

Reports and Comments

Welfare implications of breeding and breeding technologies in commercial agriculture

In the wild, selection for evolutionary fitness and good welfare tend to go hand-in-hand. It is plausible that pleasant and unpleasant feelings are carrots and sticks that arose to help prompt the behaviours found by evolution to be successful in this or that circumstance. We feel bad when our evolutionary fitness is under threat and, conversely, actions that improve fitness, from the evolutionary perspective, feel good. We suppose this system guides other animals too. Thus, as argued by Duncan and Petherick (1991), an animal's welfare is largely about its wants and if these — its cognitive needs — are met, physical health will generally be safeguarded. (However, we should note in passing that the system easily breaks down when animals are placed in an environment other than that in which they evolved and in which there are harms they have no sensory equipment to detect or which have not become labelled to them, through natural selection, as aversive.)

In contrast, in our domesticated animals or any of the other animals that we manage, there is very much less evolutionary pressure for good welfare and evolutionary fitness (the production of viable offspring) to remain coupled. The survival and breeding of these animals have been under human control and characters have often been selected for regardless of, or in complete unawareness of, their impact on welfare — how the animals feel. Welfare problems can arise in two ways in these circumstances: (i) by resulting in predisposition to, for example, painful conditions such as lameness, or (ii) through altering the sensitivity of the affect systems such that, for example, animals experience aversive feelings (such as fear) more intensely or more frequently than appropriate. Controlled breeding has huge potential to affect welfare, positively or negatively. Although this is independent of the technology involved — whether traditional selection for particular traits or use of modern biotechnology — it is concerns about the latter that have especially prompted some recent reviews (eg APC 2001; AEBC 2002).

The Farm Animal Welfare Council (FAWC) published a valuable and timely review of the potential impacts of breeding on welfare of farmed livestock in June 2004 (see details below). This includes, in Part II of the Report, a useful round-up of existing codes and regulations relating to breeding and the use of breeding technologies relevant to farmed livestock. European Directive 98/58/EC concerning the protection of animals for farming purposes provides specific legislation in the EU on farm animal breeding. This is implemented in England through The Welfare of Farmed Animals (England) Regulations 2000 which state that “natural or artificial breeding procedures which cause or are likely to cause, suffering or injury to any of the animals concerned shall not be practised”, and that “no animal shall be kept for farming purposes unless it can reasonably be

expected, on the basis of their genotype or phenotype, that they can be kept without detrimental effect on their health and welfare”. FAWC concludes that “the lack of an adequate framework ... for the detailed consideration of how European Directive 98/58/EC may be interpreted and enforced is a significant gap in the welfare controls.”

Welfare considerations are discussed in Part III of the Report. This deals with welfare consequences of animal breeding, genotype and environment interactions, welfare surveillance, genetic modification, cloning, and ethical considerations. Accurate information on the prevalence of particular problems and on whether they are increasing or decreasing is crucial, and in FAWC's view there is an urgent need for the development of appropriate on-farm surveillance systems in the UK.

The final part of the Report consists of a proposal for a standing committee to consider animal breeding in agriculture. This would oversee the establishment of specific surveillance systems for the detection and monitoring of welfare problems with a genetic origin, advise how problems may be tackled, and address the broad range of ethical and welfare issues that relate to breeding farm livestock. An Appendix lists comments and recommendations on matters related to welfare and breeding from previous FAWC Reports.

This FAWC report highlights a subject of immense importance to animal welfare. Changes arising through breeding, by traditional or modern technological means, have the potential to affect the welfare of animals, throughout their lives, for the better or for the worse. The creation of a body to address and keep under review these issues would help ensure the subject is given the priority it requires.

AEBC (Agriculture and Environment Biotechnology Commission) 2002 *Animals and Biotechnology*. AEBC: London, UK

APC (The Animal Procedures Committee) 2001 *Report on Biotechnology*. Available at: <http://www.apc.gov.uk/reference/biorec.pdf>

Duncan IJH and Petherick JC 1991 The implications of cognitive processes for animal welfare. *Journal of Animal Science* 69: 5017-5022

FAWC (Farm Animal Welfare Council) FAWC Report on the Welfare Implications of Animal Breeding and Breeding Technologies in Commercial Agriculture (June 2004). 43 pp A4 paperback. Published by and available free of charge from the Farm Animal Welfare Council, 1A Page Street, London SW1P 4PQ, UK. Also available at: www.fawc.org.uk/pdf/breedingreport.pdf

J Kirkwood

UFAW

Veterinary health plan for farmed salmon

The Royal Society for the Prevention of Cruelty to Animals (RSPCA) has, with the assistance of Pete Southgate of the Fish Vet Group and Dr Steve Kestin of Bristol University, produced a set of guidance notes for fish farmers and their