SUMMARY

The aim of the present study was to find the most effective, safe, ease of use and economic control measures against the housefly *Musca domestica* under the local Egyptian conditions. The study was carried out in Ismailia Governorate which included Ismailia City, four poultry farms, two animal farms and the veterinary unit.

The preliminary laboratory studies resulted in choosing the five products which needed for the field trials. Such products were Alfacron SB, Alfacron 10 WP, Snip 1RB (a.i. Azamethiphos, Thiophosphorester) against adult flies, Larvadex and Neporex WSG (Atrazine group a.i cyromazine, IGR) against the fly larvae. Other laboratory studies proved that Alfacron 10 WP was the most potent compound against the adult fly among the five tested products since 100% mortality was achieved after 20 min from exposure. Snip 1RB ranked second with 100% mortality occurring after 40 min, followed by Alfacron SB (50 min) and Golden Malrin (60 min). On the other hand Baygon SB did not show complete mortality of houseflies since its maximum mortality was 57.5% after 60 min. The effect of degree of scattering of baits on fixed area was studied in the laboratory and showed that the less scattering resulted in better efficacy. Laboratory tests also proved that moistening the fly baits prolonged the efficacy period of the three tested products from 3 to 6 weeks in case of Alfacron SB, from 4 to 7 weeks for Snip 1RB and from 7 to 9 weeks in case of Alfacron 10 WP.

Field trials showed that the most suitable time to apply scatterbaits in the field ranged between 8-11 a.m. and 4-5 p.m. trials also showed that the presence of dead flies with the insecticide bait significantly increased the degree of attraction of flies to baits. It is proved that dead flies act as an attractant factor in addition to used bait. The number of flies attracted to the bait when dead flies were not removed was as 3 times as the number of flies attracted to the bait alone in two hours.

Fly control in the fish market using Alfacron SB achieved a drastic drop in indoor fly population after the first application and remained around 1-3 flies/trap/day following the 2nd-4th application. The outdoor fly density during the period of the three hours following each application showed a fast drop in the fly density when estimated by the modified Grid. When taking in consideration the average of both outdoor and indoor fly density measured by the Grid, the same trend of fast drastic drop in fly density was noted after each application.

A large scale fly control trial took place in Ismailia City by using Alfacron SB as hand broadcast at 10 g/m2. Results of the trial showed a gradual decrease in fly density which could be detected immediately following the 1st. application (April 87). Starting from the 2nd to 4th application, a constant reduction in fly density was noted. This reduction was maintained at the minimum level till the end of the experiment in Nov. 1987. The cost analysis of such control measure showed a cost reduction of about 50% when compared with the other conventional fly

control programme. Bearing in mind that fly density was maintained at the minimum level in addition to safety and ease of use, it could be concluded that the method of Alfacron SB was a successful and economic new approach fly control in Ismailia City.

Experiments in poultry farms in 1986 using three different control methods in three separate farms, i.e. Alfacron SB (Badr farm), feed through by Larvadex (Abdel Khalik farm) and conventional space spray (Al-Ferdan farm) proved promising throughout the whole experiment period as regards the fly density. Also experiments of 1987 showed good fly control in Badr farm by using 4 applications of Snip 1RB during the whole fly season. The integrated fly control by Larvadex/Snip 1RB carried out in the same year in Abdel Khalik farm proved to be the most successful method of application which revealed in a significant reduction of fly density and was maintained without almost any increase. When cost of treatments was considered for all methods in poultry farms, the values was arranged in an ascending order according to the cost/bird as follows, Alfacron SB (LE. 0.010), Snip 1RB (LE. 0.018), Larvadex feed through (LE. 0.045), Larvadex/Snip (LE. 0.056) and conventional space spray method (LE. 0.09). As regards the efficiency% of such control methods it could be averaged in the same ascending order as follows; conventional (54.5%), Larvadex (56%), Alfacron SB (63%), Snip 1RB (66%) and integrated Larvadex/Snip 1RB (90%). This analysis ensured that integrated control experiment was the most successful approach for fly control among the different techniques tested within the present study.

Fly control experiments in animal farms in 1986 included larval control only by using the IGR Neporex in Soly farm and adult control only be using Alfacron 10 WP in the veterinary unit. When Neporex was used, results indicated that the first application was not sufficient to bring the fly population down as compered with the control area. It needed 10 applications during the period April-October to bring the fly density down to the acceptable level when animal dung remained unremoved for the whole fly season. On the other hand it needed fewer number of applications when used Alfacron 10 WP as paint in the veterinary unit to induce significant reduction in fly density. The first two applications were enough to bring the fly density down to its minimum while the other two applications were only needed to keep the fly density at the minimum level without almost unrecognized peaks of abundance.

An integrated housefly control Neporex/Alfacron 10 was carried out in Soly farm during the fly season of 1987. The results obtained from this experiment revealed good reduction of fly density as well as reducing numbers and rates of application of both compounds when used separately during 1986 experiments. It was clear that only three applications from each compound were sufficient to control flies and to deal with any fly peaks throughout a period extending for about 7 months.

A proposed bait trap was designed to be used where existence of dead flies is unaccepted in some places. Results showed that the number

of flies died inside the device ranged between 83.52% and 94.59% which is very convenient to be used in many places. On the other hand the bait trap remained effective for about 6-7 weeks.

Results of residues studies of cyromazine (IGR-Feed through) in main tissues in hens when injected intracrop and intramuscular, indicated that more than 90% of the injected dose has already dissipated one week post application. Results have also suggested that accumulation of cyromazine in muscles (breast) is of less magnitude in comparison to its accumulation in the fat tissue or the liver.

The study included some recommendations for fly control measures in different locations i.e. municipalities, cities, premises, poultry farms, animal farms and other indoor and outdoor fly control under the Egyptian conditions.