

Suitability of Hedgerow Planting Systems in Managing Bee (Hymenoptera: Apoidae) Pollinators in Farm Landscapes Bordering Southern Slopes of Mt. Kenya Forest

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ABSTRACT

Bees are the most important pollinators of agricultural crops, accounting for over 85% of the insect pollinators and therefore there is need to protect them. Unfortunately, many farmers are not aware of the importance of bees in crop production and as such they do not associate pollination with yields. Consequently, they carry out some practices which lead to decline in bee populations. For example, the indiscriminate use of pesticides and unplanned clearance of land for crops increases rates of land fragmentation, reducing bee habitats. In such systems, hedgerows can provide safe habitats for bees as well as foraging resources during the periods when crops are not flowering. In addition, strip cropping, within the cropped areas, can provide a major habitat for bees especially when the crop is not blooming. Therefore this study aims at: characterizing hedgerow plants to identify best combinations that can support bee life, determining the floral calendar of hedgerow plants, identifying land use and management practices that impact on bee presence in farmlands, comparing diversity and abundance of bees visiting hedgerow plants and crops and determining suitability of hedgerows as nesting sites for some important wild bees. The study will include field research and also laboratory analysis will be done at the National Agriculture Research Labs-KARI for specimens carried from the field. The field study will be carried out at farmlands bordering southern slopes of Mt. Kenya along a gradient from the forest towards the dry parts of the region. Four sectors will be used: Kenya Horticultural Exporters (K.H.E), Gakeo, Nyarigino, and Katheri, arranged from the farmland towards the forest, respectively. In each sector, five sites will be selected which will be at distance of not less than 200 metres apart. In each site a 150m hedge will be chosen from where a short transect of 25 m towards the cropped land will be created for data collection. Data will be analyzed using Genstat Statistical software. Means will be separated using Student Newman-Keuls (S.N.K). The study is expected to enhance knowledge to farmers about bees and bee protection, which will result to increased bee population in the farmland, providing sufficient pollination, which will translate to better yields hence better living standards of farmers.