37	33	31
18 × 8 ft	39	35	33
20 × 8 ft	43	39	36
For trailers, carts, or nonstandard-size vehicles, as well as vessels, airplanes, trains, containers, and crates — allow (per pig):			
	3.7 sq ft	4.1 sq ft	4.4 sq ft
22 × 8 ft	48	43	40
24 × 8 ft	52	47	44
40 × 8 ft	86	78	73
45 × 8 ft	97	88	82
8½-ft floor widths — add 3 hogs for each 20 ft of length, or:			
22 × 8½ ft	51	46	43
42½ × 8½ ft	98	88	82
with 34-ft deck:	plus 78 = 176	plus 70 = 158	plus 66 = 148
45 × 8½ ft	103	93	87
with 38-ft deck:	plus 87 = 190	plus 79 = 172	plus 73 = 160
46 × 8½ ft POT			
(2 decks):	195	176	164
Possum-belly trailers (3 decks):			
42½ ft POT	213	192	170
44 ft POT	227	204	182
45 ft POT	235	212	188
46 ft POT	242	218	194

Notes: Calculations are based on approximate weight of 210 to 230 lb per pig, and on 3.7 sq ft per animal in weather below 60°F, with 10% cutbacks in warm weather and 20% cutbacks on hot days.

The above values are for *maximum* load schedules. Transporters or producers not adhering to these regulations will be assessed any death losses on overloaded shipments. All transporter vehicles and possum-belly trailers must have sufficient partitions so that no more than 30 pigs are penned together at any time.

Source: Ontario Pork Producers' Marketing Board.

APPENDIX C

Wind chill factors for pigs in transit (The chart below shows the wind chill temperatures for unprotected hogs in a truck moving at the speed indicated for the wind)

Wind speed, km/h (mph)	Actual air temperature, °C (°F)						
	10	4	-1	-7	-12	-18	-23
	(50)	(40)	(30)	(20)	(10)	(0)	(-10)
Wind chill factor							
8	9	2	-3	-8	-15	-21	-26
(5)	(48)	(36)	(27)	(17)	(5)	(-5)	(-15)
16	4	-2	-8	-15	-22	-29	-34
(10)	(40)	(29)	(18)	(5)	(-8)	(-20)	(-30)
24	2	-5	-12	-21	-28	-34	-41
(15)	(35)	(23)	(10)	(-5)	(-18)	(-29)	(-42)
32	0	-8	-16	-23	-31	-37	-45
(20)	(32)	(18)	(4)	(-10)	(-23)	(-34)	(-50)
40	-1	-9	-18	-26	-33	-39	-48
(25)	(30)	(15)	(-1)	(-15)	(-28)	(-38)	(-55)
48	-2	-11	-21	-28	-36	-42	-51
(30)	(28)	(13)	(-5)	(-18)	(-33)	(-44)	(-60)
56	-3	-12	-21	-29	-37	-44	-54
(35)	(27)	(11)	(-6)	(-20)	(-35)	(-48)	(-65)
64	-3	-12	-22	-29	-38	-47	-56
(40)	(26)	(10)	(-7)	(-21)	(-37)	(-52)	(-68)
72	-4	-13	-22	-30	-39	-48	-57
(45)	(25)	(9)	(-8)	(-22)	(-39)	(-54)	(-70)
80	-4	-13	-23	-31	-40	-48	-58
(50)	(25)	(8)	(-9)	(-23)	(-40)	(-55)	(-72)

APPENDIX D

Suggested emergency procedures for drivers transporting pigs (in case of breakdowns, accidents, or other delays)

(Please post in truck)

1. Inform home office immediately.
2. During business hours, phone nearest marketing yard or the central office of the appropriate marketing agency or receiving agent.
3. After business hours, phone packing plant — direct. (Night numbers attached)
4. If necessary, get another vehicle to move load to a sheltered area or to the plant.
5. During extreme heat or cold, seek shelter for the load until repairs can be made.
6. Seek advice of veterinarian in case of pigs in distress or seriously injured pigs.
7. Do something! Use common sense.

APPENDIX E

Participants

During the course of preparing the five drafts of this Code, the following individuals were invited to provide input into the process at various times. Although their respective organizations are listed it does not necessarily imply that the Code has the unequivocal endorsement of any agency.

<i>Organization</i>	<i>Representative</i>
Agriculture Canada	
Animal Health Division	Dr. B. Peart Dr. M. Gordon Dr. E. Lobinowich
Program Coordination Directorate	Dr. R. Bouchard
Animal Research Centre	Dr. D. Fraser Dr. D. Friend
Engineering and Statistical Research Institute	Dr. P. Phillips
Meat Hygiene Division	Dr. F.M. Clark Dr. L. Weir Dr. I. Kirk
Ontario Ministry of Agriculture and Food	Mr. G. Norrish
(also representing the Canadian Veterinary Medical Association)	Dr. J. Ashman
Canadian Pork Council	Mr. M. Rice
Ontario Pork Producers' Marketing Board	Mr. C. Harrop Mr. E. Alderson Mr. L. Smit
Manitoba Hog Marketing Board	Mr. W. Newton
Fédération des producteurs de porc du Québec	M. J.-M. Guillemette
Canadian Meat Council	Mr. J. Krochak Mr. J. Ludwig Mr. E. Marinoff Mr. W. Stephenson Mr. D. Adams Mr. L. Campbell

Ontario Trucking Association Livestock Transporters' Division	Mr. B. Crow Mr. J. Dunlop Ms. D. Janosik-Wronski
University of Guelph Ontario Veterinary College, Department of Clinical Studies Ontario Agricultural College, Department of Animal and Poultry Science	Dr. C. Roe Dr. F. Hurnik Dr. R. Hacker
Agricultural Institute of Canada	Dr. J. Elliot
Canadian Council on Animal Care	Dr. H.C. Rowsell
Canadian Society of Animal Science	Dr. R.S. Gowe
Canadian Federation of Humane Societies Toronto Humane Society	Mr. N. Jotham Mr. M. O'Sullivan

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