

# Journal of Dairy Research

An International Journal of the Lactation Sciences

[cambridge.org/dar](https://www.cambridge.org/dar)



# Journal of Dairy Research

## Editor:

CH Knight, University of Copenhagen.  
jdr@hannahresearch.org.uk

## Aims and Scope

The Journal of Dairy Research is an international Journal of high-standing that publishes original scientific research on all aspects of the biology, wellbeing and technology of lactating animals and the foods they produce.

## Submission of Papers

The Journal of Dairy Research welcomes submission of Research Papers and shorter Research Communications. Submission is online at <http://www.journalofdairyresearch.org>

## 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](mailto:ad_sales@cambridge.org) Address enquiries in the USA, Mexico and Canada only to: [USAdSales@cambridge.org](mailto:USAdSales@cambridge.org)

## Subscriptions

The Journal of Dairy Research (ISSN 0022-0299) is published four times a year (one volume per annum) in February, May, August, and November. Volume 91 will appear in 2024. The 2024 subscription price (excluding VAT but including by air where appropriate) of a volume, which includes print and electronic access to institutions, is £1293 (US\$2200 in USA, Canada and Mexico). The electronic-only price available to institutional subscribers is £797 (US\$1355 in USA, Canada and Mexico). Single parts are £385 (US\$655 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, University Printing House, Shaftesbury Road, Cambridge CB2 8RU, UK; or in the USA, Canada and Mexico: Cambridge University Press, Journals Fulfillment Department, 1 Liberty Plaza, Floor 20, New York, NY 10006, 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, 1 Liberty Plaza, Floor 20, New York, NY 10006, USA.

Periodicals postage paid at New York, NY, and at additional mailing offices.

## 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, 1 Liberty Plaza, Floor 20, New York, NY 10006, 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, 1 Liberty Plaza, Floor 20, New York, NY 10006, 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 journal proprietors, Hannah Research Foundation.

## Electronic Access

This journal is included in the Cambridge Core Online service which can be found at: [www.cambridge.org/core](http://www.cambridge.org/core)

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

Copyright © Hannah Dairy Research Foundation 2024

## Cambridge University Press

Cambridge University Press, Journals Fulfillment Department, UPH, Shaftesbury Road, Cambridge CB2 8BS, UK.

1 Liberty Plaza, Floor 20, New York, NY 10006, 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 and bound by CPI Group (UK) Ltd, Croydon, CR0 4YY

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](http://www.fsc.org) for information.

Photograph of 'cows' on the cover courtesy of ©Peter Clark/Shutterstock