



UNIVERSIDADE ESTADUAL PAULISTA
Campus de Jaboticabal



Depto. Fitossanidade

Aspects of Applied Biology 122, 2014
International Advances in Pesticide Application

Performance of knapsack sprayers on uniformity of insecticide application and on control of *Aedes aegypti* (L.) (Diptera: Culicidae)

MARCELO C FERREIRA and RENATA P CARDOZO

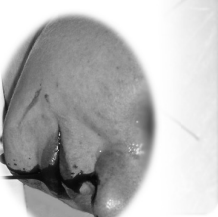
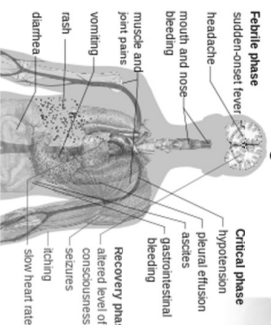
OXFORD – UK, January 2014



Aedes aegypti



Symptoms of Dengue fever



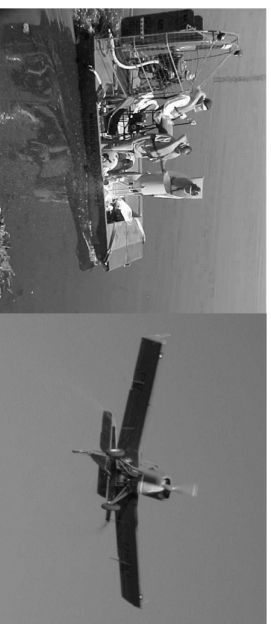
Haemorrhagic expression



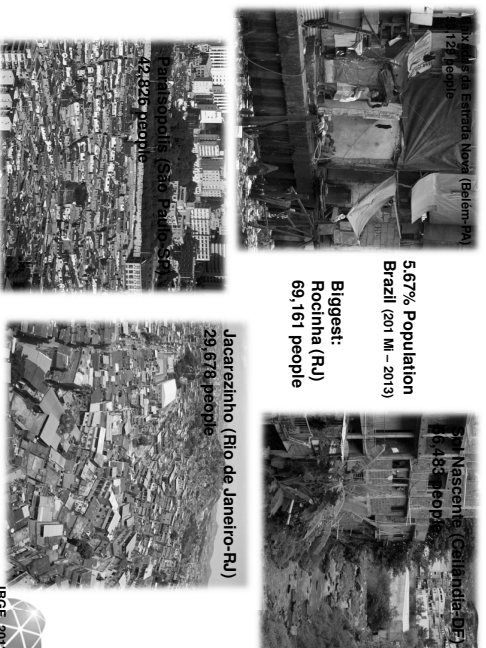
Control of larvae



Biological control of larvae (*Bacillus thuringiensis*)

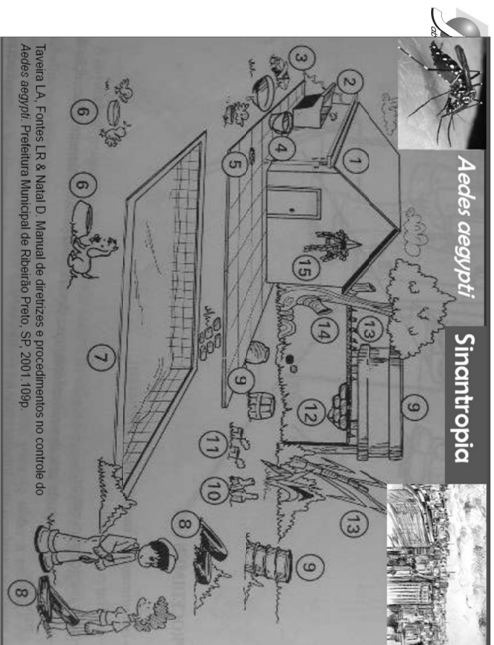


Control of adults



Equipment is efficient?





CONTROLE



➤Fundamenta-se geralmente no combate direto aos mosquitos com inseticidas químicos



sobre os efeitos e não sobre as causas.



CONTROLE de adultos



Objective



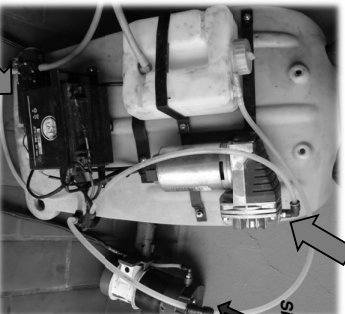
- Evaluate and compare the diameter and uniformity of droplets produced by two knapsack sprayers with different concentrations of water and oil in tank mix, to the mosquito control.



Material and Methods



Used
Made by Jacto



Proposed
Made by Sistemas



Similar tech.

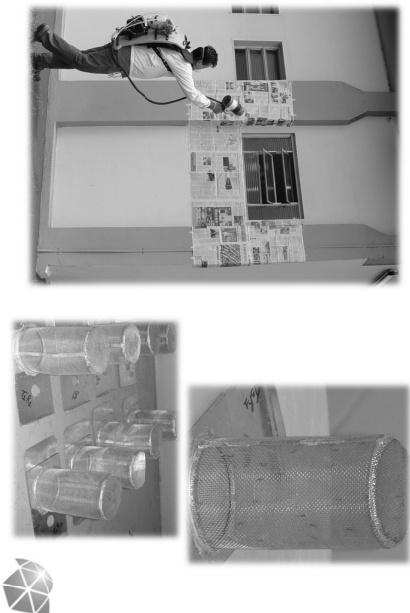


Droplet size and uniformity

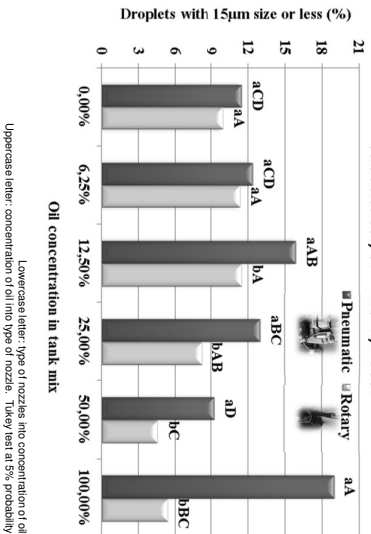


Bolt: Water plus six concentrations of oil (0, 6,25, 12,5, 25, 50 and 100%)



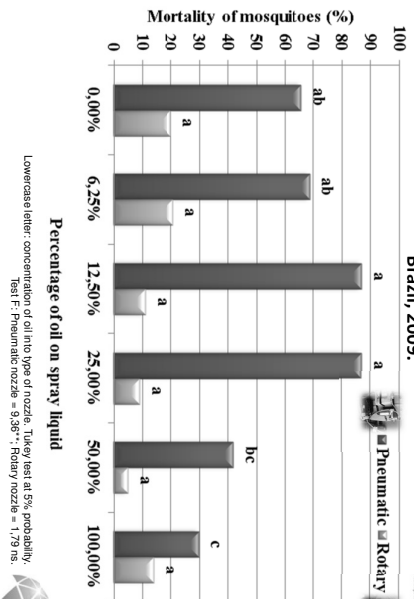


Percentage of spray volume in droplets with 15µm or smaller, NECTA sprayed by different nozzles and concentration of oil in tank mix.
Jaboticabal, SP - Brazil, 2009.



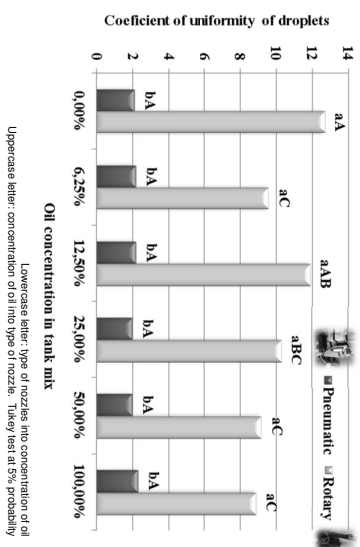
Lowercase letter: type of nozzles into concentration of oil
Uppercase letter: concentration of oil into type of nozzle. Tukey test at 5% probability

Mortality of female adults of *Aedes aegypti* by different nozzles and concentration of oil in tank mix. Jaboticabal, SP NECTA Brazil, 2009.



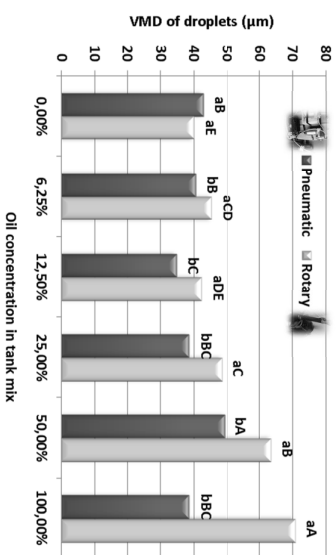
Lowercase letter: concentration of oil into type of nozzle. Tukey test at 5% probability.
Test F: Pneumatic nozzle = 9.98^{ns}; Rotary nozzle = 1.79 ns

Coefficient of uniformity of droplets sprayed by different nozzles and concentration of oil in tank mix. Jaboticabal, SP - Brazil, 2009.



Lowercase letter: type of nozzles into concentration of oil
Uppercase letter: concentration of oil into type of nozzle. Tukey test at 5% probability

Volume median diameter of droplets (µm), sprayed by different nozzles and concentration of oil in tank mix. Jaboticabal, SP NECTA Brazil, 2009.



Lowercase letter: type of nozzles into concentration of oil
Uppercase letter: concentration of oil into type of nozzle. Tukey test at 5% probability

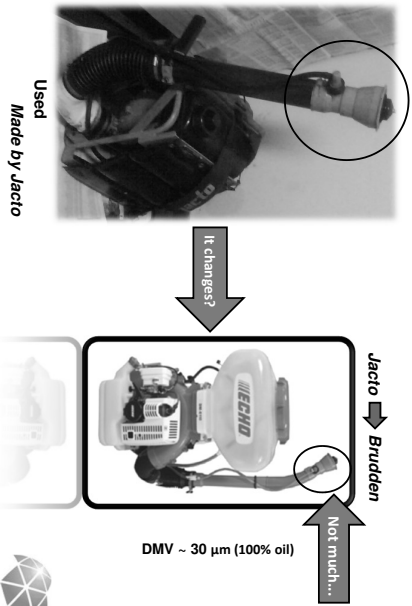
Conclusions

The pneumatic nozzle (Proposed Machine) showed greater uniformity and optimum droplet size, compared to of the rotary nozzle (Used Machine). This correlated with increased efficacy of control of *A. aegypti*, in the oil concentration of 12.5%.

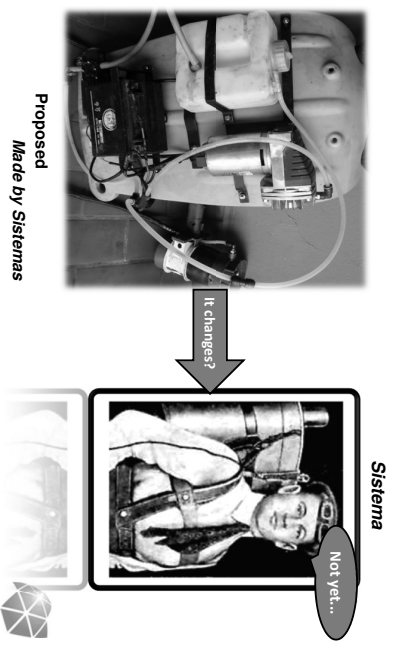




New Machines



New Machines



Acknowledgments



- Funding of greater part of this work was provided by CNPQ, National Council of Research, Brazilian Ministry of Science, Technology and Innovation. We would like to thank the Department of Zoology, Institute of Biology, UNICAMP, Campinas – SP, Brazil for mosquitoes supplying.
- Thanks to George F.G. Carvalho for translation the paper from Portuguese to English.



Obrigado pela atenção!
Thank you for attention!
Best wishes for 2014!!!



Prof. Dr. Marcelo da Costa Ferreira
Depto. Fitossanidade – UNESP
Campus de Jaboticabal
CEP: 14.884-900
Fone: 55 (16) 3209-7299
E-mail: mdacosta@fcav.unesp.br

