18. Dragon Fruit (*Hylocereus Spp.),* a potential climate change resilient crop in Kenya.

Joshua Mbaabu Thambura[1*] and Dinah Kirigia[2]

[1] Department of Agriculture, Meru University of Science and Technology

[2]Agriculture and Food Authority-Horticultural Crops Directorate (AFA-HCD

*Corresponding author email: jthambura@must.ac.ke

Subtheme: Agriculture - Sustainable Agro-ecological practices for climate resilience

Abstract

Climate change poses significant challenges to agricultural production worldwide, posing a food insecurity threat to the ever increasing human population. Kenya is not an exception. Adoption of climate change mitigation measures as well as cultivation of resilient crops is key in ensuring sustainability of agricultural production systems. In Kenya, Dragon fruit (Hylocereus spp) has been proposed by researchers as a potential climate change resilient crop. Therefore, this systematic review examines the potential of dragon fruit (Hylocereus spp.) resilience amidst climate change in Kenya. Dragon fruit, a recently introduced crop is known for its nutritional and economic value. It has garnered interest among Kenyan farmers due to its ecological adaptability and market potential. However, not much has been documented about the climate change resilience on the production potential of the dragon fruit in Kenya. The review synthesizes findings from various studies on how rising temperatures, unpredictable rainfall patterns, drought and increased solar radiation impacts dragon fruit production. Current studies indicates that increased temperatures can boost the growth and fruiting of dragon fruit, which thrives best in warm climates. With an optimal temperature range of 20-38°C, it is a clear evidence that dragon fruit can be cultivated across all ecological zones in Kenya despite the changing climate. The crop has been shown to demonstrate resilience to drought, increased solar radiation, and high temperatures. However, extreme heat (Temperatures above 38°C) and extended drought periods can stress the plants, leading to reduced yields and fruit quality. Improved irrigation techniques, mulching, and selection of drought-resistant varieties, have been identified as essential strategies to mitigate the adverse effects of climate change. In conclusion, climate change presents opportunities for expanding dragon fruit production in Kenya, especially in ASAL regions becoming increasingly suitable for its cultivation. This can promote economic opportunities, nutrition and food security across the Country. This review recommends the need for targeted research, policy support, sensitization and capacity building of farmers, processors and other actors to harness the potential of dragon fruit value chain as a climate-resilient crop.

Keywords: *Dragon Fruit, Climate Change, food security, resilient crop, Arid and Semi-Arid Lands*