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Commentary

Horticulture: Cultivation, Techniques, and Environmental Significance

Miguel Santos*

Department of Agricultural Sciences, University of Lisbon, Lisbon, Portugal

DESCRIPTION

Modern horticulture uses scientific techniques to increase productivity and quality. Plant breeding is used to develop improved varieties that are disease-resistant, high-yielding, and suitable for different climates. Tissue culture allows rapid multiplication of healthy plants in laboratories, which helps farmers get uniform and disease-free planting material. Protected cultivation, such as greenhouses and polyhouses, allows crops to grow in controlled environments. This makes it possible to produce crops throughout the year and protect them from extreme weather. Drip irrigation and fertigation help save water and provide nutrients directly to plant roots, improving efficiency and reducing waste.

Integrated Pest Management (IPM) is another important technique. Instead of relying only on chemical pesticides, IPM combines biological control, cultural practices, and safe chemicals to protect crops while reducing environmental damage. Horticulture supports sustainable agriculture by promoting crop diversity and efficient use of resources. Mixed cropping, intercropping, and kitchen gardening help improve soil fertility and reduce dependence on chemical inputs. Organic horticulture, which avoids synthetic fertilizers and pesticides, is becoming popular due to growing demand for safe and eco-friendly food. Many horticultural practices also help conserve water and protect soil health. Mulching, composting, and use of organic manures improve soil structure and moisture retention. These practices not only benefit crops but also protect natural resources for future generations. Vertical farming and hydroponics are new methods that allow plants to grow without soil, making food production possible even in limited urban spaces.

Digital tools such as mobile apps, sensors, and artificial intelligence are being used to monitor plant health, soil conditions, and weather patterns. These technologies help farmers make better decisions and reduce risks. Horticulture is especially important for small and marginal farmers. Since horticultural crops often give higher returns in shorter periods, farmers can earn better incomes even with limited land. Value addition through processing such as making jams, juices, pickles, and dried products further increases profits and reduces post-harvest losses.

Women also play a significant role in horticulture, especially in nursery raising, flower cultivation, vegetable production, and marketing. This helps improve family income and promotes social empowerment. Horticulture supports sustainable agriculture by promoting crop diversity and efficient use of resources. Mixed cropping, intercropping, and kitchen gardening help improve soil fertility and reduce dependence on chemical inputs. Organic horticulture, which avoids synthetic fertilizers and pesticides, is becoming popular due to growing demand for safe and eco-friendly food. Many horticultural practices also help conserve water and protect soil health. Mulching, composting, and use of organic manures improve soil structure and moisture retention. These practices not only benefit crops but also protect natural resources for future generations.

CONCLUSION

Horticulture is much more than growing plants in gardens. It is a science and an art that supports human health, protects the environment, and strengthens the economy. By providing nutritious food, creating green spaces, and offering employment opportunities, horticulture contributes greatly to sustainable development. As technology advances and awareness of healthy living increases, the importance of horticulture will continue to grow, making it a vital part of our future. With the world facing challenges like climate change, population growth, and food insecurity, horticulture has a promising future. Scientists are working on climate-resilient crop varieties that can tolerate drought, heat, and pests.

Correspondence to: Miguel Santos, Department of Agricultural Sciences, University of Lisbon, Lisbon, Portugal, E-mail: miguel.santos_ul@edu.pt

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