

CAMBRIDGE

JOURNALS

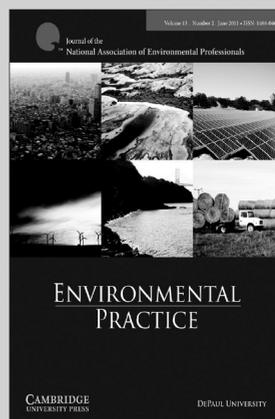
# Environmental Practice

Published for the National Association of Environmental Professionals

## Editor

Tim Stretton, *Saint Mary's University, Canada*

*Environmental Practice* provides a multidisciplinary forum for authoritative discussion and analysis of issues of wide interest to the international community of environmental professionals, with the intent of developing innovative solutions to environmental problems for public policy implementation, professional practice, or both. Peer-reviewed original research papers, environmental reviews, and commentaries, along with news articles and points of view, link findings in science and technology with issues of public policy, health, environmental quality, law, political economy, management, and the appropriate standards for expertise.



## *Environmental Practice*

is available online at:

<http://journals.cambridge.org/enp>

## To subscribe contact Customer Services

### in Cambridge:

Phone +44 (0)1223 326070

Fax +44 (0)1223 325150

Email [journals@cambridge.org](mailto:journals@cambridge.org)

### in New York:

Phone +1 (845) 353 7500

Fax +1 (845) 353 4141

Email

[subscriptions\\_newyork@cambridge.org](mailto:subscriptions_newyork@cambridge.org)

## Free email alerts

Keep up-to-date with new material – sign up at

[journals.cambridge.org/register](http://journals.cambridge.org/register)

For free online content visit:  
<http://journals.cambridge.org/enp>



CAMBRIDGE  
UNIVERSITY PRESS

# animal

Published for The Animal Consortium  
[www.animal-journal.eu](http://www.animal-journal.eu)

**Editor-in-Chief**

Michel Doreau, *INRA, Clermont-Theix, France*

*animal* publishes original cutting-edge research, 'hot' topics and horizon-scanning reviews on animal-related aspects of the life sciences at the molecular, cellular, organ, whole animal and production system levels.

The main subject areas include: breeding and genetics; nutrition; physiology and functional biology of systems; behaviour, health and welfare; farming systems, environmental impact and climate change; product quality, human health and well-being.

---

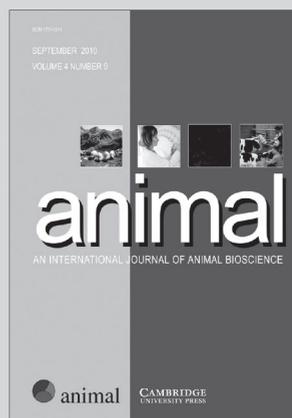
**For free online content visit:**

<http://journals.cambridge.org/anmsample>

**Free email alerts**

Keep up-to-date with new content

<http://journals.cambridge.org/anm-alerts>

**animal**

is available online at:

<http://journals.cambridge.org/anm>

**To subscribe contact  
Customer Services****Americas:**

Phone +1 (845) 353 7500

Fax +1 (845) 353 4141

Email

[subscriptions\\_newyork@cambridge.org](mailto:subscriptions_newyork@cambridge.org)

**Rest of world:**

Phone +44 (0)1223 326070

Fax +44 (0)1223 325150

Email [journals@cambridge.org](mailto:journals@cambridge.org)

**Price Information**

is available at:

<http://journals.cambridge.org/anm>



**CAMBRIDGE**  
UNIVERSITY PRESS

# Plant Genetic Resources

Published on behalf of the  
National Institute of Agricultural Botany (NIAB)

## Editor-in-Chief

Robert Koebner, *CropGen International, UK*

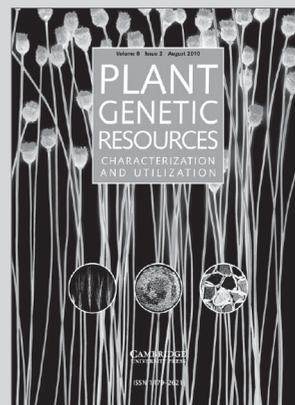
*Plant Genetic Resources* is an international journal that brings together the many diverse topics concerned with plant genetic resources. Each issue provides access to peer-reviewed research papers on genetic variation in plants, both crop and non-crop, as well as on the technical, socio-economic, legal and geo-political aspects of PGR. Many papers feature research directed to endangered non-crop and medicinal plants. The journal is of interest to researchers and scientists involved in the plant genetic resources community, including: breeders, all those with an interest in germplasm, policy makers, consultants and research students.

**For free online content visit:**  
[http://journals.cambridge.org/pgr\\_sample](http://journals.cambridge.org/pgr_sample)

## Free email alerts

Keep up-to-date with new content

<http://journals.cambridge.org/pgr-alerts>



*Plant Genetic Resources*  
is available online at:  
<http://journals.cambridge.org/pgr>

## To subscribe contact Customer Services

### Americas:

Phone +1 (845) 353 7500

Fax +1 (845) 353 4141

Email

[subscriptions\\_newyork@cambridge.org](mailto:subscriptions_newyork@cambridge.org)

### Rest of world:

Phone +44 (0)1223 326070

Fax +44 (0)1223 325150

Email [journals@cambridge.org](mailto:journals@cambridge.org)

## Price Information

is available at:

<http://journals.cambridge.org/pgr>



**CAMBRIDGE**  
UNIVERSITY PRESS

# Animal Health Research Reviews

Published in collaboration with the Conference of Research  
Workers in Animal Diseases

## Editor-in-Chief

C. Gyles, *University of Guelph, Canada*

*Animal Health Research Reviews* provides an international forum for the publication of reviews and commentaries on all aspects of animal health. Papers include in-depth analyses and broader overviews of all facets of health and science in both domestic and wild animals. Major subject areas include physiology and pharmacology, parasitology, bacteriology, food and environmental safety, epidemiology and virology. The journal will be of interest to researchers involved in animal health, parasitologists, food safety experts and academics interested in all aspects of animal production and welfare.

**For free online content visit:**  
<http://journals.cambridge.org/ahrsample>

## Free email alerts

Keep up-to-date with new content

<http://journals.cambridge.org/ahr-alerts>



*Animal Health Research Reviews*  
is available online at:  
<http://journals.cambridge.org/ahr>

## To subscribe contact Customer Services

### Americas:

Phone +1 (845) 353 7500

Fax +1 (845) 353 4141

Email

[subscriptions\\_newyork@cambridge.org](mailto:subscriptions_newyork@cambridge.org)

### Rest of world:

Phone +44 (0)1223 326070

Fax +44 (0)1223 325150

Email [journals@cambridge.org](mailto:journals@cambridge.org)

## Price Information

is available at:

<http://journals.cambridge.org/ahr>



**CAMBRIDGE**  
UNIVERSITY PRESS

## **COPYING**

No contents may be reproduced by any means without the permission of Cambridge University Press. This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA ([www.copyright.com](http://www.copyright.com)). Organizations in the USA who are also registered with the CCC may therefore copy material (beyond the limits permitted by sections 107 and 108 of US copyright law) subject to payment to CCC. This consent does not extend to multiple copying for promotional or commercial purposes. *ISI Tear Sheet Service*, 3501 Market Street, Philadelphia, PA 19106, USA, is authorized to supply single copies of separate articles for private use only. Organizations authorized by the Copyright Licensing Agency may also copy material subject to the usual conditions. *For all other use*, permission should be sought from Cambridge or the American Branch of Cambridge University Press.

## **INTERNET ACCESS**

This journal is included in the Cambridge Journals Online service which can be found at <http://www.journals.cambridge.org> For further information on other Press titles access [www.cambridge.org](http://www.cambridge.org)

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.

## **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 United Kingdom by the University Press, Cambridge*

# THE JOURNAL OF AGRICULTURAL SCIENCE

## CONTENTS

### CROPS AND SOILS PAPERS

- N. COLBACH, B. CHAUVEL, H. DARMENCY and Y. TRICAULT Sensitivity of weed emergence and dynamics to life-traits of annual spring emerging weeds in contrasting cropping systems, using weed beet (*Beta vulgaris* ssp. *vulgaris*) as an example 679
- R. CAO, M. FRANCISCO-FERNÁNDEZ, A. ANAND, F. BASTIDA and J. L. GONZÁLEZ-ANDÚJAR Computing statistical indices for hydrothermal times using weed emergence data 701
- P. PELTONEN-SAINIO, A. RAJALA and L. JAUHAINEN Hidden viability risks in the use of farm-saved small-grain seed 713
- M. FERNÁNDEZ-GONZÁLEZ, O. ESCUREDO, F. J. RODRÍGUEZ-RAJO, M. J. AIRA and V. JATO Prediction of grape production by grapevine cultivar Godello in north-west Spain 725
- Q. CHEN, X. D. ZHANG, S. S. WANG, Q. F. WANG, G. Q. WANG, H. J. NIAN, K. Z. LI, Y. X. YU and L. M. CHEN Transcriptional and physiological changes of alfalfa in response to aluminium stress 737
- M. KREFT, M. BERDEN-ZRIMEC, A. ZRIMEC, M. ERDANI KREFT, I. KREFT and S. KREFT Pumpkin fruit, seed and oil yield is independent of fruit or seed photosynthesis 753

### ANIMAL PAPERS

- V. R. HERLING, C. G. S. PEDREIRA, P. H. DE C. LUZ, G. J. BRAGA, W. A. MARCHESIN, F. B. MACEDO and C. G. DE LIMA Performance and productivity of Nellore steers on rotationally stocked palisadegrass (*Brachiaria brizantha*) pastures in response to herbage allowance 761

### MODELLING ANIMAL SYSTEMS PAPERS

- G. ANDRÉ, B. ENGEL, P. B. M. BERENTSEN, G. VAN DUINKERKEN and A. G. J. M. OUDE LANSINK Adaptive models for online estimation of individual milk yield response to concentrate intake and milking interval length of dairy cows 769
- K. OISHI, T. IBI, A. K. KAHI and H. HIROOKA Optimal culling strategy in relation to biological and economic efficiency and annualized net revenue in the Japanese Black cow-calf production system 783

- FORTHCOMING EVENTS 801

*Journal of Agricultural Science* now accepts submissions via Manuscript Central.  
Go to <http://mc.manuscriptcentral.com/jagricsci>

Cambridge Journals Online

For further information about this journal  
please go to the journal website at:  
[journals.cambridge.org/ags](http://journals.cambridge.org/ags)



CAMBRIDGE  
UNIVERSITY PRESS