

## The role of horticultural research in mitigating global food and economic crises

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The global community faces an ever-increasing demand for food production and economic stability. The rapid population growth, climate change, and resource constraints have escalated the need for innovative solutions. Horticultural research is nowadays a multifaceted and broad field that encompasses the scientific study of the biology, the ecology, and the cultivation of fruits, vegetables, and ornamental plants, as well as a range of topics such as plant breeding, crop production, plant physiology, and plant pathology. As the world is changing at an unprecedented pace, horticultural scientists will need to rapidly adapt their research to meet the needs of the future. The main challenges ahead are (a) increasing crop productivity, (b) improving the nutritional content of crops, (c) fostering economic growth and income generation, and (d) mitigating climate change impact on crops.

Horticultural research will have to continue to have a pivotal role in enhancing crop productivity through various means. The development of improved crop varieties with enhanced yield potential, disease resistance, and tolerance to environmental stresses is the key factor to enable farmers to produce more food per unit of land. Additionally, research into innovative cultivation techniques, such as precision agriculture, hydroponics, and vertical farming, has the potential to significantly increase crop productivity in limited spaces.

Horticultural research will also play a critical role in improving the nutritional content of crops, which is vital for combating malnutrition and promoting public health. Scientists need to focus on breeding programs with a focus on the enhancement of the vitamin, mineral, and phytonutrient content of horticultural products. By developing biofortified crops and promoting their cultivation, horticultural research can positively impact on human health, lowering healthcare costs linked to diet-related illnesses.

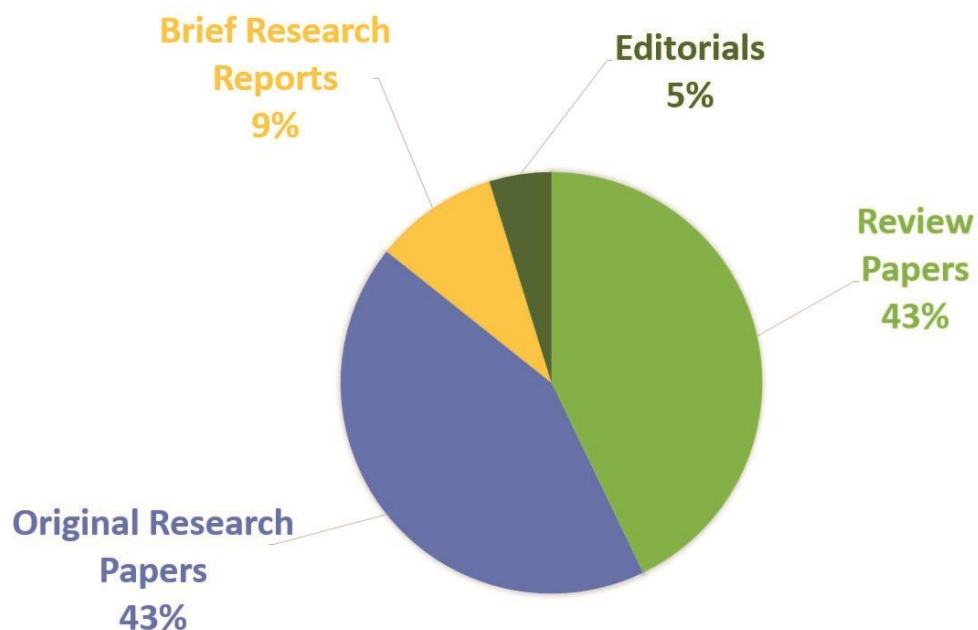
Horticultural research also needs to increase and exploit its potential to foster economic growth and income generation at various levels. The horticulture sector provides employment opportunities, in rural and in urban areas, thereby reducing poverty and improving livelihoods. Horticultural research is expected to facilitate the development of value-added products and create new market opportunities. This can contribute to economic diversification and resilience, leading to increased stability during times of crisis.

Finally, as climate change poses significant challenges to global food production, horticultural research has to play a crucial role in developing climate-resilient crops and modifying cultivation practices. By identifying and breeding climate-tolerant genotypes (cultivars and rootstocks), optimizing water and nutrient management, and implementing sustainable pest and disease control strategies, horticultural research helps ensure food security even in the face of changing climatic conditions. Moreover, the adoption of climate-smart horticulture practices is a concrete contribution to greenhouse gas mitigation and the preservation of natural resources. These aspects are particularly relevant considering that the COVID-19 pandemic has significantly disrupted global food systems and economies, amplifying the

urgency of horticultural research in mitigating post-pandemic challenges. Longer term, horticultural research can improve sustainable land-use practices, reducing deforestation, and conserving biodiversity.

### The contribution of *Italus Hortus* to scientific research in horticulture

In 2022, *Italus Hortus* completed its third year of publishing activity since it became an international journal in horticultural science. In this year, the journal had an intense editorial activity that resulted in a total of 20 published papers (9 Reviews, 9 Original Research Papers, and 2 Brief Research Reports) and 1 Editorial (Figure 1A). Between 2020 and 2023, *Italus Hortus* has had an increasing international contribution with the percent of published papers having corresponding authors based in countries different from Italy that passed from 29% (2020) to 43% (2021), and then to 67% (2022). Furthermore, in the same period, the performance of *Italus Hortus* in the ranking of bibliometric indicators has steadily improved.



**Figure 1.** Type of papers published in *Italus Hortus* in 2022.

The Editorial Board is committed to giving proper attention to the above mentioned research priorities. The journal also welcomes papers on well-established or emerging areas such as the use of plants for medicinal purposes, environmental remediation, and space exploration. As the field of horticultural research continues to evolve, we can expect to see even more innovative and exciting advances in the years to come.

The Editors of *Italus Hortus* are grateful to prof. Brunella Morandi (University of Bologna, Italy) and prof. Giandomenico Corrado (University of Naples Federico II) for having served *Italus Hortus* as Guest Associate Editors for some of the manuscripts submitted in 2022.



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