British Society of Animal Science

Q1 What is your view about the use of animals in research?

Animal experimentation does provide valuable information leading to the development of the understanding and treatment of human and non-human animal disorders. Our general understanding of biology originated from many early exploratory experiments in animals. It could be argued that in some areas of biology it is probable that we could have made such progress, albeit much slower and less efficient, by the use of post-mortem and human studies.

There are many examples where the use of animal models has allowed us to understand physiology and hence pathophysiology to understand human and animal disease (such as diabetes, cancer and heart disease). The use of animals to support such research would be considered by the majority of people to be ethically justifiable providing appropriate steps were taken to minimise potential suffering. The Animals (Scientific Procedures) Act is written from this perspective but there is much controversy when it comes to assessing when an animal may experience conscious mental states, especially emotions such as suffering. Measuring simple behavioural responses such as withdrawal reflexes or decreases in activity which may indicate pain (typical measures taken to safeguard welfare in physiologically based studies) are fairly broadly accepted on the basis of the animals physiological similarity to humans (which is why they are chosen as models in the first place). However, an apparent paradox exists when it comes to research into human mental disorders. There are many animal models of depression and anxiety available for the development of anxiolytic and anti-depressant drugs. However, despite the fact that we accept these animals as models of human emotional states, we assign very little in the way of 'emotional experience' to these, or other animals in society. The consciousness and emotionality of non-human animals in their own right is controversial and is often easier not to make assumptions considering some of the experimental procedures or captive environments that we keep animals in society. However we are willing to use animals as models of our emotional states: this issue needs to be resolved.

From reading the report it is apparent that there is a large number of laboratory animals kept for breeding purposes alone. It would be interesting to investigate the causes of this high number. For example some genetically modified lines and other selected lines show poor reproductive ability and the causes of this should be investigated. It would be interesting to consider mortality of offspring and whether this relates to expression of poor maternal behaviour by the mother as a result of impoverished environments. Generally environmental enrichment should be considered more seriously. Laboratory animals are often kept in small, barren environments which do not allow the

expression of natural behaviours and may often lead to the development of abnormal behaviour (barbering and bar chewing in mice for example). It has been argued that increasing environmental complexity may increase individual variation and hence the number of animals required for studies, however it is also beneficial to any researcher that experimental animals are healthy, both physically and psychologically, to obtain valid results.

Some laboratory animals of course undergo surgical procedures, however it appears that protocols for the use of post-operative analgesics are not sufficiently developed and employed. Protocols for the assessment of pain must be developed for individual species and analgesics used to alleviate post-operative pain.

Q2 What are your views about the use of genetically modified animals in research?

The genetic modification of animals does raise new issues. It has been suggested that we are just speeding up selective breeding however GM targets specific genes whilst selective breeding for a specific phenotypic trait leads to alteration in a selection of genes over time which allow adaptation and hence expression of that trait. Therefore this issue of rapidly altering one gene may lead to a lack of adaptation and hence physiological or psychological disruption. A well investigated and tested screen of the outcome of GM on animal functioning and well-being must be developed and employed to protect the welfare of GM animals. Whilst some behavioural screening does occur this needs to be further developed by involving laboratory animal behaviourists who have a greater understanding of the behavioural needs of these animals.

Therefore we believe that GM animals are unnatural but are not so vastly different from the animals that have been produced as a result of selective breeding (e.g. modern dairy cow, broiler chickens). However the insertion of genes from one species to another we feel is another step further and care should be taken (as described above) to ensure the welfare of these animals is not compromised.

The issue of selective breeding has not received much attention in its own right in this report. In farm animals selective breeding has been incredibly successful in increasing production but has resulted in many welfare concerns. This has not been fully addressed. For example many Quality Assurance schemes for meat production do not address this issue of selective breeding and do not limit the production per animal. Some of the big issues in our opinion are the large demand placed on the modern dairy cow so that fertility is reduced and levels of mastitis and lameness have increased, the appalling condition of broiler chickens in relation to breast

blisters, leg weakness and the resulting feed restriction of broiler breeders. It is our understanding that the Farm Animal Welfare Council are considering this issue at the moment and we look forward to the completion of their report early next year. Whilst the discussion above does not relate to experimental animals directly we feel that animal experimentation that aims to continue this trend should be considered very carefully.

Q3 What is your view about the use of alternatives?

It is highly probable that there is much repetition of laboratory experiments among large pharmaceutical companies as they investigate similar human diseases. The secrecy and patenting of compounds leads to unnecessary duplication of experimental work.

Negative results often are not accepted by high impact factor journals. Researchers have a moral obligation to publish all work which has involved animal research irrespective of the outcome. Journals should consider this and be willing to accept papers based on good experimental design and discussion etc. even if the result is negative, or seen as 'less interesting'.

Q4 What is your view about ethical issues relating to the use of animals in research?

The human population exploits many species for a wide range of purposes; food, clothing, entertainment, companionship, experimentation. What is most important is how we treat the animals in our care. We agree with the results of the Mori poll in that it is the animal's ability to suffer that is the real question. Of course it then leads to the issue of how we assess this. However great advances have been made in the field of animal welfare assessment by mainly animal welfare scientists and behavioural scientists.

As a good start we would recommend that all species kept should be given the provision to perform natural behaviours as much as possible, irrespective of their 'order' (e.g. flying in mosquitoes, nesting in mice, climbing and foraging in monkeys). There are now methodologies available to assess pain in sheep and calves (e.g. www.vet.ed.ac.uk/animalpain/) and these need to be further developed in other species. These methodologies can be validated by for example the use of analgesics. There are also measures of stress available which have been used widely in the assessment of farm animal welfare. Behavioural methodologies are also available to test cognitive function, behavioural repertoire, behavioural expression and the development of abnormal behaviour. These techniques need to be used more widely and in a standardised way to assess the welfare of different species under experimental conditions.

The response reproduced above was submitted to the consultation held by the Nuffield Council on Bioethics on the ethics of research involving animals during October-December 2003. The views expressed are solely those of the respondent(s) and not those of the Council.

Q5 What is your view about the UK regulations on research involving animals in the UK?

Generally the system in the UK is very good administratively however we feel there are still some concerns over the issue of welfare assessment of experimental animals and some discrepancy in interpretation of the Animals (Scientific Procedures) Act by the Home Office Inspectorate. This is however somewhat understandable given the need for further scientific research into social and environmental conditions that satisfy the animals welfare needs within the necessary scientific constraints that are necessary. As mentioned above, a standardised methodology for assessing the welfare of experimental and breeding animals must be developed, perhaps through a working group of experts. This would also highlight specific areas of welfare assessment that need further development. The welfare of animals should be assessed before, during and after a project.

Under HO regulation end-points for procedures must be developed prior to experimentation basically using a cost-benefit analysis. It should also be decided beforehand that if end-points are exceeded what action should be taken. It is less important to carry out a cost-benefit analysis after the experimental work unless end-points have been exceeded or protocols did not work as expected. The benefit of an experiment should be assessed beforehand and irrespective of the results. All results of animal experimentation should be published irrespective of the outcome (see comments above on journal publications).

Some attention needs to be paid to general regulations within the HO. For example, it seems that methods of Schedule 1 killing have been developed with rodents in mind. Overdose of anaesthetic in large mammals (pigs, sheep, cows etc) is very difficult without prior sedation. Therefore euthanasia of pigs should be regulated currently as it is in the best interests of the animal to have prior sedation and this is currently not a Schedule 1 kill.

Q6 What do you think about information that is available to the public about research involving animals?

Firstly it is important that products are labelled correctly and give full information. For example products can be labelled as not having used animal testing in their development or the final product. It is perhaps not required that products which have been tested say so as it may be assumed by the general public that they have been. However whilst the products may not be labelled it might be useful for producers of pharmaceutical products to officially report the numbers, species and procedures used in the

development of the product. This would allow the public to choose to find out about specific products.

If, as the Mori poll suggests, that the public wish to be better informed about animal experimentation then this information must be put across in a balanced way; highlighting the benefits of research as well as the costs to the animals. Also a description of the tight regulations in the UK would be useful and reassuring. This information should be presented by the Home Office itself, as well as medical researchers and sufferers action groups for animal experimentation. Of course the opposing view from animal rights groups and others with concerns should be heard.

Reports will of course not be as widely read as perhaps viewing of television programmes. It depends on the requirement for knowledge. Although 60% of respondents to the Mori poll said they would like more information, this is not a large majority.