

Searching for information on replacements to the use of animals in research

Russell and Burch's '3Rs' principles of humane experimental technique – replacement, reduction and refinement – have been accepted widely throughout the world. Researchers generally recognize the need for a thorough search for, and wherever possible use of, alternatives to using live animals. Evidence that such searches have been undertaken is expected by ethical committees responsible for judging applications for research, and is required by law in the UK and some other countries. As written in the UK Animals (Scientific Procedures) Act 1986, '*the Secretary of State shall not grant a licence unless he is satisfied (a) that the purpose of the programme to be specified in the licence cannot be achieved by any other reasonably practical method not entailing the use of animals ...*'. There have been developments in many fields of science in finding alternatives to the use of animals and a great deal of information has been published on the subject. However, this information is scattered widely in the scientific literature and because of this, and the relative scarcity of good reviews, searching for information on alternatives in particular fields can be difficult. The world wide web now provides the potential for obtaining information on almost any subject very rapidly but the value of this remarkable resource is, as all of us have come to discover, limited by the capacities of the available machinery for searching and finding. The 'web' is like a colossal encyclopaedia with entries of very variable quality and a misleading and fragmentary index. Considerable efforts are being made by a variety of organisations to develop improved methods for extracting reliable and complete information on 3Rs alternatives and this book published by FRAME (see below) is a very useful review.

The book covers the basics of constructing search profiles for searching on-line databases and for use on internet search engines, the development of strategies for searches on alternatives, overviews of internet search engines and key relevant databases (with particular information on free Medline on the internet), and provides names and addresses of other organisations and information services that may be helpful. It is clearly written and presented and is likely to prove to be a very valuable resource for those seeking information – and guidance on how to find information – on non-animal replacements for research (and for the other two Rs also).

Searching for Information on Non-animal Replacement Alternatives: A Guide to Search Techniques, Databases and Specialised Resources. 1999. Krys Bottrill. Fund for Replacement of Animals in Medical Experiments: Nottingham, UK. 52 pp. A4 paperback. Obtainable from the Fund for Replacement of Animals in Medical Experiments, Russell & Burch House, 96-98 North Sherwood Street, Nottingham NG1 4EE, UK (E-mail: frame@frame-uk.demon.co.uk). Single copies available free of charge.

Humane Killing of Livestock using Firearms

With the correct equipment and technique, shooting is a quick and humane method of despatch and it has particular application in the humane destruction of casualty animals. This booklet published by the Humane Slaughter Association describes the principles and practice of using free-bullet firearms for the humane killing of large farm animals. It provides a very valuable source of information for veterinarians, slaughtermen, police firearms officers, and others who may be directly or indirectly involved in humane killing of livestock. After sections on anatomical considerations, physical principles (eg the calculation of muzzle energy) and the physiological effects of shooting including clear information on the signs of an effective shot, brief reviews are provided on types of firearm and ammunition with guidance as to their suitability for various purposes. There are then four pages describing the correct shooting positions (location and angle of entry) for humane despatch of cattle, deer, horses, sheep, pigs and goats. These are clearly illustrated, using photographs of midline sections through heads,