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Bee Pollinator Species in Kakamega Farmlands as Influenced by Kakamega Forest, Kenya

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Abstract

Bees have been relied on world-over as the main pollinators of crops in agricultural systems. Honey bees (*Apis mellifera* L.) are the most highly utilised pollinators in these systems because of their easy domestication. However, continued research has shown that some solitary bees are better pollinators of particular crops, hence the changing perception of pollinator needs of different crops. In agriculture, it is generally agreeable that inputs such as fertiliser, labour or capital could limit crop production and hence are given priority. However, pollination is not well appreciated as a limiting factor of production though it can limit crop yields. This is mainly due to the fact that it is an ecosystem service that has been perceived as ‘free’ and plenty, a common characteristic of public goods/services. But due to the continued destruction of ecosystems and the resultant decline of pollinators, the pollination service has become an important factor of production to consider. Kakamega forest is the only remaining forest patch of the guineo-congolian rainforest that used to span from West Africa through central to eastern Africa. It is a main habitat for pollinators that support pollination needs of many crops in the surrounding farmlands. The farmlands are characterised by continued degradation of the pollinator habitats due to the intensity of farming, and it is not known the impact this has on the pollinator abundance and diversity on the farmlands. This study was undertaken to determine the effect of the forest (distance) on the bee pollinator activity density (abundance) and diversity in the farmlands up to 8km away from the forest. Dry common bean (*Phaseolus vulgaris* L.) was used for this study, because it is planted by almost all farmers and hence can provide an overview of the bee pollinators in the farmlands. Initial findings indicate that some bee species are influenced by the distance to the forest and bee activity density was different in the north and south of the forest.

Keywords: Beans, honeybees, kakamega farmlands, Kakamega forest, solitary bees