Agriculture Notes

Code of practice for the husbandry of captive emus (Victoria)

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Bureau of Animal Welfare, Attwood

This Agriculture note provides information relating to the husbandry of captive emus in Victoria.

1. Introduction

1.1 This Code is intended as a guide for all people responsible for the welfare and husbandry of emus that have been bred and/or reared in captivity.

1.2 Under the provisions of the **Wildlife Act 1975** emus are protected wildlife in Victoria. Emus may not be held, taken, sold, traded, displayed, destroyed or processed except by a person appropriately licensed under the Wildlife Act. Birds may not be taken from the wild or released to the wild without the approval, in writing, of the Secretary of the Department of Natural Resources and Environment.

1.3 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 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 commonsense should prevail and that previous experience with stock should be utilised to the fullest so that emus are handled humanely and the welfare of the animals is always considered foremost.

1.4 Emus 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 emus have a responsibility for the health, welfare and considerate treatment of the birds under their control.

1.5 The basic behavioural, anatomical and physiological needs of emus are considered in this document, irrespective of the type of husbandry practiced, or the climatic conditions to which the emus are exposed.

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

1.7 The basic requirements for the well-being of emus 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.

1.8 The management practices and the stocking rates used on all emu 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.

1.9 There is a considerable diversity of opinion about the maximum stocking density that is allowable for different classes of emus. The densities outlined in this Code are conservative, but are recommended on the basis of experience gained from farming emus under a variety of conditions in other States.

1.10 While emus have been studied under natural conditions for many years, they have only been managed under conditions of confinement for a few years and consequently this Code should be reviewed at least every three years until a better understanding is gained of the needs and requirements of captive- bred emus.

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 relevant government agencies (such as the Department of Conservation and Natural Resources) and others

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with appropriate expert knowledge. Well designed and constructed buildings and yards can provide an ideal environment for rearing and breeding emus. Care should be taken that yards have adequate drainage.

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 must be reviewed regularly and adjusted, having taken into account 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. However stocking densities should not exceed the maximum specified in this Code.

2.1.3 All emus need to be protected from climatic extremes and emus that are kept in yards or an extensive range must be provided with adequate shade and protection from the elements.

2.2 Chicks (0-12 weeks old)

2.2.1 General

Emu 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 "stripe" appearance, which usually occurs by 12 weeks of age. Emu eggs may be collected from pens and artificially incubated. Requirements relating to incubation are given in Section 8 - Hatchery Management.

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 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 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 else remove the chicks 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. Floors and other surfaces should be designed, constructed and maintained so that they are non- slip and minimize 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 for dryness and friability. When litter is caked, wet, or excessively dusty the problem should be rectified. 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 periodically reviewed and adjusted, having regard to age, flock size, temperature, ventilation, lighting, quality of housing and occurrence of disease. Chicks should have access to extensive runs at an early age paying due respect to the climatic conditions.

Under good management and housing conditions it is recommended that chicks can be housed in groups of up to 20 for the first four weeks of life, and a shed density of up to 3 chicks per m2 is recommended. The provision of an additional outside run is optional. From 5-12 weeks groups of up to 100 chicks can be housed together at the same shed density, but in addition, access to an outside run of 5 m^2 per chick must be provided.

2.2.3.3 Lighting

Where emus do not have access to daylight, they should be given artificial light for at least eight hours per day. The effect of abnormally long photoperiods (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. Young chicks reared away from the father require a high light intensity of about 40 lux on the food and water for the first few days after hatching to learn to find food and water. Light intensity may then be reduced to a minimum of 20 lux.

2.2.3.4 Ventilation

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 gasses. 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 to 15 ppm of ammonia in the air can be detected by smell. An ammonia level of from 25 to 35 ppm will cause eye and nasal irritation in humans).

2.3 Juvenile ("Black Head") Emus (6 weeks - 6 months)

Young emus require protection from the extremes of hot or cold, wet and windy weather. At this age emus may be kept in groups of up to 250 and should be housed initially in sheds at a maximum density of 2 per m2 and should be provided with an outside run of at least 40m2 per chick. Older blackhead chicks should be reared entirely in open conditions depending on the prevailing weather conditions.

Recommended stocking rates for the outdoor rearing of chicks from 12 weeks to 6 months of age are:

- Dry Country: Up to 175 birds per hectare
- Intermediate: Up to 225 birds per hectare
- Irrigation/High rainfall: Up to 250 birds per hectare

2.4 Yearling Emus (6 - 18 months)

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

- Country: 100 birds per hectare
- Intermediate: 150 birds per hectare
- Irrigation/High rainfall: 175 birds per hectare

2.5 Mature Emus

2.5.1 Free Range

Recommended stocking rates for mature birds in open conditions are:

- Dry Country: 12 birds per hectare
- Intermediate: 18 birds per hectare
- Irrigation/High rainfall: 24 birds per hectare

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 20 m x 20 m which should be securely fenced. This applies to well-drained, high rainfall areas with plenty of vegetation to provide protection and to obscure the bird's view of adjoining pens. These dimensions should be increased where there is little vegetation, and in low rainfall areas, a pen size of 50 m x 50 m has been found to be satisfactory, for breeding pairs.

3. Equipment

3.1 All equipment to which emus have access must be designed and maintained to avoid either injury or pain to the birds.

3.2 Feeders and waterers should be checked for efficient operation at least once each day. 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 Hazards

4.1 Predation

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.

4.2 Safe accommodation

Accommodation should be sited to be 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 readily evacuated 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, consider the use of construction materials with a high fire resistance. All electrical and fuel installations should be planned and fitted to minimise the fire risk.

4.3 Toxic substances

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 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. In the light of future experience this period may be altered.

5.1.2 Emus should receive a diet containing adequate nutrients to meet their requirements for good health and vitality. Emus should not be provided with food that is deleterious 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 only be supplied under the supervision of a veterinarian familiar with emus, as the overuse or mixing of medicaments, or the medicament itself, may cause toxic injury.

5.1.4 Where it is proposed to slaughter emus that have received medication, advice should be sought from professionals or relevant government agencies 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 and a ready means of obtaining food in the event of failure of supply. There should always be at least one weeks feed supply on hand.

5.1.6 Where chicks and yearlings are reared in groups, multiple feed points should be provided in each pen.

5.2 Water

5.2.1 Emus should be provided at all times with sufficient drinkable water to meet their physiological requirements. Under no circumstances should emus be without water for more than 24 hours. An emergency water source and delivery system must be available.

5.2.2 When an emu 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 of water from bores, dams or water holes may change with changes in flow or evaporation, the water may require more frequent monitoring for its continued suitability.

5.2.3 Where chicks and yearlings are reared in groups multiple water points should be provided in each pen.

6. Fencing and Yard Facilities

6.1 Fencing

Type of Fencing - Fencing must be sufficient to ensure that captive emus cannot escape and that wild emus or predators cannot enter the enclosure. Predators are mostly a problem for chicks. Fencing should be sufficiently close to the ground to prevent emus pushing under the wire. Where possible on external fences the wire should be fixed to the inside of the posts. Where a single fence is the boundary fence, the fence should consist of a straight fence 1.7 metres from ground level to the top wire. Fencing may be ring-lock, strand or cyclone wire or it may be solid. Where a double fence is used the internal fence should consist of material such as galvanised fabricated mesh fencing topped by plain wire to a minimum height of 1.5m. The boundary fence should be constructed to a minimum height of 1.1m. Chicks, up to the age of 8 weeks, should be contained by rabbit netting or chain mesh to a height of 0.85 metres.

Strainer Posts - Intermediate strainer posts at not more than 250 metres intervals on flat ground and 150 metres on undulating ground. Materials equivalent to 100-125mm diameter pressure treated pine being 3 metres long and embedded not less than 0.9 metres into the ground braced with a suitable strainer assembly at each corner and gate.

Line Posts - Line posts of 2.4 metre star steel or their equivalent at no more that 10 metre spacings. Where the fence line is on poor holding soils, spacings shall be reduced to no more that 6 metres.

Gates - All gates on the boundary fence must be lockable and constructed to similar minimum fence specifications.

6.2 Fences and yards

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. Conventional yards can be used, so long as 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 environment.

7. Special Requirements

7.1 Inspections

The frequency and level of inspection should be related to the needs of the emus, 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 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 aware of the signs of ill-health. These include separation from other emus, 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 emu practice.

7.2.2 Emu 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 yearling and adult groups as aggressive behaviour and injuries may be seen during the breeding season when the stocking density is high. Sick and injured emus 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.

7.2.3 Promptly remove dead emus and, if not required for post-mortem examination, dispose of them in a hygienic manner, such as by deep burial.

7.2.4 Emus with either an incurable sickness, injury or painful deformity should be humanely slaughtered.

7.2.5 Newly acquired stock should be quarantined from existing stock for three to four 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.

7.2.6 Genetically deficient birds should not be used for breeding.

7.3 Transportation

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

General

The raceway to the handling facility should be covered to darken the entrance and restrict the bird's avenues of escape. The handling facility's floor, walls and roof must be free of sharp objects and protruding edges capable of injuring emus. The height of the load out ramp exit is to equal, through adjustment or design, the floor height of the truck.

The truck is to have a non-slip, moisture absorbing, floor covering; a fully enclosed crate and flow through ventilation. Sand, saw dust or wooden shavings are suitable moisture absorbing materials. The design and materials should darken the carrying crate interior. Flow through ventilation is critical. The crate ceiling height may be limited to the height of the average bird less a portion not greater than 20% of the average bird height. The recommended minimum roof height for mature stock is 1.4 metres.

The driver is to be briefed before departure to corner slowly and brake gently. If a long trip is planned the birds are to be inspected by the driver every hour for the first three hours and not less than once every two additional

hours. Injured birds should be treated without delay. Drinking water is to be provided every three hours and food is to be provided daily.

7.3.1 The duration of all journeys should be as short as possible, as transportation can be a stressful experience.

7.3.2 The successful transportation of adult emus starts with orderly, well- disciplined husbandry practices which are imposed on emu chicks from 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 30OC, extra care with provision of ventilation is required.

7.3.3 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 must be protected from chilling, and extremes in temperature.

7.3.4 Yearling and adult emus. Vehicles for the transportation of yearling and adult emus must be 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 it should be dimly lit.

The floor surfaces should provide a firm but soft footing for the birds and should be capable of absorbing any moisture associated with faeces and urine.

7.3.5 Bird density during transport.

The recommended minimum area per bird is:

- 0.84m2 for a mature bird older than 15 months
- 0.76m2 for a bird aged 12-14 months
- 0.64m2 for a bird aged 10-12 months
- 0.53m2 for a bird aged 7- 9 months
- 0.47m2 for a bird aged 4- 6 months
- 0.44m2 for a bird aged 2- 4 months

The minimum for chicks up to eight weeks of age given, a maximum of ten per crate, is 0.15m2 to 0.43m2 per chick.

7.3.6 Transport vehicles, cages, crates and compartments must be cleaned thoroughly and disinfected after delivery of each consignment of emus.

7.4 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, the breeding history of each bird, general husbandry practices, and the case history and treatment of any diseased or injured birds.

8. Hatchery Management

8.1 Incubators must be supplied with adequate quantities of fresh air to prevent the build-up of disease causing organisms which can result in respiratory disease and in high mortality rates in newly- hatched chicks. Particular attention needs to be paid to the quality of the air circulating in incubators and a microbiological monitoring program should be put into place on farms which artificially incubate emu eggs. This is important because emu eggs have a long incubation period and incubators may need to be decontaminated whilst in use.

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. It should not be stored or allowed to accumulate in the vicinity of the incubators.

8.5 When necessary, chicks should be destroyed by dislocating the cervical spine 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 the method of slaughter be effective and cause sudden and painless death for the bird. The most efficient and widely available method of destroying emus on a property is a gunshot to the brain from a close range. Alternatively, emus may be destroyed under veterinary supervision.

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.

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