

standing of animal welfare in modern farming practice. The report details educational issues associated with animal farming, including economics, environmental impact, food safety, diet and human health, consumer knowledge and ethics. It shows how these issues are relevant to different areas of the curriculum and defines ethics with regard to animal farming. The CIWF Trust proposes reforms to the content of the curriculum for 14–19 year old education to incorporate closer ties between academic and vocational studies. It is suggested that topics on farm animal health, husbandry, welfare, environmental impact and ethics should be included in both science and vocational education.

The document looks at the role 'education for sustainable development' has in the curriculum and how farm animal welfare could be incorporated into it (it is not covered at present). It is argued that teachers and students need to have ready access to sufficient factual information on farm animal welfare to enable reasoned ethical evaluation. The report then details where information on animal farming already exists in the curriculum and where opportunities to include it have been missed. The final section covers what the CIWF Trust believes is needed in the way of additions to the current curriculum, courses and textbooks. For example, CIWF would like to see the issue of humane and sustainable animal farming included in the core curriculum for all relevant educational areas at primary and secondary level; these would include all life sciences, food science, animal science and agriculture, environmental sciences, geography and citizenship.

The document goes into detail about the points in the present curriculum at which information about farm animal welfare could be added. It could be a useful tool for educators when they are developing the UK education system, since it provides good ideas about how and where to improve the current system and it points out areas where there are large omissions.

Educating Humane Citizens: Farm Animal Welfare and the Curriculum (2003). Report compiled by Dr Jacky Turner. 18 pp A4 paperback (ISBN 1 900156 27 X). Available from Education and Research Department, Compassion in World Farming Trust, 5a Charles Street, Petersfield, Hampshire GU32 3EH, UK.

Training non-human primates using positive reinforcement techniques

The Research Animals Department of the RSPCA and the University of Stirling co-organised a symposium at the XIXth Congress of the International Primatological Society, 4–9 August 2002, Beijing, China. The symposium brought together individuals involved in primate training in zoos and laboratories to discuss and disseminate information on this subject. The symposium papers, along with additional contributions, have now been published in a special issue of the *Journal of Applied Animal Welfare Science* (see details below). The papers provide quantitative data on the costs and benefits of positive reinforcement training and practical guidance on its application.

The issue contains an introductory paper from the guest editors in which they outline their views and current thinking

regarding positive reinforcement training. They stress that training primates to cooperate voluntarily, using positive reinforcement training techniques, is one means of significantly reducing the adverse impact of routine procedures and husbandry techniques on them and, therefore, acts as a refinement. The guest editors felt that, at the time of the symposium, it was timely to consider what use was currently being made of positive reinforcement training to train primates and how it can be used in the future. They stressed the importance of considering the possible outcomes of training prior to undertaking such work, otherwise the wrong behaviour could be reinforced inadvertently to produce unwanted changes in behaviour or health. In addition, they emphasised that the advantages and disadvantages of positive reinforcement training techniques as applied to primates in the laboratory deserve more extensive exploration, both for the sake of the primates involved and the quality of scientific data obtained.

All the articles in the special issue illustrate benefits to animals from positive reinforcement training, with some papers providing empirical data for assessing its effectiveness and value. Also, significant refinements are described; for example, a protocol for cooperation with blood collection that does not feature the cage squeeze-back mechanism, training for leaving and returning to the home cage that has replaced the use of the pole and collar system, and a method for in-home cage collection of urine. There are eight papers in addition to the introductory article. These are 'Use of positive reinforcement training techniques to enhance the care, management and welfare of primates in the laboratory'; 'Positive reinforcement training as a technique to alter nonhuman primate behaviour: quantitative assessments of effectiveness'; 'Working with rather than against macaques during blood collection'; 'Training nonhuman primates to cooperate with scientific procedures in applied biomedical research'; 'Training common marmosets to cooperate during routine laboratory procedures: ease of training and time investment'; 'Effects of training on stress-related behaviour of the common marmoset in relation to coping with routine husbandry procedures'; 'Primate training at Disney's Animal Kingdom'; and 'The development of an operant conditioning training program for new world primates at the Bronx Zoo'.

As a result of the symposium, many questions were identified for future consideration, including what are the best and most humane training techniques for particular species or tasks, and what is the optimal length of training sessions for particular species, tasks and group sizes. The guest editors hope to encourage further and wider application of positive reinforcement training to primate management, care and use, and to help laboratory animal care staff, scientists, research students, veterinarians, and zoo keepers in applying positive reinforcement training safely and effectively. The report would be a useful starting point for those interested in finding out more about positive reinforcement training and is a must for those already working in this field.

Training Non-Human Primates Using Positive Reinforcement Techniques (2003). Special Issue edited by Prescott MJ and Buchanan-Smith HM. A5 paperback. *Journal of Applied Animal Welfare Science* 6(3): 157-261.