Our Sustainable Future

The series *Our Sustainable Future* provides an interdisciplinary forum for discussion of issues bearing on the development of sustainable communities and resource bases at both the local and the global levels.

Building Soils for Better Crops Organic Matter Management

Fred Magdoff

Written for farmers, gardeners, extension specialists, and others interested in the practical stewardship of our natural resources, Building Soils for Better Crops presents the latest information on soil organic matter and explains modern management techniques along with the best of the older practices. Fred Magdoff discusses the nature of organic matter and its function in the soil and reviews practices for building up and maintaining soil organic matter, including strategies for reduced tillage, residue management, and crop rotations. \$22.95

Agricultural Research Alternatives

William Lockeretz and Molly D. Anderson

Available in October \$30.00

Ogallala Water for a Dry Land

John Opie

"Extremely important and timely as a case study not only in the complex variables affecting the relationship between farmers and groundwater, but also as a blueprint for the future of the region."---Donald E. Green, Central State University, Oklahoma.

Focusing on the Ogallala aquifer, John Opie vividly portrays the south-central plains—its natural resources, the history of settlement and dryland farming, and the remarkable irrigation technologies that have industrialized farming in the region. \$35.00

Crop Improvement for Sustainable Agriculture

Edited by M. Brett Callaway and Charles A. Francis

Available in November \$35.00



At bookstores or **University of Nebraska Press** Lincoln, NE 68588-0520 • 800-755-1105

Continued from inside front cover

Back volumes. Inquiries for Vols. 1–32 of *The Empire Journal of Experimental Agriculture* should be addressed to Wm Dawson & Sons Ltd, Cannon House, Folkestone, Kent. Previously published parts of *Experimental Agriculture* are available from Cambridge or the American Branch of Cambridge University Press.

Preparation and submission of manuscripts. Detailed instructions on the preparation of manuscripts are printed at the back of the first number of each volume of this journal.

Potential contributors are asked to give careful attention to these instructions. This will greatly assist the editors and thus speed the processing of their contributions.

Copying. This journal is registered with the Copyright Clearance Center, 27 Congress St., Salem, Mass. 01970. Organizations in the USA who are also registered with C.C.C. may therefore copy material (beyond the limits permitted by sections 107 and 108 of US copyright law) subject to payment to C.C.C. of the per copy fee of \$5.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0014-4797/93 \$5.00+3.00.

ISI Tear Sheet Service, 3501 Market Street, Philadelphia, Pennsylvania 19104, 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.

CAMBRIDGE UNIVERSITY PRESS

The Pitt Building, Trumpington Street, Cambridge CB2 1RP 40 West 20th Street, New York, NY 10011–4211, USA 10 Stamford Road, Oakleigh, Melbourne 3166, Australia

Printed in Great Britain at the University Press, Cambridge

VOLUME 29 NUMBER 3 JULY 1993

L

Experimental Agriculture

CONTENTS

R. J. Summerfield, R. J. Lawn, A. Qi, R. H. Ellis, E. H. Roberts, P. M. Chay, J. B. Brouwer, J. L. Rose, S. Shanmugasundaram, S. J.	
Yeates and S. Sandover: Towards the Reliable Prediction of Time to Flowering in Six Annual Crops. II. Soyabean (<i>Glycine max</i>)	253
B. Gail Smith, William Stephens, Paul J. Burgess and M. K. V. Carr: Effects of Light, Temperature, Irrigation and Fertilizer on Photosynthetic Rate in Tea (<i>Camellia sinensis</i>)	291
N. H. Nam, Y. S. Chauhan and C. Johansen: Comparison of Extra- short-duration Pigeonpea with Short-season Legumes under Rainfed Conditions on Alfisols	307
A. Larbi, M. A. Jabbar, A. N. Atta-Krah and J. Cobbina: Effect of Taking a Fodder Crop on Maize Grain Yield and Soil Chemical Properties in Leucaena and Gliricidia Alley Farming Systems in Western Nigeria	317
William Stephens and M. K. V. Carr: Responses of Tea (Camellia sinensis) to Irrigation and Fertilizer. III. Shoot Extension and Development	323
H. O. Odhiambo, J. O. Nyabundi and J. Chweya: Effects of Soil Moisture and Vapour Pressure Deficits on Shoot Growth and the Yield of Tea in the Kenya Highlands	341
J. K. Itabari, P. J. Gregory and R. K. Jones: Effects of Temperature, Soil Water Status and Depth of Planting on Germination and Emergence of Maize (<i>Zea mays</i>) Adapted to Semi-arid Eastern Kenya	351
B. A. Ruhigwa, M. P. Gichuru, N. M. Tariah, N. O. Isirimah and D. C. Douglas: Spatial Variability in Soil Chemical Properties under Dactyladenia barteri, Alchornea cordifolia, Senna siamea and Gmelina arborea Hedgerows on an Acid Liltisol	365
J. M. Njoroge, K. Waithaka and J. A. Chweya: Effects of Intercropping Young Plants of the Compact Arabica Coffee Hybrid Cultivar Ruiru 11 with Potatoes, Tomatoes, Beans and Maize on Coffee Yields and Economic Returns in Kenya	373
W. Grisley and Moffat Shamambo: An Analysis of the Adoption and Diffusion of Carioca Beans in Zambia Resulting from an Experimental Distribution of Seed	379
Book Reviews	387



CAMBRIDGE UNIVERSITY PRESS