Farm Animal Welfare Advisory Council

Code of Practice for the Welfare of Laying Hens

Department of
Agriculture,
Fisheries and Food
An Roinn
Talmhaíochta,
Iascaigh agus Bia

Farm Animal Welfare Advisory Council

CODE OF PRACTICE FOR THE WELFARE OF LAYING HENS

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AN INTRODUCTION BY PROFESSOR PATRICK FOTTRELL

Chairperson of the Farm Animal Welfare Advisory Council

The Farm Animal Welfare Advisory Council was set up to allow representative groups with a variety of perspectives on animal welfare, meet and exchange views and seek consensus on various issues and developments relevant to the care of farm animals. These guidelines are the product of this consensus and have been adopted unanimously by the Council.

This Code of Practice is intended to encourage all those who care for laying hens to adopt the highest standards of animal husbandry. Without good stockmanship, the welfare of laying hens can never be adequately protected. Adherence to these recommendations will help flock-keepers to reach the required standard.

In establishing rules for the protection of laying hens, a balance should be kept between the various aspects to be taken into account as regards the health and welfare of the hens themselves, the economic and social considerations and any environmental impact.

The welfare of laying hens is considered within a framework, elaborated by the Farm Animal Welfare Advisory Council, and known as the 'Five Freedoms'. These form a logical basis for the assessment of animal welfare within any husbandry system together with taking the actions necessary to safeguard welfare within the constraints of an efficient laying hens industry.

In maintaining the recommendations of this Code of Practice, flock-owners, flock-keepers, catchers, handlers and others can demonstrate Ireland's prominence in the practice of laying hen welfare standards.

Professor Patrick Fottrell
Chairperson

THE FIVE FREEDOMS CONCEPT

The five freedoms provide a framework that underpins best practice to ensure animal health and welfare at farm level and are listed below.

1. **Freedom from hunger, thirst and malnutrition**
   - Absence of prolonged hunger
   - Absence of prolonged thirst
2. **Freedom from discomfort**
   - Comfort around resting
   - Thermal comfort
   - Ease of movement
3. **Freedom from pain, injury and disease**
   - Absence of injuries
   - Absence of disease
   - Absence of pain induced by management procedures
4. **Freedom to express normal patterns of behaviour**
   - Expression of social behaviours
   - Expression of other behaviours
5. **Freedom from fear and distress**
   - Good human-animal relationship
   - Positive emotional state

The five freedoms concept can be summarised for laying hens as follows:

- Ready access to fresh water and a diet to maintain full health and vigour
- Provision of an appropriate environment including shelter and a comfortable resting area
- Prevention or rapid diagnosis of disease and treatment
- Provision of sufficient space, proper facilities and company of the birds' own kind
- Ensuring conditions and treatment to avoid mental suffering

In acknowledging these freedoms, those who have care of laying hens should practice:

- Caring and responsible planning and management;
- Skilled, knowledgeable and conscientious stockmanship;
- Appropriate environmental design (for example, of the husbandry system);
- Considerate handling and transport.

For the purposes of the code, "flock-keeper" means the owner of the birds or the person responsible for looking after them. The recommendations are relevant to laying hens under all types of husbandry systems and in adhering to them they will help to ensure that the welfare of the birds is safeguarded. The strain of bird selected must be suitable for the production system having regard for the health and welfare of the bird.

STOCKMANSHIP, STAFFING AND TRAINING

- Primary responsibility for bird welfare rests with the owner or keeper of the birds. *
- Birds must be cared for by a sufficient number of staff who possess the appropriate ability, knowledge and professional competence.
- It is essential that sufficient personnel be employed to carry out all necessary tasks. Staff should be caring, well managed and supervised and fully competent with the tasks they will be required to undertake.
- All flock-keepers should demonstrate a full understanding of the welfare needs and basic biology of the birds and have shown that they are capable of safeguarding them under all foreseeable conditions before being given responsibility for a flock. A good flock-keeper will have a compassionate and humane attitude, will be able to anticipate and avoid many potential welfare problems and have the ability to identify those that do occur and respond to them promptly and appropriately.
- Staff, including those employed by contractors, should be given appropriate training. This requires the acquisition of specific stockmanship skills, which may be developed on-farm, working with an experienced person and/or by following a course offered by a suitable training provider. Flock-keepers should demonstrate competence and understanding before they are given responsibility for the birds. Training should continue throughout the duration of employment and suitable refresher courses should be undertaken regularly. Wherever possible, the training should be of a type, which leads to formal recognition of competence.
- A training plan should be implemented to ensure that those working with laying hens recognise not only normal behaviour and good health but also signs of illness or disease or impending health problems. If specialised tasks are to be performed, for example vaccination, beak trimming or humane culling, then specific training should be given. Alternatively, the services of a competent contractor using trained staff should be obtained.
- Staff should establish a methodical routine in completing the range of tasks involved in keeping hens. As part of this they should be particularly vigilant in checking that systems are operating properly and birds are behaving normally. This will enable flock-keepers to detect problems in their earliest stages and acquire a good understanding of the action to be taken if a problem is noticed. If the cause is not obvious, or if the flock-keeper's action is not effective, immediate veterinary or technical advice should be obtained.
- It is essential to ensure that enough time is available within the flock-keeper's daily work routine for the birds to be properly inspected and for any remedial action to be taken. Large flocks can be managed successfully but in general the larger the size of the unit, the greater the degree of skill and dedication needed to safeguard the welfare of the birds.

** The catching team, regardless of who employs them, works under the direction of the owner or keeper while on the holding.*

FEED AND WATER

- Birds must be fed a wholesome diet which is appropriate to their age and species and which is fed to them in sufficient quantity to maintain them in good health, to satisfy their nutritional needs and to promote a positive state of well-being.
- Birds must be provided with food and liquid in a manner which ensures that such food or liquid does not contain any substance which may cause them unnecessary suffering or injury.
- All birds must have access to feed at intervals appropriate to their physiological needs (and, in any case, at least once a day) except where a veterinary practitioner acting in the exercise of his professional duties otherwise directs.
- All birds must have access to fresh drinking water at all times.
- Feeding and watering equipment must be designed, constructed, placed and maintained so that contamination of food and water and the harmful effects of competition between birds are minimised.
- No therapeutic substance should be given to the birds except those on the advice or prescription of the veterinary practitioner.*
- All birds must have daily access to feed. When introducing birds to a new environment, the flock-keeper must ensure that the birds can find feed and water.
- Feeder space allocation should be sufficient to enable the birds to obtain adequate feed with the minimum of competition. For linear feeders there should be a minimum of 10 cm of trough space per bird provided that birds have access to both sides of the feeder. Feeders should be placed sufficiently far apart for birds to make full use of the available space. If feed is not provided ad libitum, sufficient space must be available to allow all birds to eat at the same time.
- Systems, which call for the complete withholding of feed and/or water on any day, must not be adopted. However, feed, but not water, may be withheld for up to 12 hours prior to slaughter. Coordinated collection times and production line requirements at the slaughterhouse are required in order to reduce the time birds spend in containers pre and post transport.
- **Under no circumstances may birds be induced to moult by withholding feed and/or water.**
- Stale or contaminated feed or water should not be allowed to accumulate and should be replaced immediately. Provision must be made for supplying water in freezing conditions.
- In alternative systems, whole grain may be scattered over the litter each day to encourage foraging and scratching and reduce the possibility of feather pecking outbreaks. Birds should also have regular access to insoluble grit to aid digestion.
- Arrangements should be made in advance to ensure that adequate supplies of suitable feed and water can be made available in emergencies such as interruptions in power supplies.

- Body condition, weight, egg quality and production should be used to monitor the effectiveness of the feeding regime.
- Sudden changes in the type, quantity and composition of feed should be avoided. Any changes in diet should be introduced gradually.
- Compounded feeds that have been prepared for other species should be avoided, as certain substances can be toxic to birds.
- Water meters, if not already in place, should be fitted to each house to enable daily monitoring of water usage. Daily records of water consumption provide an early warning of potential problems and a water meter is a necessary management tool.
- Daily access to water throughout the period of lighting and a sufficient number of drinkers, well distributed and correctly adjusted, must be provided.

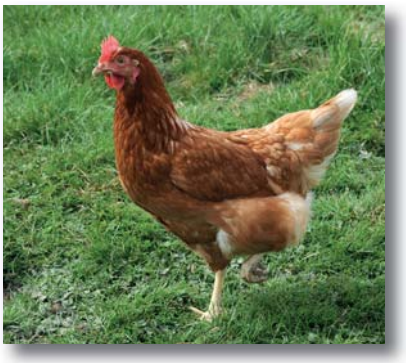
**See Appendix 1 for link to relevant Animal Remedies Regulations*

HEALTH

Health and Welfare Inspections

- All birds kept in husbandry systems in which their welfare depends on frequent human attention must be thoroughly inspected at least once a day and, more frequently in alternative systems, to check that they are in a state of well-being.
- Birds kept in systems other than husbandry systems in which their welfare depends on frequent human attention must be inspected at intervals sufficient to avoid any suffering.
- Where birds are kept in a building, adequate lighting (whether fixed or portable), must be available to enable them to be thoroughly inspected at any time.
- Housing and equipment must be designed so that all the birds can be clearly seen. Supplementary lighting may be needed for the inspection of birds in the bottom tier of cage systems.
- In order to reduce the risk of welfare problems developing in laying hen units, it is a requirement that a thorough inspection must take place at least once a day and such inspections should be made independently of any automatic surveillance equipment.
- The inspections should be sufficiently thorough to detect illness and injury of individual hens and special attention should be paid to body condition, movements, respiratory distress, condition of plumage, eyes, skin, beak, legs, feet and claws and where appropriate, combs and wattles. Attention should also be paid to the presence of external parasites, to the condition of droppings, to feed and water consumption, to growth and to egg production level. Where appropriate the birds should be encouraged to walk. Individual examination should be made of those birds for which the overall inspection indicates this to be necessary.
- A second daily inspection may be necessary at a different time of day.

- The healthy individual bird should show normal patterns of behaviour and have sounds and activity appropriate to its age, breed or type, clear bright eyes, good posture, vigorous movements if unduly disturbed, clean healthy skin, good feather condition, well formed shanks and feet, effective walking and active feeding and drinking behaviour.
- The early signs of ill health may include changes in food and water intake, in preening, in 'chatter' and in activity. There may also be a drop in egg production and changes in egg quality such as shell defects.



- These health and welfare inspections may be linked with other visits to the poultry houses but each inspection should be undertaken as a separate, specific procedure.
- Flock-keepers should establish in advance the best course of action to take should problems be identified and ensure that veterinary or other expert advice is available when needed.
- While it may not be possible to examine each bird individually during routine inspection, a good indication of flock health should be gained on each occasion. Where birds are not being fed on ad libitum diets, inspection is particularly effective at feeding time when any birds which are not fit will be slow to feed and can be identified.
- When a bird is routinely slaughtered or killed on farm, this must be done using an approved method. The approved methods of killing poultry include decapitation and neck dislocation to be carried out by experienced and trained personnel.
- In the event of signs of serious respiratory disease in the flock the use of personal protection equipment (PPE) must be considered (e.g. in suspected cases of Avian Influenza and Newcastle Disease). When respiratory signs together with mortality are observed, professional help must be sought immediately from the private veterinary practitioner.

Disease Control*

- A documented health and welfare programme should be implemented for each unit which sets out health and husbandry activities covering the whole of the production cycle. It should also establish management procedures and control measures to reduce the risk of infections and injury. This may include additional vaccination protocols (which should be carefully monitored to ensure efficacy) to reduce the risk of disease outbreaks. The health and welfare programme should be developed in consultation with an experienced poultry veterinarian and reviewed regularly against performance and updated accordingly.
- Any departure from the normal signs of good health as set out under the inspection protocol should be given immediate attention. ***(Refer to previous section on Inspection)***

- The onset of a disease may first be noticed by a change in water consumption, a reluctance to eat, changes in litter quality or in the general behaviour of the flock.
- Veterinary attention should be sought at an early stage in any outbreak of disease so that the cause can be determined and appropriate action taken.
- Measures to control diseases caused by external parasites should be taken by using the appropriate approved parasiticides.
- Birds that are seriously injured or show evident signs of health disorder, such as those having difficulties in walking, severe ascites or severe malformations and are likely to suffer, must receive appropriate treatment or be culled immediately. A veterinarian must be contacted whenever necessary.
- All those in contact with birds should practice good biosecurity i.e. strict hygiene and disinfection procedures. Where possible the site should be managed so that all houses are empty simultaneously to facilitate effective cleaning and disinfestation. This "all in – all out" approach with periods when there are no birds on site will also act to provide a disease break.
- When houses are emptied and cleaned, old litter should be removed from the site before re-stocking so as to reduce the risk of the carry over of disease.
- The Poultry Industry should be aware of the correct procedures for the disposal of poultry carcasses and poultry litter as prescribed by the relevant European Communities (Animal By-products) Regulations**.

**** See Appendix 2 for information on Notifiable Diseases in Poultry***

***** See Appendix 1 for link to relevant Regulations***

Heat stress

- Every flock-keeper should have a documented emergency heat stress plan posted on site. This should be agreed with the poultry veterinarian.
- Birds should not be exposed to strong direct sunlight or hot humid conditions long enough to cause heat stress as indicated by prolonged panting. Housing affects the birds' ability to maintain their normal body temperature but under any management system ambient temperatures high enough to cause prolonged panting may occur, particularly when humidity is relatively high. All accommodation should therefore be designed so that its ventilation is adequate to protect the birds from overheating under any weather conditions that can reasonably be foreseen. Attention should be paid to air throughput and distribution, especially at bird level.
- During hot and humid, or cold conditions, the birds should be checked frequently, but not disturbed unduly. Particular attention should be paid to birds with feather loss.
- Insulation and ventilation should be designed to avoid heat and cold stress having regard to the stocking densities of the unit.

FEATHER PECKING/CANNIBALISM

Feather pecking is an indicator of poor welfare. Injurious pecking presents a serious problem and may lead to extensive tissue damage, cannibalism and mortality. The risk of pecking decreases when the stockmanship and management is good and knowledge of the risk factors is higher and action is taken to address the risk factors, for example, environmental improvements. Birds that have suffered feather loss and sunburn can be particularly vulnerable.

Cannibalism is an unpredictable problem which can be difficult to control and often results in high mortality. It can have more severe consequences in alternative systems, especially when hens have intact beaks.

Measures should be taken to address the problem of injurious pecking in alternative systems. Some indoor barn and alternative systems have managed to avoid the need for beak trimming* with significantly reduced injurious pecking by such means as included below.

- Breeding birds with docility and behavioural traits which encourage ranging and thereby reducing feather pecking;
- Designing rearing systems which prepare birds for the environments they will meet on the laying farm e.g. provision of multiple tiers, perches, winter-gardens and range for pullets which are likely to meet these when they reach the laying house;
- Providing environmental enrichment to encourage appropriate foraging behaviour including the provision of litter in the sheds' scratching area and access to and encouraged use of the range; and finally
- Providing aerial perches to keep resting hens (which are most at risk of injurious pecking) safely out of the reach of foraging hens (which are the ones most likely to peck)

With respect to the behavioural priorities of hens, a European Food Safety Authority (EFSA)** opinion concludes that hens prefer to lay their eggs in a nest site, preferably an enclosed nest and formed by a pre-moulded or mouldable substrate. Therefore, suitable, adequately distributed nests should be provided in housing systems.

Drinking, feeding, foraging and dust bathing are also considered high priority behaviours. Furthermore, resting and perching are important aspects of birds' welfare and all birds should be able to perch at the same time. Finally, roosting at night on an elevated perch is considered a particular behavioural priority. If hens cannot perform such high priority behaviours, this may result in significant frustration, or deprivation or injury, which is detrimental to their health and welfare.

In this respect, lower stocking densities as applied in enriched cages, have been proven to be beneficial. However, the behavioural repertoire is still restricted in enriched cages when compared with hens kept in alternative systems.

See following Section on Mutilations

****See Appendix 1 for link to EFSA report***

MUTILATIONS

- Beak trimming is a procedure performed to reduce the risk of feather pecking and cannibalism. It should be avoided, where possible, by addressing feather pecking risk factors without resorting to beak trimming. Where it is deemed necessary, beak trimming must not be carried out on chickens that are over nine days old.
- Beak trimming must only be undertaken by trained and competent operators and carried out to the highest possible standards using the highest standards of equipment and technology available. Operators should continually be re-evaluated for efficiency of their beak trimming skills.
- Wherever possible, beak trimming should be restricted to beak tipping; that is, the blunting of the beak to remove the sharp point which can be the cause of the most severe damage to other birds. If beak trimming has to be carried out, not more than one third of a hen's beak should be removed.
- If behavioural problems occur in beak-trimmed birds, such as injurious feather pecking, they should be tackled immediately by appropriate changes in the system of management. For example, by reduction of the lighting intensity. Research also indicates that availability of good quality litter encourages foraging and dust bathing and hence reduces the feather pecking tendency. **

Note: In Austria significant progress has been made with regard to the phasing out of beak trimming in alternative systems (indoor and outdoor) without increased feather pecking problems. This has been done by means of a programme aimed at reducing risk factors.

See Appendix 1 for links to EC Directive 1999/74/EC and EC (Welfare of Farmed Animals) Regulations S.I. No. 311 of 2010

****See previous section on Feather Pecking/Cannibalism**.

BREEDING PROCEDURES

- When considering the establishment or replacement of a flock, the choice of hybrid should be made with the aim of reducing the risk of welfare and health problems.
- Natural or artificial breeding or breeding procedures that cause or are likely to cause suffering or injury to an animal must not be practiced.

BUILDINGS AND ACCOMMODATION

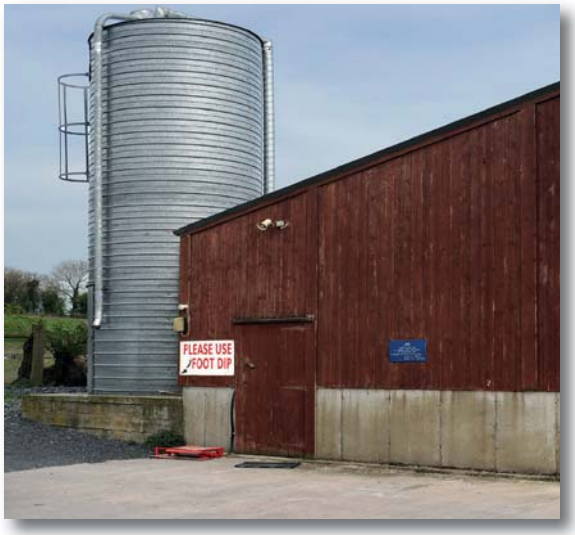
General

Advice on welfare aspects should be sought from qualified advisers before any new buildings are constructed or existing buildings modified. It is important to ensure that the design of housing and equipment is suitable for the intended use.

Location

When a new farm is being constructed, ideally it should be located as far away as possible from other commercial poultry premises, other livestock enterprises and other potential sources of contamination such as abattoirs, sewage treatment plants, landfill sites etc. When a farm is close to such sites a higher level of protection against the introduction of disease is required, including wildlife control and ensuring that no drainage or waste from the nearby property enters the farm.

Poultry Site



- Good Biosecurity* is extremely important to prevent the introduction of a wide range of microorganisms, disease vectors and vermin into poultry farms. Site design and management practices should be planned to facilitate this.
- The perimeter of the site should be clearly identified with appropriate signage placed at strategic points and if possible, fenced. Access should be via specific entry points where there should be a means of remote communication along with a notice asking visitors to wait to be admitted by farm staff. Whilst there will be a need for people to enter the unit (managers, workmen, veterinary practitioners, auditors etc.) visits should be carefully monitored, controlled and recorded. Access to poultry houses should be restricted to those with essential duties.
- There should be a hard standing for parking, which should be kept clean and disinfected with an approved disinfectant**, so as to ensure that it is maintained in a hygienically acceptable condition. On-farm roadways should ideally have a hard surface, which can be cleaned effectively. Roadways should be kept clear of faecal soiling to prevent vehicles becoming contaminated. A disinfectant footbath and brush should be placed at the entrance to the site and /or near the vehicle parking area. Endeavours should be made to provide a separate gatehouse where visitors can change into overalls (preferably disposable) and boots and sign a visitors' book. Spray disinfection of the wheels of vehicles at the point of entry to the site is also advisable.
- The site should be kept clean and tidy and free of weeds and rubble to discourage wild birds, rodents and flies.

Biosecurity is a term that includes all those measures that may be taken to prevent the introduction of unwanted organisms into, within and out of the flock.

****See Appendix 1 for link to list of approved disinfectants on DAFF website***

Poultry Houses

Structural

- Ideally, there should be a hard surface/gravel around the perimeter of houses which is designed to avoid the pooling of rain water.
- Buildings should be of sound construction and well maintained to prevent access by predators, wild birds and to deter rodents. Insulation cladding should be maintained in good repair as damage allows easy refuge for rodents. Similarly it is important to avoid storing materials such as feedbags, litter and moveable equipment within the house.
- Where possible surfaces should be smooth, hard and impervious to enable effective cleaning and disinfection. Ancillary buildings such as storage rooms, rest rooms, toilets etc. should be of a similar standard.
- Materials used for the construction of accommodation and in particular, for the construction of pens, stalls and equipment with which the birds may come into contact, should not be harmful to them and should be capable of being thoroughly cleaned and disinfected.
- Where birds are housed, floors, perches and platforms should be of a suitable design and material and not cause discomfort, distress or injury to the birds. They must provide sufficient support, particularly for the forward facing claws of each foot; moreover, perches should be of sufficient length, in accordance with regulations*, to allow all birds to roost at the same time. Floors, perches and platforms should be kept sufficiently dry and clean.
- Ventilation, heating, lighting, feeding, watering and all other equipment should be designed, sited and installed so as to avoid risk of injuring birds.
- Accommodation and fittings for securing birds should be constructed and maintained so that there are no sharp edges or protrusions likely to cause injury to them.

See Appendix 1 for links to EC Directive 1999/74/EC and EC (Welfare of Farmed Animals) Regulations S.I. No. 311 of 2010

Operational

- Birds should be sourced from suppliers who already have perched systems in operation.
- Birds must be kept in such a way that they can keep themselves clean.
- Drinkers must be positioned and maintained in such a way that spillage is minimised.
- A water system, which minimises water spillage, should be used, such as water nipples with drip cups positioned at an appropriate height for all birds. Nipple drinkers without cups may be used if they are well managed and the water pressure is checked frequently.
- The noise level must be minimised. Ventilation fans, feeding machinery or other equipment must be constructed, placed, operated and maintained in such a way that they cause the least possible amount of noise.

- Intensive housing systems require a preventative maintenance program with automatic systems requiring alarms and emergency back-up systems and procedures. *(See Emergency Procedures on Page 15)*
- Flock keepers should take measures to protect birds from predators, rodents and other animals. A pest control programme should be in place to support these measures.
- Those parts of buildings, equipment or utensils which are in contact with the birds must be thoroughly cleaned and disinfected every time after final depopulation is carried out, before a new flock is introduced into the house. After the final depopulation of a house, all litter must be removed, and clean litter must be provided.

Enriched Cages*

- Laying hens must have:
  - at least 750 cm^2 of cage area per hen, 600 cm^2 of which shall be usable; the height of the cage other than that above the usable area shall be at least 20 cm at every point and no cage shall have a total area that is less than 2000 cm^2;
  - a nest;
  - litter such that pecking and scratching are possible; and
  - appropriate perches allowing at least 15 cm per hen.
- A feed trough which may be used without restriction must be provided. Its length must be at least 12 cm multiplied by the number of hens in the cage.
- Each cage must have a drinking system appropriate to the size of the group; where nipple drinkers are provided, at least two nipple drinkers or two cups must be within the reach of each hen.
- To facilitate inspection, installation and depopulation of hens there must be a minimum aisle width of 90 cm between tiers of cages and a space of at least 35 cm must be allowed between the floor of the building and the bottom tier of cages.
- The aisle width should be measured as the unobstructed width between outer edges of the feed troughs. The distance to the floor should be measured to the mesh base of the cage.
- The cage height at the lowest point in the usable area must be at least 45 cm.
- Cages must be fitted with suitable claw-shortening devices.
- If there is evidence that claws of hens are found to be overgrown or broken then the provision of claw shortening devices should be enhanced. Excessively abrasive devices may cause injury so caution should be exercised in specifying such devices.

For specific requirements applicable to rearing in Enriched Cage systems see Article 6 of EC Directive 1999/74/EC (See Appendix 1 for link to Directive)

STOCKING RATE

When determining the stocking rate, consideration should be given to breed, system of housing, strain and type of bird, colony size, temperature, ventilation and lighting, as well as to the number of platforms and perches. If disease or evidence of a behavioural problem becomes apparent, by observation or by receipt of unsatisfactory grading returns from egg packing stations or by rejections from processing plants, expert advice should be sought promptly to deal with the problem. Stocking and ventilation rates should also be checked and appropriate adjustments in stocking and ventilation should be considered in order to minimise the likelihood of recurrence of the problem.

ENVIRONMENT

Ventilation and Temperature

The owner or keeper must ensure that each house of a holding is equipped with ventilation and, if necessary, heating and cooling systems designed, constructed and operated in such a way that:

- Air circulation, dust levels, temperature, relative air humidity and gas concentrations shall be kept within limits which are not harmful to the birds.
- Care should be taken to protect confined birds from draughts in cold conditions.
- In the event of feather loss, steps should be taken wherever possible to ensure that hens are not subjected to cold stress; for example, hens should be given more food.
- The ventilation system and facilities for storing and handling litter and manure should be designed, maintained and managed to prevent the exposure of birds to gases such as ammonia, hydrogen sulphide, carbon dioxide, carbon monoxide in concentrations which cause discomfort to the birds or which are detrimental to their health or to the keeper's health.

Lighting

- Birds kept in buildings must not be kept in permanent darkness.
- Where the natural light available in a building is insufficient to meet the physiological and behavioural needs of any birds being kept in it, then appropriate artificial lighting must be provided.
- Birds kept in buildings must not be kept without an appropriate period of rest from artificial lighting.
- All buildings must have light levels sufficient to allow all hens to see one another and be seen clearly, to investigate their surroundings visually and to show normal levels of activity.
- Where there is natural light, light apertures must be arranged in such a way that light is distributed evenly within the accommodation.
- After the first days of conditioning, the lighting regime must be such as to prevent health and behavioural problems. Accordingly it must follow a 24-hour rhythm and include an adequate uninterrupted period of darkness lasting, by way of indication, about one-third of the day and never less than eight hours of continuous darkness

(unless the period of natural darkness is shorter) so that the hens can rest and to avoid health problems such as immunodepression and ocular anomalies.

- A period of twilight of sufficient duration must be provided when the light is dimmed so that the hens can settle down to roost without disturbance or injury. This is of particular importance in alternative systems and enriched cages.
- In normal conditions, in cage and multi-level systems, light intensity should be at least 5 lux, and preferably not less than 10 lux, measured at any feed trough level. In other systems, light intensity in the perching, walking and feeding areas should be at least 10 lux measured at bird eye height. However, a temporary reduction in lighting level may assist in addressing behavioural problems such as feather pecking or cannibalism.
- In all houses, especially those with natural light, measures should be taken to ensure that light distribution is as even as possible.

Litter

- In alternative systems, all birds should have access to an appropriately sized littered area which should be dust free and maintained in a dry friable condition and at an adequate depth for dust bathing, at approximately 10 cm. To ensure good litter management, this depth of litter may be made up over the first two months of use. Access to good quality substrate allows birds to dust bathe and also prevents health problems, in particular foot, leg and breast lesions.
- Mouldy litter, or litter that has been treated with compounds such as wood preservatives or other substances that are harmful to bird health, should not be used.
- There should be routine inspections to ensure that litter does not become infested with harmful organisms parasitic to birds. Particular attention should be paid to litter that has been exposed to the elements.
- Flock-keepers should ensure that litter is kept carcase free.

Emergency Procedures

- Flock-keepers should have a documented contingency plan drafted specifically for dealing with emergencies such as disease, fire, flood, power or equipment failure or disruption of supplies and, should ensure that all staff are trained in contingency plan response.
- An independent alarm system must be put in place. This must be tested and serviced at regular intervals.
- At least one named member of the staff should always be available to take the necessary emergency response steps.
- Fire precautions should be a major priority for all flock-keepers. Expert advice on all fire precautions can be obtained from fire prevention officers of local authorities.
- Where buildings need to be locked, arrangements must be made to allow rapid entry in case of emergency.
- Contingency plan arrangements should ensure that adequate supplies of drinking water and suitable feed can be made available in emergencies.
- Efforts should be made to minimise the risk of the drinking water freezing.

AUTOMATIC OR MECHANICAL EQUIPMENT

- All automated or mechanical equipment essential for the health and well-being of the birds must be inspected at least once a day.
- Provision should be made for an appropriate back-up system to guarantee sufficient air renewal to preserve the health and well-being of the birds in the event of failure of the system.
- An alarm system (which must operate even if the principal electricity supply to it has failed) must be provided to give warning of any failure of the system.
- All equipment and services, including feed hoppers, feed chain and delivery systems, drinkers, ventilating fans, heating and lighting units, fire extinguishers and alarm systems, should be cleaned and inspected routinely and kept in good working order.
- Ventilation, heating, lighting, feeding, watering and all other equipment or electrical installation should be designed, sited and installed so as to avoid risk of injuring the birds.
- All equipment should be constructed and maintained in such a way as to avoid subjecting the birds to excessive noise.
- All automated equipment, including computers, upon which the birds' welfare is dependent, must incorporate a fail-safe and/or standby device and an alarm system to warn the flock-keeper of failure. Defects should be rectified immediately or other measures taken to safeguard the health and welfare of the birds. Alternative ways of feeding and of maintaining a satisfactory environment should therefore be ready for use. A secondary or alternative water supply should also be put in place.

RECORD KEEPING

Records are an essential aid to management and those kept should include:

- Daily production indices
- Visual health checks
- Daily mortality
- Number of culls with reason for cull to be recorded
- Where possible, feed consumed (daily and cumulative)
- Daily water consumption (water meters should be fitted in each house)
- Testing and maintenance of automatic equipment, including alarms, fail safes, fire extinguishers and stand-by generators
- Daily maximum and minimum temperatures and ammonia levels
- The lighting regime - intensity and duration
- Dates of cleaning/disinfection
- Veterinary consultation, date and outcome
- Medicine and vaccine administration records

Well-developed record keeping should be sufficient to meet quality assurance, regulatory and management requirements. In particular, a record must be kept of any medicinal treatment given to all hens in the flock. These records must be retained for a period of at least five years from the date on which the medical treatment was administered.

Mortality, culling and, if possible, morbidity levels should be closely monitored. Autopsies should be carried out in cases where mortality levels are significant or higher than average targets. Records should be kept of all these results.

The owner or keeper must also maintain a record for each house of a holding of:

- The number of birds introduced
- The useable area
- The hybrid or breed of the birds, if known

These records must be retained for a period of at least three years and must be made available to the competent authority when carrying out an inspection or when otherwise requested.

*CATCHING, HANDLING AND TRANSPORT**

- No person must transport any bird in a way which causes or is likely to cause injury or unnecessary suffering to that bird
- No person shall transport any bird unless:
  - It is fit for its intended journey, and
  - Suitable provision has been made for its care during the journey and on arrival at the place of destination

  For these purposes a bird should not be considered fit for its intended journey if it is ill, injured, or fatigued, unless it is only slightly ill, injured or fatigued and the intended journey is not likely to cause it unnecessary suffering.
- Any person transporting birds must ensure that the birds are transported without delay to their place of destination.
- In the case of birds transported in a receptacle, any person in charge of birds must ensure that they are not caused injury or unnecessary suffering while they are in the receptacle either waiting to be loaded on to the means of transport or after they have been unloaded.
- The means of transport and receptacles must be constructed, maintained, operated and positioned to provide adequate ventilation and air space. Receptacles in which birds are carried must be constructed and maintained so that they allow for appropriate inspection and care of the birds. Receptacles in which birds are carried must be of such a size as to protect the birds from injury or unnecessary suffering during transport. Receptacles in which birds are transported must be constructed and maintained so that they prevent any protrusion of the heads, legs or wings from them.

- The catching and handling of birds without causing them injury or stress requires skill. It should only be undertaken by competent persons i.e. those who have been appropriately trained to the task. Responsibility for the management of the operation should be clearly allocated.
- High standards must be applied irrespective of the potential economic value of the birds (for example, spent hens).
- Panic among the birds and subsequent injury should be avoided. Catching should take place in low or blue light to minimise fear responses. Catching and handling should be carried out quietly and confidently exercising care to avoid unnecessary struggling which could bruise or otherwise injure the birds.
- Unless they are caught and carried around the body, which is the preferred method (using both hands to hold the wings against the body), birds should be caught and carried by both legs. No catcher should carry by the legs more than two hens in each hand. **Birds must not be carried by the wings or by the neck.**
- One possible way of avoiding the potential for damage to the birds is to collect the birds mechanically. Only devices proven to be humane should be considered for use in gathering birds.
- The distance birds have to be carried should be minimised by taking the crates and containers into the house. Stocking density in the crates should be adjusted according to weather conditions and size of birds. For example, low stocking densities should be adopted in hot weather to reduce the risk of heat stress. It is important to ensure that once birds are loaded in the container they are not exposed to extremes of temperature.
- Crates or containers should be suitable for the purpose of transporting birds and allow the birds to be easily inserted, conveyed and removed without injury. The birds should in particular be protected from rain and road spray, which greatly increases the effect of wind chill, although effective ventilation must be maintained.
- Journeys should be carefully planned so that birds are not left on the vehicle for long periods either at the start of the journey or at their destination. The provision of adequate ventilation and protection from adverse weather and extremes of temperature are essential during loading and transport.
- Measures should be taken to ensure efficient removal of excess heat and water vapour. It is important to make use of the natural airflow patterns around a moving vehicle to optimise conditions for the birds during transport. However, when a vehicle is stationary for any length of time, mechanical ventilation may be necessary to maintain acceptable levels of temperature and humidity. When this is the case it is more effective to extract air from the vehicle than to blow air into it.
- Birds should be unloaded as soon as possible after arrival at a slaughterhouse. After unloading, birds must be protected from adverse weather conditions and be provided with adequate ventilation. In addition, if any bird has been subjected to high temperatures in humid weather, it must be cooled by appropriate means.

See Appendix 1 for links to EC and National Transport Regulations and the FAWAC Publication "Best Practice for the Welfare of Animals during Transport"

ADDITIONAL REQUIREMENTS FOR ALTERNATIVE SYSTEMS*

- Where birds are kept extensively and are free to range it is important to provide some overhead shelter. Reasonable precautions should be taken to protect birds against predators, including dogs and cats. Shelter from rain, sun and cold should always be available when necessary. Windbreaks should be provided on exposed land.
- Land on which free-range birds are kept for prolonged periods may become 'fowl sick', i.e. contaminated with organisms which cause or carry disease to an extent which could seriously prejudice the health of the birds on the land.
- Housing used by free-range birds should be of sufficient standard to ensure that the birds are not subject to distress caused by extremes of temperature.
- Factors such as soil type, drainage and size of colony and frequency of flock rotation are very important in deciding the number of birds that a particular area can carry. Heavy, poorly drained soil can carry fewer birds than land that is light and well drained.
- It is important to establish a system of rotation of grazing or house movement in order to prevent poaching and build up of parasitic infection and disease.
- Where houses in free-range systems are to remain in one location, steps should be taken to prevent the ground immediately around the house becoming poached and it should be sampled for evidence of worm eggs.
- Flocks and portable houses should be moved with sufficient regularity to avoid continuously muddy conditions and / or contamination of the land with organisms which cause or carry disease to an extent which could seriously prejudice the health of poultry.
- Unless the house is moved frequently it is good practice to protect the ground immediately adjacent to it. For example, by providing slatted or wire mesh platforms, covered verandas or areas of gravel.
- Hardcore areas should be free from pot holes and renewed as required.
- Birds should be encouraged to use the outdoor area by the provision of adequate, suitable, properly managed vegetation (including a significant number of trees and shrubs), outdoor scratch, whole grain feeding, a fresh supply of water and overhead cover, all sufficiently far from the house to encourage the birds to range.
- Some vegetation should be planted close to the house to encourage the birds to go outside.
- When birds are transferred to free-range houses, precautions should be taken to avoid crowding and suffocation, particularly during the first few nights.

- Bearing in mind the risks of cannibalism and feather pecking under alternative systems, birds should not normally be confined for too long during hours of daylight or subjected to direct sunlight during confinement.
- Where the area within a veranda attached to a free-range house is included in the calculation of floor space, it must have the same artificial lighting system as within the inner part of the unit, the popholes must meet the requirements of the legislation and continuous pophole access must be provided between the house and veranda.
- Birds not permanently kept in buildings should, where necessary and possible, be given protection from adverse weather conditions, predators and risks to their health and should, at all times, have access to a well drained lying area. This must include secure housing when required for bird welfare and health reasons.
- Sufficient housing should be available to the birds at all times and it may be necessary to exclude birds from the range in bad weather if there is a clear danger that their welfare will be compromised.

For specific additional requirements for alternative systems see Article 4 of EC Directive 1999/74/EC (See Appendix 1 for link to Directive)

BACKYARD FLOCKS

When considering backyard flocks the following points should be carefully considered.

Purchase

- Prior to purchase of birds, provision must be made for appropriate housing, management and facilities to ensure that all birds will have adequate protection from adverse weather conditions, predators and risks to their health at all times.
- It is advisable to start with young pullets (16 to 18 weeks old) from a reputable dealer. These birds should have received all the required vaccines and are ready to begin producing eggs.
- Birds should not be accepted from neighbours even if they are of the same type and approximate age.
- All backyard flocks, irrespective of the number, must be registered with the Department of Agriculture, Fisheries and Food*.

See Appendix 1 for link to S.I. No 42 of 2008 Diseases of Animals Act 1966 (Registration of Poultry Premises) Order 2008

Biosecurity*

Biosecurity is particularly important to backyard flocks. Even though bird numbers may be small, backyard enterprises can represent a threat to the entire Irish poultry industry. Flock- keepers are responsible for the health and safety of their flock and must therefore be aware of the following Biosecurity measures.

- Flock-keepers must have designated work clothes and footwear. It is important to change such clothes and footwear when going into public areas.
- A foot-bath containing a Department of Agriculture, Fisheries and Food approved disinfectant** should be provided at the entrance to the poultry site.
- Rodents are a major source of disease and rodent control is a particular challenge which is encountered by keepers of backyard flocks. Rodents, pets and wild birds can carry pathogens that are infectious for poultry and these must not be allowed access to the hens.
- Spilled feed will attract rodents and wild birds and such feed must be regularly collected for disposal. Feeders must be designed in order that the hens do not spill too much feed.
- In order not to attract wild birds and waterfowl, it is important that the coop or enclosure is not accessible to them.
- Note: Wild birds also carry pathogens that are infectious for domestic birds.

Biosecurity is a term that includes all those measures that may be taken to prevent the introduction of unwanted organisms into, within and out the flock.
****See Appendix 1 for link to list of approved disinfectants on DAFF website***

Accommodation

At least 0.14m^2 of floor space per bird should be provided. Clean straw, untreated wood shavings or sawdust should be provided. Birds do not lay eggs at the same time therefore nests can be supplied at the rate of one nest per five hens.

Feeding and Watering

- One feeder usually provides enough space for 20 birds.
- Sufficient watering equipment should be available for:
  - 20 birds per cup;
  - 12 birds per nipple; or
  - 1 bird per 10cm of trough space, provided that birds have access to both sides of the feeder.
- Conventional layer mash feed can be purchased at a local feed store. Certified organic feeds are available, but they may be more difficult to find and are more costly.
- All hen mash should contain at least 3.5 percent calcium. Additional free-choice calcium may be provided after birds are 45 weeks old to aid in good shell formation.

Lighting

Lighting stimulates hens to lay eggs. As daylight increases, production levels increase accordingly.

Record Keeping

Record keeping for a backyard flock may seem unnecessary, but it is important that the following records are kept:

- Numbers of chicks purchased;
- Numbers of sick and/or injured birds. Where problems arise, veterinary advice and treatment should be sought. **There is a legal requirement to keep a record of medicinal treatment;**
- Feed consumption. An account should be kept of how much feed is consumed each week;
- A record of daily and/or weekly mortalities or slaughtered birds and, the means of disposal of dead birds. **Humane dispatch and slaughter of birds must only be carried out by trained personnel.**

Records will assist in pinpointing when there is a change in the flock that may be due to the introduction of a disease agent. These may include:

- an increase in mortality levels;
- a decrease in feed or water consumption; or
- a drop in egg production.

Such records may also assist a veterinary practitioner to determine the probable cause of such changes.

Securing your Flock from Predators

Poultry predation is a problem for backyard flock-keepers. Hens can be vulnerable to predators unless preventive measures are taken. One of the best ways to protect the flock from predators is to keep the coop confined with a heavy gauge wire mesh fence. It is recommended to cement the floor as this will prevent predators from digging under the ground and coop perimeters.

It is important to ensure that the windows and doors of the coop are kept securely covered up. It is recommended to install a screening system to the doors and windows for protection when opened.

Another security measure is to bury the perimeter wire along the coops borders about one foot deep. This will ensure that larger predators are deterred from digging under the fence and preying on the flock. It is also recommended to secure the perimeter fence outward for about 20cm. Predators usually dig at the base of the wire to gain access, going right underneath it and into the coop. This will help to discourage them and protect the flock from future predatorial attempts.

Acknowledgements: *Photographs courtesy of Gordan McConkey and John Brady*

APPENDIX 1

Animal Welfare

Link to EC Directive 1999/74/EC

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1999:203:0053:0057:EN:PDF

Link to EC (Welfare of Farmed Animals) Regulations S.I. No. 311 of 2010

http://www.agriculture.gov.ie/media/migration/legislation/statutoryinstruments2010/SI3112010300610.pdf

Animal By-Products

http://eur-lex.europa.eu/LexUriServ/site/en/consleg/2002/R/02002R1774-20060401-en.pdf

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:300:0001:0033:EN:PDF

http://www.agriculture.gov.ie/media/migration/legislation/statutoryinstruments2008/SI252-2008.pdf

http://www.agriculture.gov.ie/media/migration/agri-foodindustry/animalby-products/legislation/nationallegislation/SI%20291%20of%202009.pdf

http://www.agriculture.gov.ie/media/migration/agri-foodindustry/animalby-products/legislation/nationallegislation/SI%20345%20of%202009.pdf

Animal Transport

http://www.agriculture.gov.ie/media/migration/animalhealthwelfare/transportofliveanimals/Council%20Regulation%201%20of%202005.pdf

http://www.agriculture.gov.ie/media/migration/animalhealthwelfare/transportofliveanimals/EUCommunities(AnimalTransport_ControlPost)Regs2006(S.I.No.675_2006).pdf

Animal Remedies

http://www.agriculture.gov.ie/media/migration/legislation/statutoryinstruments2007/SI786-2007.pdf

Registration of Poultry Premises

http://www.agriculture.gov.ie/media/migration/legislation/statutoryinstruments2008/SI42-2008.pdf

Other Relevant Information

http://www.fawac.ie/publications/BestPracticeWelfareAnimalsTransport.pdf

http://www.agriculture.gov.ie/media/migration/animalhealthwelfare/disease/avianinfluenzabirdflu/poultryindustry/4670BioSecuritylr.pdf

http://www.agriculture.gov.ie/media/migration/animalhealthwelfare/disease/ListofApproveddisinfectants111110.pdf

http://www.efsa.europa.eu/en/scdocs/scdoc/197.htm

http://www.welfarequality.net/everyone

APPENDIX 2: NOTIFIABLE DISEASES IN POULTRY

Significant:

- Avian influenza
- Newcastle disease

A full list of the relevant Notifiable Diseases is available on the Department's website at:
http://www.agriculture.gov.ie/animalhealthwelfare/diseasecontrol/listofnotifiablediseases

For further information please contact:
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Farm Animal Welfare Advisory Council
Animal Health and Welfare Division
Agriculture House
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