

COMPARATIVE STUDY ON SOME ACTIVITIES AND PRODUCTS BETWEEN HYBRIDS OF CARNIOLAN AND ITALIAN HONEYBEE

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ABSTRACT

The present study was carried out at the apiary of Beekeeping Research Section at Sakha Agricultural Research Station, Kafr El-Sheikh Governorate, during 2005 and 2006 seasons. Sixty colonies were divided into three groups, twenty colonies each to compare among F₁-F₂ Italian and F₁-F₂ carniolan-honey bees on brood rearing activity, propolis and pollen gathering, royal jelly secretion and honey yield production. The results indicated that the F₁ Italian hybrid performed larger areas of sealed workers brood than did F₁ Carniolan, F₂ Italian and F₂ Carniolan hybrid with averages of 1079.93, 792.76, 847.40 and 771.72 inch²/colony/month in the first year, and 929.08, 738.96, 794.95 and 756.79 inch²/colony/month, in the second one, respectively. In case of drone brood, F₁ Carniolan hybrid (11.00 & 9.90 inch²/colony/month) was higher than F₂ Carniolan (7.96 & 7.14), F₂ Italian (7.05 & 6.17) and F₁ Italian hybrid (6.86 & 5.11 inch²/colony/month) in the first and second year, respectively. Also, F₂ Italian hybrid collected the largest amount of propolis (8.40 & 6.95 g/colony) compared with F₂ Carniolan (7.77 & 5.99), F₁ Italian (7.56 & 6.63) and F₁ Carniolan (6.98 & 4.56 g/colony) in the first and second years. The largest amount of pollen was gathered during clover nectar flow followed by maize and broad bean for the four honeybee hybrids (F₁-F₂ Italian and F₁-F₂ Carniolan) in both seasons. Analysis of variance revealed highly significant difference in amount of gathering pollen between F₁ Italian and other hybrids on broad bean, Egyptian clover and maize plants during the first and second seasons. F₁ Carniolan hybrid secreted more natural royal jelly in the first and second seasons (17.40 & 18.50 g/colony) than F₁ Italian (14.51 & 15.40), F₂ Carniolan (13.00 & 14.20) and F₂ Italian (12.60 & 13.60 g/colony), respectively. Also, F₁ Carniolan honey bees gathered the largest amount of artificial royal jelly (106.00 & 115.60 g/colony) during the period from 15 April until 15 June compared with other honey bee hybrids; F₁ Italian (97.25 & 100.40), F₂ carniolan (93.40 & 100.00) and F₂ Italian (92.40 & 99.40 g/colony) in two tested seasons, respectively. Data revealed that F₁ Carniolan produced the highest honey yield (6.55 & 6.95 kg/colony) followed by F₂ carniolan (5.75 & 7.85); F₁ Italian (5.51 & 5.70) and F₂ Italian (4.55 & 4.95 kg/colony) at the end of clover blooming season, respectively. Also, at the end of cotton blooming season, the honey yield of F₁ Carniolan hybrid (8.50 & 8.53 kg/colony) was more than other honey bee hybrids during 2005 and 2006 seasons. From the current results, it could be concluded that the F₁ Italian honeybee performed larger areas of worker brood and greater amounts of propolis and pollen than F₁ Carniolan, F₂ Italian and F₂ Carniolan honeybee. By contrast, the F₁ Carniolan achieved larger areas of drone brood and produced greater amounts of royal jelly and clover and cotton honey yield than other honey bees hybrids.

INTRODUCTION

Beekeepers are always interested in the behaviour of honeybee (*Apis mellifera* L.) and its Italian and Carniolan hybrids under Egyptian ecological conditions to achieve more successes in their management of apiaries. Honeybees have been used in honey, royal jelly, pollen and propolis production, besides being very important as pollinator agents (Haydak, 1970).