

Introduction to Bio-Fly & SIT



May 2009





A Bird's Eye View Of Our Plant

Bio-Fly

- ▶ Established in 2004
- ▶ 600 sqm. of sterilized Medfly pupae mass rearing facility.





The Problem: Mediterranean Fruit Fly (Medfly)



Mediterranean Fruit Fly = Medfly

- *Ceratitis capitata* (Wiedmann)
- Tephritidae family
- Origin – Africa
- First recorded in Israel in 1904
- Highly polyphagous pest, attacking over 300 species fruits and vegetables around the world



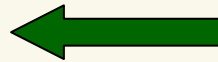


Distribution: Tropical to temperate climate





Life Cycle of the Medfly





Damage caused by the Medfly



Direct Damage:

- Sting of oviposition on the fruit's skin
- Softening, decay and dropping fruit



Indirect damage:

- Quarantine pest – prevents/limits export of fruit and vegetable to countries such as the USA, Japan and Korea



A “Green” Solution

SIT: Sterile Insect Technique



Sterile Insect Technique (SIT)

- ▶ The release of factory-produced sterile males of the pest as a birth control agent in the native population at the target area
- ▶ Species specific
- ▶ Can decrease the native population below the economic threshold define by the end-users in the target area.





Sterile Insect Technique (SIT)



- ▶ Concept by E.F. Knipling (USDA) - 1930's
- ▶ First success- Screwworm Fly - 1950's
- ▶ Other successes world-wide: Medfly, Oriental fruit fly, Melon fly, South American fruit flies, Pink Bollworm, Codling moth and others



SIT - Medfly

- Mass production of pupae males
- Dyeing & Irradiation





SIT - Medfly

► Emergence





Dispersal in the field

► Ground Release





Dispersal in the field

► Aerial releases





Monitoring in the field

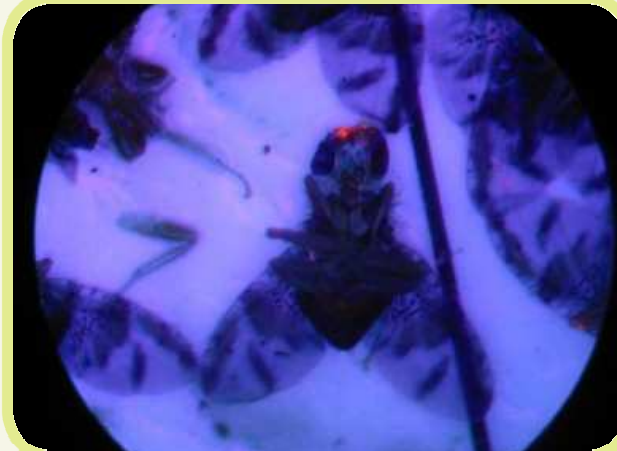
- Network of species specific traps (F/M)





Monitoring of trapping results

- Identification of sterile/wild flies under U.V. light





Fruit sampling

- Assessment of damage through presence/absence of eggs/larvae





Bio-Fly is now involved in all the phases of implementation of AW-IPM SIT programmes

Emergence of adult flies



Aerial or **ground releases**



Mass production and sterilization of sterile male pupae



Monitoring



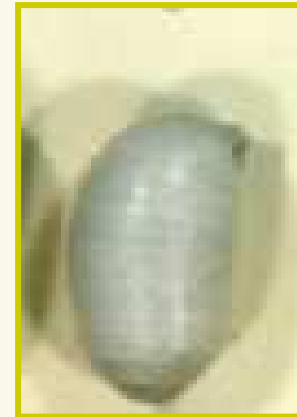
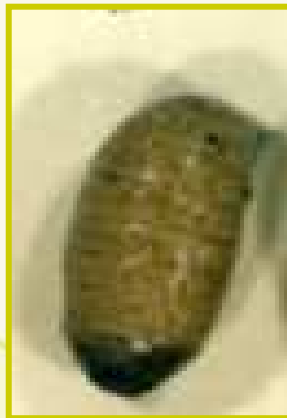
Field, orchard





GSS – Genetic Sexing Strain

TSL – Temperature Sensitive Lethal (Vienna 8)





More about Bio-Fly

- ▶ Was designed for 15 M/w. Began supply of sterile male pupae during 2005.
- ▶ Certified ISO-9001 for medfly production since 2005
- ▶ Since the beginning of 2006 – supplying flies for 4 different projects, a total of 20 Million pupae per week.





Bio-Fly offers:

- Sterilized pupae or flies.
- Complete package of field operation services (Release, monitor, laboratory, etc.)
- SIT project management.
- Field laboratory for R&D.
- Networking





Other pests

**R&D: Mass rearing of the Olive Fruit Fly
for SIT**





Thank you !!
