

veterinarians on the development of written veterinary health plans for farmed salmon. This booklet (see details below) provides complimentary notes to the RSPCA's welfare standards for farmed salmon and is designed for use in the Freedom Food Scheme — the RSPCA's welfare assurance scheme based in the UK.

The idea of the veterinary health plan is to establish protocols for best practice for the maintenance and improvement of the health status and welfare of the stock. The guidelines are divided into three parts: Part A covers guidelines on fish health, Part B provides guidelines on ensuring fish welfare at slaughter, and Part C concerns the development of a programme for monitoring physical injury and deformity.

The guidelines require that the health plan must cover six key areas: biosecurity, general management, disease and physical injury (control and monitoring), training, major common diseases, and classification of causes of death. Each of these subjects is described in its own section in the booklet, in which the relevant RSPCA welfare standards are also listed. The section on welfare at slaughter covers some basic principles, including handling fish during pre-slaughter crowding, methods on conveying fish to the slaughter table, managing a good stunning operation, assessing the effectiveness of stunning, and exsanguination. To help with the development of a programme for monitoring and scoring injuries and deformities, photographs are provided of a variety of conditions (eg snout injury, jaw deformity, fin damage) in which mild and severe cases are depicted alongside normal animals.

This is a clear and logically presented booklet that provides a helpful checklist on the key elements of a health and welfare plan for farmed salmon.

RSPCA Veterinary Health Plan: Farmed Atlantic Salmon (2003). Royal Society for the Prevention of Cruelty to Animals (RSPCA). Publication number FA15 2.04. 31 pp A5 paperback. Published by and available from the RSPCA, Wilberforce Way, Southwater, Horsham, West Sussex RH13 9RS, UK; website www.rspca.org.uk

J Kirkwood

UFAW

Ramifications of the reproductive management of animals in zoos

Article 17 of the German Animal Protection Act forbids the killing of vertebrate animals unless there is a “reasonable motive”. The latter term is not, however, defined. The German Parliament's Committee for Nutrition, Agriculture and Forests concluded, after public discussions on the subject, that “... in principle, reproduction in zoo animals should only be enabled when the young can be guaranteed humane living conditions”. There is some pressure therefore in Germany for zoo animals to be prevented from breeding where a surplus might result, rather than for them to be

allowed to breed and surplus offspring culled. As Peter Dollinger of the World Association of Zoos and Aquariums (WAZA) puts it, “this criminalises those who, for example, in the interests of an ex-situ breeding programme or of maintaining group sizes and structures that accommodate the species' natural behaviour, do not prevent reproduction even though, at the time of birth, they are unable to predict whether the young will find a final, adequate home two years later”.

It was the emergence of such dilemmas that prompted thirty experts (including ethologists, conservationists, veterinarians, ethicists and philosophers) from Switzerland, Austria and Germany to meet at ZOOSchweiz in Central Switzerland from 27th February to 1st March 2003 to discuss practical, ethical, legal and public relations aspects of managing the reproduction of animals in zoos. The proceedings of this meeting have been published recently by WAZA (see details below).

The proceedings comprise some brief introductory essays, papers based on 17 oral presentations delivered at the meeting, various relevant appendix material such as excerpts from Swiss and German animal protection legislation, and a consensus document. The papers cover a very interesting range of subjects relating to zoo animal breeding management. They include ‘The tasks of modern zoological gardens and aquariums’ (A Rübél), ‘On the intrinsic moral value of animals’ (P Kampits), ‘Proposals for the responsible reproductive management of animals in zoos’ (M Stauffacher), ‘Childlessness makes zoo animals sick’ (T Hildebrandt), ‘Interpretation of German law with regard to culling of surplus zoo animals’ (J Luy), ‘Reproductive management from the animal protection perspective’ (C Lerch and P Schlup), and ‘Results of a (zoo) visitor survey on the issue of culling zoo animals and their use as food’ (M Martys).

The result of the meeting was the production of a consensus document entitled ‘Responsible reproductive management: guiding principles’. The abstract is reproduced below.

“In keeping with the requirements of animal welfare standards, the adaptive capacity of wild animals in zoos must not be compromised, nor their functional capabilities allowed to atrophy. Reproductive behaviour is central to this consideration. Therefore, generally speaking zoo animals should not be prevented from breeding. However, whilst this principle is valid for all species irrespective of the emotional value they hold in human eyes, it is not applicable to each and every individual. In the implementation of this principle, it may be necessary to humanely put down (“no pain, no fear”) individual animals at times that approximate certain critical events they would encounter in the wild state. Such action should be openly communicated to both zoo staff and the public.”

This is a well-produced, valuable and wide-ranging review of an important and topical issue in the conservation management of animals in zoos.

Ramifications of the reproductive management of animals in zoos (2004). Proceedings of the World Association of Zoos and Aquariums Symposium organised jointly by ZooSchweiz, OZO and Zoos in Bavaria, at Goldau-Rigi, 27 February–1 March 2003. 85 pp A4 paperback. Published by and available from the World Association of Zoos and Aquariums, PO Box 23, CH-3097 Liebefeld-Berne, Switzerland. Price £12 plus postage.

J Kirkwood

UFAW

Strategy for British pig health and welfare

In response to the 'Outline of an Animal Health and Welfare Strategy' published by the Department for the Environment, Food and Rural Affairs (DEFRA), the Scottish Executive and the Welsh Assembly in 2003, the British pig industry has devised a specific strategy for British pig health and welfare. This outlines the measures the industry believes need to be taken in order to achieve a demonstrable and sustainable improvement in pig health and resulting welfare that will contribute to the recovery of the industry and a sustainable rural economy. Ben Bradshaw, Animal Health and Welfare Minister, has contributed a foreword congratulating the pig sector for being so quickly off the mark in developing this strategy.

In his introduction, Stuart Houston, Chairman of the British Pig Executive and National Pig Association, states that improvement in the health and welfare of pigs is one of the most important factors that will determine the sustainability of the sector in the next 10 years. It is estimated that pig disease costs British producers at least £50 million a year. Measures to tackle this will result in welfare improvements and cost savings. The strategy identifies 9 priority areas for action and these are listed below.

- 1) Establish a national structure to provide the focus, drive and planning for a national pig health improvement programme.
- 2) Establish the present health, welfare and disease status of the British pig herd.
- 3) Enhance disease surveillance information available to pig producers.
- 4) Undertake intervention studies on disease control and eradication, and support health improvement programmes with advice.
- 5) Develop nationally recommended biosecurity protocols.
- 6) Develop national protocols for new disease prevention and eradication programmes.
- 7) Quantify risks and consequences of emerging pig issues.
- 8) Enhance training in disease identification and treatment.
- 9) Increase the programme of targeted pig disease research.

In keeping with the opinion expressed in the section on targeted pig disease research, that "welfare and welfare research have in the past been viewed as separate issues to animal health and a more holistic viewpoint is required",

where this document addresses welfare improvements it focuses largely on those that will come from reducing the incidence of disease. Plans are outlined for benchmarking the current health and welfare status of the British pig herd through the collection of data, including population statistics, disease status, the use of medicines and health status. Possible approaches to assessment of other aspects of welfare are not mentioned specifically.

Despite the identification of a large and wide range of topics that need to be addressed in pursuit of benefits for pigs, their farmers and wider society, there is an up-beat, optimistic tone to this strategy. It performs a valuable role in helping to establish priorities for improvement.

A Strategy for British Pig Health and Welfare (February 2004). Jointly published by BPEX (British Pig Executive), NPA (National Pig Association), PVS (Pig Veterinary Association) and MLC (the Meat and Livestock Commission). 19 pp A4 paperback. Available free of charge from BPEX, PO Box 44, Winterhill House, Snowdon Drive, Milton Keynes MK6 1AX, UK; <http://www.bpex.org/technical/diseaseManagement/pdf/bpexstrategy.pdf>

J Kirkwood

UFAW

Controlled atmosphere stunning of poultry: an integrated approach

In June 2004 a workshop was held at Silsoe Research Institute on controlled atmosphere stunning (CAS) of poultry. The 38 invited participants came from academia, UK government departments, welfare organisations and the poultry industry (UK: 23; continental Europe: 4; USA: 1). Fifteen short lectures covered the biology, technology, legal aspects and commercial experience of CAS with perspectives offered by representatives of the UK Farm Animal Welfare Council (FAWC) and the Humane Slaughter Association (HSA). Three breakout sessions were organised which covered the acceptability of CAS in terms of bird welfare and wider societal issues, including legislation. The workshop was sponsored jointly by the HSA, the Universities Federation for Animal Welfare (UFAW), Stork PMT BV and Yara International ASA.

The primary focus of the workshop was poultry welfare during CAS. The critical questions addressed were: what are the most important criteria by which to judge welfare during CAS; are any gas mixtures preferable and should some be forbidden; and how humane is CAS, particularly compared with electrical stunning? The specialised anatomy and physiology of the avian respiratory system, which is highly adapted for efficient gaseous exchange, makes poultry extremely sensitive to inhaled gases and therefore makes it vital that CAS is demonstrated to be humane. The four main types of CAS gas mixtures stun birds by different mechanisms: anoxia (eg N₂ or Ar with < 2% residual O₂), hypercapnic anoxia (eg 70% CO₂ and