

ANIMALS (SCIENTIFIC PROCEDURES) ACT 1986

**CODE OF PRACTICE FOR THE HOUSING
AND CARE OF ANIMALS IN
DESIGNATED BREEDING AND
SUPPLYING ESTABLISHMENTS**



SUPPLEMENT



FERRETS and GERBILS

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**CODE OF PRACTICE FOR THE HOUSING
AND CARE OF ANIMALS IN
DESIGNATED BREEDING AND
SUPPLYING ESTABLISHMENTS
(issued under Section 21)**

SUPPLEMENT: FERRETS AND GERBILS

1. INTRODUCTION

1.1. The Animals (Scientific Procedures) Act 1986 regulates “any experimental or other scientific procedure applied to an animal which may have the effect of causing that animal pain, suffering distress or lasting harm”.

1.2. The Act came into effect on January 1987, and during the period until 1 January 1990 its provisions were progressively brought into force. Section 7 of the Act, which pertains to breeding and supplying establishments, was brought into force on 1 January 1990.

Inspectors

1.3. Section 18 of the Act empowers the Home Secretary to appoint inspectors; sets out their duties to visit establishments and advise and report to the Secretary of State; and empowers inspectors to order the killing of an animal if it is considered to be undergoing excessive suffering.

Animals Procedures Committee

1.4. Section 19 of the Act establishes the Animal Procedures Committee and sets out its constitution. Section 20 of the Act lays down that it is the duty of the Committee to advise the Home Secretary, having “regard both to the legitimate requirements of science and industry and to the protection of animals against avoidable suffering and unnecessary use in scientific procedures”.

Codes of Practice

1.5. Under section 21 of the Act, the Home Secretary is required to “issue codes of practice as to the care of protected animals and their use for regulated procedures and may approve such codes issued by other persons” and to consult the Animal Procedures Committee before publishing such a code.

1.6. This Supplement to the Code of Practice for the Housing and Care of Animals in Designated Breeding and Supplying Establishments is issued under

section 21. Section 21 (4) says that a “failure on the part of any person to comply with any provision of a code shall not of itself render that person liable to criminal or civil proceedings but any such code shall be admissible in evidence in any such proceedings and if any of its provisions appears to the court to be relevant it shall be taken into account” in determining the outcome of the case.

This Supplement

1.7. The present Supplement applies to ferrets and gerbils maintained in designated breeding and/or supplying establishments.

1.8. It is issued following extensive consultations within the scientific community, with laboratory animal breeding organisations and with organisations concerned with the welfare of animals.

1.9. It also takes account of advice offered by the Animal Procedures Committee.

1.10. Although some flexibility in interpretation of the recommendations may be permitted in particular cases with the agreement of the inspector concerned, for example to permit the introduction of innovative enriched housing systems, the quantitative standards for cage dimensions or space allowances are set at the minimum acceptable level. Where facilities are not satisfactory a realistic (but not too extended) timetable for improvements will be set.

Application of the Code of Practice

1.11. The Code applies throughout the United Kingdom. In Great Britain it is administered by the Home Office. In Northern Ireland, it is administered by the Department of Health and Social Services. Where the Code speaks of the “Secretary of State” or “the Home Office” it means, in Northern Ireland, the Department of Health and Social Services.

1.12. As understanding of how best to care for animals evolves, the recommendations contained in the Code of Practice may need to be updated. The Secretary of State will keep it under review and will issue amendments as necessary.

2. FERRETS

INTRODUCTION

2.1. Ferrets are carnivores that under natural conditions feed on small mammals, birds, fish and invertebrates. They have a complex hunting behaviour and tend to hoard food, but will not eat decayed matter. Ferrets normally live in burrows, and thus appreciate the provision of materials such as tubes in which they can crawl and play games. Ferrets usually breed once a year, mating in the spring. Male animals (hobs) are hostile to and will fight vigorously with unfamiliar males during the breeding season. As a consequence single housing of males may prove necessary at this time.

2.2. The ferret is an intelligent, inquisitive, playful and agile animal, and this should be taken into account in the design of the accommodation and when handling. A complex, escape-proof enclosure is required which provides opportunities to the ferret to exhibit a wide behavioural repertoire.

THE ENVIRONMENT

Temperature

2.3. The optimal temperature range for housing breeding ferrets is 15 - 24°C. Ferrets do not have well-developed sweat glands and are prone to heat exhaustion when exposed to high temperatures (1). Suitable contingency plans should be prepared to deal with extremes of temperature, seen occasionally in hot summers or cold winters, to ensure that a comfortable environment is maintained for the animals. Particular care must be taken during transport to avoid the animals being exposed to high temperatures.

Relative humidity

2.4. There are no reported adverse effects resulting from ferrets being exposed to wide fluctuations of ambient relative humidity. It is therefore considered unnecessary to control or record relative humidity.

Ventilation

2.5. To maintain suitable air quality, air flow rate requirements will differ depending on the type of accommodation, with tiered racks of cages likely to require higher rates than floor pens. For ferrets held at maximum permissible stocking densities 10-12 air changes per hour are likely to be suitable for all enclosed areas. Lower stocking densities may permit fewer air changes.

Lighting

2.6. Lighting levels should be such that animals can easily be inspected. In a tier racking system care should be taken to ensure that animals in the top tier are not exposed directly to high intensity lighting. This is of particular concern with albino animals. The duration of light/dark cycles is important for the manipulation of the reproductive cycle in the ferret, but a minimum period of 8 hours light must be provided daily.

Noise

2.7. Loud, unfamiliar noise and vibration should be avoided as these have been reported to cause stress-related disorders in ferrets.

ANIMAL CARE AND HEALTH

Animal accommodation

2.8. The housing must provide an adequate area for movement, ample height to allow the animal to stand on its back legs, and sufficient space to allow the animal the opportunity to select sleeping, eating and latrine areas.

2.9. A complex and stimulating environment is required in order to satisfy the animal's behavioural needs. This is much more easily provided in pens that allow greater use of three-dimensional space. Where cages are used, additional considerations will be necessary to ensure that the animal's needs are satisfactorily addressed.

2.10 Solid-floored pens or cages must be used to house breeding and stock ferrets.

2.11. Bedding material is required for all ferrets. If cages are used, the design must be such that this material is retained within the cage. An area for privacy or concealment should be provided, for example by inclusion of pipes or a nesting box.

2.12. Ferrets are inquisitive and agile animals with a remarkable ability to escape. The design of the enclosure should be such that the animal is unable to escape, and unable to injure itself should an attempt be made.

MINIMUM REQUIREMENTS FOR HOUSING FERRETS IN BREEDING AND POST WEANED STOCK

	Minimum Floor Area (cm ²)	Minimum Height (cm)
Breeders		
Jill + Litter	5400	50
Group Housing		
up to 600g	1000	50
up to 800g	1500	50
over 800g	3000	50
Single Housed (Stock)		
up to 600g	2000	50
up to 800g	2250	50
over 800g	4500	50
Adult male	5400	50

(Note - the minimum floor area for animals housed in groups must not be less than that specified for an animal housed singly.)

2.13. Animals should be maintained in socially compatible groups, with single housing only used where there are good husbandry, welfare or veterinary reasons. To avoid fighting and injury during the breeding season, it may be necessary to house adult males singly. However, male animals can be maintained successfully in groups at other times of the year.

2.14. The pregnant females (jills) should only be housed singly in late pregnancy, no more than two weeks prior to parturition.

Cleaning

2.15. Ferrets will tend to defecate in one area of the pen/cage against a vertical surface, and provision of a litter tray may be beneficial, reducing the frequency of cleaning required for the remainder of the pen/cage.

Environmental enrichment

2.16. A suitably complex environment must be provided, although a balance needs to be made between the complexity of the environment and the ease of inspection of the animals. The incorporation of containers and tubes, both cardboard and rigid plastic, and paper bags stimulates both investigative and play behaviour. Nesting materials such as hay, straw or paper must be provided, with deep litter systems considered to provide additional enrichment. Ferrets will play with water and may benefit from the occasional provision of water baths.

Nutrition

2.17. The ferret is a carnivore, with a particular requirement for a high level of animal protein and fat. This species eats to calorie requirements, and can become protein deficient if fed diets with a high carbohydrate level. There is little requirement for dietary fibre.

2.18. The nutritional requirements of the pregnant and lactating jill require careful consideration. Inappropriate diets may lead to poor reproductive performance, for example poor conception rates or small litter numbers, and pregnancy toxaemia.

2.19. Special diets properly formulated to fully meet the ferret's requirements are available from commercial diet manufacturers.

Reproduction

2.20. The natural breeding season of the jill is between March and August, and the hob between December and July, although within breeding establishments the season may be altered, for example by manipulation of the photoperiod.

2.21. Both male and female animals exhibit marked variations in both coat condition and body weight during the breeding cycle. For example body weights may vary by up to 50%, and marked alopecia may occur.

2.22. It may be necessary to house adult males singly during the breeding season, as levels of aggression are higher at this time. Breeding females should not be mated before nine months of age.

2.23. The ferret is an induced ovulator, and care must be taken to monitor animals that are not mated for evidence of clinical problems, for example oestrus induced anaemia.

2.24. Mating can be a prolonged noisy affair, with neck injuries on the female not uncommon. Careful monitoring for injuries is important, with treatments applied as required. Mating should take place in a separate room to those animals with litters, as the disturbance can lead to cannibalism.

2.25. Pregnant females should be moved into the littering cage no more than two weeks prior to parturition. A nest box and nesting material must be provided. Care is needed in the choice of nesting material to avoid damage to young at birth (desiccation, damage to umbilical vessels).

2.26. Animals should not be weaned before 6 weeks of age, without good veterinary or husbandry reasons.

2.27. As breeding can have a considerable impact on bodyweight and condition, jills should be assessed for continued suitability for breeding before mating by a competent animal technician, in consultation with the Named Veterinary Surgeon.

Handling

2.28. Ferrets should be handled sensitively and frequently from an early age. It is reported that the more frequent the interactions, the more placid the animals will become. Special care is required for the handling of nursing mothers and sick animals that can be aggressive.

Animal health

2.29. In addition to the main provisions for animal health set out in Paragraphs 3.40-3.43 of the Code of Practice, which require that suitable health control and monitoring programmes are in place, three areas of concern, with particular relevance to the ferret, require to be considered, in consultation with the Named Veterinary Surgeon:

Virus infections - Ferrets are susceptible to a number of viral diseases, such as Aleutian disease and distemper. Human Influenza virus may cause clinical disease in ferrets, and appropriate preventive measures should be in place to minimise this infection risk.

Pregnancy Toxaemia - This is a common consequence of feeding an inadequate diet during pregnancy, generally affecting jills carrying a large litters. Advice from the Named Veterinary Surgeon should be sought, and the dietary management and formulation reviewed.

Oestrus induced anaemia/hyperoestrogenism - As the ferret is an induced ovulator, jills kept in the absence of a male during the breeding season may remain in oestrus for several months. Not only may the vulva become grossly swollen and susceptible to trauma, but also haematopoiesis is suppressed and severe anaemia may ensue.

The management and treatment of persistent oestrus, for example by mating with a vasectomised male, or by hormonal preparations, should be discussed and approved by the Named Veterinary Surgeon.

Staffing

2.30. In general, ferrets seem to benefit from regular interactions with confident handlers, and this should be encouraged, by ensuring that adequate staff levels are maintained to meet this need. This will generally result in a better quality, more sociable animal.

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3. GERBILS

INTRODUCTION

3.1. Gerbils are highly adaptable animals. Although selected for important traits such as ability to breed in laboratory conditions and docility, those bred for laboratory use retain many of the traits of their wild counterparts, for example, grooming, exploratory activity, searching for food, burrowing and gnawing, and housing systems should aim to encompass these behavioural needs.

3.2. The gerbil or Mongolian jird originates from the deserts of north east China and eastern Mongolia. In the wild, these animals reside in extensive complex burrow systems and are largely nocturnal. In the laboratory, gerbils seem to be quite active during daylight hours, are compulsive burrowers, and unless provided with adequate facilities will often exhibit stereotyped digging behaviour. Gerbils are social animals, living in large colonies and family groups. Although docile by nature, mixing of groups can cause significant aggression and injury. Epileptiform seizures are commonly reported, with susceptibility influenced by stressors such as loud noises or unaccustomed handling.

THE ENVIRONMENT

3.3. Gerbils choose to manipulate their own microenvironments via activities such as huddling, nest building and tunnelling. In general, the animal's ability to control temperature, humidity and lighting is more important to its welfare than specifying ambient conditions within the room. It is the microclimate within the cage that matters to the animal, and welfare seems enhanced when animals are able to control this, for example by the manipulation of bedding material.

Temperature

3.4. The optimal temperature band for gerbils is 19-23°C. Provision of bedding or nesting material allows the animal an opportunity to manipulate its own immediate environments, and provide a warm nest for its young. This may also promote greater utilisation of the available space.

Relative humidity

3.5. Humidity control is an important consideration, as gerbils are susceptible to high relative humidities, which can pre-dispose them to skin conditions such as facial dermatitis and greasy coats (1,2). Humidity levels of below 50% should prevent these problems. In animal units in which humidity levels are maintained at 55±15%, lower humidities within the gerbil cages can be promoted by adequate provision of dry absorbent bedding material.

Ventilation

3.6. Specific air change rates in the room are less important than ensuring that there is an efficient flow within the rooms to maintain the air quality within the animals' immediate environment at an acceptable level. Stocking densities and husbandry practices will influence the ventilation rate required to achieve this.

Lighting

3.7. Light levels within cages are more important to the welfare of breeding gerbils than the light level in the room. There is evidence (3) that gerbils exhibit a preference for partially darkened cages, and for this reason shelter objects or suitable material from which a shelter/nest can be constructed should be provided. Lighting intensity should be no greater than that which is required by husbandry practices or for safety reasons.

Noise

3.8. Sudden irregular noises create more disturbance in breeding gerbils than continuous or predictable sounds, and can induce epileptiform seizures in susceptible animals. Noise cannot be eliminated from or completely masked within an animal unit but care should be taken to minimise the generation of sudden extraneous audible and ultrasound noise in the vicinity of animals.

ANIMAL CARE AND HEALTH

3.9. Unless there is good husbandry/veterinary justification for individual housing, animals should be maintained in stable, harmonious, social groups.

Animal accommodation

3.10. Cage enrichment and social interaction are considered to be of more value to the animal than simple floor space allocation, but sufficient space must be provided to permit these interactions. The minimum requirements are as follows:

BREEDERS (INCLUDING LITTERS)

	MINIMUM FLOOR AREA cm ²	MINIMUM CAGE HEIGHT (cm)
Monogamous pair or trio	900	20

For each additional female plus litter an additional 300cm² should be provided.

ANIMALS IN POST-WEANED STOCK

WEIGHT	MINIMUM FLOOR SPACE ALLOCATION (cm ²)		MINIMUM CAGE HEIGHT (cm)
	A. WHEN HOUSED IN GROUPS	B. WHEN HOUSED SINGLY	
< 30g	60	500	20
31-50g	100	500	20
> 50g	150	500	20

3.11. The minimum floor area for animals housed in groups must not be less than that specified for an animal housed singly.

Breeding

3.12. Gerbils must be bred and maintained on solid floors, and provided with suitable and sufficient bedding material (e.g. shredded paper or wood chippings) from which a

burrow/nest can be constructed. This is important in thermoregulation of the microenvironment, and keeps the young together for efficient lactation. The siting and structure of breeding cages are important, as direct visual contact can result in aggressive behaviour and reduced breeding performance. The use of opaque breeding cages should be considered. As significant fighting and even deaths can occur during the establishment of breeding pairs, careful selection and monitoring is necessary, with consideration given to pairing in a “neutral” environment (4). Disturbance to the animals should be minimised during late pregnancy and early lactation to reduce the risk of mis-mothering or cannibalism.

Bedding and nesting material

3.13. Nesting materials are crucial to gerbils to allow appropriate microenvironments to be created which facilitate the successful rearing of young. The characteristics and quantities of the materials provided should provide opportunities for digging behaviour and nest construction. Failure to provide suitable material for burrow construction can lead to stereotyped digging behaviour (5). The provision of an artificial burrow, for example a moulded plastic pipe, can significantly reduce stereotyped digging behaviour (6).

Diet

3.14. Care should be taken in the selection of diets for gerbils as, for example, high levels of fat have been found to cause health problems, such as hypercholesterolaemia and fatty liver syndrome (7).

Environmental enrichment

3.15. Abnormal burrowing and gnawing behaviours are the two most commonly encountered stereotypies encountered in laboratory housed gerbils. Suitable materials to facilitate the construction of burrows must be provided to help prevent these stereotypies. The material provided for burrowing may also satisfy the gnawing behavioural requirements, otherwise materials for gnawing such as chew sticks must be provided. Complex cage structures and the use of cage inserts should be considered as these have been used successfully to provide additional concealment.

Handling

3.16. Gerbils require confident, competent and careful handling, as this species has some unusual responses if mishandled. Poor handling may induce a "freeze" response, during which the animal becomes immobile, or may induce epileptiform convulsions. As epilepsy is a familial trait in gerbils, this factor should be considered during selection of replacement breeding stock. Animals should not be lifted by the tail, as this may result in the separation of the skin of the distal tail, known commonly as degloving.

Records

3.17. Regular monitoring of health and reproductive data is essential to ensure that problems are identified at an early stage, and corrective action implemented to minimise any potential adverse welfare effects on the animals.

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