

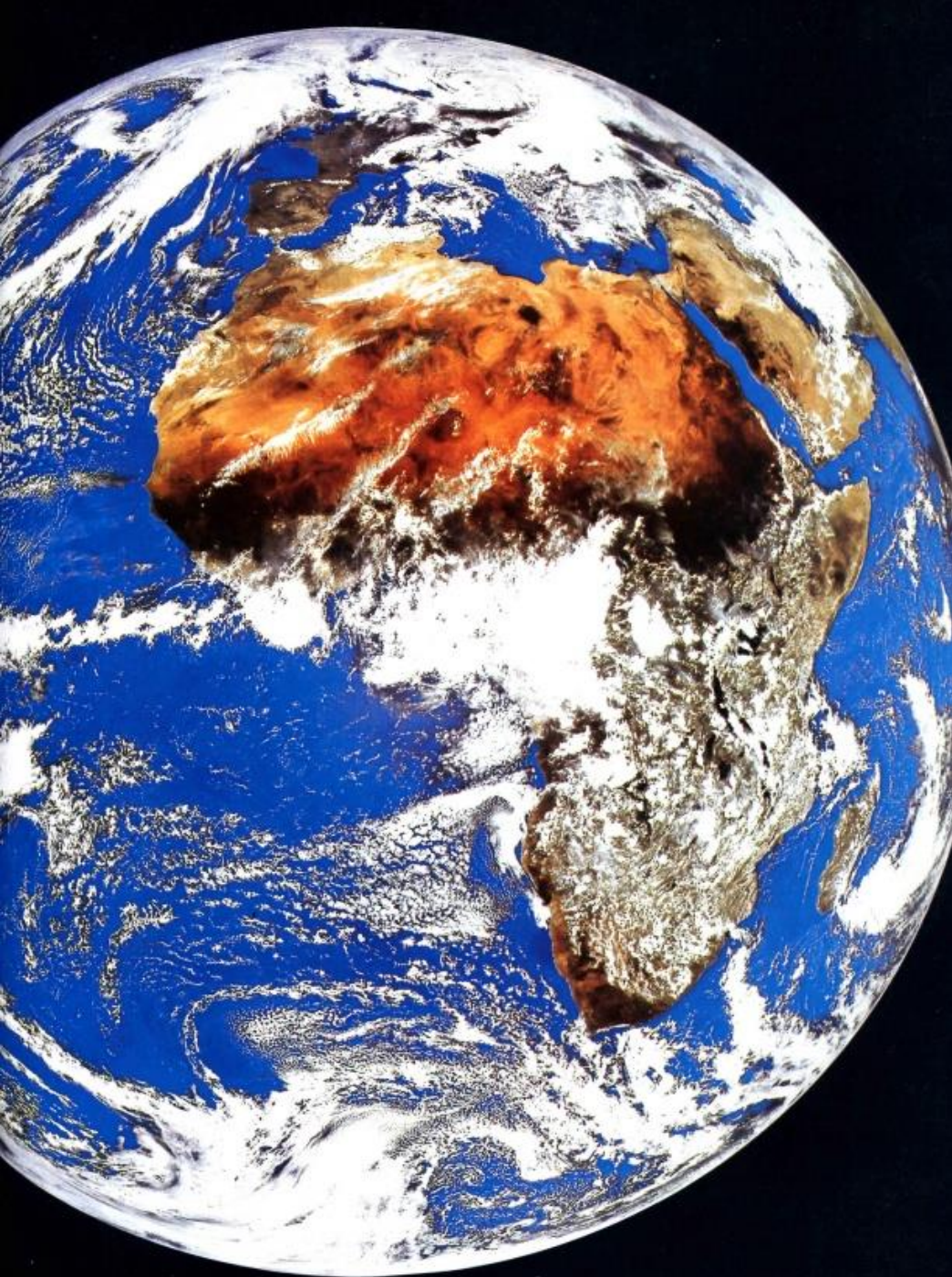
SCIENCE DAY AT BIOFACH 2018 Nürnberg:

TECHNOLOGY PLATFORM OF IFOAM--- ORGANICS INTERNATIONAL (TIPI)

BIGGEST CHALLENGES AND RESEARCH GAPS FOR BIOLOGICAL PLANT PROTECTION IN THE GLOBAL SOUTH

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Source: NASA (1966)

Source: Diercke Weltatlas (1989)

NEW WORLD

- Southern California (1968-1973):
Termites and cotton pest insects





Termite mounds (*Nasutitermes triodiae*)
Photo: Metcalf et al. (1962)



Destruction caused by termites in North America
Photos: Metcalf et al. (1962)

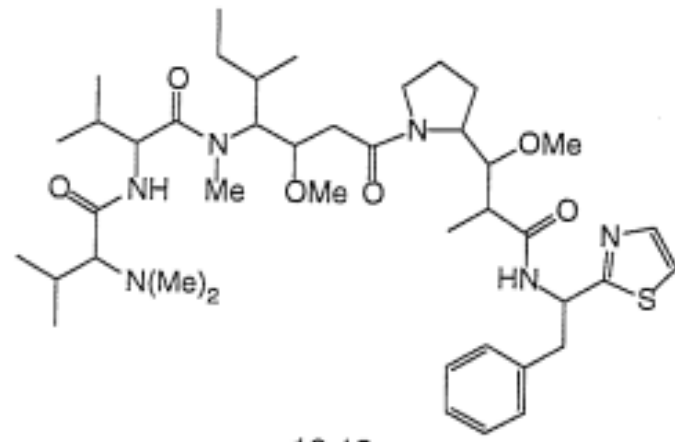


Application of pheromones against Pink Bollworm (*Pectinophora gossypiella*) in cotton field in California

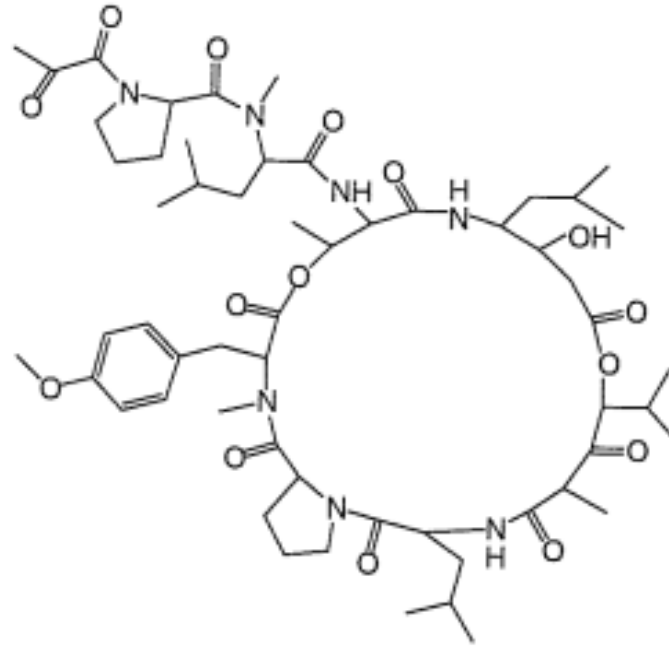
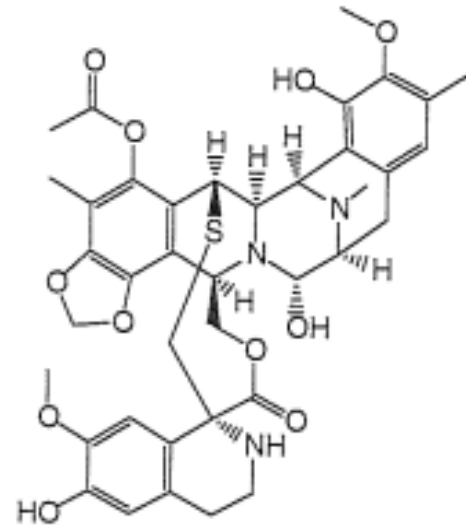
NEW WORLD

- Florida and the Caribbean (1983-1985): ocean products for pest control





16.12



Marine natural products extracted from sponges, tunicates, dinoflagellates and snails

Source: Sennett (2001)

NEW WORLD

- Southern Brazil, Porto Alegre (2015-2017: Oriental fruit moth)

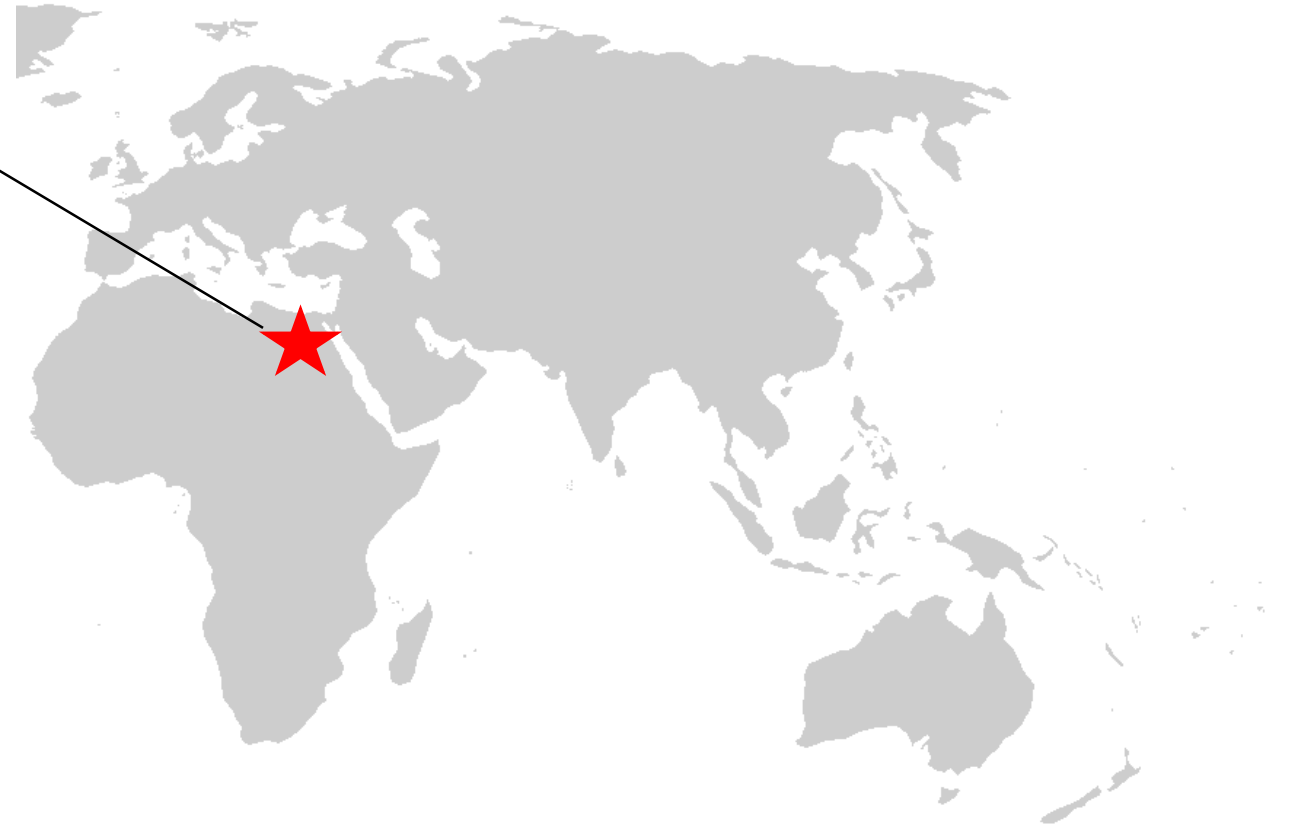




Peach orchard protected with pheromones
Source: Hummel et al. (2017a)

OLD WORLD

- Egypt, Sudan: desert locust



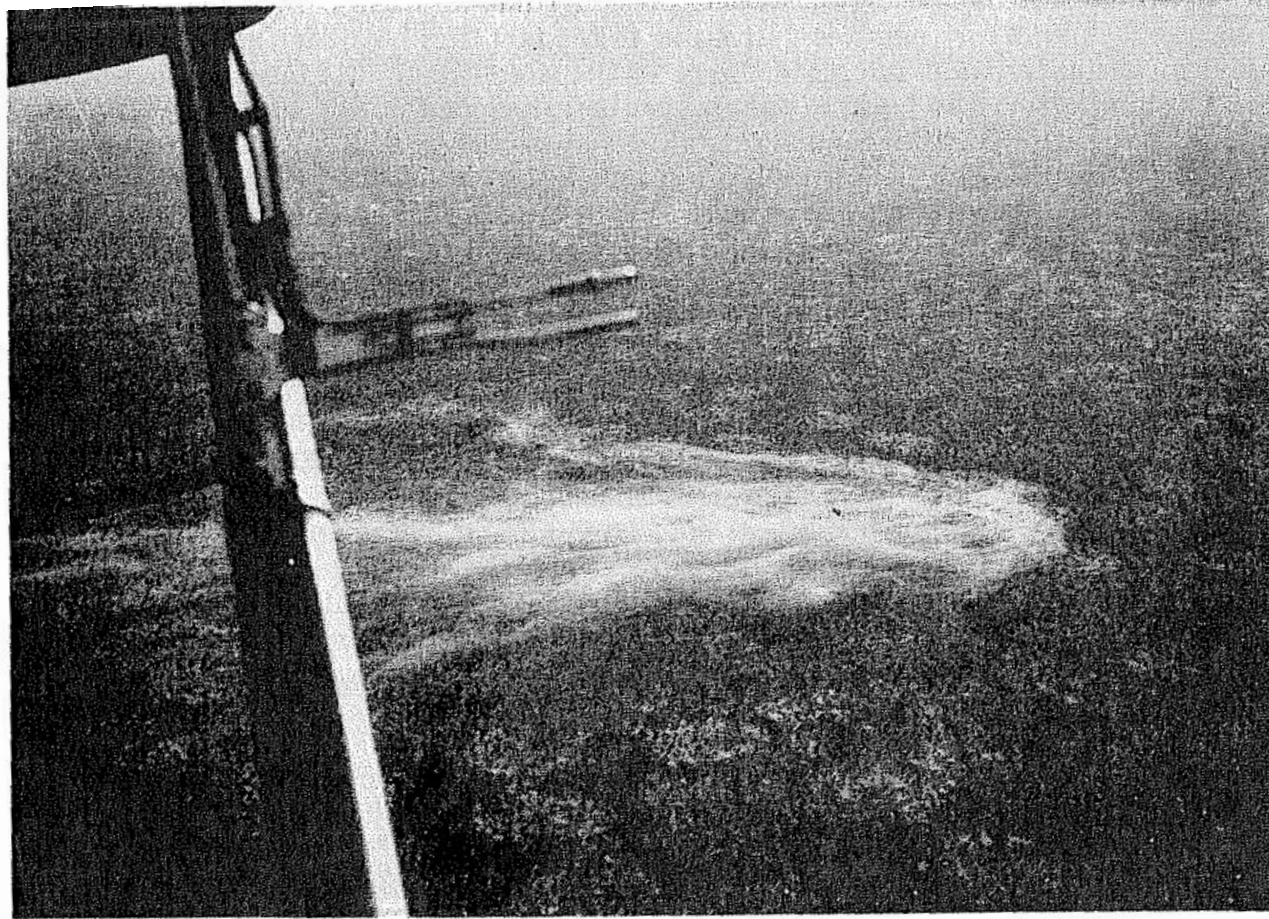
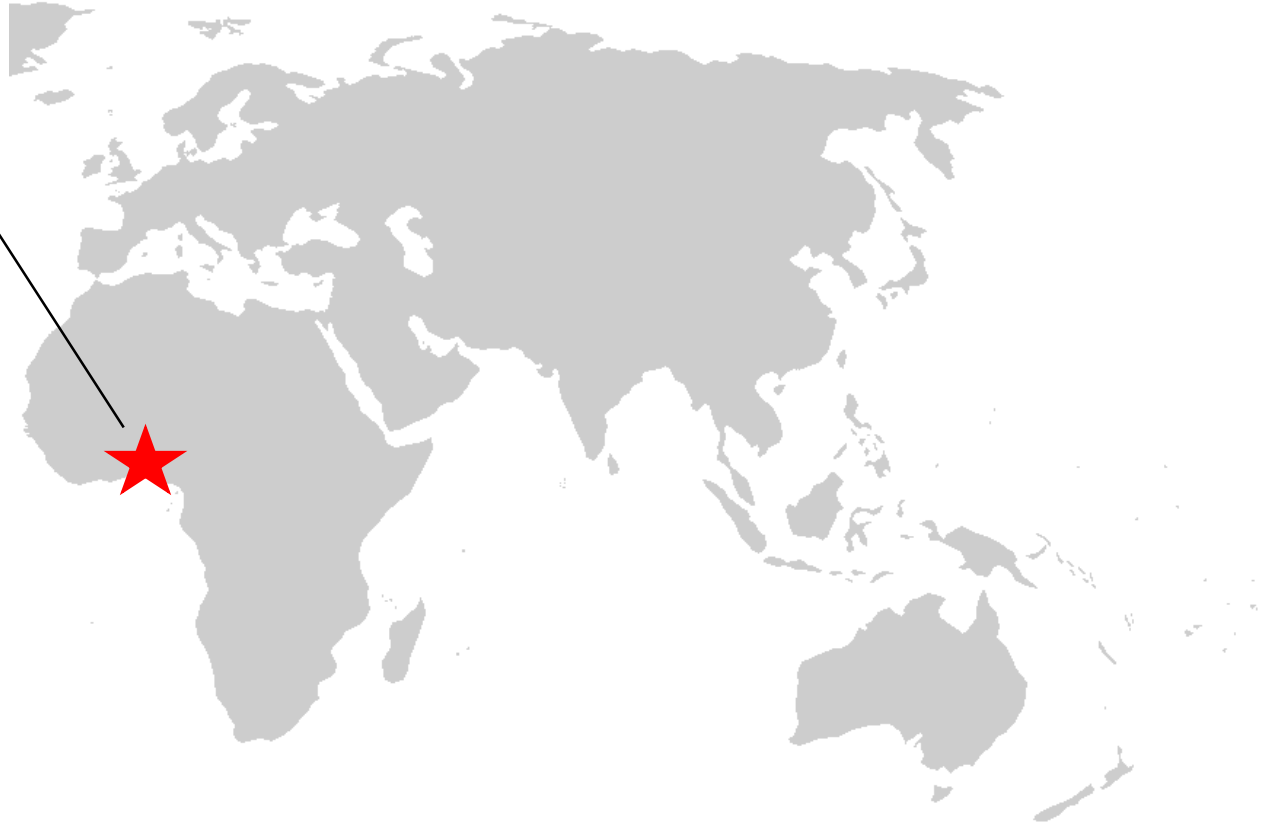


FIG. 1.1. Aerial view of swarm of locusts, *Schistocerca gregaria*, in Kenya. (From H. J. Sayer and Shell Chem. Co.)

Source: Metcalf et al. (1962)

OLD WORLD

- Benin&Malawi: Cassava mealy bug

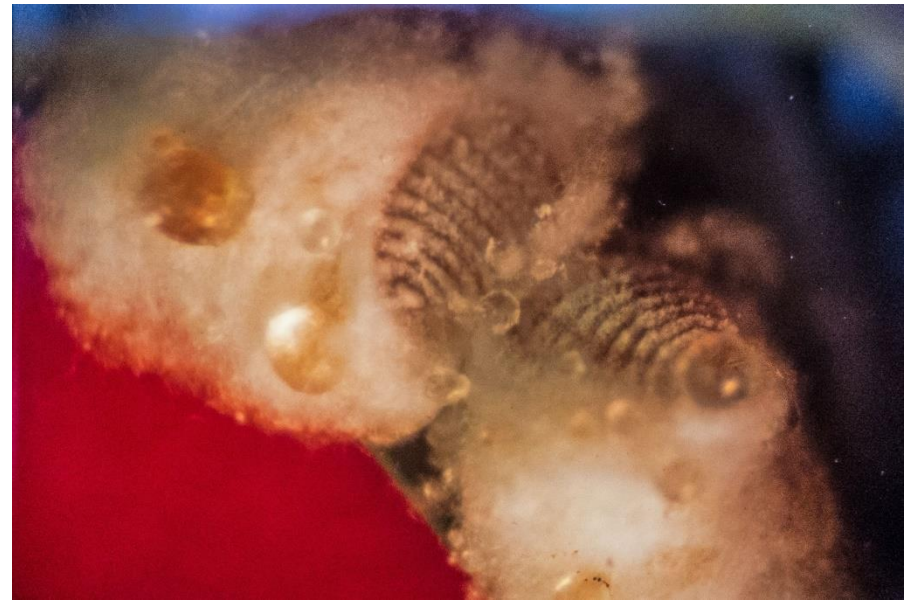




Healthy Cassava plant
(Photo: R. Borowka, 1992)



Cassava plant, infested by Cassava mealybug *Phenacoccus manihoti*
(Photo: R. Borowka, 1992)



Cassava mealybug *Phenacoccus manihoti*
(Photo: R. Borowka, 1992)



Infested Cassava plantation
(Photo: R. Borowka, 1992)



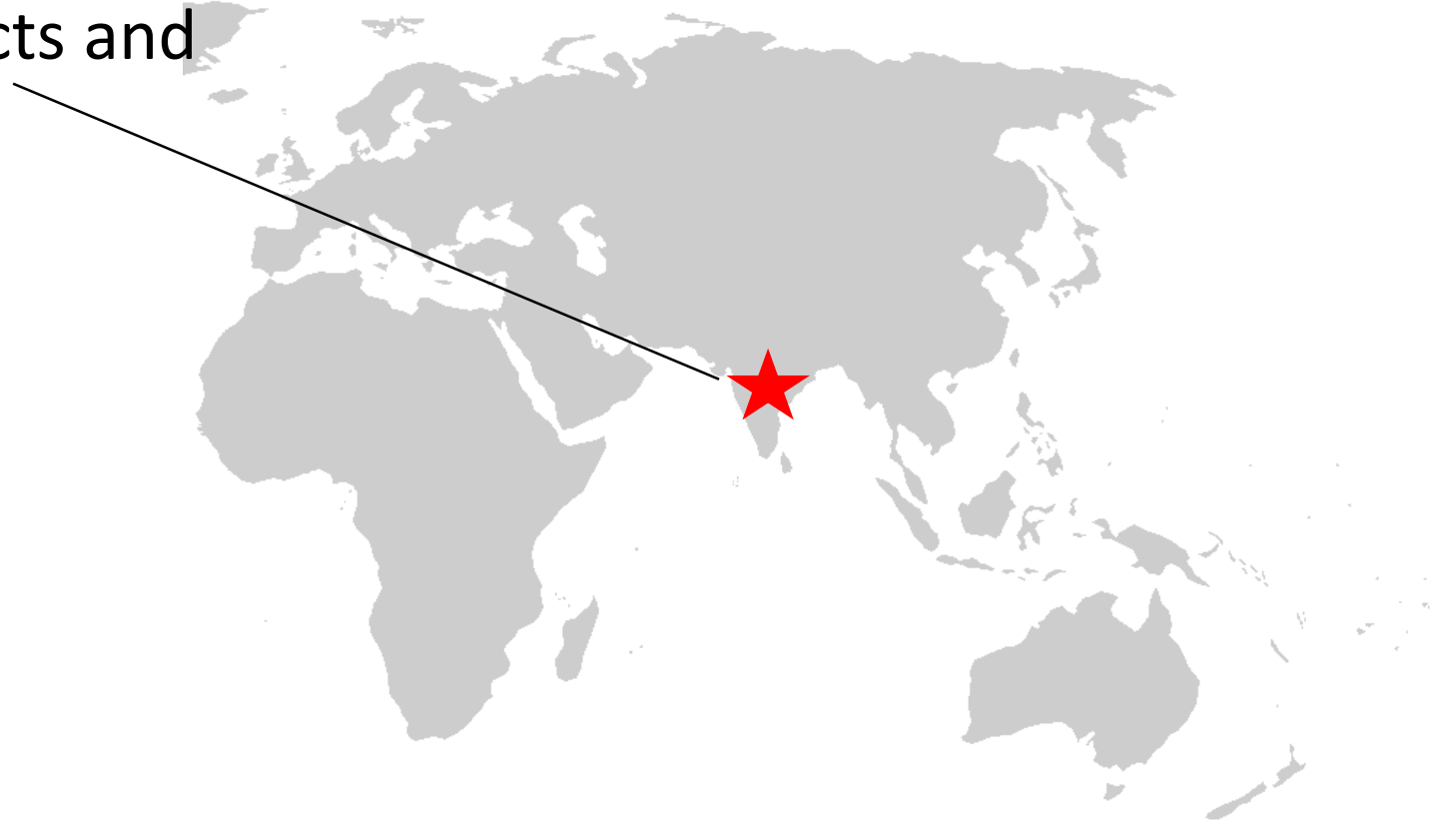
Neotropical biocontrol agent *Apoanagyrus lopezi*
(Photo: IITA Benin)



Exposed steep hillside in Malawi 1992, near Malawi Lake shore region
(Photo: Borowka)

OLD WORLD

- South Asia: various pest insects and
Neem



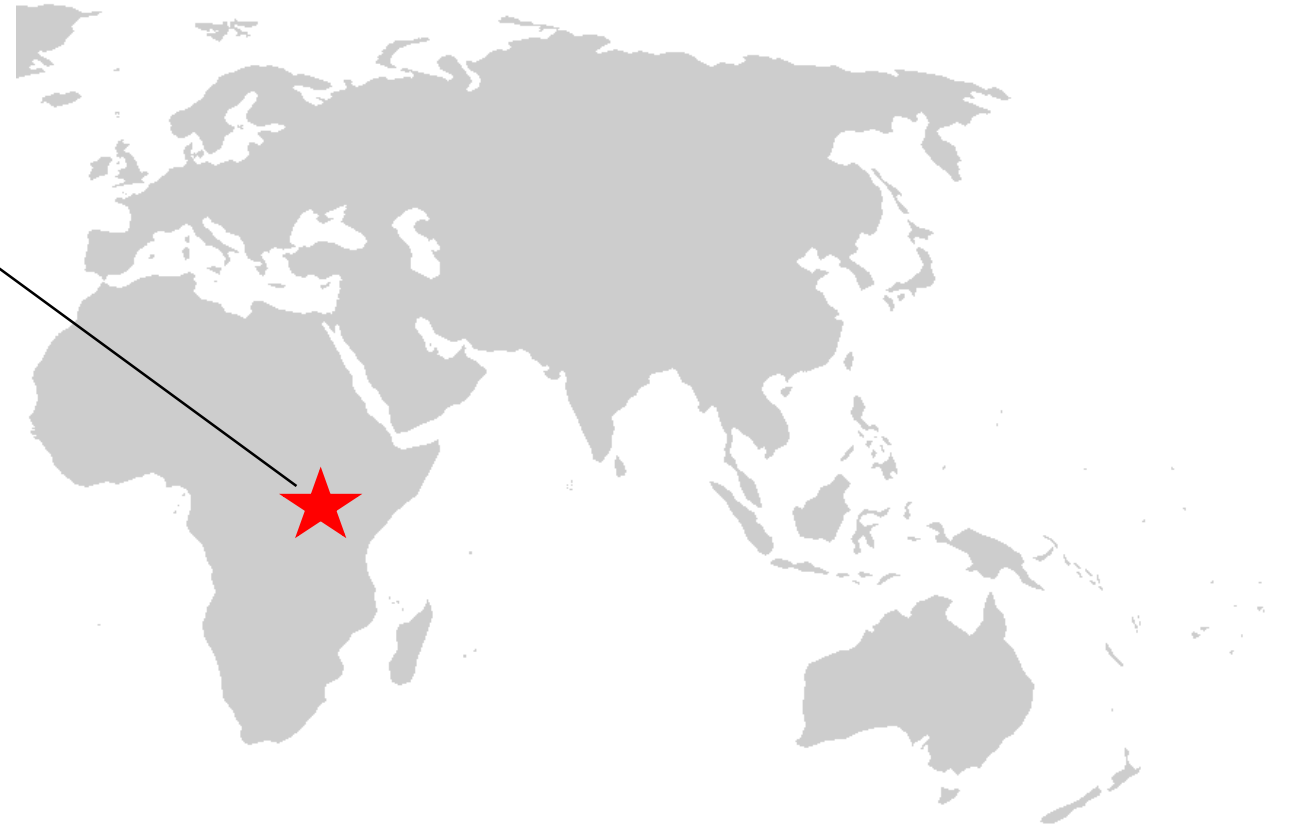


Neem extraction plant in Mandalay (Myanmar)

Photo: Feuerhake (1987)

OLD WORLD

- Kenya: Maize Stemborer





Chilo partellus

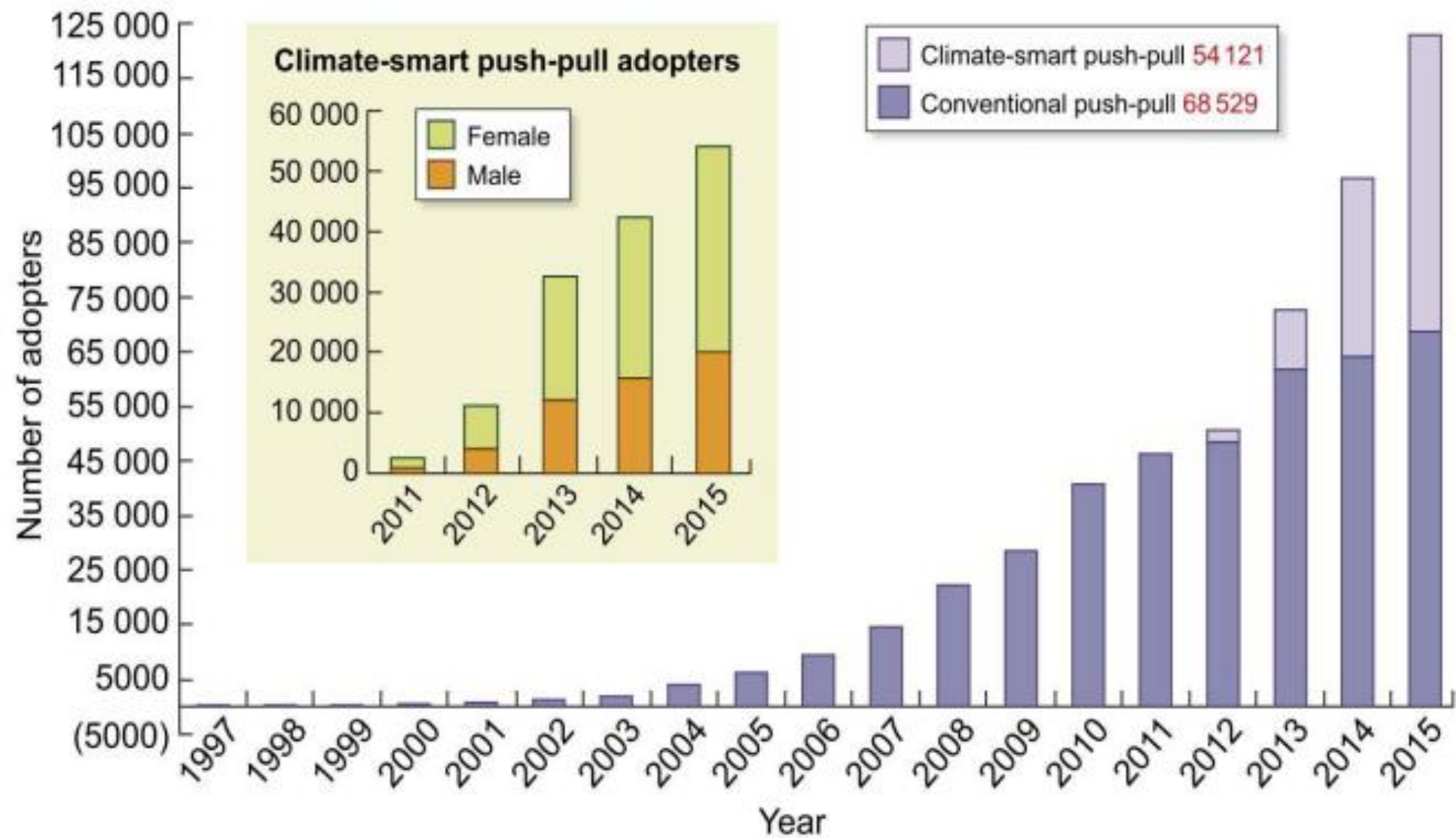
Busseola fusca

Maize damaged by Stemborer (*Chilo partellus*)

Source: ICIPE



Push-Pull system for Maize protection from Stemborer in Kenya
Source: Hummel et al. (2017b)



Source: Pickett and Khan 2016, cited after: Khan et al. 2014a; Midega et al. 2015; Murage et al. 2015; Pickett et al. 2014

TAKE HOME MESSAGE

1. Planet Earth is beautiful. We have, however, only **ONE** planet, not FOUR, as the present day apostles of steady growth would make us believe.
2. Human disregard of **ecological responsibility**, but also steady world population growth, plus the lures of fast money and the growing promise of a flamboyant lifestyle combine to form an explosive mixture that may tear human society apart. If unchecked, it may take the planet earth **uninhabitable** before long.
3. Partial solutions are visible on many fronts; among them are examples for **environmentally responsible** plant protection by IPM. They provide reason for hope.
4. ***Homo sapiens sapiens***, so our zoological name, appeals to our powers of reasoning. Today's symposium is but a small step in the required direction.

Thank you for your attention!



Credits and Acknowledgements:

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