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Perceptions, awareness and understanding of show horse welfare

Horses are ridden and shown for competition, are trained to perform various manoeuvres, and are exposed to unfamiliar environments and other horses. The use of horses for competition is a growing area of interest for some researchers, although to date, few studies have examined the perceptions of the equine industry to animal welfare. This study aimed to gain a better understanding of stock-type (i.e. Quarter Horse, Paint Horse, Appaloosa etc.) horse show competitor’s perception and concern for stock-type show horses’ welfare, and to identify traits related to different perspectives of horse welfare.

A questionnaire was distributed to exhibitors of stock-type horses within the US. The questions related to 1) interest and general understanding of horse welfare, 2) welfare concerns of the horse show industry and specifically stock-type horses, 3) decision-making influences, and 4) level of empathetic characteristics of the exhibitors. There was a high level of interest on the topic of show horse care and treatment among respondents, and almost 95% of respondents indicated that physical metrics should be a factor when assessing the welfare of horses. However, only 85% of respondents agreed that mental metrics should be a factor and 74% agreed that behavioural metrics should be a factor when evaluating horse welfare. In the scientific community it has been commonly accepted that the assessment of horse welfare should encompass all three metrics. The empathy levels of most respondents were moderate to high, and they showed a particular concern for certain sectors of the horse show industry, with 44% of the respondents indicating concern for the saddle-type sector, compared to only 22% indicating the same level of concern for the welfare of horses at open shows. Respondents indicated that the specific practices that they considered inhumane at stock-type shows were excessive jerking on the reins, excessive spurring, induced excessive movement, excessive repetition of a movement or practice and excessive pressure on the bit.

The authors suggest that when these practices are observed, the situation should be reported to the governing authority. Interestingly, it was found that the judge’s placings and the observations and opinions of other exhibitors at shows were only slightly to moderately influential in influencing stock-type horse exhibitors behaviours, but hired trainers and riding instructors were very influential on the decisions relating to the care and treatment of their horses. The results of this study suggest that it would be advisable to focus educational efforts for improving the welfare of stock-type horses towards these hired professionals.

Supervision of child-family dog interactions in young children

Dog bites suffered by young children are often inflicted by the family dog, and are usually preceded by the child interacting with the dog in some way. The interactions between a child and a dog may pose a high risk, such as disturbing the resting dog, but may also include behaviours that would not be considered to be aversive by the family, such as petting, cuddling or bending over the dog. Often a caregiver is present when a child is near the family dog. This study, undertaken in Austria, used a questionnaire to examine supervision of child-dog interactions, the attitudes of the caregivers to supervision, and the management of children up to 6 years of age with a dog living in the same household. The study also compared the caregiver assessment of child-dog interactions which need intervention, the relationship between awareness of the risk of dog bites and aspects of supervision behaviour, as well as alignment of this with the opinions of experts.

It was found that respondents’ average level of tolerance for unsafe behaviours was in mid-scale in a range of 1 to 6 and the level of attentiveness towards the child when it was around the dog was reported as similar. Respondents rated the need for an intervention in child-dog interactions very differently than experts, with respondents placing less emphasis on the need for intervention in situations where a child may potentially be bitten. The study suggests that too much trust is often placed in the dog not to react to situations aggressively and many dog owners need to improve their supervision of child-dog interactions. The authors emphasise the need to educate caregivers about potentially unsafe behaviours, the dog’s needs and safety measures to be taken around the family dog, which can be tailored specifically to the child’s age. Measures that are easy to implement, and may have a positive effect on lowering risk of dog bites, such as providing the dog with a resting place that is in a separate area from the child, should be promoted.


Characteristics of cats and owners who used a reduced-cost spay-neuter program

Subsidised and reduced cost spay-neuter programs which sterilise owned cats and dogs are important components to reduce the number of homeless and euthanased companion animals in America. However, data on the effects of these programs are limited. There has been an increased focus recently on the role of human behaviour in pet sterilisation and why owners fail to have their pets sterilised, but less attention has been given to examining the characteristics of individuals who do have their pets sterilised, in particular, those who have the procedure performed through a reduced-cost spay-neuter program. This study aimed to identify the characteristics of cats sterilised by this means, and the owners who used such a program.

This study, performed in Massachusetts, used a survey to examine owners who had a cat sterilised at a Quick Fix Clinic between 2006 and 2008, and a structured interview with owners that had a cat sterilised during a three month period in 2009. It was found that most of the cats had never previously seen a veterinarian as it was deemed to be ‘too expensive’. The total household income was associated with the number of times the cat had seen the veterinarian, and why the cat had not been sterilised previously. Most of the cats had been acquired by informal means, and had not been actively sought as a pet, and there was often a time lag between when the cat was acquired, and when it was sterilised, with undesirable behaviour and avoiding pregnancy cited as the most common reasons for sterilising their cat. Almost half of the owners who indicated that they would have had their cat sterilised through a private veterinarian if the clinic had not been available, stated that the surgery would have been delayed due to the cost.

Elimination of the Quick Fix Clinic would likely have increased the problem of delay in spaying, and suggests that there may be benefits in looking at financial need when evaluating relationships between income and spay-neuter decisions. The results of the study also suggested that other factors, such as beliefs about the appropriate age for sterilisation, emergence of undesirable behaviours at puberty and acquisition of cats that had been acquired through an act of compassion rather than sought, may also influence the decision to spay.

Benka VA, McCobb E (2016) Characteristics of cats sterilized through a subsidized, reduced-cost spay-neuter program in Massachusetts and of owners who had cats sterilized through this program. Journal of the American Veterinary Medical Association 249(5):490-498
Animal welfare experts and veterinarian’s opinions on key factors influencing welfare in dogs and cats in relation to veterinary care

Regular veterinary care is an integral part of ensuring the health of companion animals, which in turn affects their welfare through treatment of injury and disease. Veterinarians also provide other advice about the care of animals, their training, exercise and nutritional needs. However veterinary visits can be stressful for animals as the animals are placed in a new environment and possibly subjected to uncomfortable or painful procedures.

A survey was distributed to animal welfare researchers, veterinarians with an expertise in animal welfare, and Canadian and American mixed animal veterinarians. The survey aimed to: identify those aspects of veterinary care that impact companion animal welfare, both in the veterinary clinic and in the home environment; explore the extent to which these factors impact animal welfare and; explore the feasibility of improving and measuring each factor in a veterinary clinic. Seventy-eight survey participants identified 85 factors that impact animal welfare in the clinic and at home, with seven main themes emerging: the physical environment of the clinic; routine animal care provided by staff; interactions between the animal, staff and client; clinic management; medical and surgical procedures; staff attitudes and education and; communication between the veterinarian and client.

On a five-point scale, 70% of factors were found to receive a score greater than three (higher number denotes higher welfare impact). Over 80% of participants agreed that 68% of the identified factors could be improved in an average veterinary clinic, and 43% of the factors could be feasibly measured during a welfare assessment. The ability to recognise species-specific behaviours such as fear and pain, as well as the provision of pain control for both acute and chronic pain were considered to have the largest potential impact on animal welfare. The results of the study showed that numerous factors were able to influence the welfare of companion animals in relation to veterinary care, and the authors suggest that this could guide target areas for future research.


Influence of morning maternal care on the behavioural responses of 8-week-old Beagle puppies to novel and social stimuli

In mammals, there is a period of mother-infant interactions that is essential for the survival of the offspring. Maternal care is the main source of environmental stimuli for these offspring and has a major impact on the behaviour of the offspring in adulthood. Previous studies in both primates and rodents have shown that deprivation of maternal care increases fearfulness, anxiety, aggressive social behaviour and impaired cognitive development as well as changes in the central nervous system. In the domestic dog (*Canis familiaris*) early separation of the pup from the mother at the age of 6 weeks increases disease susceptibility, weight loss and mortality. Puppies prematurely separated from their mothers at 30 to 40 days of age also seem to be more likely to develop undesirable fear and anxiety related behaviours than puppies that remain with their mothers until 60 days of age. The aim of this study was to investigate the impact of maternal care on the behaviour of their puppies.

Eight litters of Beagle puppies (n=54) were used in this study and the behaviour of the puppies towards their mother recorded for 3 weeks after birth. During the morning, maternal behaviour (occurrences of licking, ano-genital licking, nursing and mother-puppy contact) was assessed. Puppies were then subjected to an arena test (puppies placed in a novel arena, with an unknown person and a variety of play toys for 5 minutes) and an isolation test (placed in a barren arena in isolation for 3 minutes) at 58-60 days of age and their behavioural responses during these tests analysed. It was found that during the isolation test (but not the arena test) puppies that received a higher level of morning maternal care explored more and showed reduced signs of stress. The puppies that received a lower amount of maternal care showed increased locomotion and distress vocalisations and more destructive behaviours towards the enclosure.

This study indicates that maternal care mediates a set of responses that enables the offspring to cope with stressful situations. These behaviours seem to persist into the adult dog, as the maternal care that a puppy receives when young can have a large influence on the adult behaviour of the offspring. A high level of maternal care is therefore highly recommended for puppies in order to help them cope with stress and better adapt to new environmental conditions.

The effect of space on the behaviour of groups of indoor cats

The domestic cat is one of the most common pets in Sweden. Although its wild ancestors were solitary, the domestic cat has become more social towards other cats through domestication. Even where cats choose to live in groups however, such as in feral cat colonies, there are conflicts. In Sweden today, each person is allowed to keep up to 15 adult or 20 young cats in one group and since May 2013, the requirement is that each cat needs to be provided with an area of 2m² (i.e. 30m² for 15 cats). This study aimed to examine the social and spatial behaviours of cats kept in large groups at different densities and areas. Stress related behaviours were also assessed using the Cat-Stress-Score.

A total of 32 male and 57 female cats were collected from two shelters and housed at a research facility. The aim was to examine the behaviour of 15 cats kept within a stable group with different floor areas (1m², 2m² and 4m² per cat). It was found that the amount of available space had a significant effect on the amount of solitary play that cats performed, which increased as the available space increased from 1m² to 4m². As play behaviour is thought to indicate a positive emotional state, this result suggests that cats experience a higher welfare state with the larger amount of space available. Cats also licked each other more, had more body contact and were more active when they were housed in the largest area compared to the second largest area.

The authors suggest that this may be because, in the 4m² area, the cats had the possibility to choose the other cats with who to have contact with, rather than being forced into a smaller area with those cats that they did not wish to interact with. Cats were also found to move more between resources in the largest area. No difference in Cat-Stress-Scores were found between the different areas, and this may be attributed to the fact that the groups of cats were stable prior to the study commencing, rather than being newly mixed groups. The results suggest that an increase in space from 1m² per cat to 4m² per cat improved their welfare.

Rehoming of pet rabbits in Sweden

Rabbits are the third most popular companion animal in Sweden following cats and dogs. The reason for acquiring a rabbit differs depending on age, with children wanting a rabbit to participate in show or jumping competitions, whilst parents stating that they acquired the rabbit for their children. The incidences of unwanted pet rabbits in Sweden is poorly understood, and so the purpose of this study was to identify why rabbit owners rehome their pets and to what extent this happens in Sweden.

The study focused on one large Swedish advertisement website, named ‘Blocket’. The advertisements for 505 rabbits on the website during the winter of 2012–2013 were analysed. It was found that the most common reason for advertising rabbits was ‘lack of time’ and the mean age of rabbits for sale on this site was 17.6 months, indicating that many rabbit owners fail to estimate the time and effort required to care for their rabbits prior to acquiring them. The second most common reason for selling the rabbits was that the owners were moving, which, when also taking into account the young age of the rabbits when sold, indicates that the owners did not plan ahead when they first acquired their pet. Only 0.9% of rabbits were advertised for rehoming due to behavioural problems and information about the new home was only requested in 47% of the advertisements. Half of the rabbits were advertised at a price between €11.1 and €55, and 12% of rabbits were given away for free.

There are welfare implications associated with rehoming rabbits including changes in environment and owners. This was a limited study and highlights the need for more research to gain a better understanding of the extent to which rabbits are rehomed, and the reasons that people choose to rehome their pets. This in turn will help guide decisions for appropriate action to decrease the problem of unwanted pet rabbits in Sweden.

Perceptions of cat’s welfare and behaviour when visiting veterinary clinics

Visiting a veterinary clinic is thought to be highly stressful for cats, with sources of stress including confinement, travelling to the clinic, and intense handling in a novel environment. This stress is a welfare concern, which can impact the cat’s health. Some people may avoid taking their cat to the clinic for this reason, or if they do, the cat may be difficult to handle and could pose a safety risk to veterinarian and owner. This study aimed to investigate owner’s perceptions of cat’s experiences during all stages of a visit to a veterinary clinic, including departing from the home, the clinical examination and recovery after returning home.

A questionnaire was distributed to cat owners (n=1111) in veterinary waiting rooms in Italy. Information gathered included the cat’s response to each stage of visiting the veterinary clinic and aspects of the behaviour of the veterinarian and the owner. It was found that most cats showed compromised welfare during all stages of a clinic visit; before entering the clinic, in the waiting room, moving to the examination room, on the examination table, and after returning home, and this stress could provoke anxiety, fear and aggressive behaviours. Stress was also found to increase with further experience and had negative effects on travelling and handling in other situations. The perceptions and reactions of the cats to the clinic, the veterinarian and the examination are dependent on the cat’s previous experiences, its socialisation and habituation. Owners were found to show a positive attitude towards their cat’s health and welfare, and if they believed that the veterinarian’s behaviour towards their cat was not appropriate, they would consider changing their veterinarian.

To improve the physical and psychological welfare of the cats, veterinarians should develop a deeper knowledge of cat behaviour so that they are able to anticipate, avoid or more effectively handle events that may stress their feline patients. In addition, owners need to be educated about the need to appropriately socialise their cat, with gentle handling and habituation to decrease the stress that their cats experience when visiting a veterinarian.


Associations between animal-based welfare measures and food safety in pigs

It has already been established that some risk factors related to provision of resources and management procedures influence the prevalence of pathogens in food animals. High levels of pathogens in animals used for food can pose food safety and human health risks. The use of animal-based measures to assess animal welfare is becoming increasingly common, and there is some indication that keeping animals in a state of good animal welfare (and keeping stress at a minimum) may reduce the risk of food-borne pathogens on farm. This study aimed to assess the association between animal welfare status of pigs, using animal-based measures on farm, and food safety, by assessing the pathogens \textit{Y.enterocolitica} and \textit{S.enterica} and the gross pathology of the pigs assessed. Environmental faecal samples were also tested.

The animal-based measures of welfare, greater on-farm mortality and a poor human-animal relationship, were associated with increased levels of \textit{Y.enterocolitica}. Improving health and welfare (and decreasing animal mortality and stress and fear from humans) could therefore reduce the prevalence of \textit{Y.enterocolitica} in pigs. Establishing this association may further motivate farmers to avoid practices on farm that have poor welfare outcomes.

Challenges in increasing persistency of lay in longer laying cycles in hens

The world’s population is growing at a rapid rate and to meet the associated increase in requirements for resources, food production also needs to increase. Eggs are one of the most affordable sources of protein, and steps are being taken to increase egg production. This can be achieved by increasing the number of laying hen flocks, or an alternative approach is breeding hens to lay eggs for longer. At the present time, hens live for around 72 weeks. After this time there is a decline in the number of eggs laid, and a deterioration in the quality of the eggshell, which means that most flocks are replaced at around this time. However, moves are being made to extend the laying cycle so that hens lay for 90-100 weeks. With this increase comes challenges in ensuring that the bird remains healthy throughout the laying period.

The authors of this review examine the challenges for the egg industry in increasing the laying period. The paper discusses the nutritional and welfare considerations which need to be addressed if increasing the laying period beyond the current 72 weeks. A multifactorial approach which includes genetics, nutrition and appropriate design of the housing system will need to be adopted so that effects on potential welfare aspects, such as decreased bone health, are avoided. It is important that, while meeting the economic push to increase productivity, the industry continues to meet requirements to ensure that the welfare of the birds is maintained.


Behaviour of dairy cattle in three different production systems

Beef production in Uruguay is becoming more intensive, with the number of cattle increasing from 11.3 million in 2002 to 11.6 million cattle in 2013, while the area that is available to keep these cattle on has decreased by almost 3 million hectares during this time. This concentration of cattle production systems is also driven by the increasing need to be able to compete with other food production sectors, such as the cereal industry. As a result, Holstein male calves and steers, which have traditionally been raised in extensive production systems, are now sometimes raised in feedlot systems, which have a reduced space allowance, different feeding and resting conditions, and a different social structure for the cattle compared to that provided in extensive systems, which has the potential to affect their welfare and productivity.

This study examined the behaviour of 48 Holstein steers raised in one of three different production systems: T1) animals confined in a yard with an area of 210m² with no access to pasture; T2) confined in a yard of 210m², with 6 hours of access to pasture with grain silage fed once a day; and T3) permanently placed at pasture. In all treatments, cattle had access to ad libitum hay.

It was found that grazing was the predominant behaviour for those cattle given access to pasture (T2 and T3) with T2 animals grazing more intensively than T3 animals. ‘Eating hay’ was the most common behaviour in those cattle in T1 (as they had no access to pasture). The cattle in T2, although having access to pasture for only half the time of those cattle in T3, grazed for a similar amount of time to those in T3. Drinking and lying behaviour was similar across all three systems. Cattle in T2 ruminated less when they had access to pasture compared with T3, but ruminated more when they didn’t. Grazing behaviour was found to be important for the cattle, and if there was a restricted ability for them to perform this behaviour, as determined by the production system in which they were housed, they were found to change their patterns of the other behaviours in order to allow them to graze.

Qualitative behavioural assessment to assess livestock welfare

Most livestock producers would say that they are able to reasonably easily identify a sick sheep in a group, but may find it difficult to explain how. It may be how the sheep is behaving, how it is interacting with the rest of the mob, or how it stands or moves. This is called ‘behavioural expression’ and reflects not only the animal’s physical or physiological state, but also its psychological state, which in turn, can indicate the welfare state of the animal.

Qualitative behavioural assessment (QBA) is a methodological approach for assessing the body language of animals and can be applied under a range of conditions, and can capture subtle changes in body language that may be overlooked if individual behaviours are quantified only. QBA is increasingly being used as part of animal welfare assessments in Europe, and although most other welfare assessment methods record ‘problems’ (e.g. lameness, injury), this tool has the ability to capture positive aspects of welfare (e.g. positive engagement with the environment, play behaviour). QBA also requires little specialist equipment to use, and hence is good for assessing welfare in situ. In this way, QBA can be potentially used as a ‘first-pass’ screening method to identify farms or industry situations where a further in-depth assessment of welfare may be warranted.

This review paper examines the use of QBA, describes how to select observers, the sensitivity, reliability and versatility of the method, and how to select the descriptive terms to assess the animals. Studies show that the QBA tool can be reliably and objectively applied to the Australian cattle and sheep industries, and other industries, such as the pork industry, are also now using this tool. The review shows that QBA, in conjunction with other methods, can contribute towards providing the livestock industries with the tools to objectively assess animal welfare.


Associations between feedlot management and bovine respiratory disease in Australian feedlot cattle

Bovine respiratory disease (BRD) is the major cause of clinical disease and death in feedlot cattle. BRD is a multifactorial disease and different combinations of factors may result in clinical disease. While combinations of pathogenic organisms, environmental stressors and immunologically susceptible animals are necessary, no single organism is necessary for BRD to occur. Transmission of pathogens that contribute to the development of BRD however, can occur by direct contact, through the air, or by contact with objects in the animal’s environment. The National Bovine Respiratory Disease Initiative is a nationwide study that was designed to investigate the risk factors for BRD in Australian feedlot cattle. The study outlined in this paper was conducted as part of this initiative and examined associations between feedlot management factors (i.e. those practices under the control of feedlot managers) and BRD.

In total, 35,131 animals in 170 pens which were introduced into 14 feedlots were included in the study. It was found that the placement of pen water troughs so that they could be accessed by animals in adjoining pens was associated with an increase in BRD. The addition of animals to pens over multiple days (compared to placing all animals in the pen on a single day) was also found to increase the risk of BRD, with those added to the pen towards the end of mixing, being at the highest risk. Animals with a longer time to adapt to the feedlot conditions were therefore at a lower risk of developing BRD.

The authors suggest that further research is required to identify practical and cost-efficient management strategies to allow longer adaption times for cattle at high risk of developing BRD due to their prior exposure to other risk factors. The authors also recommend that, to reduce BRD, during the construction or renovation of feedlot pens, water troughs are placed so that they cannot be accessed by animals in adjoining pens.

Developmental programming in the poultry industry

The impact of the maternal environment on the physiology and health of offspring has been well demonstrated in humans and mammals, and it is now clear that developmental programming (the impaired function of bodily systems or processes due to a stressor of the maternal system during pregnancy or during the neonatal period) influences brain development and behaviour. The maternal environment in vivo can be reflected in the behaviour, stress sensitivity and immune function of the offspring, which has the potential to also affect the welfare of their progeny. Developmental programming has large potential in the poultry industry. Due to the fast growth rate of broiler chickens to reach market weight, they now spend 40% of their lives in the egg. Recent studies have shown the profound effect of the maternal environment on the development of the embryo and resulting chick. Broiler breeder hens carry genes that predispose them to ingest large amounts of food, and have high growth rates and low feed conversion ratios. These birds are fed as little as 60% of their preferred food consumption in order to increase their reproductive efficiency. Feed restriction causes significant stress on the birds and negatively affects their welfare. The effect of feed restriction and stress in breeder hens on embryo programming is evident.

This Australian paper explores the impacts of the reduced feed intake on organ development and growth and outlines a number of trials aiming to answer the following questions; 1) do feed-restricted hens demonstrate behavioural and hormonal indicators of stress, 2) does feed restriction in broiler hens have an impact on the growth of organs in the developing embryo, 3) does feed restriction in breeder hens have an impact on indicators of immune function in the offspring, 4) does feed restriction in breeder hens have an impact on the growth of their offspring and 5) is there an effect of breeder hen diet composition on the performance of her offspring when they are swapped to a diet of a different composition?

The preliminary results of the trials show that restricted-fed hens exhibited an increased frequency of negative behaviours, and reduction in behaviours indicative of positive welfare. In addition, developmental programming in chickens appears to be influenced not only by feed restriction, but also by the composition of the diet. The authors conclude that manipulation of the breeder hen diet presents an opportunity to improve productivity and maintain the competitiveness of the chicken meat industry, while improving the health and welfare of breeder hens and their offspring.

Sow management at farrowing in the UK

Pre-weaning piglet mortality is a significant welfare issue in the pig industry, with a piglet mortality of 12% in indoor systems and 14% in outdoor systems. Supervision of farrowing pigs by farm staff during and soon after birth can significantly reduce this mortality rate. Farrowing supervision can be facilitated through the use of farrowing induction, which causes sows to farrow at a time when farm staff are available to supervise. Alternatively, farmers can check sows at night when they are due to farrow, to deal with any issues. A number of pharmaceutical products may be used: oxytocin and carbetocin to increase the frequency and intensity of the contractions of the sow’s uterus; azaperone is a sedative used during farrowing to reduce sow aggression towards piglets, and non-steroidal anti-inflammatory drugs to treat pain and inflammation around farrowing.

This study, conducted in the UK, aimed to investigate aspects of management that could have implications for welfare (including pain) and productivity around farrowing and lactation. A questionnaire was distributed to farmers and the 61 that responded were asked a series of questions about the management of their sows during farrowing. Both the farmers and 52 veterinarians were asked questions around the use of anti-inflammatories to treat inflammatory and painful post-farrowing conditions.

Night checks were reported as frequent, and induction of farrowing was rare. Many respondents used oxytocin at least sometimes during (74%) or after (54%) farrowing. Azaperone was used at least sometimes by 45% of respondents during, and 33% after farrowing. Farmers indicated that 5% of gilts and 4% of sows experienced difficulties farrowing. The high level of supervision and night checks around farrowing is encouraging, but the frequent use of oxytocin and azaperone may be concerning, as these products could be masking poor mothers and could be detrimental to sow and piglet welfare, currently and in the future where the uptake of higher welfare systems (less confinement) is likely to be implemented. The study provides further information regarding the management of farrowing sows, which can inform future research to improve management practices in the pig industry.


Layer hen breeding programs – a historic perspective

Housing and management of layer hens has gone through substantial changes over the last century. Housing has changed from free range systems and small flock sizes, to the use of battery cages and an increase in the number of hens per farm, to furnished and colony cages, with battery cages being banned in the EU from 2012 onwards. The number of avai and free-range systems have increased in Europe, Australasia and some parts of the USA, but they are still considered a niche sector when compared to caged housing. This paper examines the history of poultry genetics, and its role in improving welfare. The authors discuss the development of breeding and selection of laying hens over the last few decades, and investigate data around whether the different types of housing systems may require different selection programs for the hens housed in them.

The authors examine the different types of housing systems, the production rates of the birds in the different systems, and to what extent the systems are used in different countries. They then examine the developments in poultry breeding and production over the last few decades; the selection goals and the attributes that have been selected for in the layer hen, which have gradually moved from a focus on productivity to also accounting for traits that will increase the welfare of birds such as behaviour, liveability and feather cover.

A recent focus has been towards breeding for more robust birds. At the same time, an increase in knowledge and experience with birds in non-cage systems has continued to develop, and as a result, the gap in productivity and mortality between cage and non-cage systems has been closing. The authors conclude that a broad breeding objective in existing lines to produce a crossbred bird that is suitable for commercial production in a range of housing systems would appear to be the best approach for genetic improvement for commercial egg production across the world.

Hypoxia in broiler chickens

Approximately 58 billion broilers (meat chickens) are killed annually for food, and finding an appropriate method to kill them humanely is required. A novel approach has been developed where the birds are rendered unconscious by progressive hypobaric (low atmospheric air pressure) hypoxia (low oxygen state). Termed Low Atmospheric Pressure Stunning (LAPS), this approach involves a gradual decompression lasting 280 seconds according to a prescribed curve. This study aimed to examine responses of broiler chickens to LAPS by recording behaviour, electroencephalogram (EEG), and electrocardiogram (ECG) responses in individual broiler chickens, and interpreting these to assess the welfare of the birds. It also aimed to examine the effects of temperature and temperature adjusted pressure curves on these responses.

In Arkansas, broiler chickens were exposed to this system in 30 sets of triplets (to control for social isolation), with 16 and 14 triplets assigned to two different temperature adjusted pressure curves. The behaviour of the three birds was monitored and the EEG and ECG readings of one bird was assessed. Birds showed a consistent sequence of behaviours during LAPS, ataxia (lack of coordinated movements), loss of posture, convulsions, and being motionless. Other behaviours were observed in a proportion of birds.

ECG recordings showed bradycardia (and often arrhythmia) at around 50 seconds into LAPS, until around 60 seconds when heart rate levelled off. Slow wave EEG patterns were maintained in the first 60 seconds of LAPS while the birds were still conscious. The EEG patterns would have been interrupted if the birds were experiencing pain and distress, suggesting that this is not the case. Individual bird variability, ambient temperature and humidity, as well as the decompression curve applied, all affected the timing of responses during the LAPS process, but from a welfare perspective, the pattern of events and experience of the birds before loss of consciousness are more important than the exact timing of events. A consistent series of behavioural responses was observed, and the results of this and earlier studies collectively demonstrate that responses to LAPS are consistent across trials and temperature settings, indicating that this process may be an effective method for slaughter of broiler chickens without causing avoidable fear, anxiety, pain, suffering or distress.


Does anticipatory behaviour of chickens communicate reward quality?

A key aspect of animal welfare is to provide animals with an environment in which their needs and wants can be satisfied. Measuring what animals want, therefore, is important to be able to provide good welfare. One method to measure what an animal wants, is to investigate how they anticipate potential rewards. The anticipatory behaviour that an animal shows towards a reward may guide us in effectively allocating resources to meet the animal’s needs. The goal of this study was to characterise the behaviour of laying hens in anticipation of different types of rewards.

Twelve hens were used in this study performed in Queensland, Australia. Items known to be rewarding to hens, including two food items (mealworm and normal food) and a tray containing a mixed soil and sand substrate suitable for dustbathing and foraging, were paired with different audio cues signalling the rewards. Sound-neutral and muted-neutral treatments were also used as the controls.

Hens anticipated food and non-food rewards differently, and appeared to be more motivated to access the dusty substrate compared to the food rewards. Hens anticipated all reward types. The results of this study extend the knowledge of reward-related anticipatory behaviour, and show how hens rank rewards. The results of this study may have implications for the methods and environments used to improve the welfare of hens in laying systems.

Stunning and slaughter of halal cattle in the European Union

European Union regulation, EC 1099/2009 requires all animals to be stunned before slaughter in order to minimise pain and distress associated with the neck cut. However, member states are allowed to permit the slaughter of animals without stunning for religious consumption. Halal and Shechita slaughter are based on ancient rules laid down in the Holy Quran and Torah respectively, which require animals to be slaughtered ‘alive’. Whilst some Muslim authorities allow the use of non-lethal (reversible) stunning, the Jewish community rejects any form of stunning during Shechita slaughter. In terms of animal welfare, even if the ritual cut is able to sever both carotid arteries and jugular veins, oxygenated blood can still flow from the heart to the brain via the vertebral arteries which means that cattle can remain conscious during bleed-out prior to death. For a stunning method to be acceptable as halal, it must be reversible, and must not cause the death of the animal prior to neck cut, and the animal must be able to make a full recovery if not slaughtered. The use of a penetrative captive bolt gun, which is used during conventional slaughter to deliver a percussive force to the head to disrupt normal brain function, because it causes gross physical damage to the skull and brain of the animal, can cause death, and so is inconsistent with Islamic dietary laws.

There is currently no generally approved method of stunning for the EU halal beef market, leading to the slaughter of thousands of cattle each year without prior stunning. Islamic jurists also interpret their religious law differently, resulting in debate as to whether pre-slaughter stunning is acceptable for halal slaughter. This paper provides a review of Islamic dietary laws as well as issues associated with the restraint, stunning and slaughter of cattle for the halal beef market within the EU, and why some proponents of halal stunning do not accept irreversible stunning methods for producing halal beef within the EU.

A head-only electrical stunning system, such as that used in New Zealand for halal slaughter, although currently not approved in the EU, may be suitable to meet the need for reversible stunning for the EU halal market. Alternatively, a new system of stunning, the Single Pulse Ultra-high Current system, is currently being developed with potential for use for stunning cattle, as is the use of microwave energy to provide this reversible stun. The slaughter of animals without stunning remains contentious from an animal welfare perspective.

Pre-slaughter handling, exercise and the presence of a dog on lamb welfare and meat quality

Before slaughter, lambs may experience stressors such as feed and water deprivation, physical activity, handling and transport, which can all have a cumulative and detrimental effect on their welfare. As a consequence of this stress pre-slaughter, glycogen stores in the muscle of lamb may be reduced, which may influence post-mortem muscle biochemistry, and ultimately the carcass and meat quality. Therefore, improvements in animal welfare are also likely to improve carcass yield and quality. In New Zealand, lambs are held in extensive farming systems and often need to walk long distances to reach the holding yards, where they are then loaded to be transported to the abattoir. It is also common for farmers to use dogs when moving lambs in New Zealand, which may further stress the lambs prior to their journey to slaughter. The aim of this study was to assess the effect of the quality of pre-slaughter handling on the behaviour and physiology of lambs and the meat quality at slaughter.

Sixty lambs of 6 months of age were allocated to one of two treatment groups; low intensive handling (moved short distances, quietly and without the use of a dog; n=30) or high intensive handling (moved quickly and long distances and with a dog present before transport; n=30). Lamb behaviour was examined one hour before and one hour following transport, and for 30 minutes before slaughter. Blood samples were also taken before and after transport and at slaughter and meat quality of the carcass assessed post-mortem. It was found that lambs subjected to high intensity handling spent more time standing, panting and less time lying and ruminating in the yards prior to transport than did the lambs subjected to low intensity handling, but spent more time ruminating following transport. Lactate concentrations were lower in those lambs subjected to high intensive handling, compared to low intensity handled lambs.

The high intensity pre-slaughter handling regime resulted in behavioural and physiological changes indicative of stress which, as well as being a welfare issue, also had a negative effect on the quality of the meat. Limiting glycogen expenditure before slaughter by reducing stressors has a positive effect on meat quality and consistency.


Quality of life and animal behaviour

Recently, quality of life (QOL) has been developed as a concept with which to evaluate animal’s lives. QOL is how valuable (positive or negative) an animal’s life is, from the animal’s perspective. This evaluation does not rely on the value that the animal has to humans (e.g. as a source of eggs, meat, or as a companion or experimental animal) or of any other value we place on the animal. Animal behaviour is an important aspect of QOL assessments. Behaviour indicates QOL, and QOL assessments should respectively inform what behaviour we should allow or promote in an animal.

The author of this paper considers the relationship between the concept of QOL and animal behaviour, and how behaviour can indicate or cause an animal’s experiences. The paper describes the concept of QOL in detail and discusses several features of QOL that are important in the assessment; that it relates to the experiences of animals; that it is a broad concept across multiple domains such as health and pain and includes both pleasant and unpleasant experiences; it extends over time and is a matter of an animal’s welfare during an extended period; and is related to the individual animal, its likes and dislikes and preferences.

The author proposes that QOL may be used as an ethically useful concept, and as scientists and clinicians, we should ensure that efforts are aimed at improving the future QOL for animals by promoting positive experiences and their causes. The author concludes that QOL is not simple in practice, as it needs to be evaluated for the individual animal as well as at a broader level. Animal behaviour can help us understand the animal’s experiences and promote QOL for animals into the future.

Proximity, animal welfare and tourist interactions with habituated dolphins

Ecotourism has been proposed as one strategy to protect local biodiversity and provide an economically viable alternative to activities that damage the environment. Marine ecotourism has shown significant growth in recent years, due to the desire that people have to see species such as whales, sharks and dolphins in their natural habitat. Managing the conflict between access to marine animals, and their welfare, can diminish the experience for tourists, but needs to be managed carefully to avoid detrimental effects.

This study examined the opinions of ecotourists visiting a group of bottlenose dolphins in Monkey Mia, Western Australia. The dolphins travel to the beach daily to be fed by ecotourism operators, and through this daily feeding, a long-term relationship between the dolphins and a group of humans has been established. A paper-based questionnaire was provided to tourists visiting the dolphins to investigate how different aspects of the dolphin interaction influenced visitors, in particular, the degree to which the visitors were prepared to trade off elements of that interaction with other elements of their visit.

The results indicated that respondents were willing to pay a significantly higher hypothetical entrance fee in order to avoid a decrease in proximity to, or probability of, the dolphin interaction. However, over 80% of the visitors accepted management regulations that meant that they would have reduced time with, and proximity to, the dolphins, if the management systems were made as a result of animal welfare concerns and were communicated clearly to the visitors. The results of the study indicate that while the visitors have a strong desire to be near and to see the dolphins, they were willing to compromise on these aspects if they considered that it improved dolphin welfare.

Animal welfare values and tourist behaviour

People place varying degrees of importance on different specific values, with one value that is important to one person, not being of importance to another. Any individual can also place more importance on any one personal value than they do another. Examining how values fit within an individual’s personal hierarchy of values is crucial in understanding perceptions, attitudes, and behaviours, as most choices consider at least two values. Personal values have previously been categorised, one being universalism, which can be split into concern (commitment to equality, justice and protection), nature (preservation of the natural environment) and tolerance (acceptance and understanding of those that are different from oneself).

The authors of this paper propose a further division of universalism to include an animal welfare value. Universalism-nature and universalism-animal welfare share a common goal in the preservation of the natural environment, which includes animals, but they differ in the focus of the goal. Universalism-nature ascribes importance to natural resources and biotic communities as a whole, but is indifferent to the well-being of individual animals. In contrast, universalism-animal welfare is the empathic concern for all animals, with the goal of reducing suffering and enhancing well-being of all animals.

Considering the values that underpin visitor attitudes and behaviour in tourism is important. The distinction between nature and animal welfare values underlies the current debate on the ethical foundations of tourist attractions such as zoos and aquariums. Keeping animals in captivity would be supported by those who highly value nature, but may be opposed by those who value animal welfare on the basis that the animals’ rights have been violated. The distinction between nature and animal welfare may also help to explain why only a minority of visitors to a zoo adopt new conservation behaviours as a result of their visit. Those who value animal welfare may not make the link between emotional affinity with individual animals and the protection of an entire species. The separation of animal welfare from nature in previously described value theory offers potential for new research into tourist motivations and behaviour towards animals and nature. The authors suggest that future research is warranted to explore the influence of personal values on visitor’s support for, and responses to, conservation education in tourism.

ARTICLES OF INTEREST

ANIMALS USED FOR SPORT, ENTERTAINMENT, RECREATION AND WORK


COMPANION ANIMALS


Benka VA, McCobb E (2016) Characteristics of cats sterilized through a subsidized, reduced-cost spay-neuter program in Massachusetts and of owners who had cats sterilized through this program. Journal of the American Veterinary Medical Association 249(5):490-498


FARM ANIMALS

Aquaculture


Cattle


Pigs


Horback KM, Parsons TD (2016) Temporal stability of personality traits in group-housed gestating sows. animal 10(08):1351–1359


Poultry


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SCIENCE UPDATE


Sheep/goats


General


HUMANE KILLING


Verhoeven MTW, Gerritzen MA, Hellebrekers LJ et al (2016) Validation of indicators used to assess unconsciousness in veal calves at slaughter. animal 10(09):1457-1465
MISCELLANEOUS


RESEARCH ANIMALS


TRANSPORTATION OF ANIMALS


WILD ANIMALS


