



Humane Slaughter Association Annual Report 2017-2018

Caring beyond the farm gate



www.hsa.org.uk

The Humane Slaughter Association (HSA), established in 1911, is an independent charity that works through scientific and technical advances, education and training towards achieving the highest world-wide standards in food animal welfare during transport, marketing and slaughter.

This report highlights the work undertaken by the charity during the last year which has been possible due to the continued commitment of its members and donors who have supported the charity through subscriptions, donations and legacies. This support is the very heart and life-blood of the charity and enables us to continue to deliver initiatives which have made a difference to millions of animals – for which we thank you.

The HSA's vision is simple – to improve the welfare of food animals between the farm gate and slaughter around the world. It seeks to do this by:

- Providing technical information and advice on all aspects of animal handling, transport and slaughter
- Training in humane methods of handling and slaughter of livestock
- Educational and technical publications
- Independent advice to governments, other welfare organisations and the food industry
- Regular visits to markets and slaughterhouses
- Providing funding for research projects
- Development and application of scientific advances
- Providing grants towards the improvement of animal welfare during transport, marketing and slaughter

Cover photos: L-R: Pig: MFarish, SRUC, Cow: Pixabay/Pexel, Cuttlefish: Jade Spence, Sheep: Skitterphoto/Pexel



Photo credit: Pexel

Welcome to the 2017/18 Annual Report for the HSA

It is difficult to summarise a year in just a few short paragraphs but, as this report shows, an enormous amount has been achieved by the small team of HSA staff in pursuit of the HSA's vision to protect and improve the welfare of farmed livestock in the final stages of their lives, from leaving the farm gate to the moment of slaughter.

Day to day, the technical staff have travelled extensively throughout the UK and to the other side of the world to deliver training, advice and to share knowledge and best practice. They've answered calls from industry and members of the public on a variety of subjects from casualty stock to fish welfare at slaughter, responded to consultations, run meetings and developed guides and other educational material.

In addition, due to an exceptionally generous grant, two major pieces of work have commenced over the last twelve months which have the potential to make a genuine difference to millions of animals – a programme to benefit farm animal welfare overseas and research to advance the welfare of finfish and aquatic invertebrates. We welcome the opportunity to work together with organisations overseas, and with respected scientists and bodies within the aquaculture industry, to advance animal welfare. You can read more about this work on page 13.

Research forms an important component of the work of the HSA to improve the welfare of farmed animals and, during the year in review, the charity joined forces with the Department for Environment Food & Rural Affairs (Defra) to offer research funding for a project to develop a more humane way to stun pigs during commercial slaughter which could replace high-concentration carbon dioxide (CO₂) stunning. The project aims to ensure that any proposed method is not only more humane but also practically and economically viable so that it is likely to be widely adopted by the pig industry. You can read more about this on page 14.

The HSA has a small, but deeply committed, base of members and supporters whose generosity is truly appreciated. I would like to thank you all for your continued support. Please help us to continue, and to plan ahead for the future, by spreading the word and encouraging others to support our work too.



Professor Andrea Nolan OBE
Chairman of Trustees



“... two major pieces of work have commenced over the last twelve months which have the potential to make a genuine difference to millions of animals...”



“Farmed animals are particularly vulnerable during transport, marketing and slaughter – and the ethical case for ensuring good welfare of food animals throughout their lives is clear.”

In the HSA’s spring newsletter, some of its major contributions to animal welfare were outlined and whenever I look back over the history of the HSA’s activities to improve the welfare of animals during marketing, transport and slaughter over the years, I am astonished and proud at what this relatively small organisation has achieved. However, it is the future that counts and I believe that our current and future activities are equally exciting. Many pigs are slaughtered using CO₂ but the use of this gas has welfare disadvantages, as the pigs’ behaviour suggests it is aversive. The HSA has therefore joined with Defra to support research and development of a practical, and more humane, replacement method and during this year the HSA awarded a project to a Glasgow research group who will be investigating whether a Low Atmospheric Pressure System (LAPS) can be devised that is more humane.

Many will have seen the recent BBC Blue Planet series and marvelled at the unexpected and complex behaviour of fish. Perhaps because we do not usually see this behaviour, or because of their appearance, fish have not attracted as much attention to their welfare as they deserve. However, we humans are increasingly farming and slaughtering large numbers of them, and it has been estimated that tens of billions of fish are slaughtered – each year. The problem is not just large numbers, but also that many different species are farmed and slaughtered and we do not have the information to determine humane and effective

stunning methods for many of these species. The HSA has, therefore, with the help of a donor organisation, recently announced two substantial funding opportunities to research improved methods of stunning/killing of fish species as well of cephalopods and decapods. The HSA has also continued with its educational activities, including training, lectures, translations of key materials and the production of important new resources such as on-line guidance on emergency slaughter and a report on the humane slaughter of farmed finfish. Farmed animals are particularly vulnerable during transport, marketing and slaughter and the ethical case for ensuring good welfare of food animals throughout their lives is clear. Please help us to continue to help these animals.

A handwritten signature in black ink, reading "Robert C Hubrecht".

Robert C Hubrecht OBE
Chief Executive & Scientific Director

An overview

The HSA offers independent training and advice on animal welfare matters during transport, marketing and slaughter. The charity is also internationally recognised for its livestock expertise and produces various print and video guidance publications. This year, the HSA technical staff have once again had a full calendar providing training courses, lectures and talks at a variety of events. These have included:

- Provision of training courses in the use of firearms and captive-bolt equipment for: the Milton Estate near Peterborough, Sheffield City Council, National Trust Rangers on Exmoor, RSPCA trainee inspectors and a small group of Royal Marines Mountain Leader instructors at the RM Training Centre in Devon
- Seven animal welfare lectures, including two to students at Harper Adams, one to veterinary students at Cambridge University and three in Australia – one to veterinary students at the University of Queensland and two at the RSPCA Australia conference on humane killing
- Attending the AMI Seminar at Harper Adams; the Pharmaq Fish Seminar, the VPA Autumn Meeting, the HSA CCTV Seminar at East Midlands Airport; the RSPCA Euthanasia Working Group and others
- Providing animal welfare advice to a number of bodies including the British Veterinary Association (BVA), the RSPCA, World Horse Welfare, the Donkey Sanctuary, Four Paws, the BBC and the All Party Parliamentary Group for Animal Welfare (APGAW)
- Animal welfare assessments for: Joice and Hill, Peterborough; Dalehead Foods, Spalding; Randall Parker Foods Ltd, Llanidloes; ANZCO Foods, Rangitikei and Ashburton (New Zealand); Venison Packers, Fielding (New Zealand); Dovecote Park, Stapleton; Moy Park, Dungannon and Ballymena; and Tulip, Westerleigh
- Providing a lecture on farm animal welfare at the time of killing to students of the University of Edinburgh's MSc in Applied Animal Behaviour and Animal Welfare

- Providing two online lectures on the principles of humane slaughter and new and emerging methods of stunning, for students of the University of Edinburgh's MSc in International Animal Welfare, Ethics and Law
- Providing a lecture to students of the MSc course in Human Animal Interactions at the University of Stirling which covered livestock experiences on-farm right through to later life including transport, markets and slaughter
- Animal Health & Welfare Day, Winterbotham Darby, Bristol where RTS Scholar Awal Fuseini presented his current PhD project progress to an audience which included NGOs, Animal and Plant Health Agency (APHA) and Defra, academics, retailers and industry



Photo credit: HSA

Case study

HSA DOWN UNDER

Last autumn the HSA's Technical Director, Charlie Mason, was invited by RSPCA Australia to speak at its conference entitled *Farm Animal Welfare: Advances in Humane Killing*, which took place in Canberra on 22nd February 2018. Charlie gave the first and last papers of the day, dealing with the ethics of humane slaughter and developments in techniques for the humane killing of neonates. The following day he led an industry workshop which discussed the use of carbon dioxide anaesthesia for the slaughter of pigs.



HSA Technical Director Charlie Mason

Photo credit: RSPCA

Prior to and following the conference, visits were arranged to a fully-integrated, chicken production and processing company near Bendigo, a pig processing plant at Wooroloo WA and a large beef processor near Brisbane. Whilst in Queensland, an invitation from Professor Clive Phillips to lead a seminar for veterinary students at the Gatton Campus, University of Queensland was taken up and led to some enthusiastic questions and discussion with the attendees.

On leaving Australia, the next stop was New Zealand where animal welfare assessments were carried out at the request of three processing plants dealing with sheep and deer – two in North Island and one in South Island. The standards of animal welfare at these three plants was of the highest order and, since the Technical Director's last visit in 2008, significant improvements had been made in the pre-slaughter washing procedures for sheep, which is a statutory requirement under New Zealand's meat hygiene legislation.

Publications and guides

The HSA is a world leader in producing technical guidance on humane handling, transport and slaughter of farmed animals and, in recent years, has already translated some publications into Mandarin Chinese, as well as other languages, to assist individuals or organisations in other countries with further developing and rolling-out good practices for animal welfare. Over the past year, the charity has begun a review process of some of its existing publications and technical notes, updating these where necessary. With the generous support of a grant, a number of these have also been translated into Mandarin Chinese, including information on catching and handling chickens and ducks sold in street markets, transport of livestock, design specifications for handling facilities for farms and slaughterhouses, and preventing slips and falls by managing concrete floors. These are now available as a free resource on our website.

These translations should enhance access to animal welfare guidance for the Chinese agricultural industry and small-scale producers and should enable a faster dissemination of good practices for animal welfare in China and in other countries where Mandarin is spoken. The information may also assist with China's ongoing development of national standards, which are expected to attain government approval in 2018.



HSA publications in Mandarin Chinese

Photo credit: HSA

CCTV seminar

On Wednesday 9th May 2018 over 100 delegates attended the Humane Slaughter Association's one-day seminar for the meat and livestock industry entitled *Monitoring animal welfare at slaughter – CCTV and beyond*. The timing could not have been better as new legislation, making the use of CCTV in abattoirs a statutory requirement, came into force four days earlier. The seminar featured speakers from Defra, the Food Standards Agency, CCTV suppliers, installers and monitoring bodies, researchers and representatives of high, medium and low-throughput processors with experience of using CCTV as a management tool.

A Defra spokesman summarised the scope of the new regulations – that slaughterhouse operators must install and operate a CCTV system which provides a clear and complete picture of areas where live animals are present, with recorded images and information retained for 90 days and access provided for inspectors. He was also able to reassure delegates that the six-month transition period was to allow for CCTV installation to take place and that enforcement will not commence until 5th November 2018. CCTV installations and their use will be proportionate to the size of premises and their throughputs, and guidance for industry on complying with the new CCTV regulation will be provided.

One of the key areas highlighted by the delegates was a need for some clarification and guidance around the use of CCTV – for example, about which types of camera comply with the new legislation. There was also agreement across the floor that the legislation needed pragmatic implementation during the six month running-in period and that it not only offered considerable benefits to animal welfare, but also for the slaughterhouse operator in terms of training, health and safety, and potentially improving productivity.

A lively discussion forum followed the presentations and it was concluded that CCTV is a useful tool in a multi-disciplinary approach to monitoring animal welfare prior to and during slaughter. However, it is not a replacement for the Official Veterinarian or the



Pigs in lairage at a slaughterhouse

Animal Welfare Officer, nor is it a panacea, but a valuable tool to be used in conjunction with other monitoring procedures, such as a visual assessment and routine welfare audits.

The seminar's delegates included those associated with animal welfare at slaughter, veterinary surgeons, meat inspectors, food business operators, slaughter personnel, lairage workers, enforcement officers and legislators.

Captive-bolt webinar

On Tuesday 26th September 2017 the HSA, in conjunction with The Webinar Vet, presented an hour-long webinar on the correct use and maintenance of captive-bolt equipment for humane slaughter and emergency killing. This was aimed specifically at veterinary surgeons in large-animal practice and those involved with overseeing animal welfare at slaughter. Following the presentation, which was given by the HSA's Technical Director and chaired by former trustee and Chairman, Dr Lydia Brown, there was a short Q&A session. Feedback from those who attended the webinar was very positive. Since the event, there have been an additional 35 viewings of the recording and it will remain 'live' until September this year. The webinar can be accessed using the following link:

www.thewebinarvet.com/webinar/correct-use-of-captive-bolt-stunners-for-humane-slaughter-and-euthanasia.



Photo credit: Pixabay/Pixel

Recognising achievement – the Humane Slaughter Award 2018

The charity awarded the 2018 Humane Slaughter Award to Professor Bo Algers of Sweden in recognition of his ground-breaking work to improve the welfare of food animals.

Highlights from his outstanding career include co-ordinating the welfare quality assessment protocol for cattle at slaughter for the largest ever European research project on animal welfare, WelfareQuality®, and founding the research group Handling of Animals at Research and Slaughter (HATS) at the Swedish University of Agricultural Science (SLU), which has achieved international recognition for its work advancing the science of animal welfare. His work also contributed to the Swedish government's and industry's support of research of alternative gases to high concentration of CO₂ for stunning pigs under commercial conditions. More recently, he started research on the welfare of animals stunned and killed in mobile slaughter units.



Photo credit: HSA

On learning that he had won the award, Professor Algers said: *"I feel very honoured to receive the Humane Slaughter Award by the HSA, one of the oldest and most respected charity organisations promoting a humane treatment of all food animals worldwide."* He also acknowledged colleagues who had worked with him throughout his career.

The award was presented to Professor Algers at the Universities Federation for Animal Welfare 2018 conference at the Centre for Life, Newcastle, on the 28th of June.

Attendance at exhibitions and events 2017/18

HSA staff have attended or exhibited at a number of events over the past twelve months. As the HSA works across all levels of industry and the agricultural community, from smallholders keeping a few of their own animals to large-scale farmers and producers, it is important for the charity to remain engaged with these audiences and highlight the work of the HSA to new audiences and potential supporters.

2017

September

The Association of Meat Inspectors Seminar (speaker), 16 & 17 September

October

Livestock Auctioneers Association (LAA) Reception at the House of Lords, 9 October

Pharmaq Fish Seminar, Inverness (speaker), 23 & 24 October

Association of Independent Meat Suppliers Conference, 28 October

November

Veterinary Public Health Association (VPHA) Autumn Meeting, 4 November

December

British Veterinary Association (BVA) Reception, 13 December

2018

February

RSPCA Australia Conference and Workshop (speaker), 22 & 23 February

March

Winterbotham Darby Research Forum, 8 March

Fish Veterinary Society Conference (speaker), 20 March

World Horse Welfare Equid Transportation Roadshow, 23 March. The roadshow was a combined effort of World Horse Welfare and others across the EU (funded by the European Commission, DG Sante). The project develops and disseminates Guides to Good and Better Practice for animals transported within Europe and to third countries for slaughter, fattening and breeding

April

Foodex Forum (panel member), 18 April

May

HSA CCTV Seminar (organisers), 9 May

Pig and Poultry Fair (exhibitors), 15 & 16 May

Royal Welsh Spring Festival (exhibitors), 19 & 20 May

June

British Veterinary Association (BVA) Animal Welfare Forum, 12 June

July

All Party Parliamentary Group for Animal Welfare (APGAW) Stakeholder closed meeting (invitee), 3 July

National Smallholders' and Country Show, Ardingly, (exhibitors), 7 & 8 July

National Sheep Association Sheep event, Three Counties Showground, Malvern 18 July

Farm Animal Welfare Committee (FAWC) Stakeholder closed meeting (invitee), 24 July

August

World Horse Welfare meeting on slaughter (invitee), 14 August

PROVIDING TECHNICAL INFORMATION & ADVICE

HSA responses to consultations

The HSA has provided responses to Government consultations on depopulation guidelines, OIE Animal Welfare chapters, on-farm killing, slaughterhouse operations, mandatory CCTV recording in slaughterhouses and the welfare of goats at the time of killing. CCTV has been an area where the HSA has sought to provide clarity. The HSA's position is that making its installation a legislative requirement only is not enough. In order for it to be effective, there must be effective management practices. To assist in developing these, the HSA is currently funding a special travel grant to collect information on management practices in the US.



Photo credit: Tim Scrivener - AgriPhoto

Sheep at a market

Livestock Market Survey 2017/18

On 2nd July 2018 the HSA technical team completed a survey of 24 livestock markets across England and Wales, which commenced in February 2017. This was commissioned by the Livestock Auctioneers' Association (LAA) to mark the two-hundredth anniversary of the opening of the first, purpose-built, livestock market in Hawick, Scotland, in 1817.

The purpose of the survey is to produce a 'snapshot' of UK livestock auctions in the early 21st century and to evaluate the animal welfare provisions currently in place. This includes resources available to the animals – in terms of facilities, equipment, personnel and procedures – and management practices, for example implementation of a specific animal welfare policy. The survey aims to identify specific features which may impact on the welfare of animals in markets and to compare these findings with those from a Defra-funded survey, undertaken eleven years ago, by the Royal Veterinary College in collaboration with the HSA – a report of this previous work can be found via the Defra website.

Now the fieldwork is complete, a report will be prepared and the findings will be presented by HSA staff at the LAA AGM in October 2018. In addition to the overall report, which will be confidential to the LAA, individual reports will be sent to all of the markets which participated in the survey.

HSA encourages additional research into fish welfare at slaughter and promotes humane slaughter of fish to consumers

In early 2018, the HSA published a report entitled *Humane Slaughter of Finfish Farmed Around the World* (free to download from the HSA website), which describes how, globally, approximately 360 species of finfish are farmed for human consumption and discusses how we might make improvements to the welfare of these fish at the time of slaughter, most of which currently undergo inhumane methods of killing such as gutting without prior stunning. In conjunction with this report, the HSA announced the availability of £750,000 for research into improving the welfare of finfish at slaughter.

At the same time, the European Commission announced that, whilst improvements in fish welfare at slaughter are needed, at present, socio-economic evidence suggests that it is not appropriate to propose that the European Parliament and Council include specific legislative animal welfare requirements for fish in Council Regulation 1099/2009 on the protection of animals at the time of killing. Therefore, whilst this Regulation requires farmed finfish to be '*spared any avoidable pain, distress or suffering during their killing*', it does not require the use of specified, humane methods of killing or minimum stunning parameters (this is in contrast with the Regulation's specific requirements for mammals and birds). Nevertheless, the HSA fish slaughter report and research funding opportunity will encourage further valuable scientific research and technological development of more humane slaughter practices for fish.

Following the fish slaughter report, the HSA recently published on its website a free-to-view video describing to consumers the cognitive abilities of finfish and their capacity to suffer fear and pain. The video informs consumers of the availability of stunning equipment for fish and describes how consumers can identify higher-welfare finfish products through some of the farm assurance schemes for finfish which require more humane methods of slaughter. With the generous support of a grant, this video will be translated into other languages to promote fish welfare more widely around the world, enabling consumers to make informed purchases.



Trout

Photo credit: Karel Banik/Shutterstock

FUNDING FOR RESEARCH PROJECTS

The majority of the population in many parts of the world eats meat and this is likely to continue. Slaughter is never pleasant, but it can be humane and, since its foundation in 1911, the HSA has led, and/or contributed to, major changes in attitudes towards animals, with scientific and technological developments resulting in huge improvements in methods for slaughter or killing.

Significant improvements continue to be achieved by the HSA through working constructively alongside agricultural, meat industry, veterinary and other welfare and professional organisations. One of the ways in which the charity is able to continue these advances is by funding essential research and other projects through grants and scholarships. The HSA gave a number of research and project grants in 2017/18 as well as its Student/Trainee Dorothy Sidley Scholarships.

Special Travel Award 2018

The Special Travel Award is offered to allow researchers or others with an interest in animal welfare during transport, marketing and/or slaughter to undertake travel to further their knowledge or scientific research around the world. This year the HSA awarded a Special Travel Award to Dr Troy Gibson of the Royal Veterinary College. The award will facilitate research visits to Brazil to investigate methods of on-farm killing of unviable neonatal piglets and stunning/slaughter methods for donkeys. The award will also allow a PhD student from Brazil to visit the Royal Veterinary College in the UK to learn various techniques for assessment of the welfare of animals at the time of slaughter under the supervision of Dr Gibson.

The previous winner of the award in 2017 was Dr Ellie Wigham from Bristol University who is undertaking a study of the use of remote CCTV monitoring of US slaughterhouses, a very prescient study given the UK's recent adoption of mandatory CCTV in UK abattoirs.

HSA grant funding schemes can also be used to support training in animal welfare. For instance, the charity recently provided support for Dr Mohamed Ijas from Sri Lanka to undertake Animal Welfare Officer training at Bristol University. Dr Ijas will apply the knowledge gained in his role as a Municipal/Public Health Veterinarian in Sri Lanka to improve animal welfare at slaughter in his home country.

HSA Student/Trainee Scholarships – the Dorothy Sidley Award for advances in animal welfare during transport, marketing and slaughter

This year, an award was made to Mary Aubrey for her project which will examine the effectiveness of electrical head-only stunning of sheep. The project will involve visiting 10 UK abattoirs and collecting data from at least 500 sheep. It is anticipated that her findings will increase the current level of understanding of stunning practices in the UK and could be used to make improvements in equipment and stunning techniques.



Photo credit: HSA

Funding for research into humane stunning methods for finfish, crustaceans and/or cephalopods

In March 2018 the HSA called for applications for research projects aimed at finding humane ways to slaughter crustaceans and/or cephalopod molluscs, and those species of farmed finfish which do not currently have satisfactory stunning methods or parameters. The HSA offered £1.79 million for these projects and received a number of promising applications which are undergoing scientific review before the funding is awarded later this year or early in 2019.

There are growing concerns about the capacity of some aquatic invertebrates to feel pain and the HSA is keen to advance understanding of these animals' welfare. Over 100 species of crustaceans (excluding krill) are harvested for consumption, with wild capture fisheries accounting for the majority of produce and a greater variety of species. Decapod crustaceans (eg crabs, lobsters) have a nervous system and appear to respond to pain killers. While the ability of these animals to experience pain or otherwise suffer is controversial, it is possible that decapods may suffer during certain methods of handling (eg removal of pincers whilst alive), live transport and storage (they can survive for some time out of water) and killing (eg immersion in boiling water, which causes vigorous escape responses). A humane approach that precludes the possibility of decapods feeling pain would give them the benefit of the doubt, and because many crustaceans are killed and processed at large-scale central facilities, there are opportunities to apply more humane slaughter methods.

Coleoid cephalopods (eg cuttlefish, octopus, squid) are considered among the most 'advanced' invertebrates, having a largely-centralised brain and displaying similar cognitive capabilities to some vertebrates, eg they use tools and learn from past experience. So, again, a humane approach that precludes the possibility of suffering would give the benefit of the doubt. The majority of cephalopods consumed by humans are wild-caught but there is a desire to develop aquaculture systems because cephalopods

grow rapidly, are short-lived and valuable. The cephalopod aquaculture industry is small but is predicted to expand because of investment in attempts to overcome obstacles in captive-rearing, which currently restrict the industry to a few species at low production volumes. However, in 2018 a scientific paper described how a novel upwelling system for rearing common octopus paralarvae (the juvenile, planktonic stage of some cephalopods' life cycles) significantly improved survivorship, which might enable progression of octopus aquaculture. Professor of Applied Marine Biology, Ian Gleadall at Tohoku University, Japan described the research as *'the biggest landmark in the history of octopus aquaculture in Japan'*. As the world advances its understanding of how best to rear cephalopods, the HSA's research funding aims to simultaneously assist by advancing understanding of how to improve the welfare of these animals at the time of slaughter. The HSA hopes that this synergy will support the development of an overall humane farming process at the outset.

Some responses received by the HSA after advertising this call for research: *'Thanks again to the HSA for providing an opportunity for our industry to take things forward'* and *'Thanks for this information. Your organisation is doing very important work'*.



Photo credit: Pexel



Photo credit: Matt Maerfer/Pevel

Working to improve the welfare of animals at slaughter: Controlled Atmosphere Stunning

Recent shortages in the supply of carbon dioxide have focused attention on the use of the gas to stun livestock species, particularly chickens and pigs, for slaughter. Alongside concerns with the reliability of the carbon dioxide supply, there are also long-standing concerns over whether it is a humane method for stunning animals. The HSA has an established interest in understanding whether carbon dioxide as well as other so-called 'controlled atmosphere' methods are humane. In 2017 the charity organised a seminar on Controlled Atmosphere Stunning (CAS) methods to examine the latest developments in research into these methods. Following on from the meeting, the HSA announced a joint funding call with Defra to fund a research project to develop an alternative to using high concentrations of carbon dioxide to stun pigs.

The funding was eventually awarded to a consortium led by Dr Dorothy McKeegan at the University of Glasgow, with collaborators at University of Edinburgh (Dr Jessica Martin) and SRUC (Dr Emma Baxter), who are examining the animal welfare impacts of Low Atmospheric Pressure Stunning (LAPS). LAPS works by gradually reducing the atmospheric pressure in a sealed unit, which gradually renders animals unconscious and eventually kills them. This method has just received approval for use in Europe to kill broiler chickens but needs to be tested in pigs to determine whether it is more humane than existing methods for stunning or killing them. The study will test the physiological and behavioural responses of pigs to LAPS, and compare them to responses of pigs exposed to carbon dioxide, allowing a comparison of the animal welfare impacts of the two methods. Initial trials have begun with final results of the two-year study expected in 2020.

Update on the work of Research Training Scholars Awal Fuseini and Carlos Rebelo

At the University of Bristol, Awal Fuseini is working to develop a new type of electrical stunning known as single pulse ultra-high current (SPUC), which might improve the welfare of cattle undergoing Halal slaughter. Over the last 12 months Awal's project team have built a prototype head-only SPUC electrical stunner and it is being trialled, with initial results indicating it is capable of effectively rendering cattle reversibly unconscious, which is the key to making the stunning method potentially suitable for Halal beef production. The cattle are humanely stunned unconscious by the SPUC and are thereafter killed by the Halal neck cut. Although the reversible nature of head-only SPUC potentially makes it feasible for the cattle to recover from the stun, the neck cut kills the unconscious animal before recovery from stunning can begin, thereby protecting animal welfare. Awal's research may also encourage investigation of the suitability of SPUC for other species and for secular slaughter, because SPUC offers potential advantages over conventional electrical stunning, eg fewer convulsions (which can be dangerous to staff and might damage the meat) and longer durations of unconsciousness (reducing the risk of recovery of consciousness before can death occur).

On 8th March 2018 at the Winterbotham Darby Animal Health & Welfare Day, Awal gave a presentation on his PhD research. This resulted in an interview about SPUC with the BBC Radio 4 Farming Today programme which was broadcast nationally on 14th March 2018.

In his spare time over the last year, Awal has visited educational institutions and industry bodies in the UK to advise about animal welfare and humane stunning for Halal meat production, and he has also visited Dubai and Ghana for similar purposes.

At the Royal Veterinary College, Carlos Rebelo has been investigating how to improve small-scale, dry electrical stunning of turkeys. During the last year Carlos has evaluated for female turkeys, the effects of the three most commonly used head-only electrode types and specifically their effect on the current profiles and the duration of induced unconsciousness. So far, Carlos's research suggests that improvements in the design of electrodes can be made. Carlos is currently analysing his data on turkey brain activity after stunning and assessing the optimised stunning systems' effects on meat quality.



ADMINISTRATION AND FINANCE

Finance and Accounts

The summarised accounts set out overleaf have been extracted from the full accounts of the Humane Slaughter Association and have been prepared in accordance with the Charities Act 2011, which were approved by the Trustees and signed on its behalf on 17th July 2018.

In July 2017 the HSA was successful in being awarded two generous grants from the American organisation Open Philanthropy. Over the next two years the HSA will be working with Chinese professionals to advance farm animal welfare in China, the grant of £331,458 will be used to fund visits from HSA staff to lecture at universities and provide welfare training for industry and also to fund representatives from China to visit the UK.

The second grant of £1,999,137 will be used to fund research with the aim of improving welfare of finfish, decapod crustaceans and/or coleoid cephalopods and for translation of related HSA publications which will be free to view from www.hsa.org.uk.

These substantial grants have been treated as a designated fund, and can be seen clearly in the summarised accounts.

The full accounts have been audited and the auditors' opinion was accepted without qualification. The accounts will be filed with the Charity Commission after the Annual General Meeting on 17th October 2018. Full accounts, and the audit report can be obtained from the Charity Secretary, The Old School, Brewhouse Hill, Wheathampstead, Herts AL4 8AN.

Independent Auditors' Statement to the Trustees of the Humane Slaughter Association

We have examined the summarised financial statements that comprise the summary statement of financial activities and summary balance sheet.

Respective Responsibilities of the Trustees and Auditors: You are responsible as the Trustees for the preparation of the summarised financial statements. We have agreed to report to you our opinion on the summarised financial statements' consistency with the financial statements, on which we reported to you on 17th July 2018.

Basis of Opinion: We have carried out the procedures we consider necessary to ascertain whether the summarised financial statements are consistent with the full financial statements from which they have been prepared.

Opinion: In our opinion the summarised financial statements are consistent with the full financial statements for the year ended 31st March 2018.



17th July 2018

Anthony Joseph & Co Ltd

Statutory Auditor, Stevenage, Hertfordshire

Anthony Joseph and Co Ltd is eligible to act as an auditor or
in terms of Section 212 of the Companies Act 2006

HSA Summary of Financial Activity Year Ended 31st March 2018

| | Unrestricted Funds 2017/18 £ | Designated Funds 2016/17 £ | Total 2017/18 £ | Total 2016/17 £ |
|---|---------------------------------------|-------------------------------------|-----------------------|-----------------------|
| Incoming Resources | | | | |
| Voluntary Income | 273,771 | - | 273,771 | 401,808 |
| Charitable Activities | 18,457 | 2,330,595 | 2,349,052 | 23,286 |
| Investment Income | 129,196 | 6,385 | 135,581 | 110,098 |
| Total Incoming Resources | 421,424 | 2,336,980 | 2,758,404 | 535,192 |
| Resources Expended | | | | |
| Costs of Generating Funds | 56,182 | - | 56,182 | 62,056 |
| Charitable activities | 335,834 | 3,050 | 338,884 | 240,723 |
| Other Resources Expended | 78,808 | - | 78,808 | 85,884 |
| Total Resources Expended | 470,824 | 3,050 | 473,874 | 388,663 |
| Net Operational incoming/(outgoing) resources for the year | (49,401) | 2,333,930 | 2,284,529 | 146,529 |
| Other Recognised Gains & Losses: | | | | |
| Net Realised Gain on Investments | 173,761 | - | 173,761 | 106,838 |
| Unrealised gains (losses) on investments | (152,673) | - | (152,673) | 418,340 |
| Net Movement of Funds | (28,313) | 2,333,930 | 2,305,617 | 671,707 |
| Balance Brought Forward | 4,984,816 | - | 4,984,816 | 4,313,109 |
| Balances Carried Forward | 4,956,503 | 2,333,930 | 7,290,433 | 4,984,816 |

HSA Balance Sheet as at 31st March 2018

| | Unrestricted Funds 2017/18 £ | Designated Funds 2017/18 £ | Total 2017/18 £ | Total 2016/17 £ |
|--|---------------------------------------|-------------------------------------|-----------------------|-----------------------|
| Fixed Assets | | | | |
| Tangible Fixed Assets | 187,242 | - | 187,242 | 189,338 |
| Investments | 4,715,419 | - | 4,715,419 | 4,732,114 |
| | <u>4,902,661</u> | <u>-</u> | <u>4,902,661</u> | <u>4,921,452</u> |
| Current Assets | | | | |
| Debtors | 114,724 | - | 114,724 | 50,748 |
| Term deposits at bank | 180,924 | 2,333,930 | 2,514,854 | 171,928 |
| Cash at Bank and in Hand | 12,609 | - | 12,609 | 11,954 |
| | <u>308,257</u> | <u>2,333,930</u> | <u>2,642,187</u> | <u>234,630</u> |
| Current Liabilities | | | | |
| Creditors: Amounts Falling Due within One Year | (219,152) | - | (219,152) | (156,266) |
| Net Current Assets | 89,105 | 2,333,930 | 2,423,036 | 78,364 |
| Creditors: Amounts Falling Due after more than One Year | (35,263) | - | (35,263) | (15,000) |
| Net Assets | 4,956,503 | 2,333,930 | 7,290,433 | 5,873,696 |
| Funds | | | | |
| Unrestricted | 4,956,503 | - | 4,956,503 | 4,984,816 |
| Designated | - | 2,333,930 | 2,333,930 | - |
| | <u>4,956,503</u> | <u>2,333,930</u> | <u>7,290,433</u> | <u>4,981,816</u> |

The summarised accounts were approved by the Trustees and signed on their behalf on 17th July 2018.



Professor A Nolan OBE MVP DipECVA DipECVPT DVA MRCVS
Chairman



C McCann BSc ACA
Treasurer

Annual General Meeting 2017

The Annual General Meeting (AGM) was held at the Old School, Brewhouse Hill, Wheathampstead on 7th November 2017. As in previous years this was held in conjunction with the Annual General Meeting of the Universities Federation for Animal Welfare (UFAW). The members of UFAW Council also act as Trustees for the HSA. Joint meetings are held to save time and money.

The notice convening the meeting had been sent to all members and was taken as read. The meeting agreed the Minutes of the HSA AGM of October 2016 and resolved to receive the Accounts and Auditor's Report for the year ended 31st March 2017. Questions on the Report of the year's work were answered by the officials present and the meeting resolved that the Report and Accounts be received.

It was resolved that Anthony Joseph & Co Limited, Registered Auditors, be appointed as auditors to HSA and their remuneration should be fixed by Council.

Mr M Radford and Dr D Sargan, stood down under the rules regarding rotation, both offered themselves for re-election, and were re-elected. Following the resignation of Mr A Wilson earlier in the year a new candidate was proposed, Dr J Downes. The nomination had the full support of Council and Dr Downes was duly elected.

Notice of Annual General Meeting 2018

The Annual General Meeting of the HSA will be held at 12.30pm on Wednesday 17th October 2018 at The Old School, Brewhouse Hill, Wheathampstead. The formal notice and agenda have been sent to all members and are available from the Secretary at the registered office.

LEGAL AND ADMINISTRATIVE INFORMATION

Vice-Presidents:

Professor R S Anderson BVMS PhD MRCVS
Professor P M Biggs CBE DSc DVM FRCPath FSB FRS FRCVS
L Brown MBE BVSc BA PhD FSB MBA FRCVS
Professor P H Holmes OBE BVMS PhD FRCVS FRSE
B R Howard BVMS PhD MRCVS
Professor J E T Jones PhD MRCVS FRCPath
J H Pratt BVM&S DVSM FRCVS
G D Sales BSc PhD AKC MSB DipTCDHE

Trustees:

Chairman

Professor A Nolan OBE MVB DipECVA DipECVPT DVA MRCVS λψφ

Vice-Chairman

A G Simmons BVMS MSc MRCVS λ

Honorary Treasurer

C McCann BSc ACA λφ

Professor R M Bennett BSc MSc PhD λψ

J Bradshaw BA PhD φ

J Downes BVSc MRCVS (from 7th November 2017)

B North MBA PhD MSc λ

A Olsson MSc

D Pritchard BSc BVetMed MPH MRCVS ψ

M Radford OBE LLB

C Reid ψ

D R Sargan MA PhD ψφ

λ Finance Panel Member

ψ Fundraising Panel Member

φ Grant Panel Member

Staff:

Chief Executive/Scientific Director:

Robert C Hubrecht OBE BSc PhD FRSE

Charity Secretary:

Jane Moorman

Technical Director:

Charles Mason HND MInstM ARAgS

Senior Scientific Programme Manager:

Huw Golledge BSc PhD

Technical Officers:

Jade Spence BSc (Hons) MSc AMRSB

Susan Richmond BSc MSc PhD

Fundraising/Communications Manager:

Tracey Woods MCIPR

Office staff:

Samantha Griffin

Wendy L Goodwin

Registered Auditors:

Anthony Joseph & Co,
Suite F47, Business & Technology Centre,
Bessemer Drive, Stevenage, Herts SG1 2DX

Bankers:

HSBC Bank plc,
31 Chequer Street,
St Albans, Herts, AL1 4YN

Solicitors:

Withers LLP, 16 Old Bailey,
London, EC4M 7EG

Wilson, Summerlock Approach,
Salisbury, Wiltshire, SP2 7RJ

Investment Advisers:

Smith & Williamson Investment Managers,
25 Moorgate, London EC2V 5NS

Offices:

The Old School, Brewhouse Hill,
Wheathampstead, Hertfordshire AL4 8AN
Tel+44(0)1582 831919
Fax +44(0)1582 831414
Email info@hsa.org.uk
www.hsa.org.uk

If you no longer wish to receive information about the charity's activities or support, then please contact the HSA office. (Members should be aware that notification of future Annual General Meetings is provided in the Annual Report).



The Old School, Brewhouse Hill, Wheathampstead, Herts. AL4 8AN, United Kingdom
Tel: +44(0)1582 831919 • Fax: +44(0)1582 831414
Email: info@hsa.org.uk • www.hsa.org.uk
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