

Post-SOTA References

ISRAEL

638.1(569.4)
454/82 AGMON, R. Beekeeping in Israel. *Israel Agriculture* (1978) Autumn/Winter, 5-9 [En]

There are more than 50 000 honeybee colonies in Israel and about 500 beekeepers - an average of 2.3 hives per sq km and 12.5 hives per 1000 inhabitants. Total annual production of honey varies from 1700 to 2000 t, of which about 80% is locally consumed and the remainder exported. Honey production in Israel has increased by 100% during the last 10 years; production per hive has risen almost as much. Over 50% of beekeepers operate fairly large-scale apiaries (100-1000 colonies). Details are presented of various institutions which promote beekeeping in Israel.

638.121.11&591.551.B; 638.124.23D; 591.174; 591.055; 591.54
871/86 LENSKY, Y.; DEMTER, M. Mating flights of the queen honeybee (*Apis mellifera*) in a subtropical climate. *Comparative Biochemistry and Physiology, A* (1985) 81 (2) 229-241 [En, B] Triwaks Bee Res. Center, Fac. Agric., Hebrew Univ. Jerusalem, 76100 Rehovot, Israel.

The mating behaviour of queens and drones of *Apis mellifera ligustica* was studied in Israel in 1980-81. In observation hives, workers did not attend the queen until 4 days after her emergence. From day 5 until the onset of oviposition some workers ran to and from the entrance repeatedly, and prior to leaving on a mating flight the queen participated in this running 15-30 min after it began. Some of the workers stood near the entrance exposing their Nasonov glands during the 10 min prior to the queen's exit. In mating hives, intensive worker flight activity preceded the queen's exit by 50-60 min; some stood on the drone trap and exposed their Nasonov glands. Workers removed the mating sign from newly-mated queens. In June-November 1980 and in May 1981 queens took their first mating flight 5-6 days after emergence and flew an average 2-3 flights. In January-February 1981 queens took their first flight 8-9 days after emergence and flew an average 11-13 flights. Short flights took 1-5 min, long flights 10-15 min. Queens flew in each month of the year, but the total number of queen flights was much larger in February than in other months. Cloudiness above 1 octavas and wind velocity above 3.9 m/s delayed both queen and drone flights. Anaesthetizing queens with carbon dioxide resulted in a delay of the mating flight and an enhancement of egg-laying. The times of peak flight

activity of queens and drones overlapped throughout the year. The quality of queens which mated at different times of the year did not differ greatly, and honey yields were similar in colonies headed by queens which had mated at various times throughout the year and which were aged 2-10 months.

595.7&581.162.3; 582.5; 591.155
1055/86 DAFNI, A. Mimicry and deception in pollination. *Annual Review of Ecology and Systematics* (1984) 15, 259-278 [En, B] Inst. Evolution, Haifa Univ., Haifa 31999, Israel.

In a review of the literature, with 209 references, mimicry in flowering plants based on nutritive deception and reproductive deception is discussed. Nutritive deception involves mimicry of nectar-producing flowers and also of pollen, anthers and nectaries. Reproductive deception is carried out by entomophilous flowers which simulate substrates for oviposition and generally have trapping devices. The implications of mimicry for plant populations and animal behaviour are considered.

638.132; 638.13(569.4); 582.883.2A
1213L/86 EISIKOWITZ, D. The search for nectariferous plants in marginal agricultural regions in Israel. *American Bee Journal* (1986) 126 (3) 181-182 [En, B] Nine highly drought-resistant *Eucalyptus* species are described.

638.157.&595.42-036.2; 595.42A; 638.15(569.4)
259L/87 LEVIN, M. D. A new pest comes to Israel. *American Bee Journal* (1985) 125 (6) 445-446 [En, B] *Varroa jacobsoni* was first found in Israel on 21 October, 1984, near Rehovot.

638.157.&595.42-036.2; 595.42A; 638.15(569.4)
285/87 YAKOBSON, B. A.; ROSEN, S.; HADANI, A.; STERN, Y. The occurrence and distribution of varroasis in apiaries in Israel. *American Bee Journal* (1986) 126 (2) 120-121 [En, B] Kimron Veterinary Inst., Beit Dagan, Israel.
Varroa jacobsoni was first detected in Israel in October 1984; it was found in colonies in the north of the country near the border with Syria, from where it had

638.157.&595.42-08; 595.42A; 638.145.64; 632.951.B
252/89 LUPO, A.; GERLING, D. Control of the *Varroa* mite in honeybee colonies by integrating chemotherapy with conventional requeening practice. *Journal of Apicultural Research* (1987) 26 (2) 98-103 [En, Bb] Dept. Zoology, George S. Wise Fac. Life Sciences, Tel-Aviv Univ., Ramat Aviv 69978, Israel.

The method described involves creating a 3-day gap in the presence of sealed brood so that all mites are simultaneously exposed to chemical treatment. Control using two fumigations with Taktic (12.5% amitraz) approached 100%. The method has the advantages of efficiency, low cost, reduced chance of developing mite resistance to acaricides, and low health hazards for both consumer and beekeeper. Only 5-10 days of egg-laying are lost during confinement of the queen.

Author.

638.121.246; 638.13(569.4)(252); 635.61; 581.461; 581.54
495/89 ORR, N.; EISIKOWITCH, D. Interaction between melon (*Cucumis melo*) flowers and honeybees under extreme desert conditions in Israel. *Apidologie* (1988) 19 (1) 85-96 [En, fr, de, B] Dept. Botany, George S. Wise Fac. Life Sciences, Tel Aviv Univ., Tel Aviv 69978, Israel.

Honeybee foraging activity on the melon cultivar Arava was studied in warm autumn conditions and in cooler spring months in fields in one of the most arid regions of Israel, in 1981-82. In both seasons, staminate flowers started opening first; in

autumn the total number of flowers was greater, but in spring the ratio of hermaphrodite to staminate flowers was about 1:9 whereas in autumn it was 1:15. In autumn, anther dehiscence occurred just before sunrise and honeybees started collecting pollen immediately. The nectar flow started 2 h later, resulting in a second peak of honeybee foraging activity at mid-morning. In spring, anther dehiscence was 3.5 h after sunrise, and by this time many honeybees were already foraging on other sources.

P. Walker.

638.121.246; 634.11; 591.055
1179/89 CHOI, S. Y.; KIM, Y. S. [Studies on foraging activity of honeybees on apple flowers (II).] *Korean Journal of Apiculture* (1988) 3 (1) 81-89 [Ko, en, B] Inst. Korea Beekeeping Science, College Agric., Seoul Natn. Univ., Suwon 440-744, Korea Republic.

Of 496 insects observed visiting apple flowers, 91% were honeybees. Foraging by honeybees began at about 08.00 h and ended at about 18.00 h; it was at its maximum between 12.00 and 13.00 h. In the morning 42% of foragers collected nectar only and 53% pollen only, whereas in the afternoon 68% of foragers collected nectar only and 28% pollen only. Few bees collected both pollen and nectar on the same foraging trip. Nectar production by apple flowers varied from 0.01 to 0.09 μ l/day. Foraging by honeybees was highly significantly correlated with light intensity, but there were no significant individual correlations with temperature, humidity or wind speed. However, the multiple correlation coefficient for foraging activity and total meteorological factors was significant.

638.13(569.4); 582.883.2A; 638.132.1B; 638.111.5A
1199/90 LUPO, A.; EISIKOWITCH, D. *Eucalyptus erythrocotis*; a source of nectar and pollen for honey bees in Israel. *Apidologie* (1990) 21 (1) 25-33 [En, fr, de, Ba] Dept. Botany, George S. Wise School of Life Sci., Tel Aviv Univ., Tel Aviv 69978, Israel.

This species flowers between July and September in Israel, when sources of pollen and nectar are scarce. Each flower is open for 4 days and secretes a total of 4 ml nectar with a sugar concentration of 4-14%. Sugar yield in a sparse plantation (280 trees/ha) is calculated to be 250 kg/ha. The flowers also produce abundant pollen. From a survey of these trees in Israel, preferred ecological sites are summarized. [P. Walker.]

638.19&634; 634.55; 638.121.246.3A; 638.19(569.4); 582.683.2C
1086/91 EISIKOWITCH, D.; LUPO, A. [Wild flowers as competitors for pollinators in almond orchards.] *Alon Hanotea* (1989) 43 (12) 1307-1312 [He, en, Ba] Dept. Botany, Tel Aviv Univ., Tel Aviv, Israel.

Almonds, *Prunus dulcis*, are grown in Israel commercially on a relatively large scale. The flowering period begins very early in the season and there may be serious problems in pollination, mainly due to unfavourable climatic conditions and also to low insect activity. Honeybees are the sole pollinators used commercially. They are introduced to the orchards at the beginning of the season and removed at the end of the flowering period. Some species of the local flora flower at the same time as almonds and compete for foraging honeybees. By using pollen traps it was shown that wild mustard, *Sinapis arvensis*, and probably also *Sinapis alba*, are the main competitors to almond from mid-February until the beginning of March, and this may drastically reduce almond pollination. It is recommended that almond orchards be kept clear of weeds and that a belt around each orchard be sprayed against broad-leaved plants (Cruciferae). A 'blind' spray on nearby fields is not recommended and is also illegal. [Author.]

638.15(569.4)
 1336/92 YAKOBSON, B. A.; ROSENTHAL, C. The status of bee pests in Israel. In *Proceedings of the International Symposium on Recent Research on Bee Pathology, September 5-7, 1990, Ghent, Belgium* [edited by Ritter, W.J. Merelbeke, Belgium; Rijksstation voor Nematologie en Entomologie on behalf of Apimondia (1991) 213-214 [En, Bd] Kimron Veterinary Institute, P.O. Box 12, Bet Dagan, Israel.

638.157.&595.42-03; 595.42A; 591.16A; 638.123.56; 638.123.53
 1395/92 ROSENTHAL, C.; EFRAT, H.; KAMER, I.; RON, M. A comparative study between *Varroa*'s [population] dynamics for Italian versus Carniolan bees. In *Proceedings of the International Symposium on Recent Research on Bee Pathology, September 5-7, 1990, Ghent, Belgium* [edited by Ritter, W.J. Merelbeke, Belgium; Rijksstation voor Nematologie en Entomologie on behalf of Apimondia (1991) 63-66 [En, Bd] Bee Breeding Station, Agric. Institute Vulcani, Ramle, Israel.

A comparative study using Italian and Carniolan honey bees (*Apis mellifera*) was carried out in Israel in July–November, 1988, using broodless colonies equalized as far as possible with respect to their bee (1200 g/colony) and *V. jacobsoni* populations (150 mites/colony). during the experiment, the numbers of bees declined by 55% and 80%, respectively, in Italian and Carniolan colonies. The *Varroa* populations decreased in the first 3 weeks by 37% and 45%, respectively, in the Carniolan and Italian colonies. When brood appeared the *Varroa* populations began to increase, and by the end of the experiment there were 30 ± 13 mites on adult bees (0.56/bee) and 129 ± 86 in brood cells in Italian colonies; in Carniolan colonies there were 23 ± 16 (0.93/bee) and 48 ± 43 mites on adults and brood, respectively. There were 2.5 times more brood cells in Italian colonies as in Carniolan colonies at the end of the experiment.
 [D. G. Lowe.]