

EDITORIAL

Towards high-yield and sustainable agriculture

Prof. Gideon Oron

Ben-Gurion University of the Negev, Beersheba 84105, Israel; gidi@bgu.ac.il

The key challenges for researchers in agriculture today may be how to guarantee the quality of various crops and how to efficiently increase agricultural yields. Volume 4, Issue 2, of this open access journal, *Advances in Modern Agriculture*, which features 12 excellent articles, primarily offers readers an engaging conversation about how to increase agricultural productivity through the use of various research approaches from multiple perspectives. In the meantime, insightful recommendations regarding how to enhance crop productivity are made, offering researchers working in related subjects helpful knowledge and illumination.

Crop output and quality are affected by a number of elements during their growth process, one of which is climate change. Osuji et al.^[1] investigated the factors obstructing rice farmers' responses to climate change in Ebonyi State, Nigeria. They recommended that farmers adopt climate-smart cropping systems and look for early climate change information in order to lessen the negative effects of climate change on rice cultivation^[1]. The study by Meharie et al.^[2] examined the extreme rainfall indices and how they affected the Abiya watershed's agro-climatic zones' (ACZs) local farming crop calendar. According to their findings, drought-tolerant crops and appropriate crop types, along with an efficient early warning system, are required to lessen the negative effects of these extreme rainfall events on the agricultural sector^[2]. Their study offers relevant practitioners practical information to address the adverse effects of climate change on crop growth.

Any natural or artificial plant needs fertilizer to grow and develop, and commercial fertilizers made of naturally occurring or inorganically produced chemicals are responsible for between 30% and 50% of agricultural output increases^[3]. Fertilizer application done properly can significantly increase crop yield. Amanullah^[4] explores the various advantages of biofertilizers in relation to crop production and summarizes the state of the art, demonstrating that biofertilizers have become an effective instrument in tackling the problems associated with contemporary agriculture, ranging from crop improvement to environmental preservation and public health. In order to ascertain its effect on the growth of horned melon (*Cucumis metuliferus*) in a greenhouse environment, Mutetwa et al.^[5] investigated the application of *Trichoderma* bio-fertilizer at different levels. Furthermore, this study demonstrates that using biofertilizers based on *Trichoderma* has been shown to have an impact on the length of the vine, the number of leaves, and the number of branches of horned melon plants^[5]. Even though those experiments unequivocally demonstrate that fertilizer can increase agricultural yield, more research is needed to determine the precise effects of fertilizer on crops.

Additionally, a variety of cutting-edge technologies are being applied to agricultural production as a result of the rapid development of science and technology. Rao^[6] investigated the use of artificial intelligence in

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precision agriculture to enhance crop production and distribution, made an effort to develop a framework of predictive models to enhance crop yield, and helped to comprehend the various aspects that influence crop yield in order to increase crop productivity.

Other interesting papers published in this issue talk about a smart irrigation system, sustainable food production, root exudates, soil microbial communities, etc. The full issue is now available online, and scholars in related fields are welcome to download, read, and share these papers.

The advancement of agriculture is crucial to all of us in the long run. The well-being of individuals benefits from research on increasing crop yield and quality. It is recommended that academics carry out more beneficial research, and we sincerely invite high-quality submissions.

Conflict of interest

The author declares no conflict of interest.

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