

Abstract

Dieback disease is the most important constraint to Kenya's passion fruit industry. It is widespread in all passion fruit growing areas and causes over 70% of total fruit loss in the country. Farmer practices such as use of unsterilized tools during pruning and grafting spread the disease. Inadequate plant nutrition and prolonged drought periods associated with climate change have been linked to increased disease severity. Dieback management efforts have focused on integrated measures that include plant nutrition, irrigation and use of fungicides. This study was carried out to evaluate the effectiveness of selected farmer practices in reducing spread of dieback in Central and Eastern Kenya. Data were obtained through surveys and from observations of agronomic practices in farmer managed experimental units. Selected farmer practices were simulated in experiments to identify their roles in disease spread. A Completely Randomised Block Design-Field experiment was set up to test efficacy of selected plant nutrients and fungicides in managing dieback. Nutrients tested included phosphorus as Triple Superphosphate (TSP), Calcium Ammonium Nitrate (CAN) and Mavuno® fertiliser (contains NPK and micronutrients), all applied at rates recommended for passion fruit. Fungicides tested included Fosfite®, Milraz®, Ridomil® and Topsin® applied as recommended by the manufacturer. Results indicated slowed disease spread to uninfected vines through proper field sanitation, pruning and removal of infected plants and plant parts. In plants where infected vines were not pruned, disease severity increased from a moderate rating of between 2 and 3 to more severe infection scores of 4 or 5 within 3 weeks. Disease spread was slower during the rainy season, suggesting that water stress increased severity of infection. Application of fertilisers appeared to limit severity by boosting plant health and triggering recovery through regeneration of new tissue if applied at the early stages of infection. Applying fertilisers on plants infected at severity level 4 and 5 had no significantly beneficial effect on plant health. If applied as recommended, the tested fungicides reduce disease progress, but none is curative.