



Editorial

Physiology and Management of Sustainable Crops—A Dedicated Platform for Innovative Crop Research

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1. Introduction

It is a pleasure and honour to announce that Scilight Press is launching a new, groundbreaking academic journal, *Physiology and Management of Sustainable Crops (PMSC)*, in the field of crop physiology and management in the context of sustainable agriculture and climate change. After a very elaborate preparation, Scilight Press started to accept manuscript submissions for this journal in December 2024. It is published quarterly online by Scilight Press.

In recent decades, the field of crop physiology has evolved to incorporate the classical work findings from other disciplines, like omics, phenotyping, or models. This has opened an opportunity for a new, high-demanded, journal to showcase these research results. *Physiology and Management of Sustainable Crops* is a platform for disseminating new findings, ideas, and concepts of crop physiology and highlighting interdisciplinary and cutting-edge research results.

Physiology and Management of Sustainable Crops represents a burgeoning field within scientific research, encompassing a diverse array of techniques, from traditional crop physiological and management methods to the most modern and updated biological and biotechnological tools. This field holds great promise for addressing various challenges, among which should be highlighted the food demand of the increasing food population, the increasing effects of pests, the loss of arable land due to erosion or pollution, and the necessity of facing the crop adaptation to climate change, including the management of water as a more and more limited but necessary resource. Researchers are exploring crop physiology and the above-mentioned challenges from multiple perspectives, including studies made both under controlled conditions and under field conditions at all levels of organization from the sub-cellular one to the canopy.

2. Aims

Physiology and Management of Sustainable Crops is a gold open-access, peer-reviewed journal that aims to be a premier journal for disseminating research in the field of crop physiology and management in a context of sustainable agriculture and climate change, welcoming diverse types of contributions (full-length original research articles, rapid communications, comprehensive reviews, insightful perspectives/commentaries, etc.) conducted with scientific rigor and that represent a step forward in knowledge. Contributions may include, but are not limited to:

- Cutting-edge research and innovative findings.
- Studies encompassing fundamental or applied research.
- Studies made both under controlled conditions (growth chambers, greenhouses) and under field conditions at tissue, organ, plant, shrub, tree or canopy level.
- Studies made on extensive crops (rice, maize, barley, wheat, soybean, sorghum, etc.), woody fruit shrubs/trees, any cultivated plant used for human or animal nutrition, medicinal plants and aromatic herbs widely used in pharmaceutical compounds, gastronomy and perfumery.



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- Studies including any technical approach that helps to understand any crop physiological or management response. Omics (ionomic, metabolomic, proteomic, genomic, etc.), phenotyping technologies (sensors, drones, remote sensing) and models (including crop simulation models) can be incorporated to these studies as tools to investigate the basis of such changes as long as they help to understand physiological responses, and yield or quality changes.
- Experimental, methodological (tools), theoretical, and confirmatory studies, including datasets, negative results and descriptive works, are welcome, provided they have a sound hypothesis and well-grounded implications. Merely descriptive studies will be excluded.

3. Scope

The scope of *Physiology and Management of Sustainable Crops* encompasses the broad and intricate relationship between crops and the environment across all levels of organization. The journal welcomes any methodology aimed at exploring crop yield and quality responses to environmental changes and to human management. Studies that integrate multiple techniques are highly appreciated as long as they help to understand the underlying basis of constitutive processes and physiological responses to the environment, and yield or quality changes. Traditional crop physiological methods (e.g., stem/root traits characterizing growth, yield, yield components and quality traits, water relations, gas exchange, chlorophyll fluorescence, isotopic analyses, microscopy, etc.), omics (ionomic, metabolomic, proteomic, genomic, metagenomic, transcriptomic, etc.), phenotyping technologies (sensors, drones, remote sensing) and models (including crop simulation models) can be incorporated to these studies as tools to investigate the basis of such changes to management or environment.

Physiology and Management of Sustainable Crops welcomes a wide array of topics, including but not limited to:

Crop Physiology: Studies on crop physiology. Crop physiology is the study of how crops function and respond to the environment and agronomic management. It involves understanding the factors that affect crop growth and development, including external factors (light, temperature, water, nutrients, wind, etc.) and internal ones such as the physiological mechanisms plants use to adapt to the surrounding environment. The latter can be divided into two: (i) primary processes such as photosynthesis, respiration, and transpiration and (ii) plant-specialized metabolism (formerly known as secondary metabolism) which helps plants to face abiotic and biotic stress factors or a combination of them.

Crop Improvement: Studies on crop improvement with regard to crop yield and quality. The increased food demand along with the pressure to decrease the negative environmental impact of crop production is dictating the need to establish consistent and sustainable crop production systems, optimize the input of nutrients and management practices, employing regenerative, agroecological, and sustainable agricultural practices. This may include, among many other aspects, optimizing irrigation, fertilization, intercropping, pest control practices (including the plant production of volatile organic compounds), and the use of soil and/or rhizosphere microbial biostimulants (including bacteria, mycorrhiza, *Rhizobium* and other symbioses), as well as breeding new varieties of crops that are more resistant/resilient to the climate and the growing conditions of a given environment, and the obtention of new value-added products and services for the society.

Crops and Climate Change: Studies dealing with the response of crops to climate change. Crop production systems must align with the current adverse climate changes as it is one of the main challenges that agriculture will face in the upcoming decades since its emergence ten thousand years ago. In addition to extreme climatic events that can cause prolonged drought episodes or flooding in many countries around the world, the main factors or agents associated with climate change are increased CO₂ concentration in the atmosphere, increased temperatures, both daytime and night-time, and reduced water availability. These stress factors have important implications not only on crop physiology but also on the different management strategies growers should adopt to cope with losses in yields.

Multiple Crops and Growing Conditions: Studies including a large variety of crops and growing conditions and facilities. Studies made both under controlled conditions (growth chambers, greenhouses, open-top chambers, free-air CO₂ enrichment facilities) and under field conditions at sub-cellular, cell, tissue, organ, plant, shrub, tree, or canopy levels are considered. Extensive crops (rice, maize, barley, wheat, soybean, sorghum, etc.), woody fruit shrubs/trees, any cultivated plant used for human or animal nutrition, medicinal plants, and aromatic herbs widely used in pharmaceutical compounds, gastronomy, and perfumery will be the focus of the journal.

4. Outlook

Physiology and Management of Sustainable Crops links tools for pioneer research, theoretical aspects, and practical considerations, fostering a multidisciplinary dialogue and bridging the gap among crop physiologists, academics, and researchers from other disciplines and research fields.

Our editorial team comprises leading experts from diverse backgrounds, ensuring rigorous peer review and editorial oversight to maintain the highest standards of scientific integrity and excellence. We will work on enlarging our editorial team year to year to update it with the best academics/researchers within the field.

We invite researchers from around the world to contribute their innovative work to *Physiology and Management of Sustainable Crops*. Together, we can drive forward the frontiers of crop physiology research and pave the way for transformative discoveries with real-world impact. We look forward to your contributions, collaborations, discoveries, and engagement with *Physiology and Management of Sustainable Crops*.

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Conflicts of Interest

The author declares no conflict of interest.