Primary Industries Standing Committee
Model Code of Practice for the Welfare of Animals
Farming of Ostriches
SCARM Report 84

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This Australian Model Code of Practice for the Welfare of Animals has been prepared by the Animal Welfare Committee (AWC) within the Primary Industries Ministerial Council (PIMC) system. Membership of the AWC 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 welfare groups in the development of the code.

The Code is intended as a set of guidelines which provides 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 States and Territories.

The following Model Codes of Practice have been endorsed by PIMC (and its predecessors, ARM-CANZ and the Australian Agricultural Council):

Animals at Saleyards (1991)
Buffalo, Farmed (1995)
Camel, The (1997)
Cattle (1992)
Cattle, Land Transport of (1999)
Deer, Farming of (1991)
Emus, Husbandry of Captive-Bred (1999)
Feral Animals, Destruction or Capture, Handling and Marketing of (1991)
Goat, The (1991)
Horses, Land Transport of (1997)
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)
Pigs, Land Transport of (1997)
Poultry, Land Transport of (1998)
Rabbits, Intensive Husbandry of (1991)
Sheep, The (1991)

and by agreement with the National Health and Medical Research Council, the CSIRO, Australian Research Council and 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 further reviewed in 2010, although an earlier review will be implemented if technologies offering significant welfare benefits are available.
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 industries matters.

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

1.1 This code is intended as a guide for all people responsible for the welfare and husbandry of ostriches that have been bred and/or reared in captivity. Additional specific information on welfare and husbandry of ostriches may be sought from relevant State Government Agencies, the Australian Ostrich Association and others with appropriate expert knowledge.

1.2 The code is based on the knowledge and technology that was available at the time of publication and may need to be varied in the light of future advances. The ostrich industry is evolving rapidly and it is inevitable that stock-handlers will encounter circumstances with ostriches that are not within these guidelines. This is even more likely with the rapid approach of commercialism and in these circumstances it is essential that commonsense should prevail and that previous experience with stock should be utilised to the fullest so that ostriches are handled humanely and the welfare of the animal is always considered foremost.

1.3 Ostriches are kept in situations, which vary from extensive grazing to systems involving housing pens and yards. Whatever the form of husbandry, owners, managers and handlers of ostriches 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 ostriches are considered in this document, irrespective of the type of husbandry practiced, or the climatic conditions to which the ostriches are exposed.

1.5 The importance of competent stock-sense in animal welfare cannot be over-emphasised. The important skill of a competent stockperson is the ability to recognise the early signs of distress or disease in ostriches so that the cause can be identified, and prompt, appropriate remedial action taken.

1.6 The basic requirements for the well-being of ostriches are:
   a) appropriate and sufficient food and water to sustain health and vitality;
   b) sufficient area to maintain their well being and to exhibit normal behaviour;
   c) protection from predation;
   d) protection from disease, including disease that can be exacerbated by poor management;
   e) protection from extremes of climate;
   f) protection from pain, distress, suffering and injury.

1.7 The management practices and the stocking rates used on all ostrich farms should be such that they are compatible with sustainable agriculture, as outlined in the Australian Soil Conservation Council’s strategy, the Decade of Landcare.

1.8 There is considerable diversity of opinions about the maximum stocking density that is allowable for chicks, juveniles, yearlings and adults. As with other forms of livestock, this
will be controlled by factors such as the variation in levels of natural edible vegetation, paddock conditions and various breeding programs.

1.9 While ostriches have been studied under natural conditions for many years, they have only been managed under conditions of confinement in Australia for a few years and consequently this Code should be reviewed when deemed necessary as a better understanding is gained of the needs and requirements of captive-bred ostriches.
2 Housing

2.1 General

2.1.1 Persons intending to erect housing and yards, or to modify housing that has been used for other species should seek advice from relevant State Government Agencies, the Australian Ostrich Association and others with appropriate expert knowledge. Well designed and constructed buildings and yards can help provide an improved environment for rearing and breeding ostriches. Care should be taken that handling yards or collection points have adequate drainage.

2.1.2 The type of housing and yard dimensions required by ostriches will vary with the geographic location of the ostrich farm, the age of the ostriches, the management practices to be employed and the stocking density. The stocking density must be reviewed regularly and adjusted, taking into account the age of the birds, the flock size, the shedding and paddock conditions, the behavioural needs of the birds and the likely occurrence of disease.

2.2 Chicks 0 – 12 weeks of age

2.2.1 Chicks should be brooded within 24 hours of hatching. Weak, deformed or unthrifty ostrich chicks should be culled and humanely destroyed.

2.2.2 Ostrich chicks may be reared extensively under natural conditions or intensively in buildings having the capacity to achieve and maintain acceptable levels of temperature, humidity, fresh air, light and hygiene. Chicks require special attention until they lose their 'neck stripe' appearance, which usually occurs by 12 weeks of age.

2.2.3 Natural conditions. Eggs may be incubated by the adults under field conditions in either breeding pens or under open-range conditions. Where breeding pens are utilised, netting to a height of 450 mm must be provided on all fences to prevent the escape of chicks and to prevent them from being injured by birds housed in adjacent pens. When breeding pairs are housed under free-range conditions, the range must be monitored regularly.

2.2.4 Intensive Rearing

2.2.4.1 Floors and other surfaces should be designed, constructed and maintained so that they are non-slip and minimise the risk of injury and disease, and adequately support ostrich chicks so that they can stand and move freely. Deep litter flooring should be checked frequently for dryness and friability. When litter is caked, wet or excessively dusty the problem should be rectified.

2.2.4.2 Chicks should have access to outside runs at an early age, paying due respect to the climatic conditions. Outside runs should be constructed to provide a minimum space allowance of 1.5 chicks per square metre. Under good management and housing conditions chicks may be housed in groups for the first 4 to 6 weeks of life, with a shed density of up to 3 chicks per square metre. After 6 weeks of age chicks may be reared entirely in the open during daylight hours. Stocking density should
be periodically reviewed and adjusted, having regard to age, flock size, temperature, ventilation, lighting, quality of housing and occurrence of disease.

2.2.4.3 Fresh air is required at all times where chicks are reared intensively 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 is usually a reliable indicator of the build-up of noxious gases. Ammonia levels should not be allowed to exceed 20 parts per million (ppm) of air, measured at bird level, in enclosed buildings 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 from 25-35 ppm will cause eye and nasal irritation in humans.

2.3 Juveniles (13 weeks to 6 months)

Juveniles and young adult ostriches require minimal protection from the extremes of hot and cold, wet and windy weather. Older chicks can be reared entirely in open conditions depending on the prevailing weather conditions.

Recommended stocking rates for the outdoor rearing of chicks from 6 weeks to 6 months of age are:

- **Dry Country:** Up to 85 birds per hectare
- **Irrigation/High rainfall:** Up to 125 birds per hectare

2.4 Yearlings (6 to 18 months)

Recommended stocking rates for birds 6 months to sexual maturity are:

- **Dry Country:** 50 birds per hectare
- **Irrigation/High rainfall:** 100 birds per hectare

The above figures are relevant to grazing situations. As elsewhere in the world now and with other forms of livestock, feed-lots are another method of growing healthy animals to the required size and age. For example, when lucerne is grown intensively and fed to ostriches, lot feeding allows for better control of harvesting, feeding and monitoring of food intake. In this case, densities will increase from the above figures.

2.5 Mature Ostriches

2.5.1 Colonies

Recommended stocking rates for mature birds in open conditions are:

- **Dry Country:** 12 birds per hectare
- **Irrigation/High Rainfall:** 24 birds per hectare

2.5.2 Breeding Pairs

Where ostriches are held as breeding pairs, they should be kept in a well-fenced pen of at least 25 metres x 60 metres.

This applies to well drained, high rainfall areas with plenty of vegetation. These dimensions should be increased in low rainfall areas where there is little vegetation. Where breeding trios are kept, the recommended minimum pen size of 30 metres x 70 metres should be adopted.
3 PROTECTION FROM HAZARDS

3.1 Ostriches should be protected from known predators where possible and, if necessary, from each other.

3.2 Yards should be designed so that birds can be readily evacuated in case of emergency. New buildings and yards in which birds are housed should incorporate sufficient exits to allow for emergency evacuation of the building.

3.3 When planning new buildings consideration should be given to the use of construction materials with a high fire resistance. All electrical and fuel installations should be planned and fitted to minimise fire risk.

3.4 Toxic substances (for example herbicides and pesticides) should be applied without causing risks to birds.
4 FOOD AND WATER

4.1 Food

4.1.1 Chicks under 8 weeks of age should have food available for at least 10 hours per day.

4.1.2 Chicks should have controlled access to coarse feed that may cause impactions. They should not have access to agents that might cause toxic injury.

4.1.3 Ostriches, other than newly hatched chicks, should have access to adequate quantities of appropriate food at least once every 24 hours.

4.1.4 Ostriches should receive a diet containing adequate nutrients to meet their requirements for good health and vitality.

This can be achieved by feeding birds of all ages recognised commercial pre-mixes or pellets. If farmers are making their own feed this should be done in conjunction with advice from qualified nutritionists or veterinarians to ensure properly balanced rations. This is vital for healthy birds, good growth rates and good production.

4.1.5 Where chicks and juveniles are reared in groups, feed points must be located to enable all birds to eat at the same time.

4.1.6 Farmers should be knowledgeable about the application and supply of medications before treating their livestock and if in doubt should consult a veterinarian familiar with ostriches.

4.1.7 Where it is proposed to slaughter ostriches that have received medication, advice should be sought from professionals of relevant government agencies to ensure that there is no residue in the meat.

4.2 Water

4.2.1 A supply of clean fresh water must be available at all times.

4.2.2 When an ostrich farm is first established, or when a new water source is obtained, the water should be tested for mineral content and microbiological contamination and advice obtained as to its suitability. As the composition from bores, dams and water holes may alter with changes in flow or evaporation, the water may require more frequent monitoring for its continued suitability.

4.2.3 Where chicks are reared in groups, multiple water points should be provided.
5 FENCING AND YARD FACILITIES

5.1 Fencing must be sufficient to ensure that ostriches cannot escape. Predator control must also be catered for, particularly with chicks, as they are the birds most susceptible to predators.

Fencing should be sufficiently close to the ground to prevent birds pushing under the wire. Where possible on fences, wire should be fixed on the inside of the posts.

5.2 All fences in handling yards and transportation facilities should preferably be solid sided and high enough to block the ostriches' vision if possible. Ostriches will behave in a more orderly manner when placed in such an environment.
6 SPECIAL REQUIREMENTS

6.1 Inspections

The frequency and level of inspection should be related to the needs of the ostriches, but should be at least once each day. Inspections are best made at feeding times. More frequent inspections may be required, during hot weather, during outbreaks of disease, or when groups of ostriches have been mixed. Checks should be made of the effectiveness of any automated feeding or watering systems where these have been installed.

6.2 Health

6.2.1 All persons responsible for the care of ostriches should be aware of signs of ill health. These include separation from other ostriches, lethargy, refusal to eat, changes in faeces or urine, vomiting, coughing, panting, lameness and swellings on the body or legs. The manager should, if unable to identify the causes of ill health and correct them, seek advice from a veterinarian familiar with ostrich practice.

6.2.2 Ostrich farmers should operate an effective program to prevent infectious disease and internal and external parasitism. Particular attention should be paid to the stocking densities used for juveniles and adult groups, as aggressive behaviour and injuries may be seen during the breeding season when the stocking density is high. Sick and injured ostriches should be treated without delay. They should be isolated if necessary. Records of sick animals, deaths, treatment given and response to treatment should be maintained to assist disease investigations. Ostriches are susceptible to diseases spread by wild birds and in so far as possible, contact should be avoided.

6.2.3 Dead stock should be promptly removed and, if not required for post-mortem examination, should be disposed of in a hygienic manner such as by deep burial or incineration. Disposal must be in accord with any Commonwealth, State or Territory legislation, local council by-laws and community standards.

6.2.4 Ostriches with an incurable sickness, irreparable injury or painful deformity that create unacceptable levels of suffering should be humanely euthanased.

6.2.5 Newly acquired stock should be quarantined from existing stock for 4 to 6 weeks to minimise risk of the introduction of a disease although it is recognised that in specific breeding circumstances the introduction of birds into an established flock is required.

6.2.6 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 source of all stock, the breeding history of each bird and the case history in the treatment of any diseased or injured birds.
7 STOCK MANAGEMENT

7.1 Introduction

The basic behavioural, anatomical and physiological needs of ostrich are considered in this code irrespective of the type of husbandry practised or the climatic conditions to which the ostrich is exposed.

While ostriches have been studied under natural conditions for many years, they have been managed under conditions of confinement in Australia for only a few years. It follows that as the industry evolves a better understanding will be gained of the needs and requirements of captive-bred ostrich.

The ostrich industry is evolving rapidly and it is inevitable that stock-handlers will encounter circumstances with ostrich that are not discussed in this code. It is essential that commonsense should prevail and that previous experience with stock should be utilised to the fullest extent, so that ostrich are handled humanely and the welfare of the animal is always considered foremost.

Owners, managers and handlers of ostrich have a responsibility for the health, welfare and considerate treatment of the birds under their control.

The importance of competent stock-sense in animal welfare cannot be over-emphasised. An important skill of a competent stockperson is the ability to recognise the early signs of distress or disease in ostrich so that the cause can be identified and prompt, appropriate, remedial action taken.

Imprinting on, and habituation to, humans is possible and in general birds are inquisitive and will respond to human contact. However, they remain animals that could be dangerous to people and must always be treated with care and respect. An especially high-risk period is during the breeding season.

Children and adults unfamiliar with ostrich should not be allowed into any enclosure except under experienced adult supervision, as there will always exist the possibility of attack. The ostrich kicks with a forward and downward motion and it is difficult to escape a concerted attack.

7.2 Safe Handling of Birds

Both adult and juvenile birds require care in handling, which is facilitated by the provision of adequate races and catching pens.

The safe handling of ostriches is a critical component of the husbandry of the birds. It is recommended that any handling of juvenile to adult ostriches is done in purpose-built facilities by experienced handlers.

The following factors will aid in the reduction of stress to birds and handlers.

7.2.1 Safe Handling of Ostriches

A shed or shelter with smooth, solid walls is very useful for the handling and restraint of juvenile and adult ostriches.
A 'V' shaped crush arrangement is very useful for restraint of adult ostriches during treatment.

'Hooding' of the head is recommended as a safe and reliable method of aiding restraint for ostrich over 6 months of age. When hooded, birds should be restrained and attended at all times when they are outdoors and even when they are indoors in the presence of ostrich that are also hooded. Hooded birds can still kick and move about even when in isolation.

A shepherd's type crook can be used with care to restrain the head and bring it into position for applying a hood to adult birds, particularly to mature males. This is particularly useful when birds need to be restrained in a yard or paddock.

7.3 Leg Rotation

Leg rotation and bruising in ostrich can occur resulting from handling and other trauma. A genetic tendency to leg rotation should be recognised.

If there is any doubt about the cause of lameness, a veterinary consultation should confirm the diagnosis and any appropriate treatment.

A bird that has suffered leg rotation must be attended to immediately. If the bird has difficulty in rising or walking and has significant heat, pain and swelling, the bird must be destroyed forthwith.

7.4 Feather Removal

The plucking of live ostriches is an unacceptable practice on animal welfare grounds and must not be carried out. Feathers, including the wing feathers, must not be removed by cutting from the live bird by untrained people. Personnel employed to remove feathers must have received feather removal training from an Australian Ostrich Association approved trainer and be the holder of an Australian Ostrich Association “Feather Removal Training Certificate”.

The white wing feathers (white plumes) and the bylocks (darker feathers at each end of the row of white plume feathers) may be removed by cutting above the bloodline. This must be carried out by trained and accredited personnel.

This procedure is usually carried out in order to prevent contamination of the quality feathers during the slaughter and processing stages.

The feathers must be cut no closer than 10 mm to the bloodlines. Feathers without a ripe bloodless clearance above the bloodline must be left on the bird. All other feathers must be removed post-mortem.

7.5 Impaction of the Proventriculus

Ostriches of all ages are susceptible to impaction of the proventriculus, (storage stomach). This most commonly occurs in chicks under 4 months of age that are exposed to stress, injury or infectious disease, and/or are exposed to inappropriate materials, particularly under high stocking densities.
This can include:
- long grass
- twigs and sticks
- dead grass and leaves
- pebbles and stones.

Chicks can also become impacted with flooring materials including:
- dirt and sand
- pumice and pea material
- straw, hay and other litter.

Management of ostrich must include an understanding of this tendency for impaction to occur, the need to reduce and minimise exposure to inappropriate materials, and stress minimisation.

Training should be provided in detection of impaction and the appropriate treatment for mild impactions. Severe impaction should be recognised as a life threatening condition, which should require veterinary intervention and/or emergency euthanasia.

7.6 Transportation

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

In all cases sufficient space must be given for birds to travel in a sitting or standing position.

7.6.1 The truck or float should have a non-slip floor covering, a fully enclosed crate and flow through ventilation, which is a critical factor. The design and materials should darken the carrying crate interior. The crate height should be at least equal or greater than the head height of the birds being transported.

7.6.2 The driver must be aware of the care needed in transporting ostriches eg. cornering slowly, braking gently and completing regular checks of the birds.
Injured birds must be treated without delay.

The duration of all journeys should be as short as possible as transportation can be a stressful experience.
Transportation in temperatures above 30°C is not recommended without extra care with provision for ventilation or air conditioning.

7.7 Transportation of Chicks

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 must be protected from chilling and extremes in temperature.
7.8 Juvenile and Adult Ostriches

The transport vehicle should be divided into compartments containing no more than 10 birds and be dimly lit. The floor surfaces should provide a firm non-slip footing for birds.

7.9 Transport Hygiene

Transport vehicles, cages, crates and compartments must be cleansed thoroughly and disinfected after delivery of each consignment to avoid transporting contamination and disease.
8 Hatchery Management

8.1 Hatchers and hatchery rooms must be supplied with adequate quantities of fresh air to aid in the prevention of build-up of disease-causing organisms which can result in respiratory disease and in high mortality rates in newly hatched chicks.

Sufficient disinfection and fumigation should take place between hatches to provide a sterile environment for the new hatchlings.

8.2 When necessary, chicks should be destroyed by dislocating the cervical spine by a person experienced in this technique. Alternatively chicks can be decapitated.

Chicks in the brooder should be inspected several times throughout the day.

8.3 Hatchery waste, including unhatched embryos, should be treated quickly and effectively to ensure the rapid destruction of all unhatched embryos. It should not be stored or allowed to accumulate.
9 Humane Slaughter

9.1 Ostriches of all ages may need to be killed for a variety of health and production reasons and in all cases it is essential that the method of slaughter be effective and cause sudden and painless death for the bird. Ostriches may be euthanased under veterinary supervision or may be destroyed on a property using a gunshot to the brain from a close range.

Where a firearm is used the following aspects of firearms safety should be borne in mind:

- a .22 calibre rifle long rifle or magnum is adequate for the humane destruction of ostriches;
- any use of firearms is potentially hazardous, particularly in concrete yards where ricochets are an added risk;
- persons other than the marksman and a handler for the animal should be cleared from the area or should stand well behind the marksman;
- never fire while the bird is moving its head; wait patiently for a quiet interval before firing;
- to provide maximum impact and the least possibility of misdirection the range should be as short as circumstances permit;
- it is not safe to press the firearm on the head.

Suggested shot placement

Chicks may be euthanased under veterinary supervision or may be destroyed on the property by cervical dislocation by a person experienced in this technique or alternatively chicks may be decapitated.

Suggested cartridges and bullet weights

- .22 long rifle (high velocity)
- .22 Magnum

9.2 The method of slaughter of ostriches in licensed abattoirs must be humane and must adhere to the standard outlined in “The Australian Standard for the Hygienic Production of Ratite (Emu/Ostrich) Meat for Human Consumption”. This stipulation particularly applies to the requirement for ostriches to be humanely handled prior to slaughter and to be electrically stunned or made unconscious by captive bolt prior to bleeding.
10 CONTINGENCY PLAN

The only circumstances under which ostriches can be released from captivity are those relating to natural disasters eg. fire and flood. In the event of release, advice regarding recapture, handling and restraint should be sought from appropriate expertise as recommended by the Australian Ostrich Association.