



Humane Slaughter Association Annual Report 2016-2017

Caring beyond the farm gate



www.hsa.org.uk

The Humane Slaughter Association, 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:

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

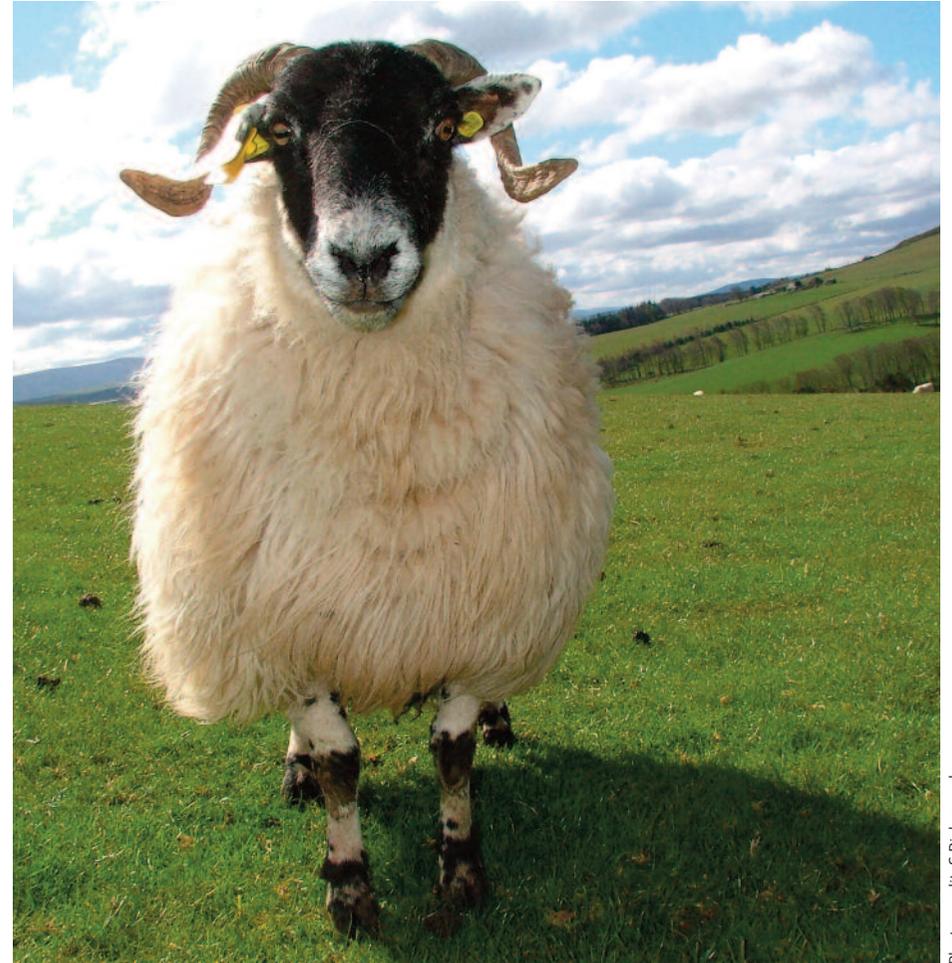


Photo credit: S Richmond

Welcome to the 2016/17 Annual Report for the HSA

The HSA's vision is to improve the welfare of food animals between the farm gate and slaughter around the world. The focus for the charity over the twelve months has been in pursuit of that vision – continuing 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.

As such, the HSA is very much “hands on” with staff giving lectures and presentations to a variety of audiences over the last year from veterinary students and meat hygiene inspectors, to police officers. There has also been a programme of training courses, including a new online training course, and welfare assessment visits to slaughterhouse premises and a visible presence at a number of shows and events which have enabled staff to raise awareness of the services, information and advice that the HSA offers.

As part of its work to increase its worldwide reach, key technical information has been translated into a wide range of languages and animal welfare advice has been provided to research scientists in Belgium, industry in Canada, NGOs in France, Norway, Japan and the USA. Staff also gave a presentation in Crete on the principles and practice of humane slaughter and the potential for investigating

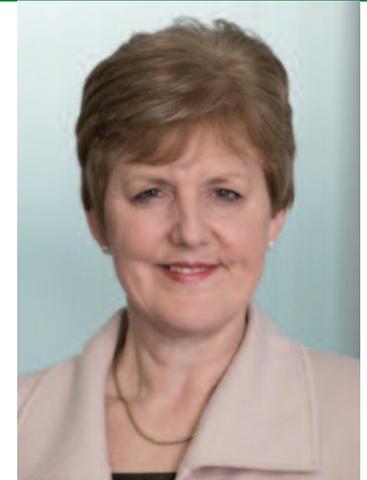
humane slaughter of coleoid cephalopods and provided input into the DG SANTE Livestock Transport Working Group in Brussels.

This year, the HSA has also continued to fund key research, including a project to assess the effects of independent CCTV auditing on animal welfare in lairage and at slaughter. Working in partnership with Defra, the charity has also made funds available to look for a more humane alternative to high concentrations of carbon dioxide gas, currently one of the most commonly used ways of stunning pigs.

Some of the work over the past year is making a difference now, whilst other projects undertaken by the charity have the potential to have an impact in the future, but everyone who has donated to the charity has helped the HSA to make that difference. I would like to thank all of our supporters and donors for sharing the HSA's vision and for your ongoing support and commitment. All of the work outlined in this report has only been possible due to your continued support and generosity, for which we are indebted.



Professor Andrea Nolan OBE
Chairman of Trustees



“Some of the work over the past year is making a difference now, whilst other projects undertaken by the charity have the potential to have an impact in the future”



“The HSA is one of the few international organisations in the world that funds high quality peer-reviewed research on the welfare of animals around slaughter.”

The Humane Slaughter Association is dedicated to improving the welfare of animals at markets, during transport and at slaughter throughout the world. Although based and very active in the UK, from its early years the HSA has worked to disseminate information and good practice more widely. For example, in the 1920s the HSA promoted humane stunning in Europe, including Romania and Greece, as well as in Newfoundland and Morocco. Today, HSA staff still take opportunities to teach and train abroad, and have recently achieved support for a programme which we hope will greatly expand these activities in the far-east.

However, HSA staff are few and the internet provides us with another very effective way of extending the HSA's reach to improve the welfare of animals world-wide. For some years now, the HSA has been extending its use of the web to increase access to the charity's high quality training materials. This year, the HSA added a Mandarin Chinese version of its *Guidance Notes No 7 on Electrical Waterbath Stunning of Poultry* to the foreign language materials already available on its website. The HSA has also distributed HSA educational materials, free, to four Indian veterinary schools. In addition, a poster on poultry slaughter has been translated into twenty-one languages and these are now freely available to download from the HSA website.

Improvements in techniques or understanding of welfare usually need some element of research to develop or validate them, and the HSA is one of the few international organisations in the world that funds high quality, peer-reviewed research on the welfare of animals around slaughter. Research activities supported during this year have included on-going projects on more humane methods of stunning turkeys, ducks and geese, and on methods of stunning cattle for Halal beef production. There are many who advocate the use of CCTV in slaughterhouses, but this technology is only useful if correctly managed and used. The HSA has, therefore, awarded a substantial travel grant to enable a Bristol University veterinary PhD student to study the use of CCTV in slaughterhouses in America, with the aim of promoting good practices which have been developed.

I hope that you will enjoy reading about these and other activities in this report. All are only possible because the HSA's members and supporters have provided legacies and donations, and I would like to thank all those who have supported the charity through the last year or who have pledged support through a bequest.

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

Robert C Hubrecht OBE
Chief Executive & Scientific Director

CARING BEYOND THE FARM GATE – TRAINING AND EDUCATION

Training

The HSA offers independent training and advice on animal welfare matters during transport, marketing and at slaughter. As an internationally recognised specialist charity, the HSA is well positioned to provide advice and training to industry, government bodies, international food business and academia.

Since the last annual report, the HSA technical staff's activities have included the following:

- Training courses in the use of captive-bolt equipment for the humane killing of livestock for Rattlerow Farms in Norfolk, the Endell Veterinary Group, farm staff at Sparsholt College, Hampshire, Norfolk Constabulary and Synergy Farm Health in Dorset
- Poultry slaughter course to staff at the National Institute of Poultry Husbandry
- Training for RSPCA farm assessors and Meat Hygiene Inspectors

Education

The charity is internationally recognised for its livestock expertise and provides education and training in the fields of transport, marketing and slaughter in the United Kingdom and around the world. The HSA's education and training courses are designed to suit personnel from food processing plants, regulatory bodies, educational establishments, smallholders and hobby farmers, enforcement agencies, animal welfare groups and also members of the general public who have an interest in the subject.

Over the last twelve months, HSA staff have:

- Delivered animal welfare lectures to students at Harper Adams, and to veterinary students at Cambridge University

Case Study

HUMANE ANIMAL DESTRUCTION TRAINING FOR NORFOLK POLICE

Over the last twelve months, the HSA's Technical Director, Charlie Mason, has delivered three training courses in humane animal destruction (HAD) to police officers from the Norfolk Constabulary. Over the last twenty years the number of wild deer in the United Kingdom has proliferated, resulting in many road traffic collisions involving these animals. The reported annual number of such incidents is in excess of 70,000*. There are many deer in the Breckland region of Norfolk, and surrounding rural areas, and it can take up to four hours to get a deer manager and/or marksman out to kill badly injured animals and relieve their suffering. To alleviate this, the Norfolk Constabulary took the decision to train a number of police officers in the correct use and maintenance of captive-bolt equipment for this purpose and the HSA was commissioned to carry out that training. The courses took place at the Norfolk Police HQ in Wymondham, which is also the site of the firearms training school. Two hours of theory was followed by live firing on the indoor range, under the strict supervision of the Range Officer, and the course concluded with practical instruction in the cleaning and maintenance of the equipment. This positive animal welfare initiative by the Norfolk Constabulary has greatly reduced the suffering of hundreds of gravely injured deer on Norfolk roads and will be recommended to other police forces.



photo: Norfolk Constabulary

*The Deer Initiative Oct 2016 (www.deerinitiative.co.uk)



Photo: HSA

- Lectured at the University of Stirling on the Human Animal Interactions MSc course. The students were taught about the importance of good interactions and relationships between handlers and their livestock both on and off farm
- Lectured on farm animal welfare at the time of killing to the University of Edinburgh's MSc in Applied Animal Behaviour and Animal Welfare students
- Provided 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

Staff also attended the HSA WATOK Seminar at East Midlands Airport, the RSPCA Euthanasia Working Group, the Agri-Food Charities Partnership (AFCP) Animal Welfare Forum and the UFAW International Animal Welfare Symposium.

Advice

The HSA has provided animal welfare advice to: research scientists in Belgium, industry in Canada, NGOs in France, Norway, Japan and the USA, UK livestock markets, smallholders keeping rabbits, the British Veterinary Association, the RSPCA, World Horse Welfare, the Donkey Sanctuary and to various organisations that set animal welfare standards including RSPCA Assured, the Soil Association and the American Veterinary Medical Association.

In addition, HSA staff have provided animal welfare assessments for: Randall Parker Foods Ltd, Llanidloes; H R Jasper, Launceston; Tulip, Dukinfield and Quality Pork Processors, Brechin.

Technical Director Charles Mason represented the HSA at a meeting of the DG SANTE Livestock Transport Working Group in Brussels.

New online guide for humane killing during disease control produced

The HSA is recognised internationally as an authoritative source of information for professionals involved in livestock slaughter and handling. Now, as part of its strategy to promote the highest standards of welfare world-wide for food animals, the HSA has issued a new online guide which covers the humane killing of livestock during disease control operations. Primarily aimed at the veterinary profession, slaughter personnel, farm staff, livestock handlers and government agencies, the guidance, with illustrations, is intended for the global industry. The guidance covers a variety of species from neonates to adults, the various methods of humane killing of livestock, protocols, types of equipment available, and gives examples of best practice and information on risk assessment for both the operator and for animal welfare.

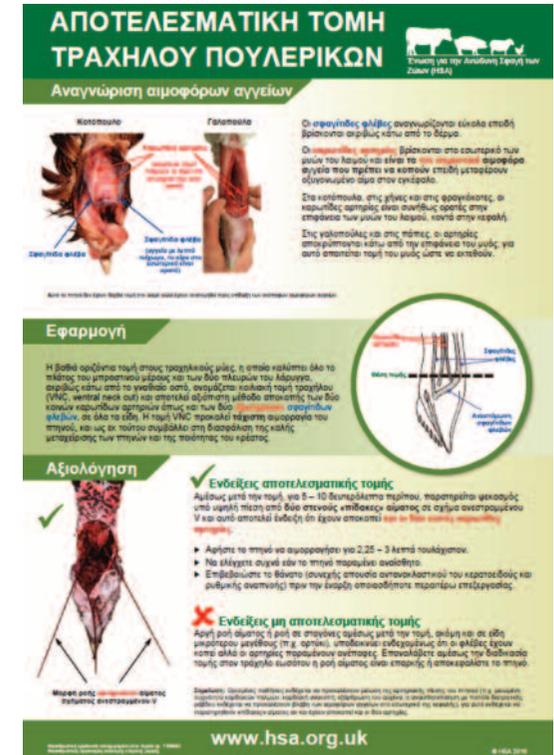
The guide has had input from industry experts to ensure that all of the information is relevant and joins the other guides already available on the HSA website, providing a portfolio of best practice in humane handling and slaughter. The HSA has made the guides freely available online to enable easy access world-wide to this information for high animal welfare standards that may otherwise be difficult to obtain. HSA staff are working on plans to develop interactive multi-media options for the HSA online guides. The aim is to enhance the users' experience by allowing them to test their knowledge and take part in simulated situations in which their actions directly affect the outcome, so making the training more realistic.

WORLD-WIDE DISTRIBUTION FOR HSA TRANSLATIONS

Technical Information Poster translated into 21 languages

Effective neck-cutting of poultry protects bird welfare by ensuring that birds die as quickly as possible during the slaughter process. In the European Union it is a legal requirement (EC Regulation 1099/2009) that birds are effectively bled and, world-wide, there is a need for guidance on effective neck-cutting.

In 2015 the HSA provided UK industry and small-scale producers with guidance on this method, in the form of a Technical Information Poster *Effective neck-cutting of poultry* which illustrates the anatomical location of the most critical blood vessels, how to reliably sever them and how to assess the quality of a neck cut. This year, the charity circulated to its contacts world-wide 21 translations of the poster which is aimed at persons who perform the slaughter of birds, whether in a commercial slaughterhouse or on-farm for private consumption. The poster and its various translations was also publicised to official veterinarians and meat inspectors at a Food Standards Agency (FSA) training conference in Birmingham in April, to agricultural



“They are good references that demonstrate once again the effort and good work of the Humane Slaughter Association to improve animal welfare”.

Industry auditing establishment

scientists in Europe, NGOs and farmer mentorship programmes in Japan and South Africa, vet schools in India, to a Texas government composting scheme that is encouraging residents to purchase chickens to recycle their food waste, and to the Bill & Melinda Gates Foundation which aims to reduce international poverty through poultry keeping. The posters are available free-of-charge on the charity's website.

Guidance Notes No 7

In June 2017 the HSA distributed the Mandarin Chinese translation of the aforementioned poster and the new Mandarin *Guidance Notes No 7 on Electrical Waterbath Stunning of Poultry* to slaughterhouse equipment manufacturers in China and to the Chinese Veterinary Medical Association who reported that they had forwarded all these useful materials to Chinese large poultry producers and that the poster would be very helpful. The English language version of the *Guidance Notes No 7* has been viewed over 800 times since it was published in 2015 (there are less than 90 EU-approved poultry slaughterhouses in the UK).

HSA syllabus assists educational activities in Kenya

Following Technical Officer Jade Spence's visit to Kenya in November 2015, the HSA created a syllabus covering farm animal welfare during transport, marketing and slaughter, as an online resource for educators wishing to develop tertiary education modules on this subject. Key, relevant educational materials produced by the HSA and other organisations can be easily accessed via the web links in the syllabus.

The syllabus has been circulated to those met in Kenya, including the Director of Manor House Agricultural Centre who told the HSA: *'We shall use the information to enrich our Institution's syllabus on Animal Welfare Education ... to empower people with skills and knowledge for improving the well-being of animals'*. The HSA also sent the syllabus to Kenyan veterinary universities, Trans-Nzoia county government and slaughterhouse veterinary officials and meat inspectors, and to NGOs operating in Kenya and in other African countries. The Intergovernmental Authority on Development (IGAD), whose



Cattle in a Kenyan market

Photo: Jade Spence

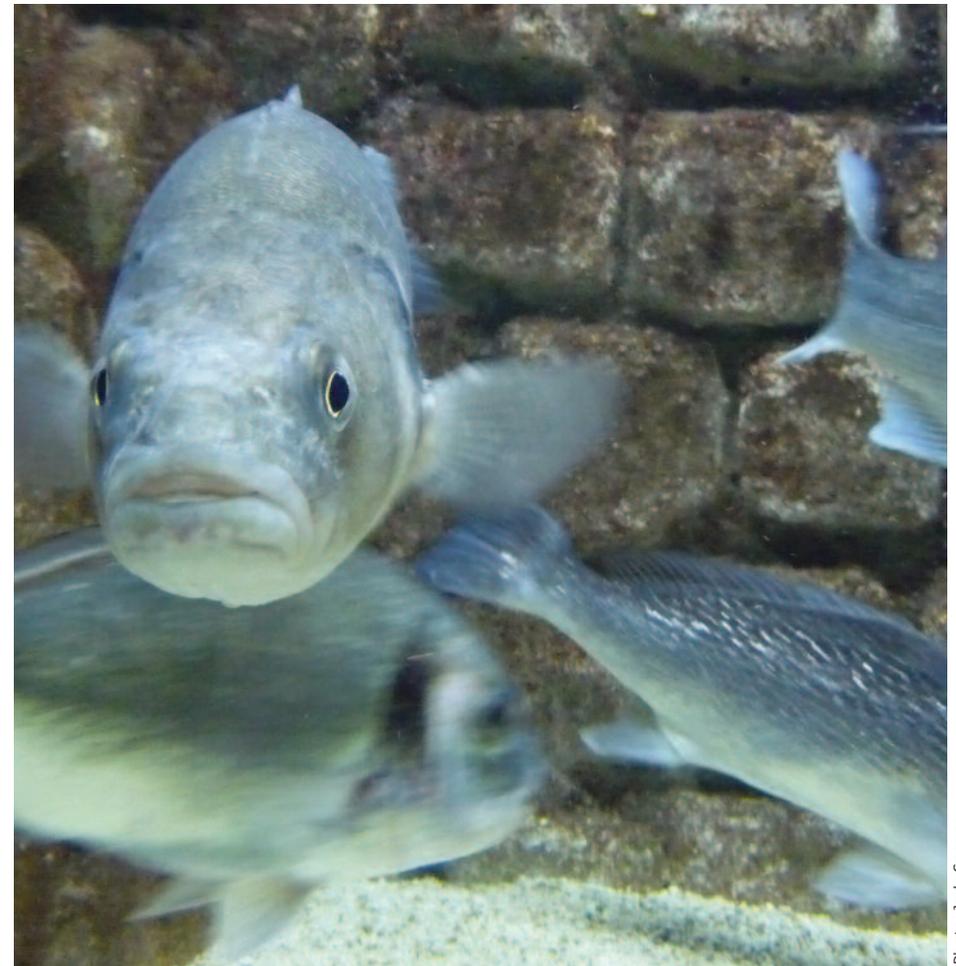
membership comprises eight African nations, informed the HSA that the syllabus *'will be very useful to our task force that is developing Animal Welfare Strategy for Africa'* and it will be circulated amongst colleagues at the African Union and the FAO.

A link and further information about this syllabus was also sent to vet schools in India. The course outline is available to download free from the HSA website. Where the opportunities arise to do so, the HSA will continue to work with recognised organisations in Kenya to improve farm animal welfare during transport, marketing and slaughter.

The majority of the population in most parts of the world eats meat and this is likely to continue for the foreseeable future. An estimated 70 billion farm animals and up to 120 billion farmed fish a year are reared and killed for food globally. With a rising world population (now at over 7 billion and a predicted 9 billion by 2050) this is set to increase. The HSA is recognised internationally for its livestock expertise and provides education and training in the fields of transport, marketing and slaughter in the United Kingdom and around the world. Slaughter is never pleasant, but it can be humane and the charity has continued to make real improvements through working constructively alongside agricultural, meat industry, veterinary and other welfare and professional organisations.

HSA fish welfare at slaughter report

World-wide, some species of finfish are produced in volumes exceeding 1 million tonnes each year, which has been estimated to equate to the slaughter of billions of individuals of such a given species. Unfortunately, the most common methods of slaughtering fish (eg asphyxia in air or hypothermia in ice slurry) are likely to cause considerable distress. A minority of species (eg Atlantic salmon, rainbow trout) in a small number of, mostly European, countries are routinely stunned using higher-welfare methods but there is no one-size-fits-all set of stunning parameters for all species of fish. The HSA is due to publish a report on humane slaughter of finfish farmed around the world, which discusses what scientific research is required to identify humane stunning methods/parameters for commercial slaughter of a greater range of species of fish and what technological development might be necessary to refine existing stunning systems with fish welfare in-mind. The report considers which species of finfish, of the approximately 350 species farmed globally, might be prioritised for future scientific research and equipment development, in relation to their level of production and value, the countries rearing them and the potential willingness of their industries and consumers to opt for higher-welfare fish products. Such species might include gilthead sea bream, various species of carp, tilapia, catfish and eel, milkfish and cobia. The report also considers the potential of assurance schemes to improve fish welfare at slaughter and possible industry support.



European sea bass and gilthead sea bream

Photo: Jade Spence

Attendance at exhibitions and events

Exhibitions and Events 2016/17

Over the summer HSA technical staff attended a number of agricultural shows in England and Wales. As well as having a visible presence, these events form part of the HSA's outreach work, enabling staff to actively engage with industry, smallholders, the farming community and members of the public. The HSA unveiled its new-look stand at the Beef Expo in May.

In May and July 2017 the HSA technical team exhibited, for the first time, at two major smallholder events in the UK. The Royal Welsh Spring Festival at Builth Wells and the Smallholders and Country Show, Ardingly, West Sussex proved to be excellent venues where HSA staff provided practical information on handling and slaughter for small-scale producers.

2016

September

The Association of Meat Inspectors Seminar, 17 & 18 September

Association of Independent Meat Suppliers conference, 17 September

October

WATOK Seminar 12 October (see 2017 Newsletter)

November

Veterinary Public Health Association (VPHA) Autumn Meeting, 5 November

Royal Smithfield Festival, Peterborough, 15 November



HSA staff L-R Technical Officers Jade Spence and Susan Richmond and Technical Director Charlie Mason

2017

March

Winterbotham Darby Research Forum, 23 March

May

National Beef Association (NBA) Beef Expo, 18 May

Royal Welsh Spring Festival (Exhibitors), 20 & 21 May

June

British Veterinary Association (BVA) Animal Welfare Forum, 5 June

UFAW International Animal Welfare Symposium, 27, 28 & 29 June

Controlled Atmosphere Stunning conference, 29 & 30 June

July

Smallholders and Country Show, (Exhibitors), 1 & 2 July

MAKING A DIFFERENCE

HSA attends international cephalopod conference in Crete

In March 2017, Technical Officer Jade Spence was invited to attend the first joint meeting of the *CephsInAction* COST Action FA1301 and the Cephalopod International Advisory Council, entitled *Cephalopod Science: Biology to Welfare*. The meeting aimed to facilitate collaborative work, provide future challenges for cephalopod science and to identify research priorities, including determining indicators of welfare. Jade gave a presentation on the principles and practice of humane slaughter and the potential for investigating humane slaughter of coleoid cephalopods (eg octopus, squid and cuttlefish), with the aim of encouraging cephalopod scientists to consider research in this area and the possible funding HSA offers, so that humane slaughter solutions are developed as the cephalopod aquaculture industry grows. Jade's presentation also introduced delegates to the work of the HSA, UFAW and the university LINKs scheme.

Controlled atmosphere stunning conference

The HSA, in collaboration with the Universities Federation for Animal Welfare (UFAW), Defra, Massey University (NZ) and the Royal Veterinary College, held a two-day conference in June 2017 to discuss the welfare impacts of controlled atmosphere stunning (CAS). The conference was oversubscribed, with 105 speakers and attendees from as far afield as New Zealand, Canada and the United States of America. The programme saw no less than 27 papers presented, with an opening speech by the UK's chief veterinary officer, Nigel Gibbens. The subjects covered included low atmospheric pressure stunning (LAPS) for poultry, air-hunger, humane killing using nitrogen-filled, high-expansive foam, the practical application of CAS in livestock systems and alternatives to carbon dioxide for slaughtering pigs. The papers precipitated many questions and much discussion during the refreshment breaks and feedback was extremely positive.

Amongst other issues, the meeting highlighted the importance of air-hunger as an extremely unpleasant physiological state, the need for high-quality science in this area, and the practicalities of translating scientific information and advances into changes in legislation and practice. A report will be published shortly summarising the outcomes of the meeting.

As part of its commitment to ensuring the welfare of animals at slaughter, the HSA announced at this conference a collaboration with Defra to provide funding of up to £400,000 for research into alternatives to carbon dioxide for the humane slaughter of pigs.

Livestock market survey 2017/18

The year 2017 sees the two-hundredth anniversary of the opening of the first, purpose-built, livestock market in Hawick. To mark this important milestone in the history of the UK's meat and livestock industry, the Livestock Auctioneers' Association (LAA) asked the HSA, in collaboration with the RSPCA, to carry out an independent survey of a representative sample of 24 livestock markets across England and Wales. To date, ten markets have been visited and the aim is to complete the survey visits by April 2018.

The purpose of this 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 practises, for example implementation of a specific animal welfare policy. The survey aims to identify specific features which may impact upon 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. The information from the current survey will be used to disseminate information on good practice and so help to improve the welfare of animals passing through livestock markets in years to come.

Welfare of animals at the time of killing (WATOK)

October's seminar on WATOK One Year On was well supported with some 100 attendees representing a considerable cross-section of industry present. Delegates considered some of the challenges faced by producers both large and small since the introduction of the new welfare regulations (EC Regulation 1099/2009) in 2015.

Concerns included the certification process, low throughput premises and seasonal staffing, with attendees taking the opportunity to share their experiences in dealing with the legislative changes as well as examples of best practice.



Photo: Jade Spence

Decapod Crustacean

HSA's Technical Director Charles Mason said: *"It was encouraging to see widespread support for the seminar and I'd like to thank all the delegates for their active and honest participation."*

Improving animal welfare in China

With the aid of generous support from the American organisation the Open Philanthropy Project, the HSA are initiating a very substantial programme of work to advance farm animal welfare in China, expected to take place over the next two years. The plans are that this will include translation of HSA educational materials into Mandarin (and to make these free to download from HSA's website); a programme of visits by HSA staff to mainland China to provide lectures for university students of veterinary and agriculture science; and to provide expertise and welfare training for industry and opportunities for Chinese representatives to visit the UK for study tours of livestock markets and slaughterhouses.

The welfare of finfish and aquatic invertebrates

The Open Philanthropy Project has also provided substantial financial support to allow the HSA to seek proposals for welfare science research with the aim of improving the welfare of finfish, decapod crustaceans and/or coleoid cephalopods, and to translate related HSA publications which will be free to view from the charity's website. This work may take several years to complete, depending on the nature of the research applications received.

Further information on the projects and the proposed work can be found on the charity's website – www.hsa.org.uk.

The HSA is extremely grateful to the Open Philanthropy Project for their very generous support of these projects which will allow the charity to significantly expand and diversify its activities and to fund much-needed research.

Since the HSA was founded in 1911, scientific and technological developments have resulted in huge improvements in methods for slaughter and killing. One hundred years ago methods were often, literally, hit or miss. Now, modern methods, applied correctly, can very much more closely approach the humane ideal of consistently achieving slaughter or killing without pain or other unpleasant feelings. Over the decades, improved and scientifically-evaluated methods (many stimulated and supported by the HSA) have been developed for cattle, sheep, pigs, poultry and other species. These advances are continuing and the charity funds essential research and other projects through grants and the Dorothy Sidley Scholarship scheme.

Special travel award funding given for project to assess CCTV in slaughterhouses

In October 2016, HSA announced a special 2017 Travel Award to help those involved in improving animal welfare during transport, marketing and slaughter to gain new expertise and knowledge which contributes to better animal welfare. In February an award was made to Ellie Wigham, a PhD student at the University of Bristol for her project *Analysis of the use of CCTV data to monitor and improve slaughter plant welfare in the US – what can we learn from our American friends?*

Currently, there is no legal requirement in the UK for business operators to install CCTV in slaughterhouses. In July 2015 a public petition in the UK, which called for mandatory CCTV in slaughterhouses with independent monitoring, gathered over 112,000 signatures and proposals for mandatory CCTV were subsequently announced by the Government on 11th August 2017. However, the welfare benefits of this practice have yet to be fully documented. The main focus of Ellie's project is to visit the United States of America to

assess the effects of independent CCTV auditing on animal welfare in lairage and at slaughter. This system is now being more widely used in the USA to identify any welfare risks, and often as a customer requirement to ensure that optimum welfare protocols are being followed. Ellie's project aims to gain a detailed understanding of the process and of its benefits for animal welfare, and to use this to evaluate the benefits of CCTV for slaughterhouses in the UK and Europe.

RTS SCHOLARS AWAL FUSEINI AND CARLOS REBELO – AN UPDATE

The HSA's two 2015 Research Training Scholars, Awal Fuseini at the University of Bristol and Carlos Rebelo at the Royal Veterinary College, are entering their third year of their HSA-funded PhD studies.

Awal Fuseini

Awal is developing a new type of humane electrical stunning for adult cattle, which causes unconsciousness by creating temporary pores in brain cell membranes (reversible electroporation). The Single Pulse Ultra-high Current (SPUC) stun is applied before the neck is cut and targets only the animal's head (brain), so is expected to result in a reversible stun that might be eligible for Halal certification.

Compared to conventional head-only electrical stunning, SPUC technology may a) improve animal welfare by increasing the duration of unconsciousness, and b) improve meat quality, throughput and the health and safety of personnel by reducing or eliminating post-stun convulsions. Fewer convulsions should also reduce delays in Halal neck-cutting, further reducing the risk of recovery of consciousness before death. These benefits are likely to interest the food industry as a whole, including for secular slaughter, and Awal's research may pave the way for investigation of SPUC electrical stunning for other species.



RTS Scholar Carlos Rebelo

Photo: Carlos Rebelo

Over the last year Awal has investigated the optimal voltage and number of pulses for reversible electroporation of brain cells *in vitro*, and found that applied total electrical energy is the main driver of electroporation. The stunner is now under construction and Awal is due to complete his PhD research by April 2019.

At the Agriculture & Horticulture Development Board (AHDB) Beef & Lamb Halal Seminar on 22 February 2017, members of the supply chain convened to discuss key issues and opportunities for the Halal sector and hear from a range of expert speakers, including Awal who gave a presentation on the development of alternative stunning technologies and the relationship with Halal requirements. Awal also discussed his PhD research on BBC Radio 4's Farming Today on 23 February 2017.

In April 2017 Awal was appointed as the first-ever Halal Sector Manager for AHDB Beef & Lamb. Awal will lead collaboration with processors, certification bodies and retailers and AHDB believe the overlap of his current and future PhD work with his new post is clearly mutually beneficial.

Carlos Rebelo

Carlos aims to further develop the design of dry electrical stunning systems used for small-scale, on-farm slaughter of turkeys and waterfowl, with the hope of improving the effectiveness of stunning and therefore bird welfare, as well as producing acceptable meat quality. Carlos's research may inform gaps in scientific knowledge and legislation, particularly for ducks and geese. Carlos has been trialling alternative designs of electrodes and hopes the potential development of a constant current electrical stunner for small-scale slaughter of poultry may appeal to producers and may enable more humane use of electrical stunning for turkeys, ducks and geese.

Dorothy Sidley Memorial Scholarships

Dorothy Sidley scholarships provide an opportunity for undergraduate students or trainees in the livestock industry to undertake a research project, typically during the summer vacation. In 2017, the HSA is supporting a project undertaken by Chelsie Bailey an Animal Behaviour and Welfare Science student at Bristol University, to look at ways of detecting whether sheep arriving at slaughterhouses are suffering from lameness. Using CCTV footage Chelsie hopes to be able to identify lame sheep, which is not easily done by direct observation in the abattoir or during examination for fitness to travel prior to beginning their journey. This research should enable an estimate of the prevalence of lame sheep being transported to abattoirs.

The 2016 Dorothy Sidley scholar, Alexandra Bearman, completed her project at the Royal Veterinary College, which examined whether the performance of the captive-bolt stunners used to stun cattle can decline if they are poorly maintained. Her research showed that stunners that were not regularly cleaned or otherwise maintained had reduced stunning power and highlighted the necessity of regular maintenance schedules to maintain high welfare standards.

New joint HSA/Defra funding for development of humane pig slaughter methods

The HSA has joined forces with Defra to provide substantial research funding for a research project to look for a more humane alternative to one of the most commonly used ways of stunning pigs – high concentrations of carbon dioxide gas (see page 11). In the UK over 80,000 pigs per week are stunned with CO₂, but high concentrations of CO₂ are aversive to pigs and therefore this method is a significant welfare concern.

For a new method to replace high-concentration CO₂ it must not only be humane, but also practical in terms of cost, meat quality and meat hygiene. Defra and the HSA have therefore specified that any proposed method is both more humane and also practical.

Recognition for pioneering work to improve the welfare of food animals

The HSA announced the joint winners of its 2017 Humane Slaughter Award, which recognises individuals or organisations that have made major scientific advances in the welfare of livestock during slaughter, transport or killing for disease control. This year, recognition for their pioneering work to improve the welfare of food animals during transportation was given to Mr Peter Kettlewell and Professor Malcolm Mitchell of Scotland's Rural College (SRUC).

The two have collaborated since 1984 and their research on thermal stress in animals

during transport has been a major contribution to improved animal health, welfare and productivity.

Originally working at the Silsoe and Roslin Institutes, they used a unique combination of physical, engineering, physiological and behavioural techniques:

These included theoretical modelling, physiological modelling, stress and welfare assessment, ventilation

and vehicle design, wind tunnel testing, full-scale on road testing and practical measurements during commercial transport under a wide range of conditions in the UK, Europe and North America. This work was combined with developments in novel sensor technologies to monitor the physiological condition of animals in real transport environments. An important finding was that counter-intuitively, air in a moving livestock container flows from the back to the front, and this movement has a major influence on the internal thermal micro-environment of the vehicle. The understanding of such physical phenomena and principles led to the design, development and application of in-built forced ventilation systems, especially in poultry vehicles, which have improved the welfare of millions of animals in transit.

The award was presented to the winners at the Universities Federation for Animal Welfare 2017 International Symposium at Royal Holloway, University of London, by HSA's Chief Executive and Scientific Director Dr Robert Hubrecht.



Humane Slaughter Award winners Professor Malcolm Mitchell and Mr Peter Kettlewell

Photo: HSA

ADMINISTRATION AND FINANCE

Annual General Meeting 2016

The AGM was held at the Old School, Brewhouse Hill, Wheathampstead. 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 & CJA GM of October 2015 and resolved to receive the Accounts and Auditor's Report for the year ended 31 March 2016. The meeting agreed the Minutes of the AGM of the Humane Slaughter Association CIO of November 2015. 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 its associated Trusts and their remuneration should be fixed by Council.

Professor R Bennett and Mr A Simmons stood down under the rules regarding rotation, both offered themselves for re-election, and were re-elected. Following the sad death of Professor Ohl a new candidate was proposed, Dr Anna Olsson. The nominations had the full support of Council.

Notice of Annual General Meeting 2017

The Annual General Meeting of HSA will be held at 12.30pm on Tuesday 7 November 2017 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.

Finance and Accounts

The Humane Slaughter Association & CJA (Charity No 209563) merged with the Humane Slaughter Association CIO (Charity No 1159690), on 1 April 2016, as agreed at the General Meeting held on 14 October 2015. All the assets and liabilities were transferred to the CIO. The comparatives in the accounts represents the amounts prior to the merger of the Humane Slaughter Association & CJA (Charity No 209563), whilst the current years' figures are that of the merged organisation.

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 Directors/Council and signed on its behalf on 12 July 2017.

The full accounts have been audited and the auditors' opinion was without qualification. The accounts will be filed with the Charity Commission after the Annual General Meeting on 7 November 2017. 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 HSA

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

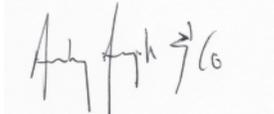
You are responsible as the Trustees for the preparation of the summarised financial statements. We have agreed to report to you our opinion on the summarised financial statements' consistency with the financial statements, on which we reported to you on 12 July 2017.

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 31 March 2017.



12 July 2017

Anthony Joseph & Co Limited, Statutory Auditor, Stevenage, Hertfordshire.

Anthony Joseph & Co Limited is eligible to act as an auditor in terms of Section 212 of the Companies Act 2006

Summary of Financial Activity Year Ended 31 March 2017

	2016/17 £	2015/16 £
Incoming resources		
Voluntary income	401,808	599,414
Charitable activities	23,286	44,066
Investment income	110,098	111,529
Total incoming Resources	535,192	755,009
Resources Expended		
Costs of generating funds	62,056	63,394
Charitable activities	240,723	443,794
Other resources expended	85,884	90,630
Total Expended Resources	338,663	597,818
Net Operational incoming/(outgoing) resources for the year	146,529	157,191
Other recognised gains and losses:		
Net realised gain on investments	106,838	90,285
Unrealised gains/(losses) on investments	418,340	(281,245)
Net movement in funds	671,707	(33,769)
Balance brought forward	4,313,109	4,346,878
Balance carried forward	4,984,816	4,313,109

The summarised accounts were approved by the Trustees and signed on their behalf on 12 July 2017



Professor A Nolan OBE MVP DipECVPT DVA MRCVS
Chairman

The summarised accounts set out here have been extracted from the full accounts and have been prepared in accordance with the Charities Act 2011.

Balance Sheet as at 31 March 2017

	2016/17 £	2015/16 £
Fixed assets		
Tangible fixed assets	189,338	193,970
Investments	4,732,114	3,838,602
	4,921,452	4,032,572
Current assets		
Debtors	50,748	42,737
Term deposits at bank	171,928	431,309
Cash at bank and in hand	11,954	17,188
	234,630	491,234
Current liabilities		
Creditors: Amounts falling due within one year	(156,266)	(141,440)
Net current assets	78,364	349,794
Creditors: Amounts falling due after more than one year	(15,000)	(69,257)
Net assets	4,984,816	4,313,109
Funds		
Unrestricted	4,984,816	4,313,109



C L McCann BSc ACA
Hon Treasurer

LEGAL AND ADMINISTRATIVE INFORMATION

The Humane Slaughter Association

Charity No 1159690
Charitable Incorporated Organisation
Registered in England and Wales

Vice-Presidents:

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

Trustees

Chairman:

Professor R M Bennett BSc MSc PhD $\lambda\psi\phi$ (to 19.10.16)
Professor A Nolan OBE MVB DipECVA DipECVPT DVA
MRCVS $\lambda\psi\phi$ (from 19.10.16)

Vice-Chairman:

Professor A Nolan OBE MVB DipECVA DipECVPT DVA
MRCVS $\lambda\psi\phi$ (to 19.10.16)
A G Simmons BVMS MSc MRCVS λ (from 19.10.16)

Honorary Treasurer:

C McCann BSc ACA $\lambda\phi$

Professor R M Bennett BSc MSc PhD $\lambda\psi\phi$ (from 19.10.16)
J Bradshaw BA PhD ϕ
B North MBA PhD MSc
A Olsson (from 19.10.16)

D Pritchard BSc BVetMed MPH MRCVS ψ
M Radford OBE LLB
C Reid ψ
D R Sargan MA PhD $\phi\psi$
A Wilson BVMS DVSM MRCVS (retired 07.01.17)

λ Finance Panel Member
 ψ Fundraising Panel Member
 ϕ Grant Panel Member

Staff

Chief Executive/Scientific Director

Robert C Hubrecht OBE BSc PhD

Technical Director

Charles Mason HND MInstM ARAgS

Senior Scientific Programme Manager

Huw D R Golledge BSc PhD

Technical Officers:

Jade Spence BSc (Hons) MSc AMRSB
Susan Richmond BSc MSc PhD

Fundraising & Communications Manager

Tracey Woods MCIPR

Charity Secretary

Jane Moorman

Office staff

Samantha Griffin
Wendy L Goodwin
Caitlin Gillespie (to 31.05.16)

Registered Auditors

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

Bankers

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

Solicitors

Withers LLP, 16 Old Bailey, London, EC4M 7EG, UK
Wilsons, Summerlock Approach, Salisbury, Wilts, SP2 7RJ

Investment Advisers

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

Offices

The Old School, Brewhouse Hill,
Wheathampstead, Herts 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).

Cover photos: l-r: Cow: Humane Slaughter Association, Pig: Shutterstock: yod67, Chickens: Shutterstock: kovop58, Sheep: Shutterstock: nathanmcc, Fish: Shutterstock: Mark Caunt



Humane Slaughter Association

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

Charity Registered in England and Wales No 1159690 : Charitable Incorporated Organisation

© HSA 2017