DESCRIPTION

Aims and Scope of Field Crops Research

Field Crops Research is an international journal publishing scientific articles on:

✓ experimental and modelling research at field, farm and landscape levels on temperate and tropical crops and cropping systems, with a focus on crop ecology and physiology, agronomy, and plant genetics and breeding.

✓ Articles on plant genetics and breeding need to be integrated with crop ecology and physiology, and/or agronomy.

✓ An economic analysis may be included if appropriate.

Papers must demonstrate new scientific insight, original technologies or novel methods that have general application and relevance to field crops.

× Research findings of a purely corroborative nature, descriptive or of only local significance will not be considered.

The journal's focus is major field crops for food and feed. This focus includes species used for cultivated pastures, but excludes natural grasslands. Other species, including important biofuel crops, could be considered if they contribute to the basic understanding of processes related to development, growth and yield of field crops.

Field experiments on which manuscripts are based should, unless exceptional circumstances apply, include at least two seasons and/or multiple locations/environments. The inclusion of yield data is highly encouraged to demonstrate how the field experiments contribute to a better understanding of the bio-physical processes related to crop growth and yield.

Papers on crop protection (diseases, pests, weeds) and soil processes/properties can be accepted provided they have a strong focus on crop processes, including consequences for yield.

Experiments under controlled conditions (glasshouse, growth chamber) are only acceptable as complementary to field work.
Papers on remote sensing will only be considered if their focus is the use of these techniques to understand crop processes and their links to crop yield.

Reviews and Opinion Papers covering the various subject areas are solicited; ✓ authors should contact one of the Editors-in-Chief before submission of a review or an opinion paper in order to establish the journal's interest in the topic and nature of the paper ✓ Contributions dealing with emerging topics are especially welcomed

Out-of-scope submissions:
× Horticultural (i.e., vegetable and fruit species), woody perennial, medicinal and non-cultivated species are outside the scope of the journal.
× Studies carried-out exclusively under controlled conditions are outside the scope of the journal.
× Articles on crop storage, transportation and usage, and social studies on crops and cropping systems, are outside the scope of the journal.

AUDIENCE
Temperate and Tropical Crop Scientists.

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ABSTRACTING AND INDEXING
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Ecological Abstracts
Field Crop Abstracts
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Agronomy and physiology of major field crops under monoculture or multi cropping, with a focus on cotton under or without abiotic stresses like salinity, drought, waterlogging and shading
Jagdish K. Ladha, University of California Davis, Davis, California, United States
Rice, conservation agriculture, Nitrogen
Richard A. Richards, Commonwealth Scientific and Industrial Research Organisation, Canberra, Australia
Wheat, physiology, abiotic stress, yield potential, breeding, root biology

Associate Editors
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Crop/soil modelling, Soil fertility management, Smallholder cropping systems, Sub-Saharan Africa, Climate change adaptation
Antonio Hall, Institute for Agricultural Plant Physiology and Ecology, Ciudad De Buenos Aires, Argentina
Crop physiology, Ecology or agronomy in any crop or forage species, Crop breeding
Qingfang Han, Northwest Agriculture and Forestry University, Yangling, Shaanxi, China
Irrigation and nutrition management, light use efficiency, semiarid regions, mulching

Amelia Henry, International Rice Research Institute, Manila, Philippines
Drought, Root, Abiotic stress, Physiology, Rice

Krishna Jagadish, Kansas State University Department of Agronomy, Manhattan, Kansas, United States
Heat and drought stress, Reproductive physiology, Source-sink relationship, Grain yield and quality, Climate change

Kurt-Christian Kersebaum, Leibniz Centre for Agricultural Landscape Research, Müncheberg, Germany
Modeling soil-crop-atmosphere interactions; Nitrogen dynamics in soils; Climate change impact assessment and adaptation; Model based evaluation of agricultural management

Jairo Palta, CSIRO Centre for Environment and Life Sciences, Floreat, Australia
Water (drought), nitrogen (NUE), Heat and climate change, Genotypes, environments and management practices, Physiology and genetics of processes, Crop yield and quality, Accumulation and utilization of C and N resources, Crop roots systems, Integrative effect of elevated CO2, High temperature and terminal drought.

Jonne Rodenburg, University of Greenwich Natural Resources Institute, Chatham, United Kingdom
Rice, Sorghum, Maize, weeds, Parastic weeds, Striga, Vatiety screening, African cropping systems/ farming systems, Sub-Saharan Africa, Smallholder farmers, Agroecology, Sustainable intensification

Daniel Rodriguez, University of Queensland, Brisbane, Queensland, Australia
Crop eco-physiology, Maize, Wheat, Sorghum, Pulses, Field agronomy, Climate variability, Climate change, farm, Profits and risks

Victor Sadras, South Australian Research and Development Institute, Adelaide, Australia
Water, Nitrogen, Crop physiology, plant density, Ecology

Roxana Savin, University of Lleida, Lleida, Spain
Wheat, barley, crop physiology, grain quality, WUE, NUE.

Liang Tang, Nanjing Agricultural University, Nanjing, China
Crop N management; high temperature effect on rice and wheat productivity; crop modelling and climate change

Enli Wang, CSIRO Land and Water, Black Mountain, Australia
Crop modelling, Farming system modelling, Crop physiology, Yield potential, Yield gap, Wheat, Maize

Xinyou Yin, Wageningen University, Wageningen, Netherlands
Crop modelling, Photosynthesis, Genotype-environment interaction, Climate change impacts

Book Review Editor

Jeffrey White, USDA-ARS Arid Land Agricultural Research Center, Maricopa, Arizona, United States
Crop modeling and global change; tillage; conservation agriculture and zero Ttillage sites; carbon sequestration and agriculture; data management; phenomics.

Editorial Advisory Board

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Crop and pasture sequences; Water and nitrogen dynamics of crops; Cropping systems; Simulation modelling

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Cropping systems analysis; Crop productivity and sustainability; Atmosphere-crop-soil systems; Managing climate variability; Climate change impact and adaptation

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Crop physiology; Yield components; Seed filling; Sgronomic practices; Abiotic stress

Daniel Calderini, University of Southern Chile, Valdivia, Chile
Crop physiology; Phenotyping; Physiological and molecular approaches on grain weight; Potential grain yield; Abiotic stress

Ignacio Ciampitti, Kansas State University, Manhattan, Kansas, United States
Crop eco-physiology and agronomy, Crop modelling, Corn, soybean, sorghum and oilseeds, Rainfed and Irrigated farming systems, Remote sensing

Benoit Clerget, CIARD Montpelliér-Occtanie Research Centre, Montpellier, France
Agronomy; Crop physiology; Traditional plant breeding; Rice, maize, sorghum and pearl millet; Rice production systems in the tropical, and sub-tropical regions of Asia

Greg Edmeades
Crop Science and Agronomy, plant breeding, tropical maize, crop physiology

John Foulkes, University of Nottingham School of Biosciences, Loughborough, United Kingdom

Thomas Gaiser, University of Bonn, Bonn, Germany
Modelling of crop-soil interface; Crop water uptake; Nutrient turnover and nutrient uptake; Soil carbon and nitrogen turnover; Tropical cereal and tuber crops; Soil salinity; Pollution of surface and ground waters from agricultural activities
Luis Garcia del Moral, University of Granada, Granada, Spain
Crop physiology; Abiotic stress; Plant growth analysis; Crop phenology; Ecophysiological and molecular approaches in plant breeding

Donald Gaydon, CSIRO Queensland Bioscience Precinct Agriculture and Food Unit, St Lucia, Australia
Cropping systems modelling; APSIM; Rice; Rice-wheat systems; Conservation agriculture; Irrigation; Water productivity; Climate change adaptation

Patricio Grassini, University of Nebraska-Lincoln Department of Agronomy and Horticulture, Lincoln, Nebraska, United States
Agronomy; Yield potential; Yield-gap analysis; Resource-use efficiency; Crop simulation models; Crop Ecophysiology

Stephan Haefele, The University of Adelaide, Adelaide, South Australia, Australia
Agronomy; Black carbon; Phenotyping; Rice; Soil science; Wheat

James Hunt, La Trobe University, Department of Animal, Plant and Soil Sciences, Bundoora, Australia
Agronomy, crop physiology, farming systems, wheat

Inman-Bamber, CSIRO Townsville Australian Tropical Sciences and Innovation Precinct, Townsville, Australia
Sugarcane physiology, agrometerology and water relations, controlled environment studies including CO2, crop model development

Krishna Jagadish, Kansas State University Department of Agronomy, Manhattan, Kansas, United States
Heat and drought stress, Reproductive physiology, Source-sink relationship, Grain yield and quality, Climate change

Chris Johansen, Murdoch University, Murdoch, Australia
Plant nutrition, crop physiology, drought and salinity stress, agronomy, on-farm research, grain legumes

Yoichiro Kato, The University of Tokyo, Tokyo, Japan
Crop physiology and agronomy; Rice; Rainfed and irrigated rice production systems in the tropical, sub-tropical and temperate regions of Asia

Holger Kirchmann, Swedish University of Agricultural Sciences, Uppsala, Sweden
Turnover, decomposition and nutrient losses from organic manures in soil; Reactions of plant nutrients in soil (nitrogen and phosphorus); Changes in soil fertility in long-term field experiments; Recycling of plant nutrients from wastes; Effects of trace metals on yield and quality of crops; Methods to improve nutrient use efficiency.

M. Rebecca C. Laza, International Rice Research Institute, Manila, Philippines
Crop Physiology and Agronomy; morpho-physiological bases of yield increase; source-sink relationship on yield formation; high night temperature effect on rice productivity, field phenomics for lodging resistance and yield component traits; SPAD-based N management; whole-plant physiological measurement

Feng-Min Li, Lanzhou University, Lanzhou, China
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 semi-arid regions in Northwest China and other similar regions in the world.

Bruce Linquist, University of California Davis, Davis, California, United States
Rice systems, nutrient and carbon cycling; nutrient management; productivity; greenhouse gas emissions; water quality; water use.

Gustavo Maddonni, University of Buenos Aires, Buenos Aires, Argentina
Dry-land summer crop agronomy; Canopy structure of maize crops (sowing date, plant population density, row spacing, and genotype)

Daniel Miralles, University of Buenos Aires, Buenos Aires, Argentina
Crop physiology applied to management and breeding; wheat and barley.

Juan Pablo Monzon, National Scientific and Technical Research Council, Buenos Aires, Argentina
Eco-physiology; Crop modelling; farming systems; Crop yield gap analysis

Lixiao Nie, Hainan University, Haikou, China
Rice; Seed germination biology; Direct seeding rice; Aerobic rice; Ratoon rice; Nutrient management; Water productivity; Rice-based cropping system

Maria Otegui, University of Buenos Aires, Buenos Aires, Argentina
Crop physiology; Abiotic stress; Crop Modelling; Agronomy.

Shaobing Peng, Huazhong Agricultural University College of Plant Science and Technology, Wuhan, China
Yield potential; photosynthesis; nitrogen use efficiency; stress physiology; climate change; crop management; rice production.

Hans-Peter Piepho, University of Hohenheim, Stuttgart, Germany
Linear models; mixed models; spatial statistics; design of experiments.

Cameron Pittelkow, University of California Davis Department of Plant Sciences, Davis, California, United States

Agronomy, nitrogen, crop nutrition, intensification, cropping system, greenhouse gas emission

**Greg Rebetzke**, Commonwealth Scientific and Industrial Research Organisation, Canberra, Australia
Plant breeding; quantitative genetics; statistics; physiology.

**Michael Robertson**, Commonwealth Scientific and Industrial Research Organisation, Canberra, Australia
Farming systems, agronomy, modelling, food systems, digital agriculture

**Diego Rubiales**, Institute for Sustainable Agriculture, Cordoba, Spain
plant breeding; disease resistance; genetic resources utilization; mechanisms of resistance; legumes; cereals; rust; parasitic weed; powdery mildew; ascochyta blight; fusarium wilt

**Yadvinder Singh**, Punjab Agricultural University, Ludhiana, India
conservation agriculture, Crop productivity and sustainability, crop residue management, integrated nutrient management, nutrient use efficiency, rice, soil science, soil quality, wheat.

**Gustavo A. Slafer**, University of Lleida, Lleida, Spain
Wheat; Barley; Cereals; Crop-Physiology; Yield; Yield components; Water use efficiency; Nitrogen use efficiency; trait useful for breeding.

**Vincent Vadez**, ICRISAT Crop Physiology Laboratory, Patancheru, India
Drought, symbiotic nitrogen fixation, abiotic stresses, vapor pressure deficit, salinity, low soil fertility, modelling,

**Tony Vyn**, Purdue University, West Lafayette, Indiana, United States
Cropping systems; Conservation tillage; Maize hybrid/plant density/nitrogen interactions; Greenhouse gas emissions; Soil quality; Nutrient management; Crop rotation systems; Crop physiology; Pest management interactions with tillage systems; Maize; Soybean

**Len Wade**, The University of Queensland School of Agriculture and Food Sciences, Saint Lucia, Queensland, Australia
Farming systems; GxE interactions; Root traits; Drought avoidance; Perennial grains

**Fran Walley**, University of Saskatchewan, Saskatoon, Saskatchewan, Canada
Agronomy, soil microbiology (N2 fixation) and cropping systems, with an emphasis on nutrient cycling.

**Jing Wang**, China Agricultural University, Beijing, China
Agrometeorology; Crop modelling; Climate change impact and adaptation; Crop yield gap analysis based on crop growth model; agro-meteorological disaster assessment

**Jianchang Yang**, Yangzhou University Agricultural College, Yangzhou, China
Grain filling of cereals; water-saving irrigation; high-yielding production; abiotic stress.

**Xiying Zhang**, Institute of Genetics and Developmental Biology Center for Agricultural Resources Research, Shijiazhuang, China
Water use efficiency, Evapotranspiration, Crop productivity, Climate change, cultivation, Soil water, Soil nutrients, Crop modelling.
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INTRODUCTION

Field Crops Research is an international journal publishing scientific articles on both experimental and modelling research at the field, farm and landscape level on temperate and tropical crops and cropping systems, with a focus on crop ecology and physiology, agronomy, and plant genetics and breeding. Articles on plant genetics and breeding need to be integrated with crop ecology and physiology, and/or agronomy. An economic analysis may be included if appropriate.

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Field experiments on which manuscripts are based should, unless exceptional circumstances apply, include at least two seasons and/or multiple locations/environments. The inclusion of yield data is highly encouraged to demonstrate how the field experiments contribute to a better understanding of the bio-physical processes related to crop growth. Papers on crop protection (diseases, pests, weeds) can be accepted provided they have a strong focus on crop processes, including consequences for yield. Experiments under controlled conditions (glasshouse, growth chamber) are only acceptable as complementary to field work; studies carried-out exclusively under controlled conditions are outside the scope of the journal. Articles on crop storage, transportation and usage, and social studies on crops and cropping systems, are outside the scope of the journal.

The journal of Field Crops Research would like to inform you of a significant change in our editorial process: all new submissions to Field Crops Research will first be assigned on an ad random basis to the Editors-in-Chief for initial evaluation; manuscripts that are within the scope of the journal and meet the quality standards, will be assigned to the Associate Editors who handle the peer-review process and make the final editorial decision to accept or reject the manuscript for publication.

Reviews covering the various subject areas are solicited. Authors should contact the Editors-in-Chief before the submission of a review article in order to establish the journal's interest in the topic and nature of the proposed review.

Types of paper
1. Original full papers (Regular Papers)
2. Review articles
3. Opinion Papers
4. Short Communications
5. Book Reviews

Original papers should report the results of original research. The material should not have been previously published elsewhere, except in a preliminary form.

Reviews and Opinion Papers covering the various subject areas are solicited; authors should contact the Editors-in-Chief before submission in order to establish the journal's interest in the topic and nature of the paper.
A *Short Communication* is a concise, but complete, description of a limited investigation, which will not be included in a later paper. Short Communications should be as completely documented, both by reference to the literature and description of the experimental procedures employed, as a regular paper. They should not occupy more than 6 printed pages (about 12 manuscript pages, including figures, etc.).

*Book reviews* will be included in the journal on a range of relevant books which are no more than 2 years old. Book reviews will be solicited by the Book Review editor. Unsolicited reviews will not usually be accepted, but suggestions for appropriate books for review may be sent to: Dr. J.W. White, USDA-ARS, US Arid-Land Agricultural Research Center, 21881 North Cardon Lane, Maricopa, 85138, USA, Email: Jeffrey.White@ars.usda.gov

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The e-mails of all co-authors must be submitted together with the manuscript.

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PREPARATION

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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.

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For experiments, both the treatment and the design structure, including blocking units, randomization units and observational units, should be clearly identified. When repeated measurements are taken on the same unit, this needs to be explicitly stated. Methods used for statistical analysis should be described with sufficient detail so that a reader, if equipped with the paper, the raw data and the same software, could reproduce all results reported. For example, if an experiment is analysed by a linear mixed model, all fitted terms should be explicitly stated, either in the text or in an equation, specifying which effects are fixed and which are random. For a review of statistical problems frequently encountered with papers submitted to this journal, and how to avoid them, see


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