

Reports and Comments

Royal Society comments on European Food Safety Authority Report on Aspects of the Biology and Welfare of Research Animals

The Royal Society has published an open letter to the Environment Directorate General of the European Commission expressing concerns that a recent report of the European Food Safety Authority (EFSA) on aspects of the biology and welfare of research animals “has failed in certain instances to incorporate objective scientific data to inform their answers”. This refers to an EFSA opinion that had been adopted on 14th November 2005 (available at http://www.efsa.europa.eu/en/science/ahaw/ahaw_opinions.html) which addressed four questions relating to:

- the sentience of invertebrate species;
- the sentience of foetal and embryonic forms;
- purpose bred animals;
- and humane euthanasia.

This dealt, among other things, with the very difficult issues of which species are sentient and at what stage during their development do they become so. It concluded, on the basis that they have a pain system and considerable learning ability, that all cyclostomes (lampreys and hagfish), all Cephalopoda (squid, octopus and nautiloids) and decapod crustaceans “fall into the same category of animals as those that are at present protected”. The Royal Society’s criticism here is that “the evidence presented focuses on the learning skills, memory and sensitive response of invertebrates without clearly demonstrating the ability/inability to suffer”.

The problem here is that there is no scientific test for sentience or capacity to suffer. Which species might or might not have these capacities is a matter of judgment. Furthermore, there is not unanimity about the criteria upon which this judgment should be made. This debate began centuries ago and, whilst very excellent progress has been made in the science that can inform it, it seems likely that disputes about where, precisely, lines should be drawn will continue for some time.

Regarding the question about embryonic and foetal sentience, the summary of the EFSA report reads: “the weight of evidence suggests that consciousness does not occur in the foetus until it is delivered and starts to breathe air”. The Royal Society’s criticism here is that no recommendations, based on scientific data, are proposed and that, although the conclusion suggests that there is no clear reason to give protection to embryos and foetuses, this is not stated explicitly.

The Royal Society also questions EFSA’s conclusion that the use of carbon dioxide is unacceptable from the animal welfare point of view, stating: “...data to support this conclusion is based on three parameters; aversion, behavioural data and physiological data. However limited physiological data is (sic) presented to support the ban on CO₂-based euthanasia, and EFSA’s opinion conflicts with

current scientific opinion”. This issue about aversiveness of gases used for euthanasia would seem to be, in principle, considerably more scientifically tractable than assessing sentience and, as it happens, recommendations have just been published on future research to identify possible alternatives to, and also to define good practice for, killing with carbon dioxide (see below - Newcastle Consensus Meeting on Carbon Dioxide Euthanasia of Laboratory Animals).

Letter from Professor Eric Keverne on behalf of the Royal Society to the European Commission, Environment Directorate General, on ‘EFSA opinion: aspects of the biology and welfare of animals used for experimental and other scientific purposes’. (18th July 2006). A4, 3 pages. Published by The Royal Society and available at <http://www.royalsoc.ac.uk/news.asp?year=&id=5000> (accessed 8th August 2006).

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Newcastle Consensus Meeting on Carbon Dioxide Euthanasia of Laboratory Animals

An international meeting was held on 27th and 28th February 2006 at the University of Newcastle-upon-Tyne to address uncertainties relating to the humaneness of the use of carbon dioxide for killing laboratory animals. This gas is widely used for killing laboratory rodents but, as stated in the introduction to the report of the meeting (see details below), “there is no definitive guidance on whether and how CO₂ can be administered humanely”.

The aims of this meeting were to bring together scientists with research experience in this field to, amongst other things, try to reach a consensus view to inform best practice in carbon dioxide euthanasia, identify what further research needs to be done, meet the immediate need for practical guidance, and to consider whether any preferable alternatives are currently available.

A brief summary of the consensus points is presented in the report, followed by outlines of the background that informed the views reached. It was concluded that: “There is no ‘ideal’ way of killing rodents with CO₂” because both pre-fill and rising concentrations can cause welfare problems (through, respectively, pain or possible dyspnoea). It was also concluded that it is not yet possible to recommend, as alternatives, the use of gases such as argon or nitrogen that cause death by hypoxia, because of uncertainty that they are non-aversive in rodents. The Report states that: “More research is needed into the physiological and affective responses to a range of gaseous agents; to identify good practice and possible alternatives to CO₂”.

The report provides a valuable summary and overview of the key research findings relevant to decisions about the humaneness of euthanasia of laboratory animals using carbon dioxide. The subject is one about which there has been controversy for many years and it is therefore helpful