The Augmentorium: a sanitation technique for controlling Tephritid Fruit Flies in Reunion Island

JOINT WORKSHOP ON PEST CONTROL IN AGRICULTURE

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OBJECTIVES

- This study is focused on an original technique of sanitation to help controlling Tephritid fruit flies in Reunion Island using a tent-like structure called augmentorium.
- It aims to sequester the adult flies emerging from infested fruit while allowing the escape of parasitoids. In addition, it is possible to produce compost in the augmentorium in a sustainable reasoning of agroecosystem management.
- This technique has already been implemented in Hawaii (Klungness et al., 2005).

CONTEXT

- In Reunion Island, Tephritid fruit flies are the main pests of horticultural crops, causing severe yield losses to Cucurbitaceae and Solanaceae.
- As in other contexts, chemical protection does not give satisfactory results and moreover induces major harmful secondary effects in terms of environmental and human health.
- Today the critical issue is to move from this curative and agrochemical protection towards a preventive and agroecological one. The latter relies on an ecologically balanced and sustainable functioning of agroecosystems.
- It is based on various techniques, such as: monitoring, sanitation, use of borders plants and push-pull system, male annihilation technique, etc.

MAIN RESULTS

- A local prototype (augmentorium péi) has been built.
- Its efficacy proved to be good in the lab and four tested mesh types showed 100 % sequestration of adult flies (Ceratitis capitata, Bactrocera cucurbitae, Bactrocera zonata) and suitable rates of escape of parasitoids (Fopius arisanus, Psyttalia fletcheri).
- Moreover, both organic and conventional farmers who were shown the augmentorium were enthusiastic to test it in their fields and proposed some improvements of the prototype.

CONCLUSION

- To be effective, this technique should be used on a large scale both in terms of time (several months or years) and space (farm, landscape) with the farmers collaborating to use this sanitation technique across significant production areas.
- As a component of agroecological protection against fruit flies, it may play central role in terms of Conservation Biological Control.