HONEYBEE QUEENS PERFORMANCE IN RELATION TO THEIR LONG PERIOD STORAGE IN QUEEN-RIGHT COLONIES

By

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B.Sc. Agric. Sci. (Plant Protection), Fac. Agric., Cairo Univ., 2006
M.Sc. Agric. Sci. (Economic Entomology), Fac. Agric., Cairo Univ., 2010

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SUPERVISION SHEET

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ABSTRACT

This work was carried out at the apiary of the Agricultural Experimental Station, Faculty of Agriculture, Cairo University, Giza Governorate.

Part I. Storing of honeybee mated queens for long period

This study aimed to investigate some factors affecting stored mated honeybee queens weight and survival rate as well as post storage performance of these queens after 75 days of storage within queen-right colonies. Storing queens in numbers of 20, 30 and 40 had no significant effect on their weight. Mean weight of queen stored in excluder cages (EC) was significantly higher than those stored in screen mesh ones (SC). The mean weight of stored queens in the upper strip was higher than the mean of the lower one. Queens stored in peripheral and middle of holding frame did not differ significantly from each other. Concerning queens survival rate, the mean survival rate of 20 stored mated queens was the superior rank, while the survival rate of 30 and 40 stored mated queens came next with no significant differences between them. Queens stored in SC had more significant survival rate than those stored in EC. The upper strip had a higher survival rate than the lower one. Queens stored in the middle of holding frame showed significantly higher survival rate than those in the peripheral. Regarding post storage performance, no significant differences were detected between the brood areas produced by queens stored for 45 or 75 days in the 3 densities. Queens stored for 45 days and those in the upper level had a significantly higher brood production than those stored for 75 days and those stored in the lower level. Queens stored for 45 and 75 days had no significant differences in supersedure percentages either stored in the 3 densities, in 2 levels or in the 2 positions.

Part II. Storing of honeybee virgin queens

This work aimed to investigate the effect of colony and storage cage type on queens survival rate, orphan period on attracted workers as well as storage period and colony strength on queens attractiveness and acceptance. Queens stored in Benton cages (BC) had a higher insignificant survival rate than those stored in emerging ones (EMC). Storing queens in queenless colonies resulted in more significant survival rate than those stored in queenright ones. Increasing the colonies orphan period attracted more significant workers to old queens. This attractiveness increased significantly with the increase of queen age from 3 to 30 days old. The younger and older virgin queens were significantly more accepted than the intermediate ones. The average number of attracted workers in nuclei was significantly greater than those recorded in strong colonies and so as the acceptance percentages.

Keywords: honeybee queens, queens weight, queens survival, queen density, storage period, storage cage, storage level, storage position, egg laying, supersedure, queenright colony, queenless colony, orphan period, queen attractiveness, queen acceptance

DEDICATION

I dedicate this work to whom my heart felt thanks; to my wife and my daughters for their patience and help, as well as to my parents for all the support they lovely offered along the period of my post graduation.

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