

CAMBRIDGE

JOURNALS

Climate Change & Agriculture

Coming up throughout 2010 *The Journal of Agricultural Science* will feature a series of papers from around the world dealing with the impacts of agriculture on climate change and the impacts of climate change on agriculture.

Three guest editors will cover:

1 climate change, water and agriculture

*Robert Stefanski,
World Meteorological Organization (WMO)*

2 mitigation

*Josef Eitzinger,
University of Natural Resources and
Applied Sciences, Vienna (BOKU)*

3 adaptation

*Simone Orlandini,
University of Florence*

To be the first to hear about this new research as soon as it is published online, register for *FirstView* article alerts at journals.cambridge.org/ags/alerts



CAMBRIDGE
UNIVERSITY PRESS



SEED SCIENCE RESEARCH

Published on behalf of the
International Society of Seed Science

Seed Science Research

is available online at:

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

To subscribe contact Customer Services

in Cambridge:

Phone +44 (0)1223 326070

Fax +44 (0)1223 325150

Email journals@cambridge.org

in New York:

Phone +1 (845) 353 7500

Fax +1 (845) 353 4141

Email

subscriptions_newyork@cambridge.org

Editor

H. W. M. Hilhorst, Wageningen University, The Netherlands

Seed Science Research, the official journal of the International Society for Seed Science, is a leading international journal featuring high-quality original papers and review articles on the fundamental aspects of seed science, reviewed by internationally distinguished editors. The emphasis is on the physiology, biochemistry, molecular biology and ecology of seeds.

Price information is available at:
<http://journals.cambridge.org/ssr>

Free email alerts

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

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

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



**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). 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 <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 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

REVIEW

- D. J. GREENWOOD, K. ZHANG, H. W. HILTON and A. J. THOMPSON Opportunities for improving irrigation efficiency with quantitative models, soil water sensors and wireless technology 1

MODELLING ANIMAL SYSTEMS PAPERS

- K. HUA, S. BIRKETT, C. F. M. DE LANGE and D. P. BUREAU Adaptation of a non-ruminant nutrient-based growth model to rainbow trout (*Oncorhynchus mykiss* Walbaum) 17
- V. VOLPE, J. P. CANT, R. C. BOSTON, P. SUSMEL and P. MOATE Development of a dynamic mathematical model for investigating mammary gland metabolism in lactating cows 31
- A. BANNINK, M. C. J. SMITS, E. KEBREAB, J. A. N. MILLS, J. L. ELLIS, A. KLOP, J. FRANCE and J. DIJKSTRA Simulating the effects of grassland management and grass ensiling on methane emission from lactating cows 55

CROPS AND SOILS PAPERS

- M. E. CISNEROS-LÓPEZ, L. E. MENDOZA-ONOFRE, H. A. ZAVALETA-MANCERA, V. A. GONZÁLEZ-HERNÁNDEZ, G. MORA-AGUILERA, L. CÓRDOVA-TÉLLEZ and M. HERNÁNDEZ-MARTÍNEZ Pollen–pistil interaction, pistil histology and seed production in A × B grain sorghum crosses under chilling field temperatures 73
- L. LÁZARO, P. E. ABBATE, D. H. COGLIATTI and F. H. ANDRADE Relationship between yield, growth and spike weight in wheat under phosphorus deficiency and shading 83
- S. Y. ZHUANG and M. K. WANG Model estimation of ammonia volatilization from a paddy rice field after application of a surface film-forming material 95

ANIMAL PAPER

- J. A. RIVEIRO, M. F. MAREY-PÉREZ, E. R. DÍAZ-VARELA and C. J. ÁLVAREZ A methodology for the analysis of the relationships between farms and their physical environment 101

- CORRESPONDENCE 117

- BOOK REVIEW 123

- FORTHCOMING EVENTS 125

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