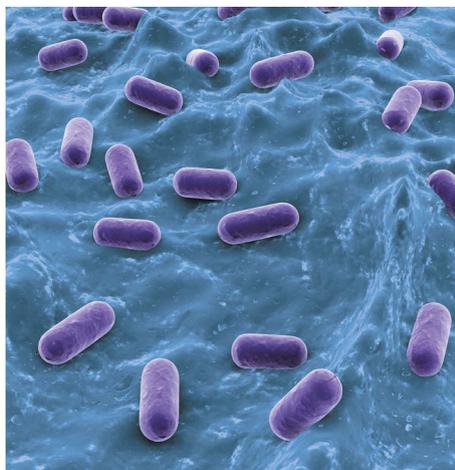


Journal of Dairy Research

mammary biology
lactation
food and nutrition

journals.cambridge.org/dar



Journal of Dairy Research

Executive Editors:

DG Chamberlain, EC Needs, Hannah Research Park, Mauchline Road, Ayr KA6 5HL, UK.

Tel 01292 477006, Fax 01292 476821, E-mail jdr@hannahresearch.org.uk

Aims and Scope

The Journal of Dairy Research publishes original research on all aspects of dairy science. These include animal husbandry, the physiology, biochemistry and endocrinology of lactation, milk production, composition, preservation, processing and separation, biotechnology and food science, properties of milk proteins and other components, relevant studies in bacteriology, enzymology and immunology, dairy products such as cheese, fermented milks and spreads, the use of milk products in other foods, and the development of methods relevant to these subjects. The journal does not normally publish papers based solely on data from surveys.

Submission of Papers

Papers for publication should be sent to the Editor: DG Chamberlain, Hannah Research Park, Mauchline Road, Ayr KA6 5HL, UK. Please consult the Instructions for Contributors published in the back of each journal and also the expanded version at http://titles.cambridge.org/journals/journals_catalogue.asp?mnemonic=dar

Abstracting and Indexing

The journal is listed in the major relevant abstracting and indexing services worldwide, including: Analytical Abstracts, Biological Abstracts, Biotechnological Research Abstracts, Chemical Abstracts, Current Awareness in Biological Sciences, Current Contents, Dairy Science Abstracts, Food Science and Technology Abstracts, and Nutrition Abstracts and Reviews.

Advertising

Advertising queries for all parts of the world except the USA, Canada and Mexico to: ad_sales@cambridge.org Address enquiries in the USA, Mexico and Canada only to: USAdSales@cambridge.org

Subscriptions

Journal of Dairy Research (ISSN 0022-0299) is published four times a year (one volume per annum) in February, May, August, and November. Volume 81 will appear in 2014. The 2014 subscription price (excluding VAT but including by air where appropriate) of a volume, which includes print and electronic access to institutions, is £750 (US\$1277 in USA, Canada and Mexico). The electronic-only price available to institutional subscribers is £587 (US\$999 in USA, Canada and Mexico). Single parts are £199.92 (US\$340.45 in the USA, Canada and Mexico) plus postage. EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered members should provide their VAT registration number.

Orders, which must be accompanied by payment, may be sent to any bookseller, subscription agent or direct to the publisher: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU, UK; or in the USA, Canada and Mexico: Cambridge University Press, Journals Fulfillment Department, 32 Avenue of the Americas, New York, NY 10013-2473, USA.

Japanese prices for institutions (including ASP delivery) are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo 156, Japan. Prices include delivery by air. Periodicals postage paid at New York, NY, and at additional mailing offices.

Postmaster: send address changes the USA, Canada and Mexico to: Journal of Dairy Research, Cambridge University Press, 32 Avenue of the Americas, New York, NY 10013-2473, USA.

Periodicals postage paid at New York, NY, and at additional mailing offices. POSTMASTER: send address changes the USA, Canada and Mexico to: *Journal of Dairy Research*, Cambridge University Press, 32 Avenue of the Americas, New York, NY 10013-2473, USA.

Claims

Claims for missing issues should be made immediately on receipt of the subsequent issue.

Back volumes

Enquiries about the price and availability of back issues should be directed to the Publisher at the addresses given above under Subscriptions.

Copyright and Permissions

This journal is registered with the Copyright Clearance Center, 32 Avenue of the Americas, New York, NY 10013-2473, USA. Organizations in the USA who are also registered with C.C.C. may therefore photocopy material (beyond the limits permitted by Section 107 and 108 of U.S. Copyright law) subject to payment to C.C.C. of the per-copy fee of \$16.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0022-0299/2014 \$16.00. ISI Tear Sheet Service, 32 Avenue of the Americas, New York, NY 10013-2473, USA, is authorised to supply single photocopies of separate articles for private use only. Organizations authorised by the UK Copyright Licensing Agency may also copy material subject to the usual conditions. For all other use, permission should be sought from Cambridge University Press.

No part of this publication may otherwise be reproduced, stored or distributed by any means without permission in writing from Cambridge University Press, acting for the Proprietors of Journal of Dairy Research.

Electronic Access

This journal is included in the Cambridge Journals Online service which can be found at: <http://journals.cambridge.org>

Further information on this and other Cambridge University Press titles is available on the Cambridge University Press homepage at <http://www.cambridge.org>

Copyright © 2014 Proprietors of Journal of Dairy Research

Cambridge University Press

The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU, United Kingdom

32 Avenue of the Americas, New York, NY 10013-2473, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

Ruiz de Alarcón 13, 28014 Madrid, Spain

Dock House, The Waterfront, Cape Town 8001, South Africa

Printed in the UK by Bell & Bain Limited

This journal issue has been printed on FSC-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see www.fsc.org for information.

Photograph of cows in the field on the cover courtesy of Institute for Animal Health ©