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Commentary on Drought-Resilient Maize and Leafy Vegetable Intercropping Systems in Semi-Arid Kenya: An African Horticultural Perspective

K, a, m, a, u, K, a, r, i, u, k, i, ,, W, a, n, j, i, k, u, M, u, t, h, o, n, i

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Abstract

Semi-arid regions of Sub-Saharan Africa, such as Machakos in Kenya, face food insecurity exacerbated by climate variability. Intercropping staple cereals with horticultural crops is a traditional practice, but its efficacy with modern drought-tolerant maize varieties requires specific analysis from a horticultural standpoint. This commentary critiques a recent field study that evaluated drought-tolerant maize intercropped with drought-escaping indigenous leafy vegetables. It aims to assess the study's contribution to understanding sustainable intensification and dietary diversity in semi-arid horticultural systems. As a commentary, this article analyses and synthesises the methodology and findings of the published field study. It evaluates the experimental design, which compared monocropped and intercropped systems under rain-fed conditions, and the agronomic parameters measured. Key insights: The original study demonstrated that intercropping drought-tolerant maize with vegetables such as cowpea and amaranth improved land equivalent ratios, indicating superior land-use efficiency. A key finding was the vegetables' provision of early season ground cover, which reduced soil moisture evaporation. This intercropping system represents a viable, low-input strategy for enhancing both agro-ecological resilience and nutritional output. Integrating drought-escaping horticultural species with drought-tolerant staples is a promising approach for climate adaptation in smallholder systems. Future research should

prioritise participatory on-farm trials to select preferred vegetable cultivars. Detailed economic analyses of profitability and investigations into optimal planting densities and spatial arrangements are also needed. climate resilience, intercropping, drought-tolerant maize, indigenous vegetables, sustainable intensification, smallholder farming, food security This commentary provides a critical horticultural perspective on integrated cereal-legume-vegetable systems, highlighting the underexploited role of indigenous vegetables in building resilience.