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DESCRIPTION

The Editors of Crop Protection especially welcome papers describing an interdisciplinary approach showing how different control strategies can be integrated into practical pest management programs, covering high and low input agricultural systems worldwide. Crop Protection particularly emphasizes the practical aspects of control in the field and for protected crops, and includes work which may lead in the near future to more effective control. The journal does not duplicate the many existing excellent biological science journals, which deal mainly with the more fundamental aspects of plant pathology, applied zoology and weed science. Crop Protection covers all practical aspects of pest, disease and weed control, including the following topics:

Abiotic damage Agronomic control methods Assessment of pest and disease damage Molecular methods for the detection and assessment of pests and diseases Biological control Biorational pesticides Control of animal pests of world crops Control of diseases of crop plants caused by microorganisms Control of weeds and integrated management Economic considerations Effects of plant growth regulators Environmental benefits of reduced pesticide use Environmental effects of pesticides Epidemiology of pests and diseases in relation to control GM Crops, and genetic engineering applications Importance and control of postharvest crop losses Integrated control Interrelationships and compatibility among different control strategies Invasive species as they relate to implications for crop protection Pesticide application methods Pest management Phytobiomes for pest and disease control Resistance management Sampling and monitoring schemes for diseases, nematodes, pests and weeds.

The editors of Crop Protection invite workers concerned with pest, disease and weed control to submit suitable contributions on any topic falling within the aims and scope of the journal.

AUDIENCE

Research workers, project planners, commercial producers.

IMPACT FACTOR

2018: 2.172 © Clarivate Analytics Journal Citation Reports 2019
ABSTRACTING AND INDEXING

Review of Plant Pathology
EMBiology
Elsevier BIOBASE
Agricultural Engineering Abstracts
Biotechnology Research Abstracts
Chemical Abstracts
Helminthological Abstracts
Horticultural Abstracts
Plant Breeding Abstracts
Field Crop Abstracts
Review of Applied Entomology
Irrigation and Drainage Abstracts
Soils and Fertilizers
Engineering Village - GEOBASE
Current Contents - Agriculture, Biology & Environmental Sciences
Index to Scientific Reviews
Index to South African Periodicals
Risk Abstracts
Science Citation Index
Scopus
AGRICOLA

EDITORIAL BOARD

Chair Editor
S.N. Wegulo, University of Nebraska-Lincoln Department of Plant Pathology, Lincoln, United States
Crop pathogens such as fungi; oomycetes; bacteria; viruses; other microbes and nematodes.

Editors-in-Chief
J. Correll, University of Arkansas Bookstore, Fayetteville, Arkansas, United States
Crop pathogens such as fungi, oomycetes, bacteria, viruses, other microbes.

J. R. Lamichhane, French National Institute for Agriculture, Food and Environment (INRAE), Castanet Tolosan, France
Plant Pathology, Systems Agronomy, Soil Microbial Ecology, Integrated pest management, Biological control, Decision support systems, Modeling

M. T. Rahman, Government of Western Australia Department of Primary Industries and Regional Development, Perth, Australia
Insect Biology & Ecology, Behavior, Population Demography, Insecticide Toxicology, Integrated Pest Management, Insecticide Resistance Management, Biological Control, Post-Harvest Disinfestation

F.P.F. Reay-Jones, Clemson University College of Agriculture Forestry and Life Sciences, Clemson, South Carolina, United States
Invertebrate crop pests including insects, mites and molluscs. Vertebrate crop pests including mammals and birds. Knowledge and technology transfer in crop protection. Integrated Pest Management in Field Crop Systems

C. Zhang, Chinese Academy of Agricultural Sciences, Beijing, China
Weed Biology and Management, Herbicide Resistance and Management, Herbicide Application.

Associate Editors
K. Jabran, Nigde Omer Halisdemir University Faculty of Agricultural Sciences Department of Plant Production, Nigde, Turkey
Weed ecology, weed control, integrated weed management, weed control in major field crops, allelopathy for weed control, invasive weeds and climate change

S. Singh, CCS HAU HISAR, Department of Agronomy, Haryana, India

Statistical Consultant
C. Ritz, University of Copenhagen Department of Nutrition Exercise and Sports, København, Denmark

Editorial Board
X. Chen, Washington State University, Pullman, Washington, United States
Epidemiology and control of rusts, including cultural, chemical, and disease resistance; disease forecasting models; virulence, population structures, and functional genomics; genetics and molecular mapping of disease resistance genes; molecular mechanisms of plant-pathogen interactions.

C.A. Edwards, Ohio State University, Columbus, Ohio, United States
Applied soil ecology and ecotoxicology

W. Elmer, Connecticut Agricultural Experiment Station, New Haven, Connecticut, United States
Management of Fusarium diseases; biological control on Soilborne plant pathogens; mineral nutrition effects on Soilborne plant pathogens.

L. Gatehouse, Plant and Food Research Palmerston North, Manawatu plant pathogens; soil nutrition, effects on Soilborne plant pathogens.

C.A. Edwards
Ohio State University, Columbus, Ohio, United States
Applied soil ecology and ecotoxicology

W. Elmer
Connecticut Agricultural Experiment Station, New Haven, Connecticut, United States
Management of Fusarium diseases; biological control on Soilborne plant pathogens; mineral nutrition effects on Soilborne plant pathogens.

L. Gatehouse
Plant and Food Research Palmerston North, Manawatu plant pathogens; soil nutrition, effects on Soilborne plant pathogens.

Molecular Biology, particularly of insects and plants. This covers straight molecular biology and extends to plant and some insect transgenesis together with the expression and analysis of the expression of introduced genes. I have some experience of Biochemistry but do not consider myself an expert. I have a blind spot with Statistics and am most definitely not an expert. I have worked with insect viruses, insect symbionts and insect cell lines for baculovirus expression and other studies. Most of my work has been in the field of Plant Insect interactions looking at this from both sides and usually with a focus on crop protection.

D.P. Giga
Bulawayo, Zimbabwe
Stored Products Entomology (crop storage).

L. Godfrey
University of California Davis, Davis, California, United States
Entomology, crop response, integrated pest management, cotton, rice, field crops

A.R. Hardy
Fera Science Ltd, York, United Kingdom

S. Hashim
The University of Agriculture Peshawar, Peshawar, Pakistan

W.D. Hutchison
University of Minnesota Department of Entomology, Saint Paul, Minnesota, United States
Biological Control and Integrated Management of Arthropod Pests

W.J. Janisiewicz
USDA-ARS Appalachian Fruit Research Station, Kearneysville, West Virginia, United States

J. Katan
The Hebrew University of Jerusalem Department of Plant Pathology and Microbiology, Rehovot, Israel
Soil-borne, pathogens, soil solarization, soil disinfestation.

S. Liu
National Pingtung University of Science and Technology, Pingtung, Taiwan
Crop eco-physiological adaptation to arid environment; field crops management; ecosystem sustainable designing and the role of human being in restoring and conserving the structure and function of integrated ecosystem especially in the arid and semiarid regions in northwest of China and other similar regions in the world.

G. Mahajan
Punjab Agricultural University, Ludhiana, India

G.A. Matthews
Imperial College London Department of Life Sciences Silwood Park Campus, Ascot, United Kingdom
Pesticides and their application; entomology; integrated pest/crop management (IPM); crops esp. Cotton; control of vectors of human diseases eg malaria but that has only to do with farmers' health and not crop protection.

P.D. Mitchell
University of Wisconsin Madison, Madison, Wisconsin, United States
Crop economics; production economics; farm management; risk management; insect management; weed management; resistance management; transgenic crops; biotechnology; agricultural sustainability metrics.

S.E. Naranjo
USDA-ARS Arid Land Agricultural Research Center, Maricopa, Arizona, United States
IPM of arthropod pests, Insect biological control, Insect population ecology, sampling and economic thresholds, risk assessment in GM crops.

R.E.L. Naylor
University of Aberdeen, Aberdeen, United Kingdom

O.M. Olanya
USDA-ARS Eastern Regional Research Center, Wyndmoor, Pennsylvania, United States

A. Ortega-Beltran
International Institute of Tropical Agriculture, Ibadan, Nigeria
Biocontrol of Aspergillus fungi; Screening for disease resistance; Tropical crops; Cereal crops; Integrated management strategies; Fungal population biology.

C. Screpanti
Syngenta Crop Protection, Crop Protection Research Biology, Stein, Switzerland
Plant hormones and crop enhancement; Weed control; Soil pest control; Behavior of agrochemicals in soil; Rhizosphere signals; Plant phenotyping and remote sensing.

K.W. Seebold
Valent USA, Lexington, Kentucky, United States
Soilborne plant pathogens – ecology and epidemiology (cotton and vegetable crops); Fungicide resistance and resistance management Integrated pest management Mycology Epidemiology and management of plant disease.

P.C. Stevenson
University of Greenwich Natural Resources Institute, Chatham, United Kingdom
Natural Products Chemistry; Bioactive compounds from plants; Botanical Insecticides; Chemical Ecology; Pollination Biology.

J.C. Streibig
University of Copenhagen Section for Crop Sciences, Taastrup, Denmark
Weed science and vegetation management.
M.E. Tobin, USDA-APHIS National Wildlife Research Center, Fort Collins, Colorado, United States
human-wildlife conflicts, wildlife crop damage, wildlife damage control

P. Trematerra, University of Molise, Campobasso, Italy
Applied entomology; integrated pest management; insect crop pests; stored product pests; pheromones and application technology; stored products protection.

A. Van der Meulen, Queensland Department of Agriculture and Fisheries, Brisbane, Queensland, Australia

J. van der Waals, University of Pretoria, Pretoria, South Africa

D. Wright, Imperial College London Division of Biology - Silwood Park Campus, Ascot, United Kingdom
Entomology Plant nematology Integrated Pest Management Biological control Biopesticides Pheromones Multitrophic interactions
GUIDE FOR AUTHORS

Your Paper Your Way
We now differentiate between the requirements for new and revised submissions. You may choose to submit your manuscript as a single Word or PDF file to be used in the refereeing process. Only when your paper is at the revision stage, will you be requested to put your paper in to a 'correct format' for acceptance and provide the items required for the publication of your article. To find out more, please visit the Preparation section below.

INTRODUCTION
The Editors of Crop Protection especially welcome papers describing an interdisciplinary approach showing how different control strategies can be integrated into practical pest management programmes, covering high and low input agricultural systems worldwide. Crop Protection particularly emphasizes the practical aspects of control in the field and for protected crops, and includes work which may lead in the near future to more effective control. The journal does not duplicate the many existing excellent biological science journals, which deal mainly with the more fundamental aspects of plant pathology, applied zoology and weed science. Crop Protection covers all practical aspects of pest, disease and weed control, including the following topics:

Abiotic damage
Agronomic control methods
Assessment of pest and disease damage
Biological control
Biorational pesticides
Control of animal pests of crops
Control of diseases of crop plants caused by microorganisms
Control of weeds and integrated management
Economic and social considerations
Effects of plant growth regulators
Environmental benefits of reduced pesticide use
Environmental effects of pesticides
Epidemiology of pests and diseases in relation to control
Food safety
GM Crops, and genetic engineering applications
Importance and control of postharvest crop losses
Integrated control
Interrelationships and compatibility among different control strategies
Invasive species as they relate to implications for crop protection
Pesticide application methods
Pest management
Resistance management
Sampling and monitoring schemes for diseases, nematodes, pests and weeds.

The editors of Crop Protection invite workers concerned with pest disease and weed control to submit suitable contributions on any topic falling within the aims and scope of the journal.

Types of paper
Contributions falling into the following categories will be considered for publication:

• Perspectives in Crop Protection articles - The editors and members of the editorial board will invite commentary/insight papers on topical issues. Authors should contact the Editors-in-Chief with potential ideas. New data will not be published in commentary papers, but one table or figure to illustrate key points may be included (e.g., pesticide use or crop yield trends). The papers should range from 2000-3000 words or 6-8 double-line spaced manuscript pages (including references cited). The articles will be peer-reviewed with emphasis given to rapid publication.
• State of the art Review articles - Authors should contact the relevant Editor-in-Chief with proposals before submitting.
• Original high-quality Research papers - Preferably no more than 20 double-line spaced manuscript pages, including tables and illustrations.
• Short communications - These should not exceed 6-8 double-line spaced manuscript pages excluding references and legends. Results reported must be based on repeated trials or experiments. Submissions should include a short Abstract not exceeding 10% of the length of the communication and which summarizes briefly the main findings of the work to be reported. The bulk of the text may be in a continuous form but generally will follow the usual format that does not require numbered sections such as Introduction, Materials and Methods, Results, and Discussion. However, a Cover page, Abstract and a list of Keywords are required at the beginning of the communication and Acknowledgements and References at the end. These components are to be prepared in the same format as used for full-length research papers. Occasionally authors may use sub-titles of their own choice to highlight sections of the text.
• Correspondence - Authors should contact the relevant Editor-in-Chief with a proposal before submitting. Correspondence should focus on the scientific basis for comment or disagreement with a recently published article in the Crop Protection journal, and be a maximum of 4-5 pages with double-line spacing, and a limited number of relevant citations. Correspondence will be peer-reviewed, but processed in a timely manner. Upon receipt of a correspondence that is critical of a previous article in Crop Protection, the author(s) of the previous article will also be invited to submit a rebuttal article; both the original letter and rebuttal letter will be published in the same issue.
• Crop Protection also publishes, book reviews, conference reports and a calendar of forthcoming events. Please contact one of the Editors-in-Chief.

For all article formats, also review recent published examples.

Submission checklist
You can use this list to carry out a final check of your submission before you send it to the journal for review. Please check the relevant section in this Guide for Authors for more details.

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• Journal policies detailed in this guide have been reviewed
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**Author contributions**

For transparency, we encourage authors to submit an author statement file outlining their individual contributions to the paper using the relevant CRediT roles: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Roles/Writing - original draft; Writing - review & editing. Authorship statements should be formatted with the names of authors first and CRediT role(s) following. More details and an example

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Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from Elsevier's Author Services.

Submission
Submission to this journal proceeds totally online and you will be guided stepwise through the creation and uploading of your files. The system automatically converts source files to a single PDF file of the article, which is used in the peer-review process. Please note that even though manuscript source files are converted to PDF files at submission for the review process, these source files are needed for further processing after acceptance. All correspondence, including notification of the Editor's decision and requests for revision, takes place by e-mail removing the need for a paper trail.

Papers will be assigned to the Editors by subject:

Prof. J. Correll - Crop pathogens such as fungi, oomycetes, bacteria, viruses, other microbes

Prof. J.V. Cross - Invertebrate crop pests including insects, mites and molluscs. Vertebrate crop pests including mammals and birds, pesticides and crop protection agents application technology (spraying methodology)
Assoc. Prof. F.P.F. Reay-Jones - Invertebrate crop pests including insects, mites and molluscs. Vertebrate crop pests including mammals and birds. Knowledge and technology transfer in crop protection

Prof. J.C. Streibig - Weed science and vegetation management

Prof. S.N. Wegulo - Crop pathogens such as fungi, oomycetes, bacteria, viruses, other microbes and nematodes

Papers in agricultural economics and vertebrate control will be handled by one of the above Editors.

*Repeat experiments.* Repeat experiments. Manuscripts that report original research should not be submitted unless experiments have been conducted at least twice or, in the case of field experiments, relate to two seasons. In most cases, three or more replications will be necessary for appropriate statistical analysis. In exceptional circumstances, studies that do not meet these criteria may be acceptable, but the relevant Editor-in-Chief should be consulted prior to submission.

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Please submit your article via http://ees.elsevier.com/cropro/

**Referees**
Please submit, with the manuscript, the names, addresses and e-mail addresses of 4 potential referees. Note that the editor retains the sole right to decide whether or not the suggested reviewers are used.

**Additional information**

**Review process**
All contributions are reviewed by two or more referees to ensure both accuracy and relevance, and revisions to the manuscript may thus be required. On acceptance, contributions are subject to editorial amendment to suit house style. When a manuscript is returned for revision prior to final acceptance, the revised version must be submitted as soon as possible after the author's receipt of the referee's reports. Revised manuscripts returned after four months will be considered as new submissions subject to full re-review.

**PREPARATION**

**NEW SUBMISSIONS**
Submission to this journal proceeds totally online and you will be guided stepwise through the creation and uploading of your files. The system automatically converts your files to a single PDF file, which is used in the peer-review process. As part of the Your Paper Your Way service, you may choose to submit your manuscript as a single file to be used in the refereeing process. This can be a PDF file or a Word document, in any format or layout that can be used by referees to evaluate your manuscript. It should contain high enough quality figures for refereeing. If you prefer to do so, you may still provide all or some of the source files at the initial submission. Please note that individual figure files larger than 10 MB must be uploaded separately.

**References**
There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct.

**Formatting requirements**
There are no strict formatting requirements but all manuscripts must contain the essential elements needed to convey your manuscript, for example Abstract, Keywords, Introduction, Materials and Methods, Results, Conclusions, Artwork and Tables with Captions.
If your article includes any Videos and/or other Supplementary material, this should be included in your initial submission for peer review purposes. Divide the article into clearly defined sections.

Please ensure the text of your paper is double-spaced and has consecutive line numbering - this is an essential peer review requirement.

Figures and tables embedded in text
Please ensure the figures and the tables included in the single file are placed next to the relevant text in the manuscript, rather than at the bottom or the top of the file. The corresponding caption should be placed directly below the figure or table.

Peer review
This journal operates a single blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. More information on types of peer review.

REVISED SUBMISSIONS
Use of word processing software
Regardless of the file format of the original submission, at revision you must provide us with an editable file of the entire article. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). See also the section on Electronic artwork.

To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

Line numbering, page numbering, and double line spacing are mandatory for submissions.

Article structure
Subdivision - numbered sections
Divide your article into clearly defined and numbered sections. Subsections should be numbered 1.1 (then 1.1.1, 1.1.2, ...), 1.2, etc. (the abstract is not included in section numbering). Use this numbering also for internal cross-referencing: do not just refer to 'the text'. Any subsection may be given a brief heading. Each heading should appear on its own separate line.

Introduction
State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

Material and methods
Provide sufficient details to allow the work to be reproduced by an independent researcher. Methods that are already published should be summarized, and indicated by a reference. If quoting directly from a previously published method, use quotation marks and also cite the source. Any modifications to existing methods should also be described.

Results
Results should be clear and concise.

Discussion
This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

Conclusions
The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

Appendices
If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.
**Essential title page information**

- **Title.** Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.
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- **Corresponding author.** Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. This responsibility includes answering any future queries about Methodology and Materials. **Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.**
- **Present/permanent address.** If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

**Highlights**

Highlights are mandatory for this journal as they help increase the discoverability of your article via search engines. They consist of a short collection of bullet points that capture the novel results of your research as well as new methods that were used during the study (if any). Please have a look at the examples here: example Highlights.

Highlights should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point).

**Abstract**

A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

**Graphical abstract**

Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: Please provide an image with a minimum of 531 × 1328 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view Example Graphical Abstracts on our information site. Authors can make use of Elsevier's Illustration Services to ensure the best presentation of their images and in accordance with all technical requirements.

**Keywords**

Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

**Abbreviations**

Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

**Acknowledgements**

Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).
**Formatting of funding sources**

List funding sources in this standard way to facilitate compliance to funder's requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].

It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, please include the following sentence:

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