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Farmers’ and academia’s views”

Multiple biotic and abiotic factors constrain tomato production in Kenya

MAINA MWANGI¹, ANNE KARANJA¹, WILLIS OWINO², CHARITY GATHAMBIRI³, BETH NDUNGU³,
FINYANGE POLE³

¹*Kenyatta University, Agricultural Science and Technology, Kenya*

²*Jomo Kenyatta University of Agriculture and Technology, Food Science and Technology, Kenya*

³*Kenya Agricultural and Livestock Research Organisation, Kenya*

Abstract

Tomato is widely grown in Kenya for fresh consumption and processing into value added products. Production is predominantly under open field conditions, and is severely constrained by various biotic and abiotic factors. A survey was carried out under the Kenya Climate Smart Agriculture Programme to document the major production challenges for targeting with different technologies, innovations, and management practices. Qualitative data was obtained in 2020 through Focus Group Discussions in nine sub counties spread in Kajiado, Siaya and Elgeyo Marakwet counties. Other data was by observation in tomato fields and visit to local produce markets. The findings showed that tomato production is considerably irrigated in Kajiado and more rainfed in E. Marakwet and Siaya. Pests and diseases, drought, high cost of hybrid seed, declining soil fertility and seasonal gluts are major constraints. Late blight *Phytophthora infestans*, early blight *Alternaria solani* and root knot nematode *Meloidogyne incognita* incidence was high in the different regions, powdery mildew *Leveillula taurica* and bacterial speck *Pseudomonas syringae* pv tomato were higher in Kajiado while bacterial wilt *Ralstonia solani* was higher in Siaya. Leaf miner moth *Tuta absoluta* was the most destructive insect pest, while thrips and whiteflies were present but less damaging. Large quantities of tomato fruit with pest damage was discarded at harvest or rejected in the market. Farmers relied on chemical pesticides heavily; the choice and frequency of pesticide application was not based on assessment of existing risk of attack. A large number of tomato cultivars was grown in different regions depending on consumer preference. High cost of hybrid seed has dampened uptake of new cultivars and compelled farmers to recycle seed. There is need to build the capacity of farmers to assess pest risks through surveillance and initiate effective control measures that prioritise low cost, environment friendly methods aimed at reducing pesticide use. Value addition capacity should also be developed to minimise wastage of fruits that may not be marketed directly due to pest damage.

Keywords: Diseases, hybrid seed, pesticides, pests, tomato