

Animal Welfare

Vol 10 No 1

2001

Editorial

Articles

Nose-rings in pigs

Stocking density and broiler welfare

Mink welfare and behavioural selection

Environmental enrichment for seals

Cows' avoidance of slurry

Reducing equine stereotypies

Technical contribution

Heart rate monitoring in ungulates

Reports and comments

Book reviews

Books and CD-ROMs received

Letters



UNIVERSITIES
FEDERATION
FOR
ANIMAL
WELFARE

Animal Welfare

ISSN 0962-7286

Editor-in-Chief: James K Kirkwood

Publications Officer: Helen O'Leary

Typesetter: Samantha Griffin

Universities Federation for Animal Welfare

The Old School, Brewhouse Hill, Wheathampstead, Herts AL4 8AN, UK

Tel: 01582 831818 Fax: 01582 831414

Website: www.ufaw.org.uk

Section Editors

Farmed mammals and fish

Professor Berry M Spruijt

Animal Welfare Centre

Utrecht University

Yalelaan 17

3584 CL Utrecht, The Netherlands

Zoo and wild animals

Dr Miranda Stevenson

Ashlea

Dean Lane

Bishops Waltham

Hampshire SO32 1FX, UK

Ethics, philosophy and social science

Professor Peter Sandøe

Department of Animal Science and Animal Health

The Royal Veterinary and Agricultural University

Groenegaardsvej 8

DK-1870 Frederiksberg C, Denmark

General animal welfare studies

Professor David Fraser

Animal Welfare Program

Faculty of Agricultural Sciences and Centre

for Applied Ethics

University of British Columbia

2357 Main Mall, Vancouver, Canada V6T 1Z4

Editorial Advisers

Dr Robert Baker - ANZCCART, University of Adelaide, Australia

Dr M F Bouissou - INRA, Nouzilly, France

Professor D Broom - University of Cambridge, UK

Professor M Stamp Dawkins - University of Oxford, UK

Mr Roger Ewbank - Ealing, London, UK

Dr Michael Festing - University of Leicester, UK

Companion animals

Dr Dennis C Turner

Institute for applied Ethology and Animal Psychology

(IEAP)

Vorderi Siten 30

Postfach 8816 Hirzel, Switzerland

Laboratory animals

Professor Jann Hau

Department of Comparative Medicine

University of Uppsala

Box 570

75123 Uppsala, Sweden

Poultry

Dr Linda Keeling

Department of Animal Environment and Health

Swedish University of Agricultural Sciences

PO Box 234

SE-532 23 Skara, Sweden

Professor Benjamin Hart - University of California, Davis, USA

Mr C Barrie Hart - Berkhamsted, Herts, UK

Professor David Morton - University of Birmingham, UK

Dr James Serpell - University of Pennsylvania, USA

Professor John Webster - University of Bristol, UK

Professor Piet Wiepkema - Oosterbeek, The Netherlands

Animal Welfare (ISSN 0962-7286) brings together the results of scientific research and technical studies related to the welfare of animals kept on farms, in laboratories, as companions, in zoos or managed in the wild.

Subscription rates: Individuals £50/US\$100 per Volume; Corporate/Institutes/Libraries £70/US\$140 per Volume.

Orders: Can be made direct to UFAW and are accepted by Volume, which consists of four issues per year.

Papers: Instructions for authors are summarized on the inside back cover; comprehensive instructions are available from our website, or on request from UFAW. Manuscripts should be submitted preferably to the appropriate Section Editor, or to the Editor-in-Chief.

Animal Welfare is abstracted in *Biological Abstracts*; *CAB Abstracts*; *Current Contents/Agriculture, Biology and Environmental Sciences*; *Current Primate References*; *Focus on: Veterinary Science & Medicine*; *Humans & Other Species*; *Research Alert*; *SciSearch*; *Sociological Abstracts*; *Toxicology Abstracts*; *Veterinary Update*; is indexed in *Zoological Record*, and is covered by the *Science Citation Index*.

© 2001 UFAW

All rights reserved; no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means; electronic, mechanical, photocopying, recording or otherwise without the prior written permission of the Publisher. **Opinions expressed by authors do not necessarily reflect the views of UFAW, its Council, Staff, Members or Associates, the Section Editors or the Editorial Advisers.**

Animal Welfare

ISSN 0962-7286

Volume 10 Number 1

February 2001

CONTENTS

EDITORIAL	1
ARTICLES	
The use of nose-rings in pigs: consequences for rooting, other functional activities, and welfare	3
<i>R I Horrell, P J A'Ness, S A Edwards and J C Eddison</i>	
The effect of stocking density on the welfare and behaviour of broiler chickens reared commercially	23
<i>A L Hall</i>	
The welfare of farmed mink (<i>Mustela vison</i>) in relation to behavioural selection: a review	41
<i>J Malmkvist and S W Hansen</i>	
Environmental enrichment reduces the performance of stereotypic circling behaviour in captive common seals (<i>Phoca vitulina</i>)	53
<i>J A E Grindrod and J A Cleaver</i>	
A novel operant conditioning test to determine whether dairy cows dislike passageways that are dark or covered with excreta	65
<i>C J C Phillips and I D Morris</i>	
Reducing equine stereotypies using an Equiball™	73
<i>J V Henderson and N K Waran</i>	
TECHNICAL CONTRIBUTION	
A non-invasive system for remotely monitoring heart rate in free-ranging ungulates	81
<i>J V Gedir</i>	
REPORTS AND COMMENTS	91
Research topics identified by New Zealand's Animal Welfare Advisory Committee	
European Union enlargement and animal welfare	
Humane slaughter	
An on-line information resource on the use of animals in science	
Welfare aspects of trade in wild animals	
Welfare of farmed animals legislation	
BOOK REVIEWS	95
<i>Responsible Conduct with Animals in Research</i>	
<i>Poultry Health and Management: Chickens, Ducks, Turkeys, Geese and Quail, 4th edition</i>	
<i>The Domestic Cat: The Biology of its Behaviour, 2nd edition</i>	
<i>A Life for Deer: A Deer Vet Tells his Story and Theirs</i>	
<i>A Natural History of Domesticated Mammals, 2nd edition</i>	
<i>Laboratory Animal Law</i>	
<i>Managing Vertebrate Pests: Rodents</i>	
<i>Animal Revolution: Changing Attitudes Towards Speciesism</i>	
BOOKS AND CD-ROMS RECEIVED	111
LETTERS	113

Published by

Universities Federation for Animal Welfare

The Old School, Brewhouse Hill, Wheathampstead, Herts AL4 8AN, UK

Tel: 01582 831818 Fax: 01582 831414