

# Welfare of ducks in intensive units

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*Summary: Intensive husbandry of ducks is currently creating problems with regard to the welfare of these birds. The improvement of hygiene conditions and rationalisation of husbandry have created a poor and restrictive environment, leading to the appearance of abnormal behaviour patterns, such as certain types of pecking. Solutions are proposed. Many factors are involved and vast fields remain open for study.*

KEYWORDS: Animal welfare – Ducks – Intensive husbandry – Poultry.

## INTRODUCTION

The common duck (*Anas [platyrhynchos] platyrhynchos* Linnaeus, 1758) and the Muscovy duck (*Cairina moschata* Linnaeus, 1758) are the two main species of duck reared throughout the world in a more or less rational way. The common duck originated by domestication of mallards, probably during ancient times; it is present principally on the Asian market. The wild ancestor of the Muscovy duck was a roosting duck of the tropical regions of Central and South America (2). The Muscovy duck is very hardy and has adapted perfectly to temperate climates (3). Over the past twenty years, this species has supplanted the common duck in Europe, particularly in France, the main producing country. Cross-breeding between the two species has resulted in a hybrid called the “mule duck”, which is used in force-feeding for the production of foie gras.

The considerable recent development of the duck market in Europe has led to intensification of production and rationalisation of husbandry systems, with greater attention being paid to the health of the birds, in order to obtain a product which is healthier and more economical.

There has been little scientific research into the improvement of existing recommendations concerning husbandry systems adequate for ducks. Available research mainly concerns common and Muscovy ducks; little work has been conducted on hybrid ducks. There are some studies of duck behaviour, proposing solutions to practical problems of duck rearing, whether for fattening, force-feeding or breeding stock, but there are few studies of the welfare of domestic ducks (8).

One consequence of the evolution towards improved hygiene in husbandry techniques in recent years has been the creation of welfare problems and, eventually, production problems.

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## **RATIONALISATION AND INTENSIFICATION OF DUCK KEEPING IN RELATION TO WELFARE**

### **Definition of existing duck production systems**

Three production systems are in operation at present (7):

a) An intensive production system developed over the last forty years. Breeding stock and broilers (the end product) are reared in closed buildings at relatively high densities (approximately three ducks per m<sup>2</sup> for breeders and seven ducks per m<sup>2</sup> for broilers). Rearing in total confinement involves the use of special lighting programmes and the absence of ponds, and even the absence of straw or wood-shaving litter (the birds being kept on slatted floors made of wood, metal or plastic).

b) A semi-intensive system which combines a building with an outside run (quality products and force-fed ducks).

c) An extensive system, essentially based on the use of natural resources in the form of grassland and ponds (the system mainly used in Asia).

The last two systems have the least harmful effect on the welfare of birds, due to the quality of the environment made available. However, new buildings are being designed with the objectives of improving working conditions and the health of the birds. This leads to impoverishment of the environment, creating welfare problems.

### **Principal problems encountered recently**

The behavioural anomalies observed among intensively reared ducks are various forms of pecking, which may degenerate into cannibalism. Such pecking behaviour obviously has a direct effect on the well-being of the birds. There is also an indirect effect, as the beak may be removed as a method of preventing this behaviour. This abnormal pecking also has major economic consequences.

#### *Feather pecking*

Pecking at and pulling out the feathers of other ducks (with skin injuries) occurs frequently during the growth of the adult plumage in young ducks, or after moulting in breeders.

“De-beaking” of broiler ducklings and future breeders, performed on the entire flock at a young age, reduces or even eliminates the risk of animals injuring each other, but is traumatic to the bird (as the beak is innervated up to the tip) (8).

Recent research has examined other ways of averting the occurrence of pecking behaviour. Dim lighting reduced the proportion of mutilated birds, but did not prevent abnormal pecking (4). Nutritional deficiency or a poor micro-climate in the building can lead to the occurrence of pecking. Allocation of space is important to each individual, and with this in mind, the use of outside runs considerably reduces the expression of this behaviour (6).

Ducks with dark plumage are less subject to pecking than white-feathered ducks. This difference might be of genetic origin and/or related to the lighting intensity (as a white plumage reflects light more). If this behaviour is of genetic origin, then the frequency of occurrence could be reduced by selection.

As in the hen, there is no obvious reason for such behaviour, and it seems to be caused by many factors. Pecking the feathers of other ducks might be a redirected form of soil pecking (6).

#### *Pecking of the cloacal region (vent pecking)*

This is another form of pecking, directed to attractive red regions, namely the cloaca of male and female breeders. Eventually this behaviour leads to cloacitis in the female duck, which interrupts egg laying. In addition, it is becoming increasingly common to observe females “harassing” males by nipping their penis, sometimes to the point of irreversible mutilation, before it has retracted after mating.

This mutilating behaviour was first observed in a flock of breeder Muscovy ducks in 1979, and recurred in a more severe form in 1990. Adjustment of the feed ration, taking into account the evolution of lines selected for growth, did not have the desired effect in the recent incident (although in 1984 the provision of adequate rations did reduce the expression of this behaviour). It seems that other factors are now responsible.

A relationship appears to exist between the quality of the environment of future breeding stock (type of litter and density of birds) and the frequency of occurrence of pecking behaviour during breeding. The “harassment” of males by females may be related to the poverty of the breeding environment (1). A high density of birds can only accentuate the phenomenon, and one solution may be to enrich the environment and decrease the density of birds. The impact of such behaviour is very deleterious for the affected birds, as well as for the reproductive performance of the flock.

#### **Other welfare problems**

Apart from the problems associated with various forms of pecking between the birds, which currently attract all the attention, intensively-reared ducks also experience other welfare problems, similar to those observed in other types of production.

The mode of feeding, for example, may cause welfare problems. Future breeders are given restricted rations during their growth (approximately 65% of free-choice consumption), and consequently competition at the feeding trough is fierce. The practice is to feed the ducks on alternate days, providing a double quantity of feed which therefore lasts longer. This enables the weakest birds to gain access to the trough.

The same applies to water supply. For health reasons and to reduce water wastage, which is excessive in this type of production, access to water in most broiler and breeder units is now restricted by the use of drinking nipples. This mode of drinking has not yet been clearly demonstrated to have any effect on the behaviour of the birds. However, a limitation of grooming and comfort behaviour (scattering water on the plumage and smoothing of feathers) is observed in ducks watered by drinkers. This opens the way to the development of abnormal or stereotyped behaviour.

The substrate used can also create welfare problems in ducks. To improve the hygiene of the birds, straw litter has been replaced by slatted floors of wood, metal or plastic in most broiler and future breeder-rearing units, although a mixed system is still retained for breeders. The slats cause major problems, apart from those related to environmental impoverishment: difficulty in balancing, particularly in duck lines selected for rapid growth, and skin irritation, particularly at the palmar junction of digits resulting, as the bird grows, in the development of calluses which are often fissured. Microclimate control (humidity and ammonia content) plays a significant role in the appearance of balancing problems (because a damp and poorly maintained litter has the same undesirable effects).

A number of other problems are worthy of mention, namely the stress reactions caused by the handling of animals during various operations carried out in the course of production (sexing, vaccination, transfer between buildings, etc.).

## CONCLUSION

Although most of the features of the behavioural pattern of ducks are maintained under conditions of intensive husbandry (9), the pattern is certainly truncated and somewhat modified. Factors exacerbating the natural behaviour of ducks and provoking the appearance of behavioural anomalies or pecking at other ducks may be located at different levels: confinement stress (5), poverty of the environment (absence of litter to explore and open water for cleaning), breakdown of the social order by an abnormal male-female ratio (5) (usually one male for three to four females), fighting for trough space under restricted feeding, etc.

There are also indicators of well-being in intensively-reared ducks (8). These indicators can serve to draw the attention of breeders to the occurrence of conflicts between the birds and the artificial environment provided.

Solutions to the various problems associated with intensive husbandry of ducks have been proposed, but many questions remain unanswered with regard to the behavioural adaptation of ducks and the reactions of these birds to an impoverished production environment. Replies to these questions could lead to an improvement of the well-being of intensively-reared ducks. Consequently, major fields of study are still open for exploration.

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