Perch Designs for Alternative Egg-Producing Systems

Legislation
In 2012, EU legislation (99/74/EC) came into force, which required (among other things) that all commercial laying hens be given access to perches, whether in furnished cage or non-cage (alternative) systems. The purpose of this legislation was to improve the lives of these farmed animals, by giving them greater opportunities to express natural behaviours.

The regulations with regard to perches in alternative systems require that:

- birds in non-cage systems must be provided with a minimum of 15 cm/bird of perch space (18 cm/bird for organic standards)
- the perch should have no sharp edges or any other features which might injure the feet
- the perch must not be mounted above the litter
- there must be a minimum of 30 cm of horizontal space between perches and 20 cm between a perch and the wall

Fig. 1. Wooden perch system (courtesy of Harold Richmond)

The legal interpretation of what constitutes a "perch" can differ between countries. Many accept the dictionary definition of a perch, i.e. a pole, branch or other resting place above the ground on which a bird roosts. In some EU countries, this means that slatted surfaces, rounded profile material such as plastic pipe or tubing or similar attached directly to the floor or slatted area, or sloped/curved profiles at the edges of aviary tiers are not considered sufficient to satisfy the hens' requirements to perch.

Fig 2. Sloped profile edge on an aviary tier. This may or may not be considered a perch, depending on the interpretation within the country.

Why provide perches?
Perching is a behaviour that the bird performs naturally in the wild. At night, in particular hens that are not housed (such as feral poultry in Asia) will roost off the ground as a means of protecting themselves from predators. A branch or similar structure of a suitable dimension allows the bird to adopt a natural grip with its feet while sleeping.

Fig. 3. Metal H-frame perch system

The urge to perch has not been lost in domesticated poultry and in modern commercial egg laying systems, whether intensive or extensive, hens will perch if they are provided with a surface that they can grip on to. In poorly designed systems this urge to perch can lead to birds perching on unsuitable surfaces such as internal roof supports, wires and cables and this may cause the bird to injure itself.

Birds of various dominance rank (or 'peck order') may use perches at various times of day. During the light period, submissive birds can use the perch as a refuge from dominant birds. At night, in contrast, the dominant birds will occupy the higher perches.

While birds should not be at risk from predators at night in a commercial laying house, allowing the birds to perform this natural function is one way of reducing stress in the laying hen. The use of the perch during the day is also important because it has the potential to allow birds that are being aggressively or feather pecked to escape from their attackers. Consequently this can have a direct effect on reducing the prevalence of injuries to the head and face (through aggressive pecking) or cannibalism (through severe feather pecking) and similar behaviours. It is important, however, to ensure that perches are spaced adequately apart, so that birds on lower perches cannot peck the belly or cloaca of birds above.

Perch design and construction

The modern hybrid laying hen is significantly heavier and has a relatively smaller wing surface area than its wild relatives, making the modern layer an awkward flier. In addition, high egg output demineralises the skeleton, making the keel bone particularly susceptible to deformations when applying pressure on it during perching and fractures during clumsy landings. These factors may account for the tendency of hens in alternative systems to damage their keel bone. To minimise the risk of birds injuring themselves on perches and to maximise the use of perches in commercial hen houses, a number of factors need to be taken into account. However, prior to hens coming into the house it should be emphasised that rearing pullets with perches is known to train them in the use of perches and to increase their use during lay.

Perch shape and diameter

The recommended diameter for a perch is between 3 and 5 cm – a rounded profile with a flattened top appears to be most suitable. There must be no sharp edges. There needs to be sufficient space either side of the perch to allow hens to grip without there being a risk of the claw becoming trapped.

Fig. 4. A-frame style perch, incorporating feed track (courtesy of Newquip/Big Dutchman)

Perch height

The recommended vertical height for the first perch is a minimum of 70 cm from the surface to which it is secured to reduce the likelihood of hens on the floor from pecking birds above[1], however hens show preferences for higher perches (90 cm or more) at night time[2]. A variety of perch heights should therefore be given. Perches should neither be spaced too far from one another (vertically or horizontally), nor at too steep an angle, to encourage safe landings: vertical distances $\leq$ 50 cm [3], horizontal distances $\leq$ 75 cm [3,4,5,6] and angles $< 45°$ [3,7,8] can help reduce poor landings and keel bone damage.

If the perches are positioned at too great a vertical distance from each other, or too high from the floor surface, it is more likely that birds will misjudge their landing and collide with the perch/floor injuring their keel bone in particular. Also, because birds find it more difficult to land safely on perches when descending (as opposed to flying up to the perch) consideration needs to be given to providing safe and easy access down from higher perches. The provision of ramps can improve the safe descent of hens from the top levels to the floor[9].

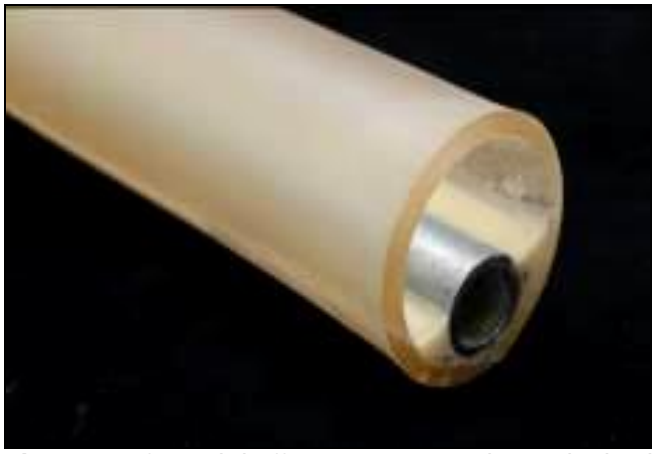

Fig. 5. A soft perch buffers pressure peaks on the keel bone. In this prototype this effect is achieved by an air cushion between the hard core and the flexible shroud.

Perch material

Perches can be made from various materials and there is no conclusive evidence as to the best material to use from a welfare perspective. Wood, metal, and plastic can all be used to construct perches. There is some evidence that, when clean and/or frequently used, plastic and metal perches present a slippery surface which birds may find more difficult to use (compared with wood, for example). Perches coated with rubber or another soft material support a stable footing of hens[3]. In addition, a soft rubber surface can help to reduce keel bone damage by buffering pressure peaks on the keel bone while resting[10] and landing[3]. Whichever material is used, consideration needs to be given to the suitability of the material as a harbourage for parasites such as red mite or as a reservoir for bacteria or viruses. In essence the ideal perch would have a non-slippery and soft surface but would not provide any crevices or voids which red mite

could access and it would be easily cleaned and disinfected after depopulation of the hen house.

Perch position

Birds will tend to defecate from the perches so positioning the perch over the slatted area or similar will help control the build-up faeces in the house. Perches must not be mounted above the litter area. For the same reason, where possible, the perches should not be placed in such a way that the birds could contaminate feed or water supply systems with their faeces. Similarly perches should not be positioned directly over one another if possible, to prevent birds from soiling one another. The angle between perches should be less than 45 degrees, if possible[3,7]. To limit the risk of birds misjudging their landing and injuring themselves the higher perches should be positioned so that they can be reached either from lower perches or from other furniture such as nest boxes.

Perches, if poorly constructed can be barriers to movement around the house. Consideration needs to be given when installing perches not only to the requirements of the bird but also to those of the stockworkers and catching crew. In particular care should be taken that the perches do not pose a barrier to the nestboxes. This can be achieved by ensuring that the lowest perches are sufficiently high above the ground to allow birds to walk underneath them. In multi-tier aviaries perches often are mounted within the tiers. In such cases the distance between the perches and the roof of the above tier should be more than 20 cm [11].

If perches can be readily removed from the house this should make the catching and cleaning processes in particular easier however this may not be feasible. If the perches are permanent fixtures care needs to be taken when designing and siting the perches to ensure that they do not pose a barrier that birds will collide with when being driven for the purposes of catching.

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