

**Mango production practices and assessment of chemical and physical barriers in the
management of mango seed weevil in Mbeere District**

Samuel Josiah Nyamu Muriuki

**A thesis submitted in partial fulfillment for the award of the Degree of Master of Science in
Agricultural Entomology in the Jomo Kenyatta University of Agriculture and Technology**

2011

ABSTRACT

Studies were undertaken in Mbeere district to determine farming practices among mango farmers including crop protection activities aimed at controlling general pests of mangoes as well as the Mango seed weevil *Sternochetus mangiferae* (F). This was done by carrying out a baseline survey in two divisions of Mbeere District, Eastern province of Kenya where mango growing is an important farming activity. Among the mango farmers in Mbeere District, the spacing arrangements were mostly as practiced in other mango growing areas of the country. On manure application, majority of the farmers did so at planting although a substantial proportion applied it once every per year. Fertilizer was mostly applied once per year while majority of the farmers practiced irregular pruning. Mango was recognised by majority of the farmers as the most important crop enterprise in terms of financial returns. Application of foliar insecticidal sprays was important in the control of both *S. mangiferae* and other general pests of mangoes. Pest and diseases were recognised as major production constraints.

Studies on use of physical and chemical barriers for the control of *S. mangiferae*, were carried out in three sites in the district. The studies indicated that Tanglefoot, Chlorpyrifos, Grease and Tangletrap as well as combination of Chlorpyrifos with the physical barriers were the most effective. Dimethoate as a foliar spray showed poor control. This finding was consistent in all sites and in all months.

Studies on the efficiency of control of *Sternochetus mangiferae* using Chlorpyrifos was undertaken in three sites in the district. These showed that efficiency of control depends on frequency of application. The most effective frequency determined was once per month. At once every two months and once every three months, the damage level increased drastically. Sanitation plays an important role in the management of *S. mangiferae* but this has to be

combined with other practices such as trunk application of Chlorpyrifos or Grease. Agronomic practices are not followed according to recommendations and there is therefore need to embark on serious technology dissemination work among mango farmers. Pest management in mango orchards is still largely dependent on foliar application of pesticides. There is also need to expose farmers to other proven alternatives such as trunk band application of Chlorpyrifos or Grease. The former when applied once per month proved to be very effective in the management of the Mango seed weevil under different orchard management conditions. There is need to evaluate other management options for *Sternochetus mangiferae* such as use of the predaceous “Maji moto ant”, *Oecophylla longinoda* Latr. in an effort to give farmers a broad spectrum of control strategies.