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Position Paper on Broiler Production

This document lays out the position of Eurogroup for Animals on improving the welfare of broilers produced in the EU.

Policies, which have historically prioritised high production at low cost, have been particularly effective in the broiler industry. The resulting, extremely low cost chicken meat has gained a strong market position, which in turn has stimulated the development of a large industry.

The welfare concerns expressed in this position are therefore a function of both the technologies and husbandry techniques employed in rearing broilers and of the scale of production.

The context for this position paper is the European Commission proposal for legislation on broiler welfare. The focus of this paper therefore covers intensive, as well as extensive, broiler production.

1 Stocking Density

The SCAHAW report highlighted problems with limited space allowances.

Crowding decreases mobility and prevents the birds from completing activities which are fundamental to their welfare, such as walking, preening, pecking and scratching at litter. More disturbances occur between birds when these animals are kept at higher stocking densities, particularly when birds are trying to rest.

The restricted movement and behaviour are in turn one of the main causes of painful leg disorders, poor litter condition, associated contact dermatitis, and subsequent secondary infections allowing bacteria to penetrate the blood stream.

The SCAHAW report concluded that: *'It is clear from the behaviour and leg disorder studies that the stocking density must be 25kg/m² or lower for major welfare problems to be largely avoided and that above 30kg/m², even with very good environmental control systems, there is a steep rise in the frequency of serious problems.... The greatest threat to broiler welfare due to behavioural restriction would appear to be likely constraints on locomotor and litter directed activities caused by high stocking densities, and consequences for leg weakness, poor litter quality and contact dermatitis.'*

With reference to the SCAHAW report, Eurogroup believes that the stocking density should not exceed 25kg m⁻².

2 Rearing Environment

The environment in which broilers are reared is a function of several inter-related factors, all of which can be manipulated by management.

They are critical in determining the broilers' level of welfare. They can be bracketed as:

- Air quality; determined by the presence of dust and noxious substances in the air.
- Climate; temperature and humidity
- Litter quality
- Lighting

Based primarily on the recommendations of SCAHAW, but supported by established best practice, Eurogroup believes that the following standards should apply.

Air Quality

Ventilation should be provided at 4.5 m³ per kg liveweight per hour.

As reflected in German welfare standards, studies have shown this level to contribute strongly to maintaining an acceptable environment. However, other parameters will need to be monitored and maintained within reasonable levels. These are listed below.

Ammonia levels should not exceed 10 ppm.

Carbon Monoxide levels should not exceed 50 ppm

Dust should not exceed 10 mg m⁻³

Carbon dioxide levels should not present a problem in well designed and ventilated buildings. It should nonetheless not be allowed to exceed 3,000 ppm.

Climate

Temperature. All birds should be maintained in a thermally comfortable environment at all times.

As recommended by SCAHAW, humidity should be maintained between 50 and 70%.

Litter quality

Litter should be of suitable material and particle size. It should be dry and hygienic, and kept to an average minimum depth of 5 cm.

Lighting

Photoperiod:

Near-continuous light, eg 20 hours or more, is often used to maximise food intake and daily body weight gain. However, such lighting patterns can lead to temporary or even permanent blindness.

Longer periods of darkness reduce mortality and improve leg health¹.

¹ Classen et al 2004

The SCAHAW Report states that *'Broilers ...benefit from a clear pattern of day and night by having distinct periods of rest and more vigorous periods of activity.'*

Eurogroup believes that when kept under artificial lighting conditions, broiler chickens should be given a suitable opportunity to rest during a period of continuous dark lasting at minimum of 6 hours but no more than 12 hours.

A period of dawn and dusk should be simulated over a 30 minute period, encouraging more natural settling behaviour in the birds during the transition from one lighting level to the next.

The dark period should take place during the night.

This should exclude the first three days and the last three days when, for management purposes it may be necessary to extend the light period. That notwithstanding, the birds should be provided with 2 hours of darkness, even during these periods.

Light intensity:

Broiler chickens are usually kept under very low levels of light (at or below 10 lux). This discourages activity and maximises body weight gain. However, reduced activity can lead to welfare problems in the birds for example, by increasing the incidence and severity of leg deformities such as Tibial Dyschondroplasia.

The Report concluded that *'brighter lighting (eg more than 100 lux), is important to stimulate activity and is essential for survival in the first few weeks of life' ...and that '... There are various welfare problems at light intensities below 20 lux.'*

Eurogroup believes that birds should be kept under brighter lighting conditions, with the level at the height of the birds eye being a minimum of 100 lux and consistent across the housing².

In addition, Eurogroup welcomes research to explore whether a variation in lighting levels within the birds' environment during the light period may benefit bird welfare.

3 Health

By far the most important health problems seen in broilers are related to cardiac function (ie the heart and circulatory system), and leg health. These health problems have a significant impact on the welfare of broilers and are associated with the genetic selection for very fast growth rate, larger body size and conformation with much emphasis on the development of breast meat muscle.

It is, in the opinion of Eurogroup, necessary to reverse some of these changes brought about by breeding companies which have been selecting birds primarily on the basis of their growth potential. Instead, much more attention needs to be given to the health and welfare traits and, if necessary, at the expense of productive traits.

Ascites

Ascites is a major cause of suffering and death in broilers. In birds with ascites the right side of the heart becomes enlarged as a response to the demands place on it by the birds' rapid growth rate.

² There is evidence to suggest that adequate long wavelength light from the visible spectrum should be provided by the light source, referred to as 'warm white' light. This would be provided by, for instance, an *Osram 830* bulb.

According to SCAHAW, the primary reason for the increased incidence in ascites is the focus in selection on growth, weight and food conversion, with neglect of the maintenance needs of the birds.

Clinical studies have shown that *'birds affected by ascites are severely distressed. In advanced stages the birds are unable to reach the drinkers and become dehydrated. Death is usually preceded by prolonged agony and is likely a result of dehydration, starvation, respiratory failure and heart failure.'*

The SCAHAW Report found the incidence of ascites to be on the increase. Estimates of the incidence of ascites, as measured by the number of condemned carcasses at abattoirs, found that around 20% were due to ascites.

Sudden Death Syndrome

Sudden Death Syndrome (SDS), also known as 'flip-over', is acute heart failure. It is characterised by sudden vigorous wing flapping, muscle contractions and loss of balance, often with vocalisation. The bird then dies.

The SCAHAW Report concluded that, although the apparent time to death is only minutes, SDS may still have an important impact on bird welfare.

Recent scientific research has shown that there are serious consequences associated with these metabolic disorders, stating that *'...this phenomenal growth rate, as a consequence of continued improvements to intensive genetic selection and farming practices ...has only been achieved at the expense of many casualties along the way.'* The paper also noted that chicks as young as three days old were seen with ascitic fluid, *clearly indicating that serious embryonic malfunctions had occurred during the early stages of development.'*

Ammonium Burns

Broilers are particularly susceptible to contact dermatitis, primarily of the hocks, plantar aspects of the feet, and breasts. According to SCAHAW, welfare concerns stem from the pain they can cause and from any general deterioration in health associated with the condition.

The skin lesions may furthermore penetrate the sensitive tissues of the subcutis and muscle fascia, which in turn serve as portals through which bacteria may penetrate to cause bacteraemia and trigger a complex of septic joint pathologies.

The main predisposing factor is litter quality, and the condition is therefore linked to stocking density and overall management.

The decreased activity of the faster growing strains brings the skin of the hock and breasts into contact with the litter for prolonged periods.

Lameness and Leg Disorders

Lameness and leg disorders are among the most serious welfare problems affecting broilers. The SCAHAW Report concluded leg problems were one of the *'major welfare problems in broilers...which can be regarded as side effects of the intense selection mainly for growth and feed conversion.'*

Scientific research provides compelling evidence that these lame birds are in pain. One study found that lame birds took over three times longer to negotiate a simple obstacle course compared with sound birds. However, after being given a pain-killer, the lame birds completed the course in nearly half their original time. There was no effect on the healthy unaffected birds, indicating that pain was at least partly responsible for making the birds lame. The SCAHAW Report concluded that the anatomical evidence also showed that joint pathologies are likely to be painful in chickens in a similar way to humans.

A Danish study demonstrated that 30 per cent of broilers had walking difficulties, affecting their ability to move around and only 25 per cent were able to walk without any problems. In Sweden, a study found that 15 per cent birds had an abnormal gait that affected the birds ability to move around, and only 36.5 per cent birds were able to walk normally.

Eurogroup firmly believes that these leg problems can be reduced by husbandry systems that stimulate activity and develop leg strength, as well as by focussing on improved leg strength as a main priority on the breeding programme.

Eurogroup believes that methods of stimulating activity include reducing stocking densities, providing raised light levels and a proper night period. An enriched environment³ can further encourage the expression of normal behavioural patterns and improve welfare.

4 Breeding for Productivity

The primary breeding objectives of the major breeding companies remains focussed on improving growth rate, and each year it takes less time for broilers to reach the desired slaughter weight. The drive for this accelerated growth rate has had severe, detrimental effects on bird welfare and has resulted in many millions of birds suffering and dying from associated health problems each year. Breeding companies have also worked to increase the body size and have dramatically altered the conformation of the birds, developing large breast muscle. This has placed additional strain on the skeletal structure and vital organs such as the heart and lungs.

The findings of the SCAHAW Report summarise very clearly the extent to which bird health and welfare has been affected. The report states:

It is apparent that the fast growth rate of current broiler strains is not accompanied by a satisfactory level of welfare including health' It continues...

'...every effort should be taken to remove side effects from breeding....Breeding which causes very poor welfare should not be permitted and breeders should be responsible for demonstrating that the standards of welfare in the chickens produced by them are acceptable.'

These trends continue. Eurogroup is very concerned with the current genetic selection which still prioritises increased growth rate and feed conversion efficiency over bird welfare. Indeed, it was noted in the SCAHAW report that *'..the importance given to such [welfare] traits is often low and up to now has not improved welfare.'*

The converse is true for growth rates. Speculative research anticipates birds will reach 2.2kg in 39 days by 2010, and in 34 days by 2025⁴

³ See section 6 – 'Environmental Enrichment'

⁴ Walker A. MacLeod, M (2004). Limits to the Performance of Poultry. In 'Yield of Farmed Species: Constraints and Opportunities in the 21st Century' University of Nottingham. Nottingham.

For these reasons, Eurogroup believes that restrictions on growth rate are required to allow breeding to focus on other health and welfare traits – such as leg disorders and metabolic disorders.

This has implications for how standards are used to safeguard broiler welfare. Eurogroup's position on broiler production lays out the steps that need to be taken to contain welfare problems within the industry *as it now stands*.

As the breeding programmes further erode welfare, future standards needed to maintain reasonable levels of welfare will need tightening in order to compensate.

In the interest of guiding breeding programmes to give more priority to welfare traits, and of encouraging good management, Eurogroup supports the principle of allowing higher stocking densities on units that can demonstrate measurably higher welfare standards. However, the threshold of welfare at which higher stocking densities would be allowed should be stringent enough to give the industry the necessary incentives to reorientate its breeding programmes towards higher welfare.

Parameters of animal welfare on which the industry would be measured would include:

- Incidence and severity of lameness
- Incidence and severity of ascites
- Mortality, including both on-farm and during transport.
- Incidence and severity of ammonium burns to feet, legs and breast areas.

Furthermore, Eurogroup considers that only slower-growing strains should be used for commercial production until it can be demonstrated that the concerns expressed by the EU Scientific Committee on Animal Health and Animal Welfare about faster growing strains have been adequately addressed by the breeding companies.

However, in this case, Eurogroup is concerned that slower growth rates may be achieved by imposing severe feed restriction regimes which can, in themselves, cause welfare problems.

Furthermore, it is particularly important that the growth rate is not excessive during the first three weeks of life, when the developing cardiac and skeletal system is particularly vulnerable.

For these reasons, Eurogroup proposes that the following criteria be met in order to define slower-growing strains:

Flocks which grow at not more than 40g average daily weight gain per bird over the rearing period, without thinning being practiced.. This should not be achieved by feed restriction, but through the appropriate selection of slower-growing strains of broilers.

5 Broiler Breeders

Feed Restriction

As a direct consequence of the genetic selection for faster growth rates and increased food intake, it has become necessary to severely restrict the intake of food in the broiler breeder birds (parent birds which produce the broiler chickens to be reared for meat) during their whole life. In the period before the birds reach sexual maturity, they are furthermore restricted to 25% of the feed they would receive under an *ad-libitum* regime. Birds are fed once a day, or even only on alternate days to control feed intake and weight gain. This is a serious problem to birds which have a high metabolic rate and a high demand for food on a regular basis.

The vast majority of broiler breeders experience chronic hunger as evidenced by:

- Breeding birds show behavioural abnormalities such as excessive drinking behaviour and pecking at non-food objects in between meals and just prior to receiving a meal.
- Research has shown that these birds are just as motivated to eat one hour after their feed as they were before feed – indicating that their appetite has not been satisfied
- Breeding birds which are restrict fed are four times more motivated to eat compared to birds fed ad-libitum but which had been starved for 72 hours. This indicates that there is a cumulative effect on the restricted birds as time passes.

The SCAHAW Report highlighted these problems as indications of *'poor welfare'* and went on to state that: *'the most important welfare issue in breeding production is the chronic quantitative food restriction to which birds are subjected.'*

Eurogroup considers that these problems are exacerbated by the continued selection for faster growth rate, and associated productive benefits. Clearly, this serious problem needs to be addressed as a matter of urgency to improve the welfare of these birds. Again, this can be addressed by selecting for slower-growing strains.

Mutilation

Eurogroup considers that the practice of mutilation such as dubbing and toe removal, which is most prominent among breeding birds, causes pain and distress to the birds. The practice is carried out for two reasons. They are sometimes used as a means of identification in certain strains of birds. Eurogroup condemns this practice.

In some strains, the size and conformation of the birds can predispose injury during mating, and mutilations are performed to minimise this risk. Eurogroup believes that the problem should be addressed by reorienting the breeding of such birds, rather than resorting to mutilations.

6 Environmental Enrichment

The environment in which the majority of broilers are kept is usually relatively bare, with only food and water facilities available. This gives the birds little opportunity to be active or to perform the many different behaviours which would normally occupy a large proportion of their day.

However, providing additional features which stimulate bird activity and which encourage birds to explore the environment with greater interaction has been found to significantly improve bird health and behaviour. In addition, it has been found that when birds are given appropriate forms of environmental enrichment, the level of fear can be greatly reduced, and therefore stress levels can also be reduced which helps to improve welfare.

The provision of perches adjusted to an appropriate height can have a beneficial effect both in terms of an additional place to rest at night as well as stimulating activity and thereby strengthening the legs. Other objects such as straw bales also provide the birds with an additional form of activity. Birds use these to rest against and perch on, to peck and scratch around. The scattering of corn over the litter makes the birds more active, as does the provision of rope, balls and brassicas.

Currently, environmental enrichment is not widely applied in commercial production, although Eurogroup believes this could be a relatively easy addition to the birds' environment, improving welfare at minimal extra cost.

7 Stock-Keeper Training

Eurogroup considers that the role of the stock-keeper should not be over-looked in terms of ensuring high standards of animal welfare. Indeed, it is well recognised that the standard of stockmanship will have a direct and significant impact on the welfare of the birds. The key elements of good stockmanship include thorough and regular inspection of the flocks, with birds inspected at least twice each day in a manner which ensures that any sick or injured birds can be identified and treated without delay or, if necessary, culled humanely.

Stock-keepers must be able to understand the behavioural aspects associated with bird welfare and must respond to those signs which indicate poor health and welfare, particularly with regard to leg disorders. For instance, Eurogroup considers that the following criteria should be satisfied:

Stock-keepers must therefore be certified by a competent authority as being able to:

- Recognise signs of common diseases and disorders and know appropriate actions for treatment.
- Recognise signs of normal behaviour, abnormal behaviour and fear.
- Understand the environmental requirements for chickens.
- Handle chickens in a positive and compassionate manner.
- Cull sick and distressed animals in a humane manner.

Records must be kept of each inspection including any birds which were culled. Mortality figures must be kept and where a trend develops, veterinary advice must be sought. Producers must be able to demonstrate that leg weakness control strategies outlined in the written Veterinary Health Plan address both infectious and skeletal causes of leg weakness.