

INTRODUCTION

Many attempts have been made to increase the acceptance of honeybee larvae or worker eggs grafted into artificial queen cells, especially in commercial queen-rearing operations with Apis mellifera L.. Although a number of factors control queen cell acceptance, it is particularly necessary to understand the behaviour of nurse bees and the factors influence the grafted larvae or eggs of workers.

Feeding activity of nurse bees and nourishment of the larvae may also be affected by the priming substance in the queen cups. Some commercial queen producers prime cups with a small droplet of water or diluted royal jelly prior to grafting larvae, sometimes no priming substrate is used. (Laidlaw, 1979).

The material from which the artificial queen cells are made may also regulate cell acceptance and provisioning. Artificial queen cups are usually made of various types of wax or plastic. Vuillaume (1956) concluded that acceptance was not affected by the construction material. Bees accepted cells which made of various vegetables and mineral waxes, including paraffin or glass or plastic. Weiss (1967) found that artificial queen cups made of new bees-wax and bees-wax from old combs were equally acceptable on the

other hand, **Vuillaume (1958)** reported that propolis mixed in the wax was an inhibitor of queen cell acceptance.

The time of grafting may possibly influence acceptance and feeding of grafted queen cells and Honeybees have recurrent temporal patterns of activity [**Wahl (1932)**, **Beier (1968)** and **Spangler (1972)**]. This study has been under taken to determine the following points:

- * Effect of feeding the colonies before and during queen rearing on the acceptance of worker larvae in artificial queen cells.
- * Effect of queen rearing methods on the acceptance of worker larvae in artificial queen cells.
- * The acceptance rate of worker larvae reared in different types of artificial queen cups were also studied.
- * Influence of the age of worker larvae used for grafting queen cups on the acceptance of the queen cells.
- * The effect of grafting queen cups with fertilized eggs on acceptance of the queen cells, and investigate the effect of dry grafted and wet grafted of worker larvae in queen cups on the acceptance and survival of grafted larvae was also studied.

- Some biometric characters of emerged queens obtained from the above mentioned were determined.

The experiment were carried out in Department of Plant Protection Apiary and Laboratory, Faculty of Agriculture Moshtohor, Zagazig University, during 1989 and 1990.