

Intensive animal farming; Turkeys



December 2013

Key Facts

- Over 650 million turkeys a year are farmed for meat production, globally. Of these, over 240 million are in the US and over 200 million in Europe.¹ 18 million are farmed in the UK. Only 4% of these (approximately 800,000 birds) are farmed under higher welfare standards.
- Turkey chicks undergo a series of painful mutilations including beak-trimming, toe clipping and removal of the skin on the forehead known as the 'snood'. These procedures are carried out without anaesthetic.
- Demand for larger birds with a higher amount of breast meat has meant that the modern day turkey is now very heavy with much more developed breast muscles. Through selective breeding for faster growth, a commercial turkey can reach as much as 25kg in just 20 weeks. The average weight of a wild turkey is just 7.5kg. This fast growth rate leads to the potential for heart failure, lameness, leg deformities and hip degeneration.
- Due to the unnatural size of the male birds it has become difficult for the male to be able to mate with the female naturally, therefore the majority of breeding takes place through artificial insemination. This process has been described as brutal with workers inseminating one hen every 12 seconds.²
- 90% of UK turkeys are raised indoors in barren sheds with up to 25,000 birds per unit.

Welfare issues

Limited space

Turkeys raised indoors are often not provided with space, freedom of movement, or facilities to meet their needs and as a result suffer from boredom and frustration. Insufficient space may lead to increased risk for birds to develop broken wings due to them hitting the pen walls or other birds during aggressive encounters.³ Aggressive encounters are common in areas of limited space especially when new unfamiliar birds are introduced to established groups. Unfamiliarity between several thousand birds of a commercial flock is a common situation in modern turkey rearing systems due to the group becoming too large to allow the development any form of hierarchical system.

Insufficient space also leads to heat stress and an increase in foot pad lesions, caused by birds standing or sitting on litter which contains high levels of ammonia from the bird's droppings. A 2011 study demonstrated that 60% of female and 33.8% of male 16-wk-old turkeys in commercial German facilities showed some degree of footpad lesions.⁴

The dusty, ammonia-filled air inside turkey production facilities is a consequence of poor ventilation and overcrowding. This highly contaminated air is associated with a host of health issues, including respiratory damage and irritated, swollen eyes.

Feather pecking

Close confinement can lead to an increase in the incidence of injurious feather pecking, this leads to injuries and in some cases cannibalism.

There are three different types of feather pecking exhibited in turkeys; severe feather pecking (forceful pecking at the plumage of another turkey which can include the removal of feathers), head pecking (a form of aggression directed at the head area of another turkey in an attempt to retain social dominance usually following a social disturbance) and cannibalism (pecking at the exposed skin of another bird following feather removal, often with resulting removal of blood and tissue). All these types of injurious pecking have a significant welfare impact on the turkeys and a financial impact on the production system.⁵

¹ http://www.ciwf.org.uk/farm_animals/turkeys/default.aspx

² Jim Mason 'In the Turkey Breeding Factory'

³ Buchwalder, T. and Huber-Eicher, B.2004. Effect of increased floor space on aggressive behaviour in male turkeys (*Meleagris gallopavo*). Appl. Anim. Behav. Sci. **89**:207–214

⁴ Krautwald-Junghanns, M. E., Ellerich, R., Mitterer-Istyagin, H., Ludewig, M., Fehlhaber, K., Schuster, E., Berk, J., Petermann, S. and Bartels, T.2011. Examinations on the prevalence of footpad lesions and breast skin lesions in British United Turkeys big 6 fattening turkeys in Germany. Part I: Prevalence of footpad lesions. Poultry Sci. **90**:555–560

⁵ Dalton HA, Wood BJ, Torrey S (2013) Injurious pecking in domestic turkeys: development, causes, and potential solutions. World's Poultry Science Journal **69**:865–875.

Head pecking is primarily driven by social aspects and environmental disturbance, whereas severe feather pecking and cannibalism appear to be a product of genetics, environment and nutrition and future strategies to facilitate the control of injurious pecking needs to take these different aspects into account.⁵

Beak-trimming

To reduce the risk of feather pecking chicks have their beaks trimmed, this process causes acute and potentially chronic pain. Behavioural evidence of pain after beak trimming has demonstrated a reduction in pecking behavior, reduced activity and social behavior, and increased sleep duration.^{6 7 8 9}

For commercial turkeys, chicks are often trimmed manually, using a hot blade to remove and cauterise the tip of the beak. An alternative procedure is infrared beak trimming. This procedure focuses a high intensity infrared beam at the tip of the beak, which penetrates the hard outer horn, damaging a clearly demarcated zone of the underlying dermis and sub-dermal tissues. One to three weeks later, the tissue behind the damaged area heals and the beak tip is lost. During treatment, the chick's head is firmly retained in a rubber holder that prevents movement of its head, enabling precise and reliable treatment of the beak. The technique minimises operator error and inconsistency although still requiring the chick to be restrained, and subsequently leaves the chick with a shortened beak.¹⁰ There are welfare concerns with regards the handling of chicks during this procedure.

Since the beak is a sensory organ and a primary means by which a bird interacts with its environment, beak trimming may affect its ability to express normal behaviour while the act of beak trimming itself may cause pain, suffering and distress, thereby compromising welfare.¹¹ This suffering has often been considered acceptable when balanced with the suffering in the flock if the birds are not debeaked.

Debeaking is a mutilation addressing the symptoms rather than the causes of feather pecking. The exact causes of feather pecking include redirection of foraging behaviour, genetic predisposition, plumage colour variation in target animals, light intensity, food access and composition, and stocking density. Once feather pecking begins, it is very difficult to stop, and can quickly escalate into cannibalism that may result in death.

Scientific evidence and practical experience demonstrate that feather pecking and cannibalism can be controlled in laying hens without beak trimming through the use of appropriate birds strains to reduce the hens' propensity to feather peck and good farm system design and management. This includes;

- Appropriate feeding and opportunities for foraging^{12 13 14}
- Appropriate early experiences and conditions during rearing.^{15 16 17}
- Minimising differences between the rearing and laying environment.¹⁸
- Opportunities for resting and refuge.^{19 20}
- Encouraging ranging.^{21 22}

⁶ Gentle M.J., Hughes B.O. and Hubrecht R.C., (1982). The effect of beak-trimming on food-intake, feeding behaviour and body weight in adult hens. *Applied Animal Ethology*, 8: 147-157

⁷ Duncan I.J.H., Slee G.S., Seawright E. and Breward J., (1989). Behavioural consequences of partial beak amputation (beak trimming) in poultry. *British Poultry Science*, 30: 479-488

⁸ Gentle M.J., Hunter L.N. and Waddington D., (1991). The onset of pain related behaviours following partial beak amputation in the chicken. *Neuroscience Letters*, 128: 113-116

⁹ Gentle, M.J., Hughes, B.O., Fox, A. and Waddington, D., (1997). Behavioural and anatomical consequences of two beak trimming methods in 1- and 10-d-old domestic chicks. *British Poultry Science*, 38: 453-463

¹⁰ <http://www.fawc.org.uk/pdf/beak-trimming.pdf>

¹¹ <http://www.fawc.org.uk/pdf/beak-trimming.pdf>

¹² Zimmerman, P. H., Brown, S. N., Glen, E., Lindberg, A. C., Pope, S. J., Short, F. J., Warriss, P. D., Wilkins, L. J. and Nicol, C. J. (2005) The Effects Of Stocking Rate And Modified Management On The Welfare Of Laying Hens In Non Cage Systems. Proceedings of the 7th European Symposium on Poultry Welfare, Lublin, Poland.

¹³ McArdie, T. M., Keeling, L. J., Blokhuys, H. J. and Jones, R. B. (2005) Reduction in feather pecking and improvement of feather condition with the presentation of a string device to chickens. *Applied Animal Behaviour Science*, 93: 67-80

¹⁴ Steinfeldt, S., Kjaer, J. B. and Engberg, R. M. (2007) Effect of feeding silages or carrots as supplements to laying hens on production performance, nutrient digestibility, gut structure, gut microflora and feather pecking behaviour. *British Poultry Science*, 48: 454-468.

¹⁵ Chow, A. and Hogan, J. A. (2005) The development of feather pecking in Burmese red junglefowl: the influence of early experience with exploratory-rich environments. *Applied Animal Behaviour Science*, 93: 283-294.

¹⁶ Riber, A. B., Wichman, A., Braastad, B. O. and forkman, B. (2007) Effects of broody hens on perch use, ground pecking, feather pecking and cannibalism in domestic fowl. *Applied Animal Behaviour Science*, 106:39-51.

¹⁷ Rodenburg, T. B., Komen, H., Ellen, E. D., Uitdehaag, K. A. and van Arendonk, A. M. (2008) Selection method and early-life history affect behavioural development, feather pecking and cannibalism in laying hens: A review. *Applied Animal Behaviour Science*, 110: 217-228.

¹⁸ van de Weerd, H. A. and Elson, A. (2006) Rearing factors that influence the propensity for injurious feather pecking in laying hens. *World's Poultry Science Journal*, 62: 654-664.

¹⁹ Friere, R., Wilkins, L. J., Short, F. and Nicol, C. J. (2003) Behaviour and welfare of individual hens in a noncage system. *British Poultry Science*, 44: 22-29.

²⁰ Riber, A. B. and Forkman, B. (2007) A note on the behaviour of the chicken that receives feather pecks. *Applied Animal Behaviour Science*, 108: 337-341.

²¹ Bestman, M. W. P. and Wagenaar, J. P (2003) Farm level factors associated with feather pecking in organic laying hens. *Livestock Production Science*, 80: 133-140.

²² Nicol, C. J., Pöttsch, C., Lewis, K. and Green, L. E. (2003) Matched concurrent case-control study of risk factors for feather pecking in hens on free-range commercial farms in the UK. *British Poultry Science*, 44: 515-523.

- Limiting group size.^{23 24}
- Selection of birds with a lower propensity to feather peck.²⁵

Desnooding

Male turkey chicks have a fleshy part of their skin on their foreheads known as the 'snood' which hangs over their beak. Removal of the snood is often carried out to prevent head injuries from pecking and fighting. It is often removed by hand in day old chicks. At 3 weeks of age it is often cut off close to the head with sharp scissors without the application of an anaesthetic.

Detoeing or toe clipping:

Toe clipping is carried out at day old by removing the tip of the toe just to the inside of the outer most toe pad including the entire toenail. This procedure is carried out with scissors or the toe tips are micro-waved. The microwaves kill the tissue and the toes shrivel and fall off.²⁶ These procedures are carried out without anaesthetic.

Lighting

Lighting has profound effects on the physiology and behavior of poultry.²⁷ Low lighting is used to reduce the incidence of undesirable behaviours such as of feather pecking and cannibalism, but it can also inhibit walking, foraging, exploration and social behaviours.²⁸ Sudden increases in light intensity for the purpose of inspections can also lead to increase in fear reactions from birds.²⁹

Growth Rates

Due to selective breeding for heavier birds, many birds suffer from some degree of lameness, leg deformity and/or hip degeneration. Increased weight and growth rate also puts pressure on the bird's heart and lungs with many birds dying of heart failure. Turkeys now reach 15.87kg in 132 days, rather than 220 days it took 40 years ago³⁰.

Handling and transportation

Catching and transport of live turkeys, may be one of the most stressful events in the bird's lifetime. Pre-transportation procedures such as inadequate catching and crating have a major negative impact on birds' welfare, varying from mild stress to death before arriving at the slaughterhouse. Many birds suffer from broken wings, legs, dislocated hips and bruising due to inappropriate handling and crating procedures. A 2006 study showed an average Dead on arrival rate of 0.38% and up to 0.52%. Causing factors are suspected to be thermal stress, acceleration, vibration, motion, impacts, fasting, withdrawal of water, social disruption and noise, incorrect transport of sick or injured animals, and death directly attributed to humans.³¹ For turkeys, there seem to be some benefits of automatic, compared with manual, crating in terms of reduction of body damage and heart rate. In a study published in 2000, three traditional turkey transport systems that require manual catching and loading were compared with a system that involves driving or herding the birds into transport crates. The researchers found that when the turkeys were not caught and carried, the birds had fewer bruises and injuries. Heart rate was used in this study as a measure of stress, and turkeys who were herded onto transport modules had lower heart rates after loading. With further study, this system is a promising alternative that could be more widely utilized in the turkey industry to improve the animals' welfare.³²

Slaughter

Females are generally slaughtered at 10 weeks and males at 20 weeks. Some birds are stunned in an electrical water bath then slaughtered but the majority of turkeys in the UK are gassed with a mixture

²³ Bilcik, B. and Keeling, L. J. (2000) Relationship between feather pecking and ground pecking in laying hens and the effect of group size. *Applied Animal Behaviour Science*, 68: 55-66.

²⁴ Nicol, C. J., Gregory, N. G., Knowles, T. G., Parkman, I. D. and Wilkins, L. J. (1999) Differential effects of increased stocking density, mediated by increased flock size, on feather pecking and aggression in laying hens. *Applied Animal Behaviour Science*, 65: 137-152.

²⁵ Ellen, E. D., Visscher, J., van Arendonk, A. M. and Bijma, P. (2008) Survival of laying hens: Genetic parameters for direct and associative effects in three purebred layer lines. *Poultry Science*, 87: 233-239.

²⁶ <http://www.saawinternational.org/turkey.htm>

²⁷ Manser, C. E. 1996. Effects of lighting on the welfare of domestic poultry: A review. *Anim. Welf.* 5:341-360

²⁸ Barber, C. L., Prescott, N. B., Wathes, C. M., Le Sueur, C. and Perry, G. C. 2004. Preferences of growing ducklings and turkey poults for illuminance. *Anim. Welf.* 13:211-224.

²⁹ Appleby, M. C., Smith, S. F. and Hughes, B. O. 1992. Individual perching behavior of laying hens and its effects in cages. *Br. Poult. Sci.* 33:227-238

³⁰ Fersket PR. 2004. Tom weights up seven percent. *WATT Poultry USA*, July, pp.32-42

³¹ Petracci, M., Bianchi, M., Cavani, C., Gaspari, P. and Lavazza, A. 2006. Preslaughter mortality in broiler chickens, turkeys and spent hens under commercial slaughtering. *Poult. Sci.* 85:1660-1664.

³² Prescott NB, Berry PS, Haslam S, and Tinker DB. 2000. Catching and crating turkeys: effects on carcass damage, heart rate, and other welfare parameters. *Journal of Applied Poultry Research* 9:424-32.

of nitrogen and argon.³³

When birds arrive at a slaughterhouse, they may suffer pain and distress by being hung by their feet for several minutes. They often struggle before being stunned, causing dislocations and fractures. In the UK, the law allows them to be hung for up to 3 minutes, causing considerable suffering. They can also suffer painful pre-stun electric shocks as their wings dip into the electrified bath before their heads touch the water. Some may not be stunned properly and regain consciousness before their throats are cut. They may even be conscious as they are plunged into the scalding tank, if the main arteries have not been effectively severed.

In the winter, turkeys are often killed in smaller 'seasonal' slaughterhouses or on-farm. This is sometimes done by neck dislocation, possibly carried out by untrained staff and without pre-stunning. In some instances, they may have their throats cut without pre-stunning. This is illegal in the EU.

Turkeys are sometimes plucked within seconds of neck dislocation when they may still be alive and conscious.³⁴

Feed restriction

Feed restriction is a commonly used management practice in the breeder turkey industry for optimal semen production and to manage risk of heat stress or musculoskeletal lesions. However, food deprivation can have a negative impact on the welfare of turkeys, which may manifest through changes in their behavior patterns.³⁵

Improving the welfare of farmed turkeys

Higher welfare indoor systems

In higher welfare indoor systems, turkeys are reared in barns with a larger space allowance per bird. Enrichment is usually provided in the form of perches and straw bales to encourage exercise and exploration. This system offers turkeys more opportunity to behave naturally and gives them better air and litter quality. It reduces the risk of lameness, foot sores and eye problems.

Free-range and organic systems

These systems offer the potential for significantly higher welfare for turkeys. Turkeys have continuous access to an outdoor range during the daytime. The range should be largely covered in vegetation and allow more space. Access to fresh air and daylight means better eye and respiratory health. The turkeys are able to exercise and exhibit natural behaviour resulting in stronger, healthier legs. Free-range systems often use slower-growing breeds of turkey which suffer less from heart problems and lameness associated with fast growth rate.

Slower growth rate and access to an outdoor range offer the potential for a better quality of life. Birds are able to exercise, explore and behave naturally. More space reduces stress and the need for beak-trimming. But if birds are not managed effectively within free-range and organic systems, these systems can lead to the same welfare issues presented by close confinement production. Therefore effective management regimes designed to improve welfare on free-range and organic farms are essential i.e. vegetation cover on the range to encourage birds to explore and use the available area, an adequate number of pop holes to prevent dominant birds monopolising an entry/exit point and so leading to birds not accessing the outdoors.

Better management of slaughter

Because of their weight, turkeys need careful handling during the slaughter process. Current UK rules allow turkeys to be left hanging in shackles for up to three minutes, leading to unnecessary suffering. Birds should be stunned by a method that stops their hearts before their throats are cut (stun-killing). Humane gas stunning systems using inert gases should also be encouraged.

³³ <http://www.rspca.org.uk/ImageLocator/LocateAsset?asset=document&assetId=1232733196779&mode=prd>

³⁴ http://www.ciwf.org.uk/farm_animals/turkeys/welfare_issues.aspx

³⁵ Hocking, P. M., Maxwell, M. H. and Mitchell, M. A.1999. Welfare of food restricted male and female turkeys. Br. Poult. Sci. 40:19–29

In seasonal slaughterhouses and on-farm, electrical head-stunning should be used before slaughter. At least 2 minutes should elapse before plucking.³⁶

³⁶ http://www.ciwf.org.uk/farm_animals/turkeys/higher_welfare_alternatives.aspx