

Advancing Sustainable Agricultural and Bioscience Research in a Changing World

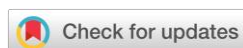
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Abstract: The growing complexity of global issues concerning food security, environmental sustainability and biological innovation demands the transformational and interdisciplinary research agenda in agricultural and biosciences. This editorial proposes the new Agricultural and Bioscience Review (ABR) as an academic journal that focuses on promoting high quality, peer-reviewed research that combines agricultural systems, biological sciences, and sustainable biosystems. The article underscores the importance of interdisciplinary strategies to tackle climate change, degradation of resources, and increasing agri-food system demands of resilience and efficiency. It underlines the significance of methodological rigour, technological innovation, and translational relevance to produce actionable knowledge both to the academic and policy communities. Themes addressed are agro-resilient to climatic change, precision and digital agriculture, soil and ecosystem health, biotechnology, circular bioeconomy, and food systems sustainability. The editorial also highlights the necessity of inclusive and globally representative research that is reflective of various agro-ecological and socio-economic contexts. ABR hopes to play a role in ensuring sustainable agricultural practices, resilient ecosystems, and effective policy frameworks by promoting cross-disciplinary collaboration and evidence-based solutions. The focus on scientific excellence and global inclusivity makes the journal an important channel through which knowledge can be advanced and sustainable development fostered in the area of agriculture and biosciences.

Keywords: Sustainable agriculture; Biosciences; Food security; Climate-resilient agriculture; Agroecology; Biotechnology; Soil health; Precision agriculture; Circular bioeconomy.



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The agricultural and biosciences are in the vanguard of tackling some of the most urgent challenges affecting the world in the twenty-first century. The unprecedented pressure on the food systems and ecological balance is caused by rapid population growth, climate change, environmental degradation, and the shortage of resources. Against this dynamic backdrop, Agricultural and Bioscience Review (ABR) stands out as a relevant and timely academic journal dedicated to promoting rigorous, innovative and policy-relevant research that straddles agricultural sciences and biological systems.

The modern world landscape requires the radical shift in the conceptualisation and practice of agricultural production, environmental stewardship and biological innovation. Traditional methods of agriculture, which are usually marked by intensive use of inputs and externalities to the environment, are becoming less sustainable. At the same time, the new opportunities of improving the productivity without damaging the ecological integrity are emerging due to the development of biosciences, biotechnology, and digital agriculture. This is where ABR is placed at this critical junction where it is seeking to trigger interdisciplinary discourses and evidence-based interventions capable of underpinning sustainable and resilient agri-food systems across the globe.

Fundamentally, ABR understands that food security and environmental sustainability are intrinsically linked. The health of soil, water, biodiversity and ecosystem services are essential to the ability to ensure that the global population can have sufficient, nutritious and accessible food. On the other hand, conservation activities should consider the socio-economic conditions of farmers and country residents whose survival depends on the output of agriculture. A combination of agronomic knowledge with biological information and socio-economic knowledge exemplifies the necessity of integrated research.

The wide and comprehensive scope is one of the strong points of ABR. Contributions to the journal are always welcome in all areas of crop science, plant and animal breeding, soil science, microbiology and biotechnology among others. Such an interdisciplinary orientation is a manifestation of the fact that sustainable agricultural development must involve cooperation on a variety of levels. As an example, improvements in the field of plant genetics and genomics have the potential to increase crop tolerance to climate stressors by a significant factor, whereas microbial ecology studies can provide new biofertiliser innovations leading to the phasing out of chemical inputs. On the same note, advancement in animal science and aquaculture can help in achieving sustainable protein production, both in terms of nutritional value and environmental issues.

Climate change is a very pressing field of interest of agricultural and bio-science research. The rising temperatures, changes in the patterns of precipitation, and the growing number of extreme weather events are already affecting the productivity of agriculture in most areas and putting food security at risk. Climate resistant farming is thus not just an academic idea but a reality in the field. Drought-tolerant crops, effective irrigation, and agroecological systems, and adaptive farming strategies are crucial areas of research needed to develop resilience locally as well as globally. ABR actively promotes such contributions, as it is extremely necessary to the sustainable development.

Concurrently, the journal recognizes the revolutionary capabilities of technology innovation in agriculture. The utilization of precision agriculture, digital farming tools, remote sensing and data-driven decision support systems are transforming the way agricultural activities are conducted (Burghof & Prothmann, 2011; Cheema et al., 2017). These technologies provide chances to streamline resource utilisation, minimise the environmental effects, and increase productivity. Nevertheless, their implementation also poses pertinent questions concerning accessibility, equity, and capacity-building, especially in developing nations. ABR tries to encourage research which not only explores the frontiers of technology but also studies their socio-economic consequences and their practical viability.

The other main theme that falls under the ABR umbrella is the notion of the circular bioeconomy. The method focuses on the efficiency of utilisation and recycling of biological resources, with the aim of minimising waste and maximising value generation. This can be through development of bio-based inputs like biofertilisers and biopesticides, use of agricultural residues to provide energy and industrial products and through the integration of crops and livestock systems to improve efficiency of resources. ABR helps to achieve the larger objective of shifting to sustainable and regenerative production through funding research in this field.

The journal also has a priority on food systems research. In addition to production, other concerns like post-harvest loss, food preservation, supply chain efficiency, and nutrition are essential aspects of global food security. To combat these problems, a holistic approach needs to be taken where the whole value chain, farm to fork becomes the perspective. ABR welcomes donations to investigate novel ways in minimizing food waste, developing storage and processing technology, and increasing the nutritional value of food.

Notably, ABR believes in ensuring rigor and scientific excellence. The journal is open to all forms of research designs including experimental research, field research, systematic review research, and conceptual frameworks. Through its high quality peer review and support of transparency and reproducibility, ABR is committed to ensuring that

published studies add value to the academic and to practice. The focus on translational relevance also points out the interest of the journal in closing the gap between theory and practice.

Another characteristic is the global and inclusive vision of ABR. The problems of agriculture and bioscience have great regional variations and they are influenced by different climatic, ecological, and socio-economic factors. By implication, solutions need to be local but at the same time they need to enhance knowledge sharing at a global level. ABR offers a forum to both developed and developing world scientists to exchange their experiences, creating a more inclusive and representative scientific discourse (De Moor & Sercu, 2015; Derigs & Marzban, 2008; Dimson & Marsh, 1991). This international outlook is vital in tackling issues that are transboundary like climate change, loss of biodiversity, and food insecurity.

Moreover, the journal has appreciated the significance of policy research. Policies are important in influencing agricultural activities, management of resources and adoption of technology. Sustainable development goals can only be achieved through evidence-based policymaking that is informed by sound scientific research. ABR welcomes article submissions that explore the interface between science and policy, providing understanding of how research can inform the regulatory framework, institutional structure and development strategies.

In perspective, the interdisciplinary collaboration role will be further important. Modern agricultural and environmental issues are too complex to be addressed manually using a single discipline-based approach. ABR aims to create a synergistic research atmosphere, which can create comprehensive and effective solutions through a combination of knowledge in agriculture, biology, environmental science, economics, and technology.

To sum up, Agricultural and Bioscience Review is not just a scientific publication but an avenue through which knowledge can be advanced and thus the future of sustainable agriculture and biosciences can be achieved. ABR strives to support the creation of robust agricultural systems, healthy ecosystems, and resilient food systems by focusing on innovation, inclusivity, and practical relevance to benefit generations yet to come. Overall, quality of interdisciplinary research is more than ever relevant as the global community struggles with not only multiple challenges but also interconnected ones. ABR is already committed to this effort, and will be a channel through which ideas, evidence, and solutions can be generated that can make a significant difference in agriculture and beyond.

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