SESSION 16

CAPACITY BUILDING THROUGH ACTION LEARNING IN REGION WIDE BIOLOGICAL CONTROL

A SURVEY OF NATURAL AND INTRODUCED PARASITOIDS OF THE OLIVE FRUIT FLY, BACTROCERA OLEAE (DIPTERA: TEPHRITIDAE) IN ISRAEL

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Olive cultivation occupies eight million hectares worldwide, with over ten million tons of olives annually (90% in the Mediterranean Basin). The olive fruit fly, Bactrocera oleae (Gmelin) (Diptera: Tephritidae) is a key pest of olive fruit, causing up to 50% in crop loss. Increasing biological control by natural enemies is a major goal of a regional effort to improve the yield, quality and income from olives in the eastern Mediterranean. For this project, a survey of natural enemies attacking B. oleae larvae in Israel was conducted during 2006-2008. Fruits were sampled whenever present at sites throughout the country, brought to the lab and held for emergence of flies and wasps, which were identified, sexed and counted. The total apparent parasitism rate over the survey was 11% (range 0-100%). Six taxa of parasitoid wasps emerged from olive fruits. The braconids Psyttalia concolor (Szépligeti) and Diachasmimorpha kraussii (Fullaway) (Hymenoptera: Braconidae) were the most abundant species. Not previously recorded from olive fly, D. kraussii was released during a biological control project against Ceratitis capitata (Wiedemann) (Diptera: Tephritidae) from 2004-2007. Four species of Chalcidoidea were found only during the early season, before autumn. Psyttalia concolor had a wide geographic distribution, while D. kraussii was found in a narrower distribution, suggesting its origin in the planned releases. The sex ratio of P. concolor and D. kraussii was slightly male biased (55% and 70%, respectively). The data show that the activity of indigenous parasitoids is limited, which, together with the importation of new natural enemies, is the subject of further investigations.