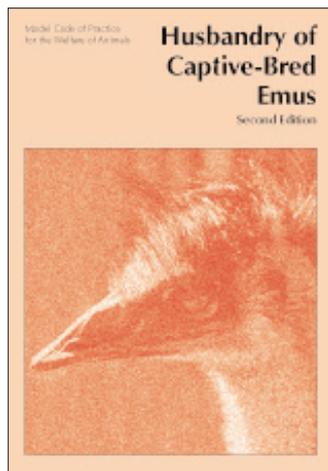


**Primary Industries Standing Committee**  
**Model Code of Practice for the**  
**Welfare of Animals**  
**Husbandry of Captive-Bred Emus**  
**Second Edition**  
**PISC Report 90**



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# **Husbandry of Captive-Bred Emus**

**Second Edition**

Model Code of Practice  
for the Welfare of Animals

Primary Industries Ministerial Council

**PISC Report No. 90**

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## **PRIMARY INDUSTRIES MINISTERIAL COUNCIL**

In June 2001 the Australian Commonwealth and State/Territory governments created several new Ministerial Councils from the amalgamation and redirection of the work of several existing Councils.

These changes saw the winding up of the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) and the establishment of a new Council, the Primary Industries Ministerial Council (PIMC). The objective of this new Council is:

*‘To develop and promote sustainable, innovative and profitable agriculture, fisheries/aquaculture, food and forestry industries’.*

Membership of the Council consists of the Australian Federal, State/Territory and New Zealand Ministers responsible for Primary Industry matters.

The Council is supported by a permanent Standing Committee, the Primary Industries Standing Committee (PISC). Membership of the Standing Committee comprises relevant Departmental Heads/CEOs of Commonwealth/State/Territory and New Zealand agencies.

## PREFACE

This Model Code of Practice for the Welfare of Animals has been prepared by the Animal Welfare Working Group (AWWG) within the Primary Industries Ministerial Council (PIMC) system.

Membership of the AWWG comprises representatives from each of the State Departments with responsibility for agriculture, CSIRO, the Department of Agriculture, Fisheries and Forestry – Australia, and other committees within the PIMC system. Extensive consultation has taken place with industry and animal welfare groups in the development of the Code.

This revised edition of the Code is based on the 1999 edition, which was endorsed by the Standing Committee on Agriculture and Resource Management (SCARM).

The Code is intended as a set of guidelines that provide detailed minimum standards for assisting people in understanding the standard of care required to meet their obligations under the laws that operate in Australia's State and Territories.

The following Model Codes of Practice have been endorsed by the PIMC (and its predecessors, the Agriculture and Resource Management Council of Australia and New Zealand and the Australian Agricultural Council).

*Animals at Saleyards* (1991)

*Buffalo, Farmed* (1995)

*Camel, The* (2nd Edition) (2006)

*Cattle* (2nd Edition) (2004)

*Cattle, Land Transport of* (2000)

*Deer, The Farming of* (1991)

*Emus, Husbandry of Captive-Bred* (1999)

*Feral Livestock Animals, Destruction or Capture, Handling and Marketing of* (1991)

*Goat, The* (1991)

*Horses, Land Transport of* (1998)

*Livestock, Air Transport of* (1986)

*Livestock, Rail Transport of* (1983)

*Livestock, Road Transport of* (1983)

*Livestock, Sea Transport of* (1987)

*Livestock at Slaughtering Establishments* (2001)

*Ostriches, Farming of* (2003)

*Pigs* (2nd Edition) (1998)

*Pigs, Land Transport of* (1997)

*Poultry, Domestic* (4th Edition) (2002)

*Poultry, Land Transport of* (2nd Edition) (2006)

*Rabbits, Intensive Husbandry of* (1991)

*Sheep, The* (2nd Edition) (2006)

and by agreement with the National Health and Medical Research Council, CSIRO, the Australian Research Council and the Australian Vice-Chancellors' Committee:

*Australian Code of Practice for the Care and Use of Animals for Scientific Purposes* (1997).

The following Code is based on current knowledge and technology. It will be reviewed in 2010 or earlier to take account of advances in the understanding of animal physiology and behaviour, and technological changes in animal husbandry that offer significant welfare benefits.

# 1 INTRODUCTION

- 1.1 This Code is intended as a guide for all people responsible for the welfare and husbandry of emus that are bred and/or reared in captivity.
- 1.2 The Code is based on the knowledge and technology available at the time of publication and may need to be varied in the future. The emu industry is evolving rapidly and it is inevitable that stock handlers will encounter circumstances with emus that are not currently covered by this Code. When this occurs it is essential that common sense should prevail and that previous experience with stock should be utilised to the fullest so that emus are handled humanely.
- 1.3 Emus are kept in situations that vary from extensive grazing to close confinement and housing. Whatever the form of husbandry, owners, managers and handlers of emus have a responsibility for the health, welfare and considerate treatment of the birds under their control.
- 1.4 The basic behavioural, anatomical and physiological needs of emus are considered in this document, irrespective of the degree of intensive husbandry practised or the climatic conditions to which the emus are exposed.
- 1.5 The importance of competent stock sense in animal welfare cannot be over-emphasised. A competent stockperson **MUST** be able to recognise the early signs of distress or disease in emus so that the cause can be identified and prompt, appropriate remedial action taken.
- 1.6 The basic requirements for the well-being of emus are:
  - appropriate and sufficient food and water to sustain health and vitality;
  - sufficient area to maintain their well-being and in which to exhibit normal behaviour;
  - protection from predation;
  - protection from disease, including disease that can be exacerbated by management;
  - protection from extremes of climate, particularly during certain phases of their lives; and
  - protection from pain, distress, suffering and injury.
- 1.7 The management practices and stocking rates on all emu farms should be such that they are compatible with sustainable agriculture policies.
- 1.8 There is considerable diversity of opinion on the maximum stocking density allowable for different classes of emus. The densities outlined in this Code are conservative, but are based on the experience gained from farming emus under a variety of conditions.
- 1.9 Emus have been studied in natural conditions for many years, but have been managed in confined conditions only for a few years; consequently this Code should be reviewed at least every three years until a better understanding is gained of the needs of captive-bred emus.
- 1.10 Any dimensions or measurements quoted are provided for advice only, and are not intended to be prescriptive.

## 2 HOUSING

### 2.1 General

- 2.1.1 Persons intending to erect new housing and yards, or to modify housing that has been used for other species, should seek advice from the Department responsible for agriculture and others with appropriate expert knowledge. Well-designed and constructed buildings and yards with adequate drainage can provide an ideal environment for rearing and breeding emus.
- 2.1.2 The type of housing and yard dimensions required by emus will vary with the geographic location of the emu farm, the age of the emus, the management practices to be employed and the stocking density. The stocking density should be reviewed regularly and adjusted, according to the age of the birds, the flock size, the house or paddock conditions, the behavioural needs of the birds and the likely occurrence of disease.
- 2.1.3 All emus need to be protected from extremes of climate, and emus that are kept in yards or an extensive range **MUST** be provided with adequate shade and protection from the elements.
- 2.1.4 The following recommendations are to be used as a guide and will vary with different constructions for brood houses and chicken runs, and conditions for birds in open ranges will be dependent on drainage, vegetation, tree cover, soil type and management.

### 2.2 Chicks (0–12 weeks old)

#### 2.2.1 *General*

Emu chicks may be reared extensively under natural conditions, or intensively in buildings in which acceptable levels of temperature, humidity, fresh air, light and hygiene can be achieved and maintained. Chicks require special attention until they lose their 'stripe' appearance, which usually occurs by 12 weeks of age.

#### 2.2.2 *Natural conditions*

Eggs may be incubated by the male under field conditions in either breeding pens or under open-range conditions. Where breeding pens are utilised, wire netting (rabbit netting) to a height of 450 mm **MUST** be provided on all fences to prevent the chicks from escaping or being injured by emus housed in adjacent pens. The hen could attack her own chicks once they hatch. It is therefore recommended that either the hen be removed before the first chicks hatch, or the chicks be removed to a rearing shed.

Where breeding pairs are housed under free-range conditions, the range **MUST** be inspected daily and all chicks **MUST** be removed from the range as they hatch.

### 2.2.3 *Intensive rearing*

- 2.2.3.1 Floors and other surfaces. Floors and other surfaces should be designed, constructed and maintained so that they are non-slip, minimise the risk of injury and disease, and adequately support emu chicks so that they can stand and move freely. Deep litter floors should be checked frequently to ensure they are dry and friable. The litter should not be allowed to become caked, wet or excessively dusty. Chicks should not be allowed to walk on bare concrete floors or those made of wire.
- 2.2.3.2 Space. Stocking density should be reviewed periodically and adjusted, taking into account the age of chicks, flock size, temperature, ventilation, lighting, quality of housing and occurrence of disease. Chicks should have access to extensive runs at an early age, but due consideration should be given to the climatic conditions. Heating should be such that a minimum temperature of 20°C and a mean temperature of 25°C is provided in the first four weeks of life. Under these management and housing conditions, it is recommended that chicks be housed in groups of up to 50 for the first four weeks of life at a shed density of up to three chicks per m<sup>2</sup>. Chicks should be given access to an outside run from two days of age. However, this run should be covered to protect chicks from predation until chicks are four weeks old. From 5 to 12 weeks of age chicks can be housed together in groups of up to 400 at the same shed density but, in addition, access to an outside run of 5 m<sup>2</sup> per chick **MUST** be provided.
- 2.2.3.3 Lighting. Where emus do not have access to daylight, they should be exposed to artificial light for at least eight hours per day. The effect of abnormally long periods of light (in excess of 16 hours) on the growth of chicks is uncertain and may be detrimental. A 'blackout' training period each day is recommended from one day of age to prevent panic should lighting fail.

For the first few days after hatching, young chicks reared away from their father require a high light intensity of about 40 lux on the food and water so they can learn to find it. Light intensity may then be reduced to a minimum of 20 lux.

- 2.2.3.4 Ventilation. Where chicks are reared intensively, fresh air is required at all times to prevent the accumulation of water vapour, heat, ammonia, hydrogen sulphide, carbon dioxide, carbon monoxide and dust particles. The presence of ammonia may be a problem where there is poor ventilation, and it is usually a reliable indicator of the build-up of noxious gasses. In enclosed buildings, ammonia levels should not be allowed to exceed 20 parts per million (ppm) of air, measured at bird level, without immediate corrective action being taken. (A level of 10–15 ppm of ammonia in the air can be detected by smell. An ammonia level of 25–35 ppm will cause eye and nasal irritation in humans. Ideally, ammonia levels should be measured by an ammonia meter.)

### **2.3 Juvenile (blackhead) emus (12 weeks to 6 months old)**

Young emus require protection from the extremes of temperature, rain and wind. At this age, emus may be kept in groups of up to 250 and initially should be housed in sheds or other shelter or outside with effective windbreaks. The maximum density for emus at this age should be two per m<sup>2</sup>. Those kept inside should be provided with an outside run of at least 40 m<sup>2</sup> per chick. Older blackhead chicks should be reared entirely in open conditions, with effective windbreaks or other shelter. Stocking rates for birds in these conditions should vary from 175 per hectare for dry or bare conditions to 250 per hectare for lush or irrigated conditions.

### **2.4 Yearling emus (6–18 months old)**

Yearlings should be housed in open conditions at stocking rates from 100 per hectare for dry or bare conditions to 175 per hectare for lush or irrigated conditions.

### **2.5 Mature emus**

#### *2.5.1 Free range*

Emus that have been reared in separate yards until 55 weeks of age should be housed at stocking rates from 18 per hectare for dry or bare conditions to 24 per hectare for lush or irrigated conditions.

#### *2.5.2 Breeding pairs*

Where emus are kept as breeding pairs under optimal conditions, each pair should be provided with a minimum pen size of 400 m<sup>2</sup>, which should be securely fenced. In low rainfall areas and where there is little vegetation, these dimensions should be increased; a pen size of 2500 m<sup>2</sup> has been found to be satisfactory for breeding pairs.

## 3 EQUIPMENT

- 3.1 All equipment to which emus have access should be designed and maintained to avoid injury or pain to the birds.
- 3.2 Feeders and waterers should be checked for efficient operation at least once every second day. Feeders and waterers should be located well away from fence lines to avoid injury if conflicts occur while eating or drinking. Water should be kept cool during hot weather. Insulation or burial of lines and regular flushing of troughs assist in keeping water cool.
- 3.3 Automated hatchery equipment should have adequate back-up systems, which should include an alarm system or generator in case of a power failure.

## **4 PROTECTION FROM PREDATORS AND HAZARDS**

- 4.1 Emus should be protected from predators and, if necessary, from each other. Electric fences can be used to discourage predators and are particularly useful in affording protection to young emus. Outside runs should be covered to protect chicks from predators until chicks are four weeks old.
- 4.2 Accommodation should be sited where it is safe from the effects of fires and floods.
  - 4.2.1 New buildings in which birds are housed should incorporate sufficient exits to allow for emergency evacuation of the building.
  - 4.2.2 Yards should be designed so that emus can be evacuated readily in case of an emergency.
  - 4.2.3 Fire-fighting equipment should be available. Fire hoses should be capable of delivering water of sufficient volume and pressure to control a fire in any building or part of any building.
  - 4.2.4 When planning new buildings, the use of construction materials with a high fire resistance should be considered. All electrical and fuel installations should be planned and fitted to minimise the fire risk.
- 4.3 The use of toxic substances (for example herbicides and pesticides) should be in such a manner as to avoid any risk to emus.

## 5 FOOD AND WATER

### 5.1 Food

- 5.1.1 Emus, other than newly hatched chicks, should have *ad libitum* access to adequate quantities of appropriate food but MUST have access to adequate quantities of appropriate food at least once each 24 hours. The period for newly hatched chicks may be extended to not more than 48 hours. There should always be at least one week's feed supply on hand.
- 5.1.2 Emus should receive a diet containing complete balanced nutrients to meet their requirements for good health and vitality. Emus should not be provided with food that is detrimental to their health. Young chicks should not be fed fibrous or coarse food as it may become impacted and cause an obstruction.
- 5.1.3 Medicated food or water should be supplied only under the supervision of a veterinarian familiar with emus, as the overuse or mixing of medications, or the medication itself, may cause toxic injury.
- 5.1.4 Where it is proposed to slaughter emus that have received medications, professional advice should be sought to ensure that chemical residues do not contaminate the carcase.
- 5.1.5 When using mechanical systems for delivery of food, alternative methods of feeding should be available. There should be enough food on hand, or ready means of obtaining food, in the event of failure of supply.
- 5.1.6 Where chicks and yearlings are reared in groups of over 100, multiple feed points should be provided in each pen.

### 5.2 Water

- 5.2.1 Emus should be provided with sufficient drinkable water to meet their physiological requirements. An emergency delivery system MUST be able to deliver adequate supplies of water in the event of a power failure.
- 5.2.2 When an emu farm is first established, or when a new water source is accessed, the water should be tested for mineral content and microbiological contamination and advice obtained as to its suitability. As the composition of water from bores, dams or water holes may alter with changes in flow or evaporation, the water may require more frequent monitoring to ascertain its continued suitability.
- 5.2.3 Where chicks and yearlings are reared in groups of over 100, multiple water points should be provided in each pen.

## 6 HANDLING AND YARD FACILITIES

- 6.1** Boundary fences are to be constructed in accordance with the requirements of the licensing authorities. Internal fences for adult emus **MUST** be adequate to contain them; the minimum height and their construction is a subject of ongoing research.
- 6.2** All fences in handling yards and on transportation facilities should have smooth sides with no projections or 'footholds' and should be solid sided so that the emus cannot see outside the confines of the yard or race. It is preferable for handling yards to be covered or roofed. Conventional yards can be used if some form of cladding such as plywood, tarpaulin or hessian is placed on the inside of the rails so that a solid, non-see-through barrier is presented to the emus. Emus will behave in a more orderly manner when placed in such an enclosed environment.

## 7 SPECIAL REQUIREMENTS

### 7.1 Inspections

Once birds reach 12 months they start to form social hierarchies. Introducing non-socialised birds into such groups should be minimised to avoid the potential for aggression and injury. The frequency and level of inspection should be related to the likelihood of risk to the welfare of the emus in relation to food, water, protection against natural disasters, predators and the likelihood of diseases. More frequent inspections may be required during hot weather, during outbreaks of disease or when groups of emus have been mixed. Checks should be made of the effectiveness of any automated feeding or watering systems where these have been installed.

### 7.2 Health

- 7.2.1 All persons responsible for the care of emus should be made aware of the signs of ill health. These include separation from other emus, lethargy, refusal to eat, changes in faeces or urine/urates, coughing, panting, lameness and swellings on the body or legs. If unable to identify and correct the causes of ill health, the manager should seek advice from a veterinarian – preferably one familiar with emus.
- 7.2.2 Emu farmers should operate an effective programme to prevent infectious disease and internal and external parasitism. Particular attention should be paid to the stocking densities used for yearling and adult groups as aggressive behaviour and injuries may occur during the breeding season, when the stocking density is high. Sick and injured emus should be treated as soon as possible, and isolated if necessary. Records of sick animals, deaths, treatment given and response to treatment should be maintained to assist disease investigations.
- 7.2.3 Dead emus should be removed promptly and, if not required for post-mortem examination, disposed of in a hygienic manner, for example, by deep burial.
- 7.2.4 Emus with an incurable sickness, injury or painful deformity should be slaughtered humanely without delay.
- 7.2.5 Newly acquired stock should be quarantined from existing stock for four to six weeks to minimise the risk of introduction of disease.

### 7.3 Declawing

- 7.3.1 Emus **MUST** be kept in facilities where natural aggression is effectively managed. If emus are kept in extensive conditions it may be necessary for emus to be declawed. If this procedure is deemed necessary to reduce aggression and stereotype behaviours, which can contribute to social stress and skin damage, it should be carried out by a skilled operator at three to five days of age. Declawing **MUST NOT** be carried out on chicks over five days old.
- 7.3.2 Declawing involves the removal of the distal or last phalangeal (bony part of the toe) joint using sharp clean shears, a beak trimming machine or other suitable device, angled to retain the bottom part of the last phalanx within the foot pad. Declawing by either of these methods will minimise the risk of both acute and chronic pain resulting from tissue and nerve damage.

## **7.4 Transportation**

The following recommendations are based on current knowledge and will be subject to review as the industry's experience with transportation increases.

- 7.4.1 The duration of all journeys should be as short as possible, as transportation can be a stressful experience.
- 7.4.2 The successful transportation of adult emus starts with orderly, well-disciplined husbandry practices which are imposed on emu chicks from when they are a day old, so that the emus are used to being handled and moved about the farm. When possible, the transport of emus during extremes of temperature should be avoided. When temperatures are above 30°C, extra care with provisions of ventilation is required.
- 7.4.3 Chicks up to 12 weeks of age should be transported in groups of no more than 20, with partitions placed between adjacent groups. The transport vehicle should be dimly lit and provide fresh air, but the chicks should be protected from chilling and extremes in temperature.
- 7.4.4 Yearling and adult emus should be transported in vehicles that are fully enclosed, but provide sufficient ventilation for the comfort of the birds. The transport vehicle should be divided into compartments, each containing no more than 10 emus, and should be dimly lit. The floor surfaces should provide a firm but soft footing for the birds – for example, damp sand – and should be capable of absorbing any moisture associated with faeces and urine. The housing density in the transport vehicle should be varied with the size and age of the emus so that a comfortable environment is provided. It is recommended that the densities do not exceed eight birds per m<sup>2</sup> for birds less than 7 kg liveweight, three birds per m<sup>2</sup> for birds weighing 25–30 kg and two birds per m<sup>2</sup> for mature birds of 35–45 kg liveweight.
- 7.4.5 Transport vehicles, cages, crates and compartments should be cleaned thoroughly and disinfected after delivery of each consignment of emus.

## **7.5 Records**

The maintenance of good records is an integral part of good farm management. Adequate records will assist in the detection of any husbandry, health or breeding problems. Accurate information should be kept on the sources of all stock, general husbandry practices, and the case history and treatment of any diseased or injured birds.

## **8 HATCHERY MANAGEMENT**

- 8.1** Incubators should be well ventilated. Soiled or heavily contaminated eggs should not be placed into an incubator. These eggs should be culled or cleaned and disinfected as soon as possible after being picked up from the nest site.
- 8.2** Chicks should be brooded within 24 hours of hatching. Weak, deformed or unthrifty emus should be culled and humanely destroyed.
- 8.3** Chicks in brooders should be inspected at least once every 12 hours and action taken to correct problems as they occur.
- 8.4** Hatchery waste, including unhatched embryos, should be treated quickly and effectively to ensure the rapid destruction of all unhatched embryos. Such waste should not be stored or allowed to accumulate in the vicinity of the incubators. Incubators should be thoroughly disinfected between batches.
- 8.5** When necessary, chicks should be destroyed by dislocating the cervical spine. This procedure should be carried out by a person experienced in this technique. Alternatively, chicks can be decapitated.

## 9 HUMANE SLAUGHTER

- 9.1** Emus of all ages will need to be killed for a variety of health and production reasons, and in all cases it is essential that birds be slaughtered humanely using an approved method. Emus **MUST** be restrained by an experienced handler when they are to be killed.
- 9.2** The method of slaughter of emus in licensed abattoirs **MUST** be humane and **MUST** adhere to the standard outlined in *The Australian Code of Practice for Veterinary Public Health: The Hygienic Production and Inspection of Emu Meat for Human Consumption*. This stipulation particularly applies to the requirement for emus to be humanely handled prior to slaughter and to be electrically stunned or made unconscious by a captive bolt prior to bleeding.