

Can male annihilation work alone?

No. Male annihilation is most effective when used in combination with the other recommended management methods listed below.

Recommended fruit fly management methods

- Population monitoring
- Protein bait
- Male annihilation
- Field sanitation
- Biological control (biopesticides, parasitoids and weaver ants).



icipe staff setting a block impregnated with methyl eugenol and malathion in a fruit fly trap.



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icipe – Working in Africa for Africa...

International Centre of Insect Physiology and Ecology (*icipe*) – was established in 1970 in direct response to the need for alternative and environmentally-friendly pest and vector management strategies. Headquartered in Nairobi, Kenya, *icipe* is mandated to conduct research and develop methods that are effective, selective, non-polluting, non-resistance inducing, and which are affordable to resource-limited rural and urban communities. *icipe*'s mandate further extends to the conservation and utilisation of the rich insect biodiversity found in Africa.

icipe contributes to sustainable food security in Africa through the development of integrated pest management systems for major agricultural and horticultural crops. Such strategies include biological control, and use of behaviour-modifying and arthropod-active botanicals. *icipe* puts emphasis on control approaches that have no detrimental impact on the environment. These options are always designed to fit the needs of the farmers, and are developed on-farm and with farmers' participation. In addition to fruit flies, other key areas of *icipe*'s research include pests of tomato, brassicas, beans, and staple food crops such as maize and sorghum.

African Fruit Fly Programme is an *icipe*-led fruit fly management programme for income generation, poverty alleviation, and improving food and nutritional security of growers across Africa.

COVER PHOTO

A farmer with fruit fly catches using methyl eugenol.

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Fruit fly Male Annihilation

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What is fruit fly male annihilation?

Male annihilation is the process of mass trapping of male fruit flies using male attractants such as methyl eugenol (ME), Cuelure and Trimedlure in combination with an approved insecticides.

How does male annihilation work?

The technique relies on powerful attractants that attract only male fruit flies. The attractants do not attract females. The attractants are mixed with recommended soft insecticide, applied on a cotton wick and placed in a trap or sprayed on a coconut husk. The baited trap or coconut husk is placed in a given area to attract



Left: Methyl eugenol baited trap with fruit flies catches.

Right: Methyl eugenol impregnated coconut husk for male annihilation.



the majority of the males. Currently ME blocks for management of *Bactrocera dorsalis* are commercially available

If the male population in an area is significantly reduced, the fruit fly population will decline due to lack of males in the population to mate with females. The shortage of males reduces the chances of successful reproduction and results in a population crash.

How effective is male annihilation?

Male annihilation is very effective when used in an area-wide approach, whereby all growers in a given area use the management method at the same time.

Can one male lure attract all kinds of fruit flies?

No. Male lures are specific to different kinds of fruit flies. For example, methyl eugenol is a powerful male lure for *Bactrocera dorsalis*. Terpinyl acetate is effective for *Ceratitidis cosyra*. Cuelure is reasonably effective for melon fruit fly, *Zeugodacus cucurbitae*.



Methyl Eugenol fruit fly catches from the project sites in Ethiopia.

What is the recommended number of traps baited with male attractant that I can use per acre?

Male annihilation traps per acre

Attractant	No. traps/acre
Methyl eugenol	5–10
Terpinyl acetate	30–50
Cuelure	10–20

How long can the male attractant last in the field?

The attractant can last for weeks to months in the field depending on the type of male attractant and the weather condition.

