Fruit flies are an international pest complex, causing widespread crop destruction in both developed and developing countries. Recent outbreaks of medfly in California costs over $100 M to eradicate an ongoing fruit fly control programs in Mexico, Greece, Okinawa, Guatemala, Israel and Italy cost millions of dollars each year.

A group consisting of field laboratory biologists, mathematical modellers, economists and policy scientists, and operational program managers from around the world met in Bad Windsheim, Germany in August 1985 to discuss the fruit fly problem from the perspective of interdisciplinary research. This group identified three major problem areas which are impending further progress in fruit fly control and eradication. These are:

- Inadequate basic biological data on fruit fly behavior and ecology.
- Outmoded and/or inefficient control or eradication technologies and strategies.
- Lack of understanding of the political, social, and economic constrainings on effective control or eradication strategies.

For these reasons, research is urgently needed in the following areas (not ranked according to priority):

- Development of methodologies for the assessment of potential losses, effectiveness and costs/benefits of different control and quarantine policies in specific situations.
- Understanding of the public decision making process in response to pest control emergencies.
• Means for monitoring the effectiveness and environmental impact of an ongoing control or eradication program.

• Determining the efficiency and predictive qualities of traps.

• Phermones for trapping, sexing, and control of fruit flies.

• Development of alternative insecticides, improved baits, and approved application strategies.

• Quality control and field effectiveness of flies produced for SIT.

• Genetics of fruit flies with respect particularly to the development of a sexing technique.

• Relative effectiveness of male only releases in sterile insect programs.

• Ecological constraints upon the colonization of a new environment.

• Population biology of fruit flies in the field.

• Evaluation of the potential of cultural and biological control.

• Species interactions between fruit flies and the taxonomy of species complexes.

• Field testing of mathematical models.

• Nutritional studies on fruit flies.

• Integration of fruit fly control into orchard management.

The following specific proposals are made: