

Canadian Journal of Animal Science

An International Journal Edited by the Canadian Society of Animal Science

Canadian Journal of Animal Science publishes original research on all aspects of domestic livestock and their products. Papers are published in the following subject areas: **Animal Biotechnology, Application of Technology, Behavior and Management, Breeding and Genetics, Meats, Pastures and Forages, Physiology, Ruminant Nutrition, and Non-ruminant Nutrition.** Reviews, symposium papers and letters to the Editor are published occasionally as well as abstracts of technical papers presented at the annual meeting of the Canadian Society of Animal Science.

Editor

A. Schaefer, Agriculture and Agri-Food Canada, Research Centre, Lacombe, Alberta, Canada T4L 1W1.

Some Recent Papers Published in the Journal

- Increasing piglet survival through an improved farrowing management protocol, *K.R. White, D.M. Anderson, and L.A. Bate*
- Cattle use of microclimates on a northern latitude winter range, *G.A. Houseal and B.E. Olson*
- Estimation of carcass composition by computer image analysis in the cross sections of cross-bred steers, *A.B. Karnuah, K. Moriya, K. Mitani, T. Yamazaki, and Y. Sasaki*
- The effect of dietary menhaden meal and storage on the omega-3 fatty acids and sensory attributes of egg yolk in laying hens, *D.M. Nash, R.M.G. Hamilton, K.A. Sanford, and H.W. Hulan*
- Comparison of methods for isolation of protozoa from ruminal fluid, *L. Neill and M. Ivan*

Information about Canadian Journal of Animal Science is available online at: <http://www.aic.ca>

Submission of manuscripts

Original research papers (four copies) should be submitted to Mr. T. Fenton, Agricultural Institute of Canada, Suite 1112, 141 Laurier Ave. W., Ottawa, ON, Canada K1P 5J3. Papers are subject to peer review; a page charge is levied on accepted papers.

Subscriptions

Canadian Journal of Animal Science is published in March, June, September and December. Subscription rates for 1997 are: for individuals in Canada \$58.00, in all other countries \$62.00; institutional rates are \$90.00 in Canada, \$113.00 in all other countries. Prices are in Canadian dollars, but may be paid in the US equivalent. Surface mail free, airmail add C\$55.00. Canadian subscribers add 7% GST (GST registration number is R106689094). ISSN 0008-3984

Write to : Subscriptions, Agricultural Institute of Canada, Suite 1112, 141 Laurier Ave. W., Ottawa, Ontario, Canada K1P 5J3. Tel: (613) 232-9459, Fax: (613) 594-5190, E-mail journals@aic.ca

Published by the Agricultural Institute of Canada

Corrigendum

Effect of increasing digestible undegraded protein supply to dairy cows in late gestation on the yield and composition of milk during the subsequent lactation

J. M. Moorby, R. J. Dewhurst and S. Marsden

Animal Science 1996, **63**: 201-213

The levels of significance and probability quoted in the **Abstract** refer to the parallel curve analysis of weekly mean data and not to the difference between treatment means determined by analysis of variance.

Illustrations. The same material should not normally be presented in tables and figures. Legends should be typed on a separate sheet.

a) Diagrams should be drawn in black ink, about twice the size of the finished block, on white paper or card, stout tracing paper or plastic film. Photographed diagrams are also accepted. Lettering inside the framework of the diagram should be avoided as far as possible but if unavoidable it should be included on a fly-leaf.

b) Photographs intended for half-tone reproduction should be on glossy paper. They will be accepted only if found necessary by the editors.

c) Colour plates are unlikely to be accepted unless the authors bear the cost.

Tables should be as simple and as few as possible. Each table should be typed on a separate sheet.

Abstract. Every paper should have a short abstract (not more than 250 words) complete in itself and understandable without reference to the paper. The abstract will be printed at the beginning of the paper and preferably should be in the format of unnumbered short paragraphs.

Keywords. Up to a maximum of five keywords selected from the *CAB Thesaurus* (1995) or from an equivalent reference volume should be listed at the end of the Abstract.

References. Only papers closely related to the author's work should be referred to; exhaustive lists should be avoided. References with three or more authors should be cited in the first and subsequent occasions with the first author in full followed by *et al.* (e.g. Smith, Jones and Brown: Smith *et al.*). References with two authors should be cited in full on all occasions. References should be given in full in the Reference list and it is the responsibility of authors to check for absolute accuracy in every detail of the reference.

Proofs are supplied once and must be returned corrected to the editors within 3 days. Only essential corrections should be made.

Reprints. Twenty-five reprints of each paper will be supplied free of charge to authors on request. Further copies may be purchased if the order is sent at the proof-stage.

Annual subscription is £165.00 (or \$295.00 in the USA and Canada) and the price for a single part is £28.00 (or \$50.00) net.

Abstracts of papers presented at British Society of Animal Science winter meeting are published as a separate section in the June issue of *Animal Science*.

Correspondence regarding subscriptions and sales (current and back numbers of the Journal) and any other enquiries, including those concerning copyright, should be addressed to: Durrant Periodicals, Winton Lea, Pencaitland, East Lothian, Scotland EH34 5AY.

Senior editor

T. L. J. Lawrence, University of Liverpool, UK

Editors

M. V. Dodson, Washington State University, USA

W. Haresign, University of Wales, Aberystwyth, UK

J. Jensen, Danish Institute of Animal Science, Foulum, Denmark

J. J. Kennelly, University of Alberta, Canada

I. J. Lean, Wye College, University of London, UK

K. Lundström, Swedish University of Agricultural Sciences, Sweden

C. S. Mayne, Agricultural Research Institute of Northern Ireland, Hillsborough, UK

C. A. Morgan, Scottish Agricultural College, Edinburgh, UK

P. J. Moughan, Massey University, New Zealand

F. W. Nicholson, University of Sydney, Australia

J. D. Oldham, Scottish Agricultural College, Edinburgh, UK

E. Owen, University of Reading, UK

J. D. Reed, University of Wisconsin, USA

R. E. Short, US Department of Agriculture, Montana, USA

A. J. F. Webster, University of Bristol, UK

J. D. Wood, University of Bristol, UK

J. A. Woolliams, Roslin Institute, Edinburgh, UK

Technical editors

Hilary Davies, Liverpool, UK

Carol Woolliams, Peebles, UK

Notes to users in the USA. The appearance of the fee codes in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use on the following conditions. The copier must pay the stated per-copy fee through the Copyright Clearance Center, Inc., 21 Congress Street, Salem, Massachusetts 01970, USA, for copying beyond that permitted by sections 107 and 108 of the US Copyright Law. For territories outside North America, permission should be sought direct from the copyright holder. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising and promotional purposes, for creating new collective works or for resale.

Contents	Page
Tolkamp, B. J. and Kyriazakis, I. Measuring diet selection in dairy cows: effect of training on choice of dietary protein level	197
Fall, A., Pearson, R. A. and Lawrence, P. R. Nutrition of draught oxen in semi-arid west Africa. 1. Energy expenditure by oxen working on soils of different consistencies	209
Fall, A., Pearson, R. A., Lawrence, P. R. and Fernández-Rivera, S. Nutrition of draught oxen in semi-arid west Africa. 2. Effect of work on intake, apparent digestibility and rate of passage of food through the gastro-intestinal tract in draught oxen given crop residues	217
Fall, A., Pearson, R. A. and Fernández-Rivera, S. Nutrition of draught oxen in semi-arid west Africa. 3. Effect of body condition prior to work and weight losses during work on food intake and work output	227
Rometsch, M., Roser, U., Becker, K. and Susenbeth, A. Heart rate and respiratory adjustments during work of increasing intensity in Hinterwaelder and zebu oxen	233
Sibbald, A. M. The effect of body condition on the feeding behaviour of sheep with different times of access to food	239
Sibbald, A. M. and Rhind, S. M. The effect of previous body condition on appetite and associated insulin profiles in sheep	247
Degen, A. A., Blanke, A., Becker, K., Kam, M., Benjamin, R. W. and Makkar, H. P. S. The nutritive value of <i>Acacia saligna</i> and <i>Acacia salicina</i> for goats and sheep	253
Galbraith, H., Singh, S. B. and Scaife, J. R. Response of castrated male sheep to oestrogenic and androgenic compounds implanted alone or in combination	261
Galbraith, H., Minassie, B. and Scaife, J. R. Effect of the β -adrenergic agonist cimaterol and dietary protein level on fat young sheep given diets containing submaintenance levels of dietary energy	271
Glazko, V. I., Owen, J. B., Ap Dewi, I. and Axford, R. F. E. An association of haemoglobin protein (HBB) with ovulation rate in Cambridge sheep	279
Mendizabal, J. A., Soret, B., Purroy, A., Arana, A. and Horcada, A. Influence of sex on cellularity and lipogenic enzymes of Spanish lamb breeds (Lacha and Rasa Aragonesa)	283
Yapi-Ganoré, C. V., Oya, A., Rege, J. E. O. and Dagnogo, B. Analysis of an open nucleus breeding programme for Djallonké sheep in the Ivory Coast. 1. Examination of non-genetic factors	291
Yapi-Ganoré, C. V., Rege, J. E. O., Oya, A. and Nega Alemayehu Analysis of an open nucleus breeding programme for Djallonké sheep in the Ivory Coast. 2. Response to selection on body weights	301
Wylie, A. R. G., Chestnutt, D. M. B. and Kilpatrick, D. J. Growth and carcass characteristics of heavy slaughter weight lambs: effects of sire breed and sex of lamb and relationships to serum metabolites and IGF-1	309
Morris, C. A., Vlassoff, A., Bisset, S. A., Baker, R. L., West, C. J. and Hurford, A. P. Responses of Romney sheep to selection for resistance or susceptibility to nematode infection	319
Offer, N. W. A comparison of the effects on voluntary intake by sheep of dietary addition of either silage juices or lactic acid solutions of the same neutralizing value	331
Wattanukul, W., Sinclair, A. G., Stewart, A. H., Edwards, S. A. and English, P. R. Performance and behaviour of lactating sows and piglets in crate and multisuckling systems: a study involving European White and Manor Meishan genotypes	339
Hansen, L. L., Larsen, A. E., Jensen, B. B. and Hansen-Møller, J. Short time effect of zinc bacitracin and heavy fouling with faeces plus urine on boar taint	351
Ferguson, N. S. and Gous, R. M. The influence of heat production on voluntary food intake in growing pigs given protein-deficient diets	365
Hulsege, B. and Merkus, G. S. M. A comparison of the optical probe HGP and the ultrasonic devices Renco and Pie Medical for estimation of the lean meat proportion in pig carcasses	379