

**L.N. 263 of 2003**

**ANIMAL WELFARE ACT  
(ACT NO. XXV OF 2001)**

**Animal Experimentation Regulations, 2003**

**IN exercise of the powers conferred by articles 32, 33 (2), 34, 35 (3) and (4), 36 (1), 37 (1), 40 (4), 42 (1) of the Animal Welfare Act, the Minister for Rural Affairs and the Environment has made the following regulations:-**

**Title and scope.**

1. (1) The title of these regulations is the Animal Experimentation Regulations, 2003.

(2) These regulations apply to any animals used or intended for use in any such experimentation or other scientific procedure where that procedure may cause pain, suffering, distress or lasting harm. It does not apply to any non-experimental agricultural or clinical veterinary practice.

(3) The scope of these regulations is to implement the provisions found under European Union Council Directive 86/609/EEC.

**Definitions.**

2. (a) "Animal" unless otherwise qualified, means any live non-human vertebrate, including free living and/or reproducing larval forms, but excluding other foetal or embryonic forms.

(b) "Breeding establishment" means any establishment, from which animals are supplied with a view to their use in procedures.

(c) "Competent person" means any person who is considered by the Minister responsible for the Veterinary Services to be competent to perform the relevant function described in these regulations.

(d) "Establishment" means any stable or mobile facility, any building, group of buildings or other premises, including a place which is not wholly enclosed or covered.

(e) "Humane method of killing" means the killing of an animal with a minimum of mental and physical suffering appropriate to the species.

(f) “Intended for use” means bred or kept for the purpose of sale, disposal or use in any experimental or other scientific procedure.

(g) “Procedure” means any experimental or other scientific use of an animal which may cause it pain, suffering, distress or lasting harm, including any course of action intended to, or liable to, result in the birth of an animal in any such conditions, but excluding the least painful methods accepted in modern practice (ie. Humane methods) of killing or marking an animal.

A procedure starts when an animal is first prepared for use and ends when no further observations are made for that procedure, the elimination of pain, suffering, distress or lasting harm by the successful use of anaesthesia or analgesia or other methods does not place the use of an animal outside the scope of this definition.

(h) “Responsible Authority” means the Minister responsible for the Veterinary Services .

(i) “Supplying establishment” means any establishment, other than a breeding establishment, from which animals are supplied with a view to their use in procedures.

(j) “User Establishment” means any establishment where animals are used in procedures.

### **Procedure performance.**

**3.** A procedure may be performed for one or more of the following purposes only and subject to the restrictions laid down in these regulations.

(a)

(i) Avoidance or prevention of disease, ill-health or other abnormality, or their effects, in man, vertebrate or invertebrate animals or plants, including the production and the quality, efficacy and safety testing of drugs, substances or products.

(ii) Diagnosis or treatment of disease, ill-health or other abnormality, or their effects, in man, vertebrate or invertebrate animals or plants.

(b) Detection assessment, regulation or modification of physiological conditions in man, vertebrate or invertebrate animals or plants.

(c) Protection of the environment in the interests of the health or welfare of man or animal.

(d) Scientific research

(e) Forensic enquires.

#### **General care and accommodation.**

4. (1) Any animals used for use in a procedure shall be provided with accommodation, and an environment with at least a minimum degree of freedom, food, water and care, appropriate to the animals' health and well-being. Any restriction on the extent to which an animal can satisfy its physiological and ethological needs shall be limited as far as practicable, in accordance with the provisions laid down under Schedule A.

(2) The environmental conditions in which animals are bred, kept or used shall be checked daily.

(3) The well-being and state of health of animals shall be observed sufficient closely and frequently to prevent pain or avoidable suffering, distress or lasting harm.

(4) Arrangements are made to ensure that any defect or suffering discovered is eliminated as quickly as possible.

#### **Conduct of procedure.**

5. A procedure shall not be performed for any of the purposes referred to in regulation 2, if another scientifically satisfactory method, not entailing the use of an animal, is reasonably and practically available.

#### **Choice of species on performance of procedure.**

6. When a procedure has to be performed, the choice of species shall be carefully considered and, when required, be explained to the Minister responsible for the Veterinary Services; in a choice between procedures, those should be selected which use the minimum number of animals, cause the least pain, suffering, distress or lasting harm and which are most likely to provide satisfactory results.

#### **Elimination of pain, suffering, distress or lasting harm.**

7. A procedure shall be performed under general or local anaesthesia or analgesia or by other methods designed to eliminate as far as practicable pain, suffering, distress or lasting harm applied throughout the procedure unless;

(a) The pain caused by the procedure is less than the impairment of the animal's well-being caused by the use of the anaesthesia or analgesia, or

(b) The use of anaesthesia or analgesia is incompatible with the aim of the procedure.

#### **Declaration of painful procedure to the Veterinary Services.**

8. Where it is planned to subject an animal to a procedure in which it will or may experience severe pain which is likely to endure, that procedures must be declared and justified to the Veterinary Services.

### **Measures to be taken at the end of the procedure.**

9. (1) At the end of the procedure it shall be decided whether the animal shall be kept alive or killed by a humane method. An animal shall not be kept alive if, even though it has been restored to normal health in all other respects, it is likely to remain in lasting pain or distress.

(2) The decision referred to in sub-regulation (1) of this regulation shall be taken by a competent person, in particular a veterinarian, or the person who, in accordance with regulation 2, is responsible for, or has performed, this procedure.

(3) Where, at the end of the procedure -

(a) an animal is to be kept alive, it shall receive the care appropriate to its state of health, be placed under the supervision of a veterinarian or other competent person and kept under conditions conforming to the requirements of regulation 4. The conditions laid down in this paragraph may, however, be waived where, in the opinion of a veterinarian, the animal would not suffer as a consequence of such exemption;

(b) an animal is not to be kept alive or cannot benefit from the provisions of regulation 4 for its well-being, it shall be killed by a humane method as soon as possible.

(4) No animal which has been used in a procedure entailing severe or enduring pain or suffering, irrespective of whether anaesthesia or analgesia was employed, shall be used in a further procedure unless it has returned to good health and well-being and either -

(a) The further procedure is one in which the animal is subject throughout to general anaesthesia which is to be maintained until the animal is killed, or

(b) The further procedure will involve minor interventions only.

(5) An animal shall not be used more than once in experiments entailing severe pain, distress or equivalent suffering.

### **Authorisation.**

10. A procedure for the purpose referred to in regulation 3 may be carried out by persons authorised, or under the direct responsibility of a person authorised. Authorisation shall be granted only to persons deemed to be competent by the Veterinary Services.

### **Breeding or supplying establishments.**

11. Breeding and supplying establishments shall be registered with the Veterinary Services subject to the grant of an exemption under regulation 17 or regulation 18. Such registered establishments shall comply with the requirements of regulation 4.

### **Provisions to be found in the registration.**

12. The registration provided for in regulation 11 shall specify the person in charge of the establishment, who shall be competent to administer or arrange for suitable care for animals of the species bred or kept in the establishment.

### **Arrangements to be made at registered breeding establishments.**

13. (1) Arrangements shall be made at registered breeding establishments to record, in respect of the animals bred there, the number and species of such animals leaving, the dates they leave and the name and address of the recipient.

(2) Arrangements shall be made at registered supplying establishments to record the number and species of such animals entering and leaving, the dates of these movements, from whom the animals concerned were acquired and the name and address of the recipient.

(3) The Veterinary Services shall prescribe the records which are to be kept and made available to it by the person in charge of the establishments mentioned in sub-regulation (1) and (2) of this regulation. Such records shall be kept for a minimum of three years from the date of the last entry.

### **User establishments.**

14. User establishments shall be registered with or otherwise approved by the Veterinary Services and shall comply with the conditions laid down in regulation 4.

### **Installations and equipment.**

15. Provisions shall be made at user establishments for installations and equipment appropriate for the species of animals used and the performance of the procedures conducted there. The design, construction and functioning of such installations and equipment shall be such as to ensure that the procedures are performed as effectively as possible, with the object of obtaining consistent results with the minimum number of animals and the minimum degree of pain, suffering, distress or lasting harm.

### **Provisions for the persons at user establishments.**

16. In user establishments -

- (a) The person or persons who are administratively responsible for the care of the animals and the functioning of the equipment shall be identified;
- (b) Sufficient trained staff shall be provided;
- (c) Adequate arrangements shall be made for the provision of veterinary advice and treatment;
- (d) A Veterinarian or other competent person should be charged with advisory duties in relation to the well-being of the animals.

### **List of animals used in procedures.**

17. (1) Animals of the species listed below which are for use in procedures shall be acquired directly from or originate from registered breeding establishments, unless a general or special exemption has been obtained under arrangements to be determined by the Minister-

<b>Mouse</b>	<i>Mus musculus</i>
<b>Rat</b>	<i>Rattus norvegicus</i>
<b>Guinea pig</b>	<i>Cavia porcellus</i>
<b>Golden Hamster</b>	<i>Mesocricetus auratus</i>
<b>Rabbit</b>	<i>Oryctolagus cuniculus</i>
<b>Quail</b>	<i>Coturnix coturnix</i>

(2) Species of animals which are not present in the above mentioned list, excluding poultry and fish, shall not be utilised for experimentation purposes unless a special exemption has been obtained under arrangements to be determined by the Minister.

### **Procedures which may be conducted outside user establishments.**

18. Procedures may, where authorised by the Veterinary Services, be conducted outside user establishments.

### **Records.**

19. Arrangements shall be made at user establishments to maintain records and make them available as required by the Veterinary Services. In particular these records shall be sufficient to meet the requirements of regulation 22 and, in addition, show the number and species of all animals acquired, from whom they were acquired and their date of arrival.

### **Education and training.**

20. (1) Procedures carried out for the purpose of education, training or further training for professions or other occupations, including the care of animals being used or intended for use in procedures, must be notified to the Veterinary Services and shall be carried out by or under the supervision of a competent person, who will be responsible for ensuring that the procedures comply with these regulations.

(2) Procedures within the scope of education, training, or further training for purposes other than those referred to in sub-regulation (1) above shall not be permitted.

(3) Procedures referred to in sub-regulation (1) of this regulation shall be restricted to those absolutely necessary for the purpose of the education or training concerned and be permitted only if their objective cannot be achieved by comparably effective audio-visual or any other suitable methods.

### **Who may take care of animals used in procedures.**

**21.** Persons who carry out procedures, or take part in procedures, or take care of animals used in procedures, including supervision, shall have had appropriate education and training.

### **Statistical information.**

**22.** (1) The Veterinary Services shall collect statistical information on the use of animals in procedures and this information shall, where lawful, be made available to the public.

(2) Information shall be collected in respect of -

- (a) The numbers and kinds of animals used in procedures;
- (b) The numbers of animals in selected categories used in procedures directly concerned with medicine and in education and training;
- (c) The numbers of animals in selected categories used in procedures for the protection of man and the environment;
- (d) The number of animals in selected categories used in procedures required by law.

### **Recognition of procedures carried out in the territory of another party.**

**23.** In order to avoid unnecessary repetition of procedures required by law on health and safety, the Veterinary Services, where practicable, recognise the results of procedures carried out in the territory of another party.

### **Penalty for non-fulfilment of obligations.**

**24.** (1) Subject to the provisions of these regulations and of the Animal Welfare Act, a person who infringes any of the provisions arising from these regulations, shall, on conviction, be liable to a fine (*multa*) of not less than Lm10, 000.

(2) Without prejudice to the provisions of sub-regulation (1) of this regulation, the Court may also order any person who is found guilty of committing an offence under these regulations, to pay for the expenses incurred by the Veterinary Services as a result of the said offence, the revocation of the permit issued under these regulations and the confiscation, retention and disposal of the *corpus delicti*.

## SCHEDULE A

### Guidelines for accommodation and care of animals

#### Definitions

- a. "Cage" means a permanently fixed or movable container that is closed by solid walls and, at least on one side, by bars or meshed wire or, where appropriate, nets and in which one or more animals are kept or transported; depending on the stocking density and the size of the container, the freedom of movement of the animals is relatively restricted;
- b. "Holding rooms" means rooms where animals are normally housed, either for breeding and stocking or during the conduct of a procedure.
- c. "Pen" means an area enclosed, for example, by walls, bars or meshed wire in which one or more animals are kept; depending on the size of the enclosure and the stocking density, the freedom of movement of the animals is usually less restricted than in a cage;
- d. "Run" means an area enclosed, for example, by fences, walls, bars, or meshed wire and frequently situated outside permanently fixed buildings in which animals are kept in cages or pens can move freely during certain periods of time in accordance with their ethological and physiological needs, such as exercise;
- e. "Stall" means a small enclosure with three sides, usually a free-rack and lateral separations, where one or two animals may be kept tethered.

#### 1. The Physical Facilities

##### 1.1 *Functions and general Design*

1.1.1 Any facility should be so constructed as to provide a suitable environment for the species housed. It should also be designed to prevent access by unauthorised persons.

Facilities that are part of a larger building complex should also be protected by proper building measures and arrangements that limit the number of entrances and prevent unauthorised traffic.

1.1.2 It is recommended that there should be a maintenance programme for the facilities in order to prevent any defect of equipment.

##### 1.2 *Holding rooms*

1.2.1 All necessary measures should be taken to ensure regular and efficient cleaning of the rooms and the maintenance of a satisfactory hygienic standard. Ceilings and walls should be damage-resistant with a smooth, impervious and easily washable surface. Special attention should be paid to junctions with doors, ducts, pipes and cables. Doors and windows, if any, should be impervious and have a non-slippery, easily washable surface which can carry the weight of racks and other heavy equipment without being damaged. Drains, if any, should be adequately covered and fitted with a barrier which will prevent animals from gaining access.

1.2.2 Rooms where the animals are allowed to run freely should have walls and floors with a particular resistant surface material to stand up to the heavy wear and tear caused by the animals and the cleaning process. The material should not be detrimental to the health of the animals and be such that the animals cannot hurt themselves. Drains are desirable in such rooms. Additional protection should be given to any equipment or fixtures so that they may not be damaged by the animals or hurt the animals themselves. Where outdoor exercise areas are provided measures should be taken when appropriate to prevent access by the public and animals.

1.2.3 Rooms intended for the holding of farm animals should at least conform with the standards laid down for the protection of animals kept for farming purposes.



1.2.4 Care should be taken not to house together species which are incompatible.

1.2.5 Holding rooms should be provided with facilities for carrying out minor procedures and manipulations, where appropriate.

### 1.3 *Laboratories and general and special purpose procedure rooms.*

1.3.1 At breeding or supplying establishments suitable facilities for making consignments of animals ready for dispatch should be made available.

1.3.2 All establishments should also have available as a minimum laboratory facilities for the carrying out of simple diagnostic tests, post-mortem examinations, and/ or the collection of samples which are to be subjected to more extensive laboratory elsewhere.

1.3.3 Provision should be made for the receipt of animals in such a way that incoming animals do not put at risk animals already present in the facility, for example by quarantining. General and special purpose procedure rooms should be made available for situations where it is undesirable to carry out the procedures or observations in the holding room.

1.3.4 There should be appropriate accommodation for enabling animals which are ill or injured to be housed separately.

1.3.5 Where appropriate, there should be provision for one or more separate rooms suitably equipped for the performance of surgical procedures under aseptic conditions. There should be facilities for post-operative recovery where this is warranted.

### 1.4 *Service rooms*

1.4.1 Store rooms for food should be cool and dry, vermin and insect proof and those for bedding, dry, vermin and insect proof. Other materials, which may be contaminated or present a hazard, should be stored separately.

1.4.2 Store rooms for clean cages, instruments and other equipment should be available.

1.4.3 The cleaning and washing room should be large enough to accommodate the installations necessary to accommodate the installations necessary to decontaminate and clean used equipment. The cleaning process should be arranged so as to separate the flow of clean and dirty equipment to prevent the contamination of newly cleaned equipment. Walls and floors should be covered with a suitably resistant surface material and ventilation system should have ample capacity to carry away the excess heat and humidity.

1.4.4 Provisions should be made for the hygienic storage and disposal of carcasses and animal waste. If incineration on the site is not possible or desirable, suitable arrangements should be made for the safe disposal of such material having regard to local legislation.

1.4.5 The design and construction of circulation areas should correspond to the standards of the holding rooms. The corridors should be wide enough to allow, easy circulation of movable equipment.

## 2. **The environment in the holding room and its control.**

### 2.1 *Ventilation*

2.1.1 Holding rooms should have an adequate ventilation system which should satisfy the requirements of the species housed. The purpose of the ventilation system is to provide fresh air and to keep down the level of odours, noxious gases, dust and infectious agents of any kind. It also provides for the excess heat and humidity.

2.1.2 The air in the room should be renewed at frequent intervals. A ventilation rate of 15-20 air changes per hour is normally adequate. However, in some circumstances, where stocking density is low, 8-10 air changes per hour may suffice or mechanical ventilation may not even be needed at all. Other circumstances may necessitate a much higher rate of air change. Recirculation of untreated air should be avoided. However, it should be emphasised that even the most efficient system cannot compensate for poor cleaning routines and negligence.

2.1.3 The ventilation should be so designed as to avoid harmful draughts.

2.1.4 Smoking in rooms where there are animals shall be forbidden.

## 2.2 *Temperature*

2.2.1 Table 1 gives the range within which it is recommended that the temperature shall be maintained. It should also be emphasised that the figures apply only to adult, normal animals. New born and young animals will often require a much higher temperature level. The temperature of the premises should be regulated according to possible changes in the animals' thermal regulation which may be due to special physiological conditions or to the effects of the procedures.

2.2.2 Under the climatic conditions in the territory of Malta it may be necessary to provide a ventilation system having the capacity to cool the air supplied.

2.2.3 In user establishments a precise temperature control in the holding rooms may be required, because the environmental temperature is a physical factor which has a profound effect on the metabolism of all animals.

## 2.3 *Humidity*

Extreme variations in relative humidity (RH) have an adverse effect on the health and well-being of animals. The RH level in holding rooms should be appropriate to the species concerned and should ordinarily be maintained at 55% +/- 10%. Values below 40% and above 70% RH for prolonged periods shall be avoided.

## 2.4 *Lighting*

In windowless rooms, it is necessary to provide controlled lighting both to satisfy the biological requirements of the animals and to provide a satisfactory working environment. It is also necessary to have a control of the intensity and of the light-dark cycle. When keeping albino animals, one should also take into account their sensitivity to light.

## 2.5 *Noise*

Noise can be an important disturbing factor in the animal quarters. Holding rooms and procedure rooms should be insulated against loud noise sources in the audible and in the higher frequencies in order to avoid disturbances in the behaviour and physiology of the animals. Sudden noises may lead to considerable change in organ functions but, as they are often unavoidable, it is sometimes advisable to provide holding and procedure rooms with a continuous sound of moderate intensity.

## 2.6 *Alarm systems*

A facility housing a large number of animals is vulnerable. It is therefore recommended that the facility is duly protected by the installation of devices to detect fires and the intrusion of unauthorised persons. Technical defects or a breakdown of the ventilation system is another hazard which could cause distress and even the death of animals, due to suffocation and overheating or, in less serious cases, have such negative effects on a procedure that it will be a failure and have to be repeated. Adequate monitoring devices should therefore be installed in connection with the heating and ventilation plant to enable the staff to supervise its operation in general. If warranted, a stand by generator should be provided for the maintenance of life support systems for the animals and lighting in the event of a break down or the withdrawal of supply. Clear instructions on emergency procedures should be prominently displayed. Alarms for fish tanks are recommended in case of failure of the

water supply. Care should be taken to ensure that the operation of an alarm causes as little disturbance as possible to the animals.

### 3. Care

#### 3.1 Health

3.1.1 The person in charge of the establishment should ensure regular inspection of the animals and supervision of the accommodation and care by a veterinarian or other competent person.

3.1.2 According to the assessment of the potential hazard to the animals, appropriate attention should be paid to the health and hygiene of the staff.

#### 3.2 Packing and transport conditions

All transportation is undoubtedly, for the animals, a stressful experience. The same regulations on transportation apply to animals for experimentation. Every precaution should be taken by sender and carrier in packing, stowing and transit to avoid unnecessary suffering through inadequate ventilation, exposure to extreme temperatures,

lack of feed and water, long delays, etc. The receiver should be properly informed about the transport details and documentary particulars to ensure quick handling and reception in the place of arrival.

#### 3.3 Reception and unpacking

The consignments of animals should be received and unpacked without avoidable delay. After inspection, the animals should be transferred to clean cages or pens and be supplied with feed and water as appropriate. Animals which are sick or otherwise out of condition should be kept under close observation and separately from other animals. They should be examined by a veterinarian or other competent person as soon as possible and, where necessary, treated. Animals which do not have any chance to recover should be killed at once by a humane method. Finally, all animals received must be registered according with the provisions of regulations 13 and 19 of these regulations. Transport boxes should be destroyed immediately if proper decontamination is impossible.

#### 3.4 Quarantine, isolation and acclimatisation.

3.4.1 The objects of quarantine are -

- a. To protect other animals in the establishment;
- b. To protect man against zoonotic infection;
- c. To foster good scientific practice.

Unless the state of health of animals introduced into an establishment satisfactory, it is recommended that they should undergo a period of quarantine.

Animals may be used for procedures during the quarantine period as long as they have become acclimatised to their new environment and they present no significant risk to other animals or man.

3.4.2 It is recommended that facilities should be set aside in which to isolate animals showing signs of or suspected of ill-health and which might present a hazard to man or to other animals.

3.4.3 Even when the animals are seen to be in sound health it is good husbandry for them to undergo a period of acclimatisation before being used a procedure. The time required depends on several factors, such as the stress to which the animals have been subjected which in turn depends on several factors such as the duration of the transportation and the age of the animal. This time shall be decided by a competent person.

### **3.5 Caging.**

**3.5.1** It is possible to make a distinction between two broad systems of housing animals.

Firstly, there is the system found in breeding, supplying and user establishments in the bio-medical field designed to accommodate animals such as rodents, rabbits, birds, sometimes also ruminants, swine and horses. Suggested guidelines for cages, pens, runs and stalls suitable for such facilities are presented in Tables 3 to 6.

Secondly, there is the system frequently found in establishments conducting procedures only on farm or similar large animals. The facilities in such establishments should not be less than those required by current veterinary standards.

**3.5.2** Cages and pens should not be made out of material that is detrimental to the health of the animals, and their design should be such that the animals cannot injure themselves and, unless they are disposable, they should be made from a resistant material adapted to cleaning and decontamination techniques. In particular attention should be given to the design of cage and pen floors which should vary according to the species and age of the animals and be designed to facilitate the removal of excreta.

**3.5.3** Pens should be designed for the well-being of the species. They should permit the satisfaction of certain ethological needs (for example, the need to climb, hide or shelter temporarily) and be designed or efficient cleaning and freedom from contact with other animals.

### **3.6 Feeding**

**3.6.1** In the selection, production and preparation of feed, precautions should be taken to avoid chemical, physical and microbiological contamination. The feed should be packed in tight, closed bags, stamped with the production date when appropriate. Packing, transport and storing should also be such as to avoid contamination, deterioration or destruction. Store rooms should be cool, dark, dry and vermin and insect proof. Quickly perishable feed like greens, vegetables fruit, meat, fish etc., should be stored in cold rooms, refrigerators or freezers.

All feed hoppers, troughs or other utensils used for feeding should be regularly cleaned and if necessary sterilised. If moist feed is used or if the feed is easily contaminated with water, urine, etc., daily cleaning is necessary.

**3.6.2** The feed distribution process may vary according to the species but it should be such as to satisfy the physiological needs of the animal. Provision should be made for each animal to have access to the feed.

### **3.7 Water**

**3.7.1** Uncontaminated drinking water should be always available to all animals. During transport it is acceptable to provide water as part of a moist diet. Water is however a vehicle of micro-organisms and the supply should therefore be so arranged that the hazard involved is minimised. Two methods are in common use, bottles and automatic systems.

**3.7.2** Bottles are often used with small animals like rodents and rabbits. When bottles are used, they should be made from translucent material in order to enable their contents to be monitored. The design should be wide-mouthed for easy and efficient cleaning and, if plastic material is used, it should not be reachable. Caps, stoppers and pipes should also be sterile and easy to clean. All bottles and accessories should be taken to pieces, cleaned and sterilised at appropriate and regular periods. It is preferable that bottles should be replaced by clean, sterilised ones rather than be refilled in the holding rooms.

**3.7.3** Automatic drinking systems should be regularly checked, serviced and flushed to avoid accidents and the spread of infections. If solid-bottom cages are used, care should be taken to minimise the risk of flooding. Regular bacteriological testing of the system is also necessary to monitor the quality of the water.

**3.7.4** Water received from public waterworks contain some micro-organisms which are usually considered to be harmless unless one is dealing with microbiologically defined animals. In such cases, the water should be

treated. Water supplied by public waterworks is usually chlorinated to reduce the growth of micro-organisms. Such chlorination is not always enough to keep down the growth of certain potential pathogens, as for example *Pseudomonas*. As an additional measure, the level of chlorine in the water could be increased or the water could be acidified to achieve the desired effect.

**3.7.5** In fishes, amphibians and reptiles, tolerance for acidity, chlorine and many other chemicals differs widely from species to species. Therefore provision should be made to adapt the water supply for aquariums and tanks to the needs and tolerance limits of the individual species.

### 3.8 *Bedding*

Bedding should be dry, absorbent, non-dusty, non-toxic and free from infectious agents or vermin, or any other form of contamination. Special care should be taken to avoid using sawdust or bedding material derived from wood which has been treated chemically. Certain industrial by-products or waste, such as shredded paper may be used.

### 3.9 *Exercising and handling*

**3.9.1** It is advisable to take every possible opportunity to let animals take exercise.

**3.9.2** The performance of an animal during a procedure depends very much on its confidence in man, something which has to be developed. The confidence once established should however be preserved. It is therefore recommended that frequent contact should be maintained so that the animals become familiar with human presence and activity. The staff should be sympathetic, gentle and firm when associating with animals.

### 3.10 *Cleaning*

**3.10.1** The standard of a facility depends very much on good hygiene. Clear instructions should be given for the changing of bedding in cages and pens.

**3.10.2** Adequate routines for the cleaning, washing, decontamination and, when necessary, sterilisation of cages and accessories, bottles and other equipment should be established. A very high standard of cleanliness and order should also be maintained in holding, washing and storage rooms.

**3.10.3** There should be regular cleaning and, where appropriate, renewal of the material forming the ground surface in outdoor pens, cages and runs to avoid them becoming a source of infection and parasite infestation.

### 3.11 *Humane killing of animals*

**3.11.1** All humane methods of killing animals require expertise which can be only attained by appropriate training.

**3.11.2** A deeply unconscious animal can be exsanguinated but drugs which paralyse muscles before unconsciousness occurs, those with curariform effects and electrocution without passage of current through the brain, should not be used without prior anaesthesia.

**3.11.3** Carcass disposal should not be allowed before *rigor mortis* occurs.

**Table 1 : Guidelines for room temperatures**

Species or groups of species	Optimal temp in Centigrade
Mouse	20-24
Rat	20-24
Syrian Hamster	20-24
Gerbil	20-24
Poultry	15-21
Rabbit	15-21
Pigeon	15-21
Quail	20-24
Guinea pig	20-24

**Table 2: Guidelines for local quarantine periods**

Species	Days
Mouse	5-15
Rat	5-15
Gerbil	5-15
Guinea pig	5-15
Rabbit	20-30
Syrian Hamster	5-15

**Table 3: Guidelines for caging small rodents and rabbits**

Species	Minimum cage floor area cm <sup>2</sup>	Minimum cage height cm
Mouse	180	12
Rat	350	14
Syrian Hamster	180	12
Guinea pig	600	18
Rabbit 1kg	1400	30
Rabbit 2kg	2000	30
Rabbit 3kg	2500	35
Rabbit 4kg	3000	40
Rabbit 5kg	3600	40

**Table 4: Guidelines for caging small rodents in breeding :**

Species	Minimum cage floor area for mother and litter cm <sup>2</sup>	Minimum cage height cm
Mouse	200	12
Rat	800	14
Syrian hamster	650	12
Guinea pig	1200	18
Guinea pigs in harems	1000 per adult	18

**Table 5 : Guidelines for caging breeding rabbits**

<b>Weight of Doe</b> <b>Kg</b>	<b>Minimum cage floor area per doe and litter</b> <b>m2</b>	<b>Minimum cage height</b> <b>cm</b>	<b>Minimum nest box floor</b> <b>m2</b>
1	0.30	30	0.10
2	0.35	30	0.10
3	0.40	35	0.12
4	0.45	40	0.12
5	0.50	40	0.14

**Table 6 : Guidelines for caging birds**

<b>Species in weight</b> <b>g</b>	<b>Minimum area for one bird</b> <b>cm2</b>	<b>Minimum area for 2 birds</b> <b>cm2/bird</b>	<b>Minimum area for 3 birds or more</b> <b>cm2/bird</b>	<b>Minimum cage height</b> <b>cm</b>	<b>Minimum length of trough per bird</b> <b>cm</b>
Chickens 100-300	250	200	150	25	3
300-600	500	400	300	35	7
600-1200	1000	600	450	45	10
1200-1800	1200	700	550	45	12
1800-2400	1400	850	650	45	12
Adult males >2400	1800	1200	1000	60	15
Quails 120-140	350	250	200	15	4