

INTEGRATED PEST MANAGEMENT FOR SWEET POTATO IN EASTERN AFRICA

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Sweet potato is a key food crop in Eastern Africa. It is mainly grown by small-scale, resource-poor farmers on small plots of land, usually without fertilizers or pesticides. In some areas it is the main staple food; in others it contributes to household food security alongside other crops. Farmers rarely store harvested roots. Instead, they leave them in the ground and harvest gradually (piecemeal harvesting), ensuring a continuous supply of fresh food throughout the year.

The most serious insect pests are the African sweet potato weevils: *Cylas puncticollis* and *Cylas brunneus*. These species damage both roots and vines, particularly in areas with long dry seasons. During dry periods, soil cracks form, allowing female weevils to lay eggs in the roots. Most previous research focused on *Cylas formicarius*, a related species found in Asia and the Americas. Because the African species differ biologically, locally adapted research was necessary.

Laboratory and field studies showed important differences between the two African species. *Cylas brunneus* reproduces faster under favourable conditions, while *C. puncticollis* survives longer during unfavourable periods. A key finding is that weevils cannot dig through soil; they infest roots only through soil cracks or exposed root surfaces. This biological insight provides practical opportunities for control.

Among the available management options, cultural control practices are the most promising and sustainable. Effective measures include planting deep-rooted or early maturing varieties, covering exposed roots, filling soil cracks, adjusting planting and harvesting times to avoid peak weevil periods, crop rotation, selecting healthy planting material, and improving field sanitation. Importantly, traditional in-ground storage combined with piecemeal harvesting does not increase weevil damage and remains a sensible strategy for smallholder farmers.

Other control methods have limitations. Chemical control is generally too costly, potentially hazardous, and ineffective against hidden life stages. Biological control agents have shown inconsistent results. Sex pheromone traps have been developed for monitoring weevil populations and may contribute to control, but further research is needed to assess their large-scale effectiveness and affordability.

Overall, Integrated Pest Management (IPM) for sweet potato weevils in Eastern Africa should prioritize low-cost, culturally appropriate practices tailored to local agro-ecological and socio-

economic conditions. Farmer training and participatory approaches are essential to ensure successful and sustainable implementation.