

INSECT SCIENCE AND ITS APPLICATION

The International Journal of Tropical Insect Science

Editor: **Thomas R Odhiambo**
International Centre of Insect Physiology and Ecology (ICIPE)



PERGAMON PRESS

OXFORD · NEW YORK · PARIS · TORONTO · SYDNEY · FRANKFURT

Insect Science and its Application

The International Journal of Tropical Insect Science

Sponsored by the International Centre of Insect Physiology and Ecology (ICIPE) and the African Association of Insect Scientists (AAIS)

Editor-in-Chief

Thomas R. Odhiambo

International Centre of Insect Physiology and Ecology (ICIPE), P.O. Box 30772, Nairobi, Kenya

Editorial Advisory Board

F. T. Abu Shama, *Khartoum, Sudan*

P. L. Adkisson, *Texas, U.S.A.*

J. C. M. Carvalho, *Rio de Janeiro, Brazil*

R. Galun, *Jerusalem, Israel*

T. Hidaka, *Kyoto, Japan*

H. Hirumi, *Nairobi, Kenya*

V. Landa, *Prague, Czechoslovakia*

R. Levins, *Boston, U.S.A.*

M. Locke, *Ontario, Canada*

F. G. Maxwell, *Florida, U.S.A.*

J. Meinwald, *New York, U.S.A.*

P. L. Miller, *Oxford, England*

J. Mouchet, *Bondy, France*

A. S. Msangi, *Dar-es-Salaam, Tanzania*

M. D. Pathak, *Manila, The Philippines*

K. N. Saxena, *Delhi, India*

H. Schmutterer, *Giessen, F.R. Germany*

L. M. Schoonhoven, *Wageningen, The Netherlands*

J. E. Treherne, *Cambridge, England*

D. F. Waterhouse, *Canberra, Australia*

A. Youdeowei, *Ibadan, Nigeria*

PUBLISHED QUARTERLY

Publishing, Subscription and Advertising Offices:

Headington Hill Hall, Oxford, U.K. OX3 0BW (Tel: Oxford (0865) 64881)

Annual Subscription Rates 1981

For libraries, university departments, government laboratories, industrial and other multiple-reader institutions, US \$65.00; two-year rate (1981-82) US \$123.50 (including postage and insurance). *Specially reduced rates for individuals:* In the interest of maximizing the dissemination of the research results published in this important international journal we have established a two-tier price structure. Any individual whose institution takes out a library subscription may purchase a second or additional subscriptions for personal use at a much reduced rate of US \$30.00. Members of the International Centre of Insect Physiology and Ecology (ICIPE) and the African Association of Insect Scientists (AAIS) may purchase a subscription at the special rate of US \$20.00. Subscription enquiries from customers in North America should be sent to: Pergamon Press Inc, Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A., and for the remainder of the world to: Pergamon Press Ltd, Headington Hill Hall, Oxford, U.K. OX3 0BW.

Application forms for Membership of the AAIS (subscription US \$20) may be obtained from: Hon. Secretary, African Association of Insect Scientists, P.O. Box 59900, Nairobi, Kenya.

Microform Subscriptions and back issues

Current subscriptions are available on microfiche simultaneously with the paper editions and on microfilm on completion of the annual index at the end of the subscription year.

Copyright © 1981 Pergamon Press Ltd.

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. However, assignment of copyright is not required from authors who work for organizations which do not permit such assignment. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical, photocopying, recording or otherwise, without permission in writing from the copyright holder.

U.S. Copyright Law Applicable to Users in the U.S.A.

The Article Fee Code on the first page of an article in this journal indicates the copyright owner's consent that, in the U.S.A., copies may be made for personal or internal use provided the stated fee for copying, beyond that permitted by Section 107 or 108 of the United States Copyright Law, is paid. The appropriate remittance should be forwarded with a copy of the first page of the article to the Copyright Clearance Center Inc., 21 Congress Street, Salem, MA 01970. If a code does not appear copies of the article may be made without charge, provided permission is obtained from the publisher. The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works or for resale. Specific written permission must be obtained from the publisher for such copying. In case of doubt please contact your nearest Pergamon office.

PERGAMON PRESS

HEADINGTON HILL HALL
OXFORD OX3 0BW, ENGLAND

MAXWELL HOUSE, FAIRVIEW PARK
ELMSFORD, NEW YORK 10523, U.S.A.