Adulticiding Alternatives: Barrier Treatments


Joe Andrews- Vector Biologist Univar USA

Joe.andrews@univarusa.com 252.342.4651
NEW OFFICE PHONE!

828.649.2574

NEW ADDRESS!

492 North Fork Rd.
Marshall, NC 28753
Barrier Treatments

- Not used that frequently
- Requires no special equipment
- Consists of focusing a residual treatment to mosquito resting sites
- Has significant value in IMM Program
- Will not get them all!
Why Barrier Treatments?

- May Kill Many
- You May Already Have the Equipment
- You Are Already Familiar with the Products
- You Are Already Familiar with the Procedures
- Fits Well With Your Public Health Stewardship Objectives
Barrier Treatments

- Needs to be readily available
- Needs to be easy to apply
- Needs to have a long residual
- Needs to have low to no odor
- Needs to have no skin Irritation
- Non phytotoxic
- Non staining
Areas for Barrier Treatments

- Around Buildings Walls and Plants
- Under Decks and Other Protected Areas
- Fences
- Dark and Humid Areas Outdoors
- Foliage Near Breeding Areas…great opportunity to add to your skeeter surveilance
Barrier Treatments

- For an effective barrier treatment you would treat any surface area that a mosquito would rest upon
- Use a properly labeled material to treat with a hand sprayer, power sprayer, backpack mister/blower or properly outfitted ULV
- Treat limbs of shade trees, shrubs, tall grass and shaded areas where mosquitoes congregate: **Harborage**
Potential Treatment Areas

- Ball Parks
- School perimeter
- Church. Picnics, Evening Services
- Day Care Centers/retirement centers/group homes
  - **Great PR**
  - Great Proactive measures for PH Stewardship
- Outdoor activity sites
- Wood line adjacent to sub-divisions & other developments
Why add barrier treatments

- **Budget crunch**
  - Barrier treatments are done during regular business hours; cutting overtime
  - The concentrated products are comparatively inexpensive when contrasted with ULV adulticides
  - Extended residuals with barrier products...ULV adulticides have essentially no residual
    - High residual means the product is working 24/7 continually carving away at the adult mosquito population
Evaluation of Bifenthrin 10% Indoor Residual Spraying in India

*Anopheles culifacies*

<table>
<thead>
<tr>
<th></th>
<th>25 mg ai/m²</th>
<th>50 mg ai/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8 wks</strong></td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>20 wks</strong></td>
<td>80%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>24 wks</strong></td>
<td>66.7%</td>
<td>80%</td>
</tr>
</tbody>
</table>

WHOPES, Dr. R.S. Yadav, PI, conducted 1999-2000
Residual Control of Mosquitoes with Bifenthrin on Different Surfaces

Weeks of Control with > 75% of Anopheles Albimanus

Bifenthrin
1 oz/1000 sq ft

# Weeks

Cement  Wood  Bambo Pole  Palm Thatch
Evaluation of Bifenthrin as an Effective Insecticide Barrier Treatment for Biting Midges (Culicoides spp.) & Mosquitoes (esp. Oc. vigilax) Infesting Peri-Domestic Situations at River Heads, Hervey Bay.

Authors: H. Standfast¹, I. Fanning², L. Maloney², D. Purdie³ & M. Brown⁴

1. International Vector Consultants, 41 Henry St., Chapel Hill, Brisbane, Queensland 4069 Australia.
2. Hervey Bay City Council, PO Box 5045, Torquay, Queensland 4655, Australia.
3. Queensland Institute of Medical Research, PO Royal Brisbane Hospital, Queensland 4029, Australia.
4. Griffith University, Australian School of Environmental Studies, Nathan Campus, Brisbane, Queensland, Australia 4111 & FMC Chemicals, PO Box 329 Hamilton Central, Queensland 4007 Australia
River Heads, Hervey Bay (Marine Park)
- Can’t safely treat with larvicides at rates effective against midges!

Biting midges (Howie et al. 2002) & mosquitoes (Russell 1995) significantly impact public health in Australia.

Larval *Culicoides ornatus* habitat (estuarine mud).

Larval *C. subimmaculatus* habitat (estuarine sand, sandy mud).
Randomized Pairs: 1 Treatment + 1 Control x 4 = 8 Houses
NRA Permit: 5547.
Efficacy of Barrier treatments

Biting Midge (Culicoides spp.)

- 65% Mean Reduction
- Over 6 weeks ($P < 0.02$)
- $N = 55$

Mosquitoes (76% Oc. vigilax)

- 94% Mean Reduction
- Over 6 Weeks ($P < 0.001$)
- $N = 54$
Barrier Treatments with Mavrik

- Controls Adults that Rest on Treated Surfaces
- Also Controls *Culicoides* and Flies
- Is Among the Longest Lasting Products
Temporary Parking area

Light Trap

(Control light trap ¼ mile off site at Chowan monitor LT station)
Parris Island- Marine Corp. vacation paradise!
Hilton Head, where rich mosquitoes go to retire and feed on the wealthy.

16 oz’s treated an entire golf course
Capsules adhere to the mosquitoes
Micro-encapsulated products

- Micro-encapsulated; Provides long-lasting Control
- Will not Burn Foliage
- No Odor or Staining
- Flexible Equipment Requirements
- Some can be Applied Inside and Outside Buildings
Capsules Formation

- Polymer bids weave around the active ingredient protecting it.
- The final capsule looks like a golf ball inside.
- Water based formulation.
- EPA, USDA, Military use.
- Resistant but permeable to diffuse the active ingredient.
Microcaps on Mosquitoes
Microcapsules on Leaf 2 Weeks After Treatment
10 Weeks After Treatment

Concrete
Budgets are tight…ULV activities are routinely done on overtime…
Barriers are done during the regular working day
The concentrated products have a high residual and are working all the time; plus they are comparatively inexpensive
ULV has no residual and has a very limited range, average use is around 2 gallons per hour
Hummm...I should give barrier treatments a try!

It’s so simple, a caveman could do it.
Foster Dog Needs Home!

Plott Hound Mix: Foster Aluitious
1 Year Old