

COLONY PERFORMANCE OF HONEYBEES (*Apis cerana* Fabricius) REQUEENED BY INDUCED SUPERSEDURE AND GRAFTING METHODS

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Queen bee rearing is an important operation to replace the old queen and reduce the swarming tendency in existing colonies. In Sri Lankan conditions, colonies are divided when queen cells are formed naturally. Mass rearing of queens is not popular among local beekeepers, although some methods have been used in different incidences without success. Therefore, a successful queen mass rearing technique/s of Asian honeybees, that can be easily adapted is/are needed to introduce to beekeepers of Sri Lanka. This study evaluated the success of requeening using induced supersedure method, to measure the colony performances of the new colonies bred with introduced queens, and to assess the efficacy of grafting techniques for queen rearing. Colonies located in home gardens and the research centre in *Endane* Biodiversity Corridor, *Kahawatta*, Sri Lanka were used for the study. Existing queens of each colony were replaced in another hive with 1/3 of worker bees. After one-week colonies were observed for the presence of queen cells. Two queen cells, mature and immature each were kept for the queen emergence. Brood area, pollen and honey stores and Colony Performance Index (CPI) were measured in all the colonies at one-week intervals. Three separate colonies were used for grafting following the Doolittle method. The data were analysed using paired t-test in SAS statistical software. There was no significant difference ($p>0.05$) in CPI and brood area construction. However, there was a significant difference ($p<0.05$) in honey and pollen area among the colonies. Moreover, the honey and pollen areas of all the colonies were gradually increased over time showing the acceptance of newer conditions. Queen rearing using grafting was tested three times and the success rates were 10%, 20%, and 70%, respectively. It can be concluded that induce supersedure method can be used to multiply bee colonies without affecting their performances. The performances of the queens bred with the grafting method is proposed as a future research direction.

Keywords: Apiculture, Colony performances, Grafting, Honeybee, Queen breeding