

# Horticultural Biodiversity through Vegetable Crops, Sustainability and Climate Change

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**Abstract**—Horticultural plants include fruit, vegetable, ornamental, turf, medicinal, beverage, spice, and other economic species. Presently, the horticulture sector contributes around 34% of the GDP and 38% of the total exports of agricultural commodities from about 13.08% of area. These species deserve much greater recognition and investment in agricultural research and development than they have presently. Indigenous vegetables are primary candidates for greater use of crop biodiversity in horticulture as they are already consumed and enjoyed locally and can be produced profitably in both rural and urban environments. Although their importance in protecting biodiversity has not been addressed. With tremendous driving force of their monetary value, farmers, gardeners, breeders, and researchers have domesticated, selected, and bred many new horticultural crops, which ultimately increase biological diversity in cultivated plant communities. The biodiversity in vegetable crops is composed by the genetic diversity, as species diversity (interspecific diversity) and as diversity of genes within a referring to the vegetable grown varieties, and by the diversity of agro-ecosystems. Intraspecific diversity is very ample in vegetable crops and is not reflected, at least not to the same extent, in other groups of crops. The benefits for sustainability, a multi-criteria analysis shows that organic agriculture not only improves biodiversity but also has positive effects on soil (e.g., soil erosion, structure, biological activity), water (e.g., no pesticide residues) and climatic factors (e.g., air pollution). The challenges are many, namely, nutritional security, threat of climate change, need for new vegetable genotypes for diversified end uses, production deficit, lack of infrastructure in commodity value-chain, retail chains and organized market systems, farmer producer companies, and export promotion. It is, therefore, necessary to promote modern horticulture sector to meet new challenges.

**Keywords:** Vegetable, biodiversity, climatic factors, sustainability and Horticulture.