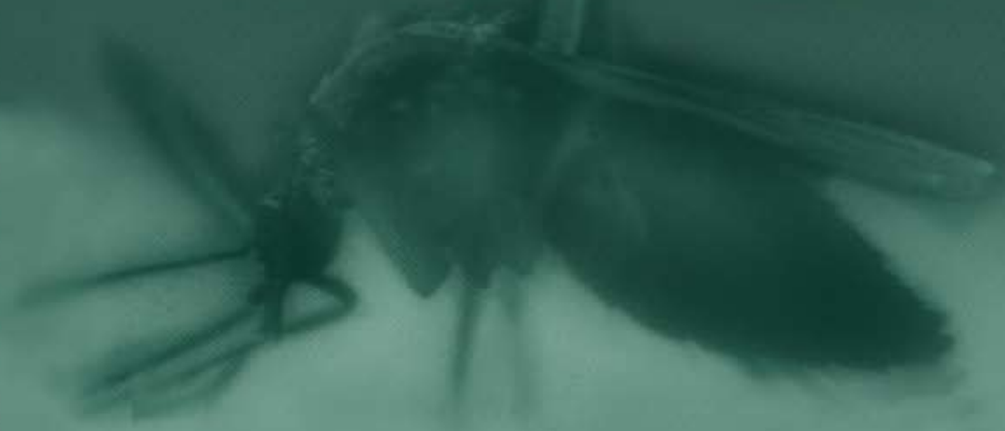
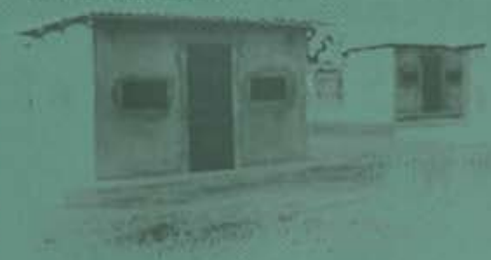
WHO/HTM/NTD/WHOPES/2008.1

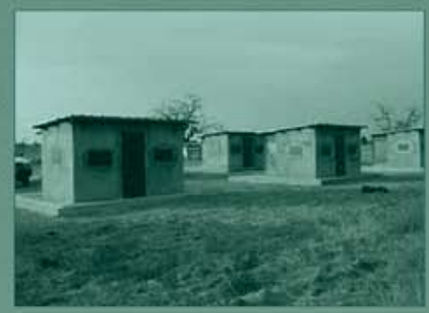
Report of the Eleventh WHOPES Working Group Meeting



WHO/HQ, GENEVA
10—13 DECEMBER 2007

Review of:
SPINOSAD 7,48% DT
NETPROTECT®
DURANET®
DAWAPLUS®
ICON® MAXX





World Health Organization

Report of the Eleventh WHOPES Working Group Meeting

Control of Neglected Tropical Diseases
WHO Pesticide Evaluation Scheme
http://www.who.int/whopes

WHO/HTM/NTD/WHOPES/2008.1

REPORT OF THE ELEVENTH WHOPES WORKING GROUP MEETING

WHO/HQ, GENEVA
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REVIEW OF:

SPINOSAD 7.48% DT
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CONTROL OF NEGLECTED TROPICAL DISEASES
WHO PESTICIDE EVALUATION SCHEME

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1. INTRODUCTION

The eleventh meeting of the WHOPES Working Group, an advisory group to the WHO Pesticide Evaluation Scheme (WHOPES), was convened at WHO headquarters in Geneva, Switzerland, from 10 to 13 December 2007. The objective of the meeting was to review the reports of testing and evaluation of spinosad 7.48% DT (tablet for direct application) of Dow AgroSciences, France, for mosquito larviciding, and three long-lasting insecticidal mosquito nets (LNs) for malaria prevention and control, namely: (i) Netprotect®, deltamethrin (incorporated into filaments) LN of Intelligent Insect Control, France; (ii) DuraNet®, alpha-cypermethrin (incorporated into filaments) LN of Clarke Mosquito Control, USA; and (iii) DawaPlus®, deltamethrin (coated) LN of Tana Netting, Thailand. The objective also included the review of reports of Icon® MAXX (an insecticide treatment kit) of Syngenta, Switzerland, for treatment of mosquito nets for malaria prevention and control.

The meeting was attended by 15 scientists (see Annex 1: List of participants). Dr Marc Coosemans was appointed as Chairman and Dr Purushothaman Jambulingam as Rapporteur. The meeting was convened in plenary and group sessions, in which the reports of the WHOPES supervised trials and relevant published literature and unpublished reports were reviewed and discussed (see Annex 2: References). Recommendations on the use of the above-mentioned products were made.

The meeting also reviewed the results of WHOPES testing and evaluation of LNs to identify the information on and data gaps for future development and evaluation of such products, and made recommendations for further action.

2. REVIEW OF SPINOSAD 7.48% DT

Spinosad is a natural product produced by fermentation technology that employs the bacterium *Saccharopolyspora spinosa* (Actinomycetales) from which it is obtained by extraction and purification of the whole broth. Spinosad 0.5% GR and 12% SC have previously been evaluated by WHOPES for mosquito larviciding. A WHO safety assessment of spinosad and recommendations [1] for its use, as well as WHO specifications[2] for quality control of the named products, have previously been published. The WHO Programme on Chemical Safety considers spinosad to be a mosquito larvicide that poses no undue threat to the health of users or to the environment. However, it notes that this assessment relates to spinosad, with the equivalent impurity profile of that used for development of WHO specifications.

Spinosad DT is a tablet for direct application for control of container-breeding mosquitoes. Each tablet weighs approximately 1.34 g and is 12 mm in diameter. The nominal content of the active ingredient is 75 g/kg, equal to approximately 100 mg of active ingredient (AI) per tablet. Each tablet is intended for application to 200 L of water per container for mosquito larval control, i.e. 0.5 mg/L AI.

Each tablet consists of two homogenous horizontal layers of technical spinosad: an outer layer consisting of technical spinosad in an effervescent system providing fast release of the active ingredient upon application to water; and an inner layer formulated to dissolve in water gradually over time.

[1] *Report of the tenth WHOPES Working Group Meeting, WHO/HQ, Geneva, 11–14 December 2006*. Geneva, World Health Organization, 2006 (WHO/CDS/NTD/WHOPES/2007.1; available at http://www.who.int/whopes/recommendations/wgm/en/).
[2] http://www.who.int/whopes/quality/newspecif/en/.

The following are extracts from the material safety data sheet of the manufacturer for spinosad 7.48% DT.

Acute oral LD_{50} (rat)	>5000 mg/kg
Acute inhalation LC_{50} (rat)	Vapours are unlikely owing to physical properties. Single exposure to any trace dust is not likely to be hazardous
Acute dermal LD_{50} (rat)	>5000 mg/kg
Skin irritation (rabbit)	Essentially non-irritating to skin
Eye irritation	May cause slight transient (temporary) eye irritation
Sensitization (guinea-pig)	No allergic reaction

The current review assesses the efficacy of spinosad DT against container-breeding mosquitoes in comparison with the GR formulation for which WHO recommendations have previously been published.

2.1 Efficacy – background and supporting documents

Martinique, France

Marcombe et al (2007) carried out a simulated field trial to evaluate, in plastic containers (175-L capacity), the residual efficacy of spinosad 7.48% DT, in comparison with spinosad 0.5% GR formulation against *Aedes aegypti* in Fort de France, Martinique (French West Indies). Efficacy and persistence were compared over a period of 60 days in blue plastic containers filled with 145-L of domestic water and covered with a mosquito net to prevent oviposition by wild mosquitoes and deposits of debris. The containers were placed under a shelter to protect them from direct sunshine and from rain. The GR formulation was used at a dosage of 0.1 mg/L and 0.5 mg/L; the DT formulation was used at 0.67mg/L AI (1 tablet/145 L). Each dosage was tested with three replicates and three control (untreated) jars.

A total of 100 third-instar larvae of the F1 generation of field-