

# Adulticiding Alternatives: Barrier Treatments



Georgia Mosquito Control Assn.  
Athens UGA Oct. 2009



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# Barrier Treatments

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- 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?

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- ◉ 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

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- ◉ 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  
surveillance

# Barrier Treatments

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- 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

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- ◎ **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

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## ◎ Budget crunch

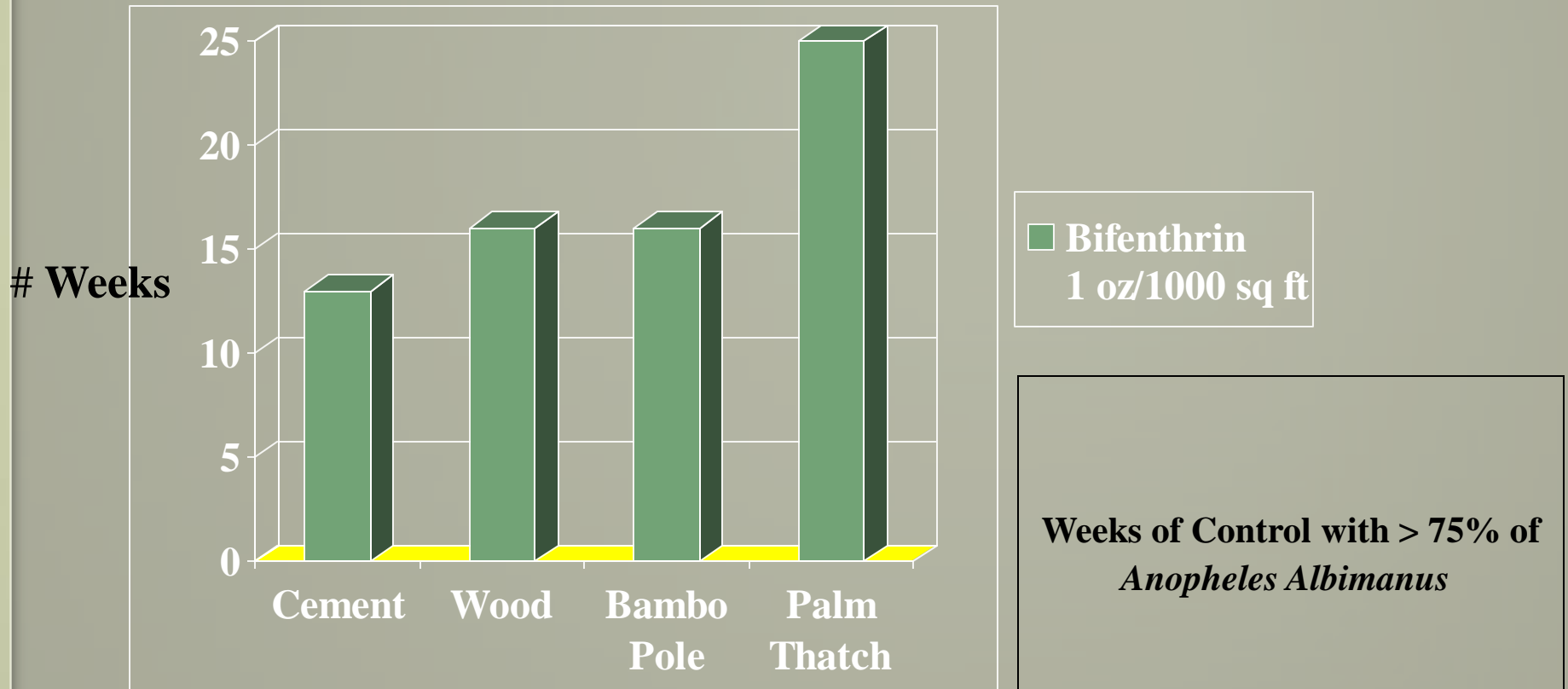
- Barrier treatments are done during regular business hours; cutting overtime
- The concentrated products are comparatively inexpensive when contrasted with ULV adulticides
- Extended residuals with barrier products...ULV adulticides have essentially no residual
  - High residual means the product is working 24/7 continually carving away at the adult mosquito population

# Evaluation of Bifenthrin 10% Indoor Residual Spraying in India

*Anopheles culifacies*

	<b>Mud Walls</b>	
	25 mg ai/m <sup>2</sup>	50 mg ai/m <sup>2</sup>
8 wks	100%	100%
20 wks	80%	100%
24 wks	66.7%	80%

# Residual Control of Mosquitoes with Bifenthrin on Different Surfaces



# 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. Standfast<sup>1</sup>, I. Fanning<sup>2</sup>, L. Maloney<sup>2</sup>, D. Purdie<sup>3</sup> & M. Brown<sup>4</sup>**

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# River Heads, Hervey Bay

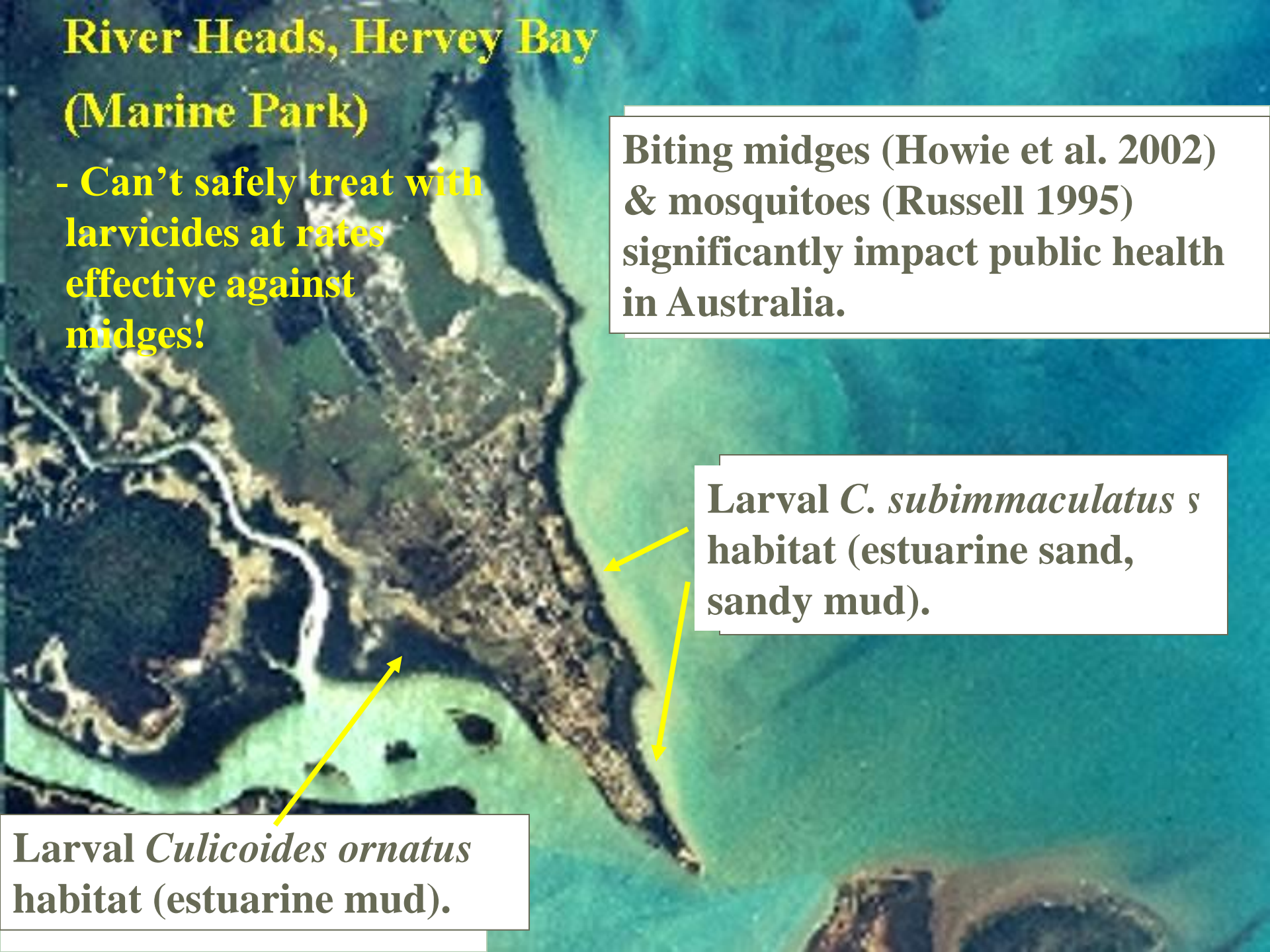
## (Marine Park)

- 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 *C. subimmaculatus* habitat (estuarine sand, sandy mud).

Larval *Culicoides ornatus* habitat (estuarine mud).



# Treatment Sites



**Randomized Pairs: 1 Treatment + 1 Control x 4 = 8 Houses**  
**NRA Permit: 5547.**





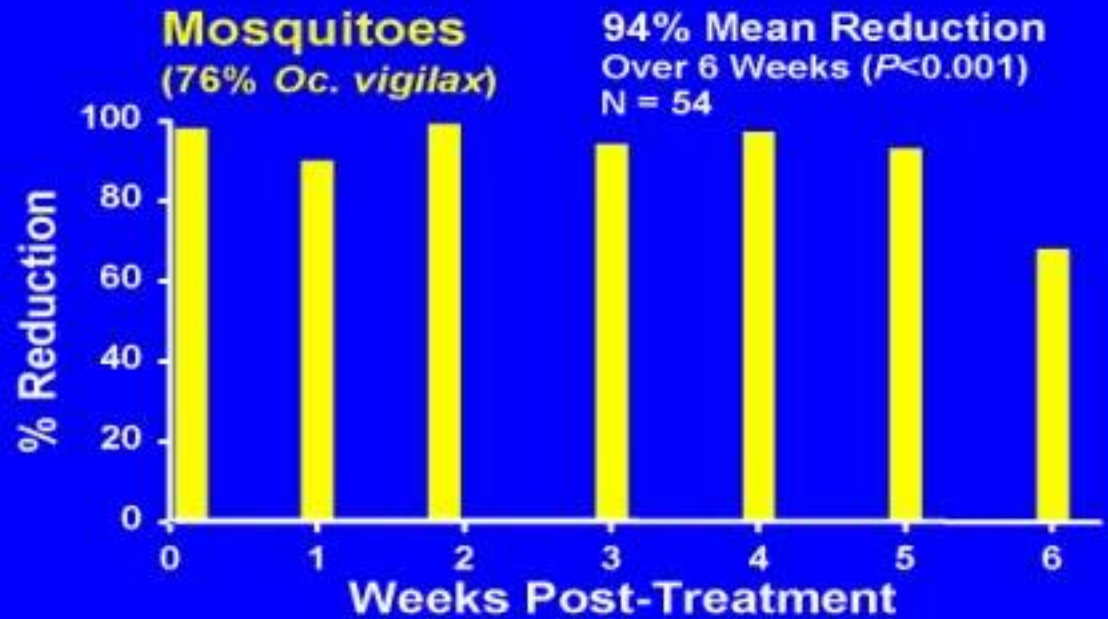
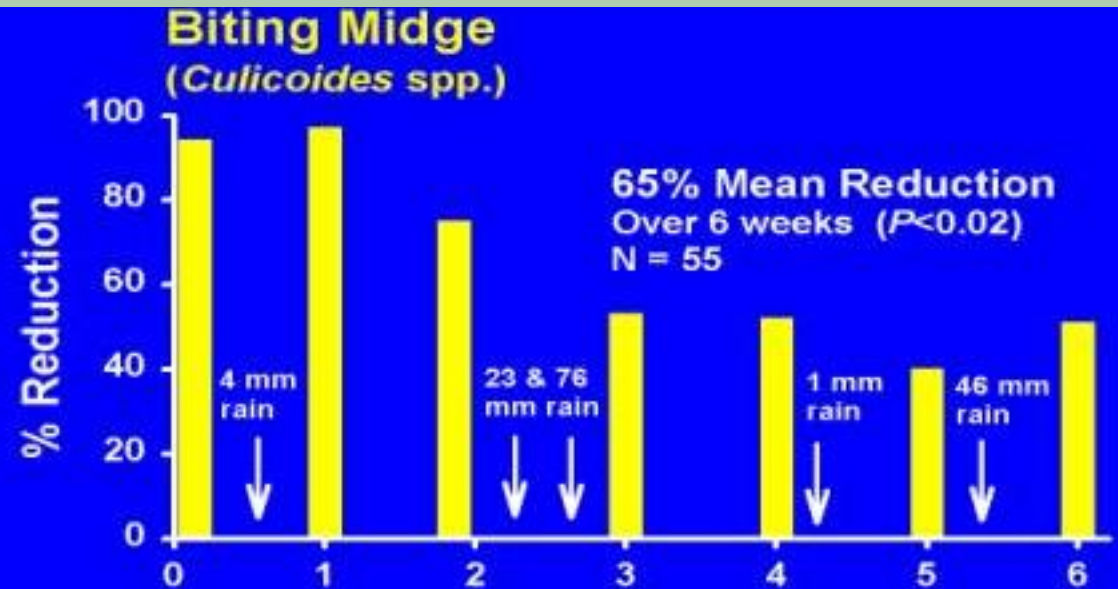


# Efficacy of Barrier treatments

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# Barrier Treatments with Mavrik



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

# Chowan County Fair

Three Gallon

Coastal Flood Basin

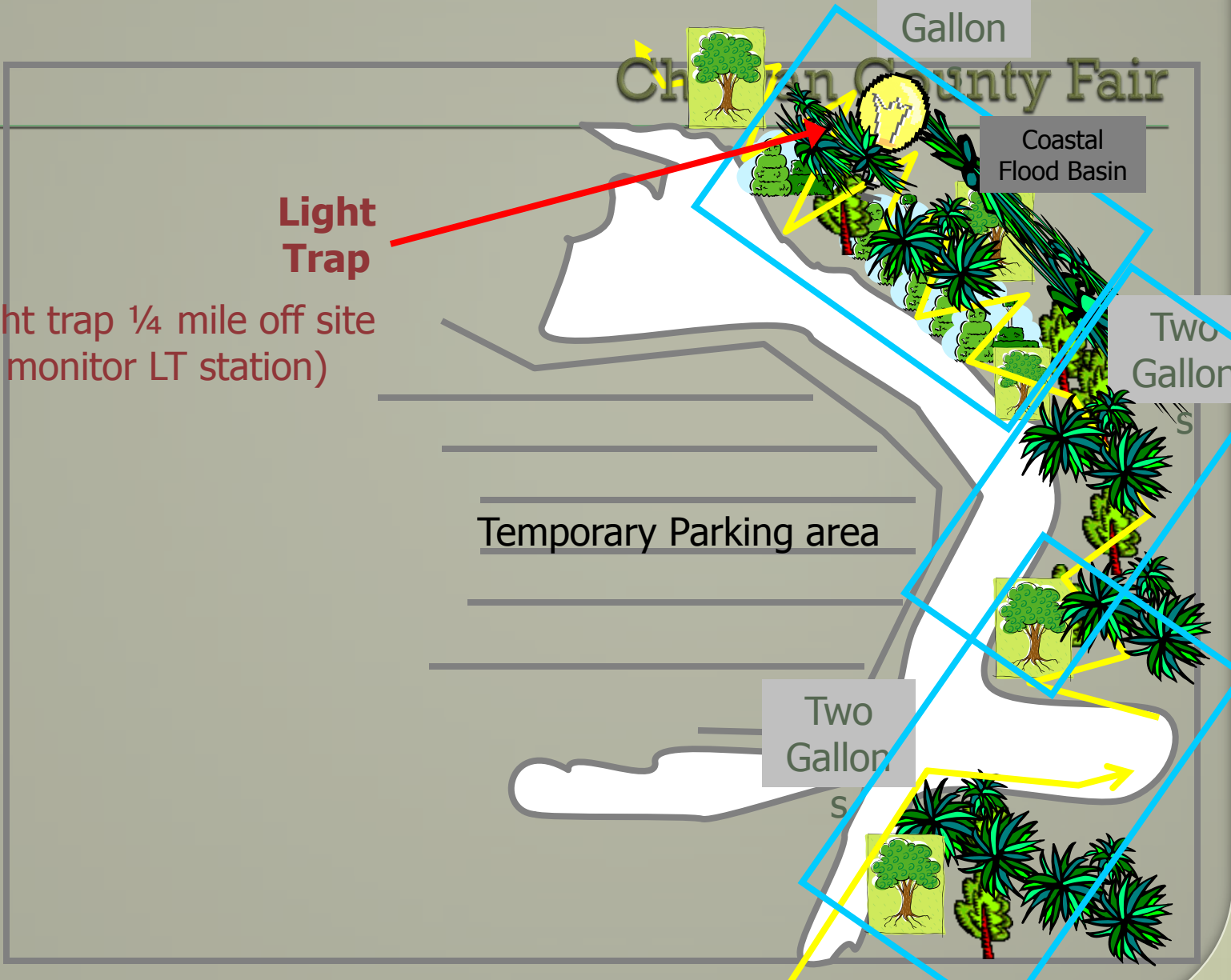
Two Gallon

Two Gallon

Temporary Parking area

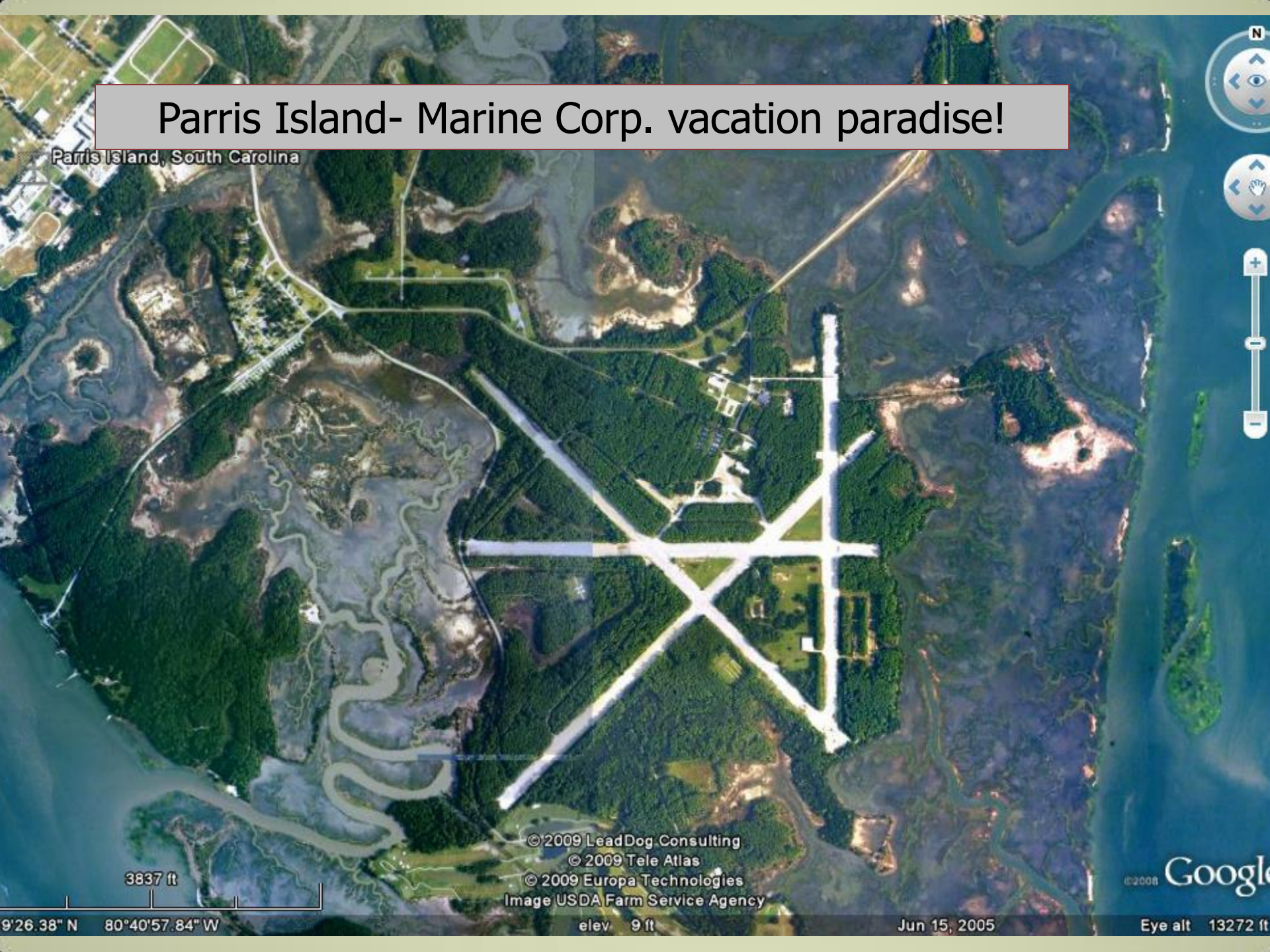
**Light Trap**

(Control light trap 1/4 mile off site at Chowan monitor LT station)



# Parris Island- Marine Corp. vacation paradise!

Parris Island, South Carolina



3837 ft

© 2009 LeadDog Consulting  
© 2009 Tele Atlas  
© 2009 Europa Technologies  
Image USDA Farm Service Agency

elev. 9 ft

Jun 15, 2005

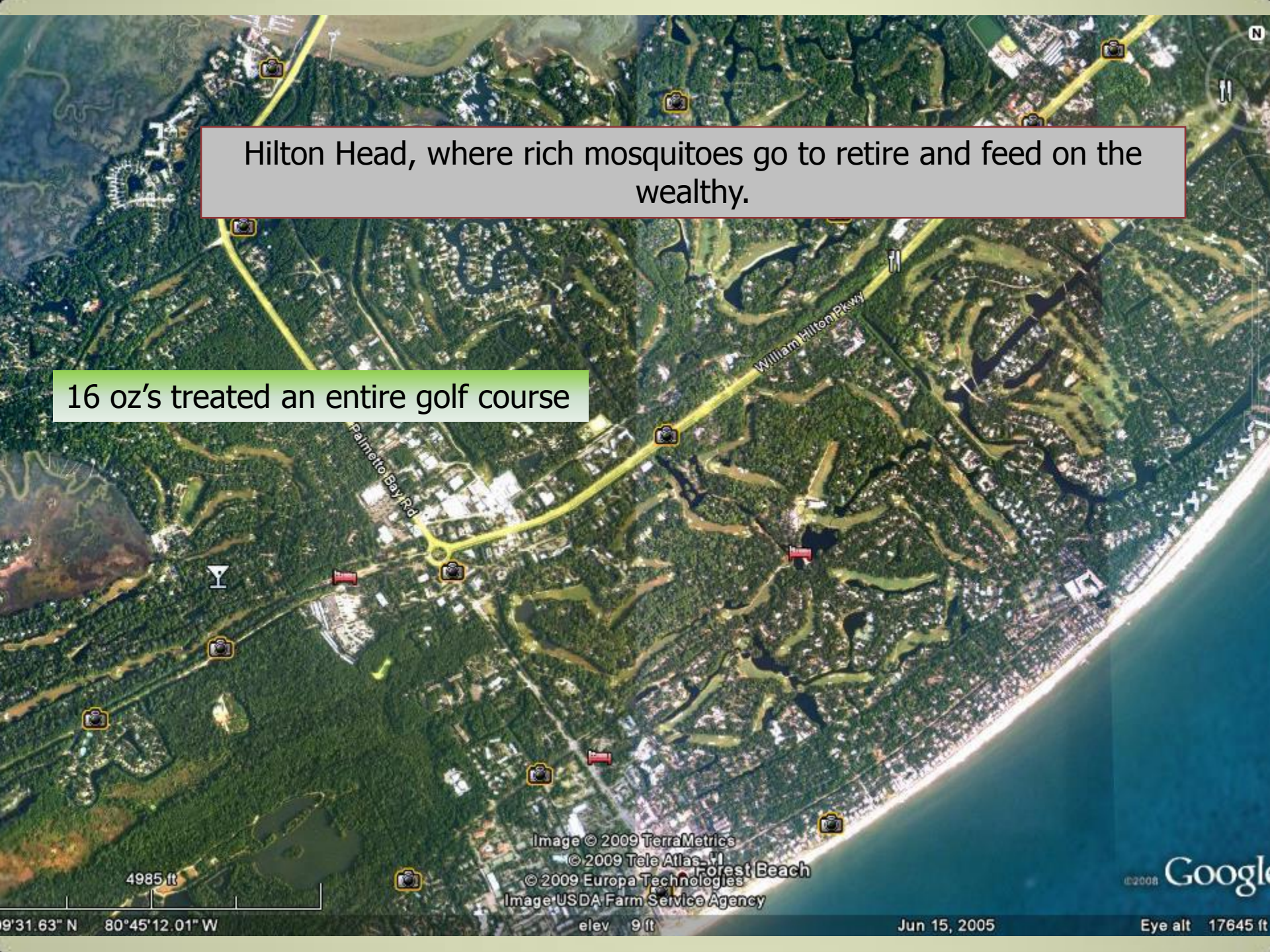
Eye alt 13272 ft

9°26.38' N 80°40'57.84' W

©2008 Google

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

DEMAND CS

# 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

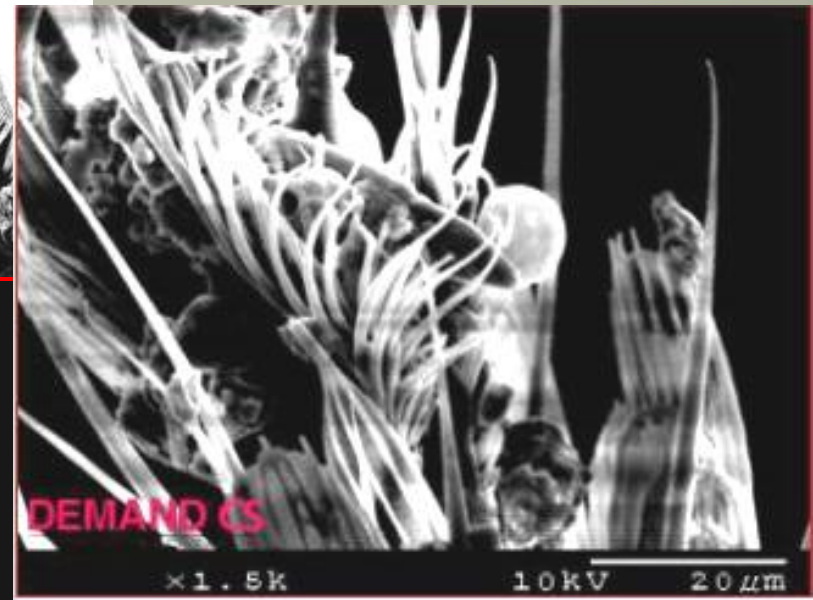
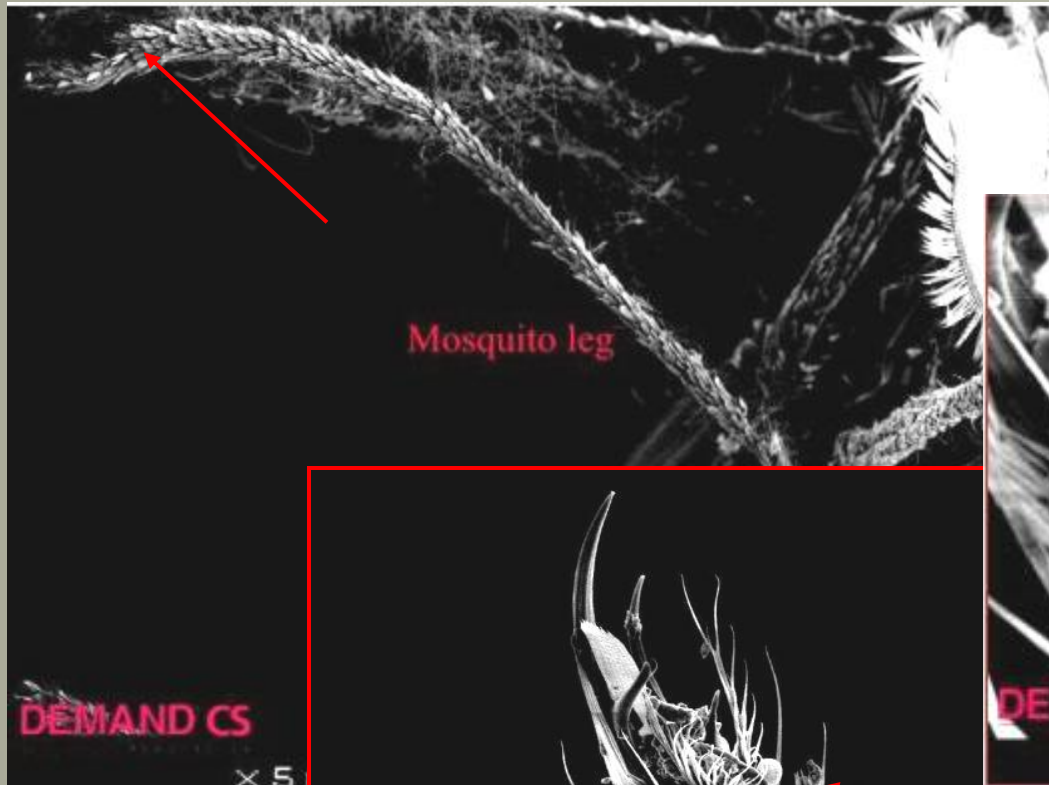


- Polymer fibers weave around the active ingredient protecting it
- The final capsule looks like a golf ball inside
- Water based formulation
- EPA, USDA, Military use
- Resistant but permeable to diffuse the active ingredient

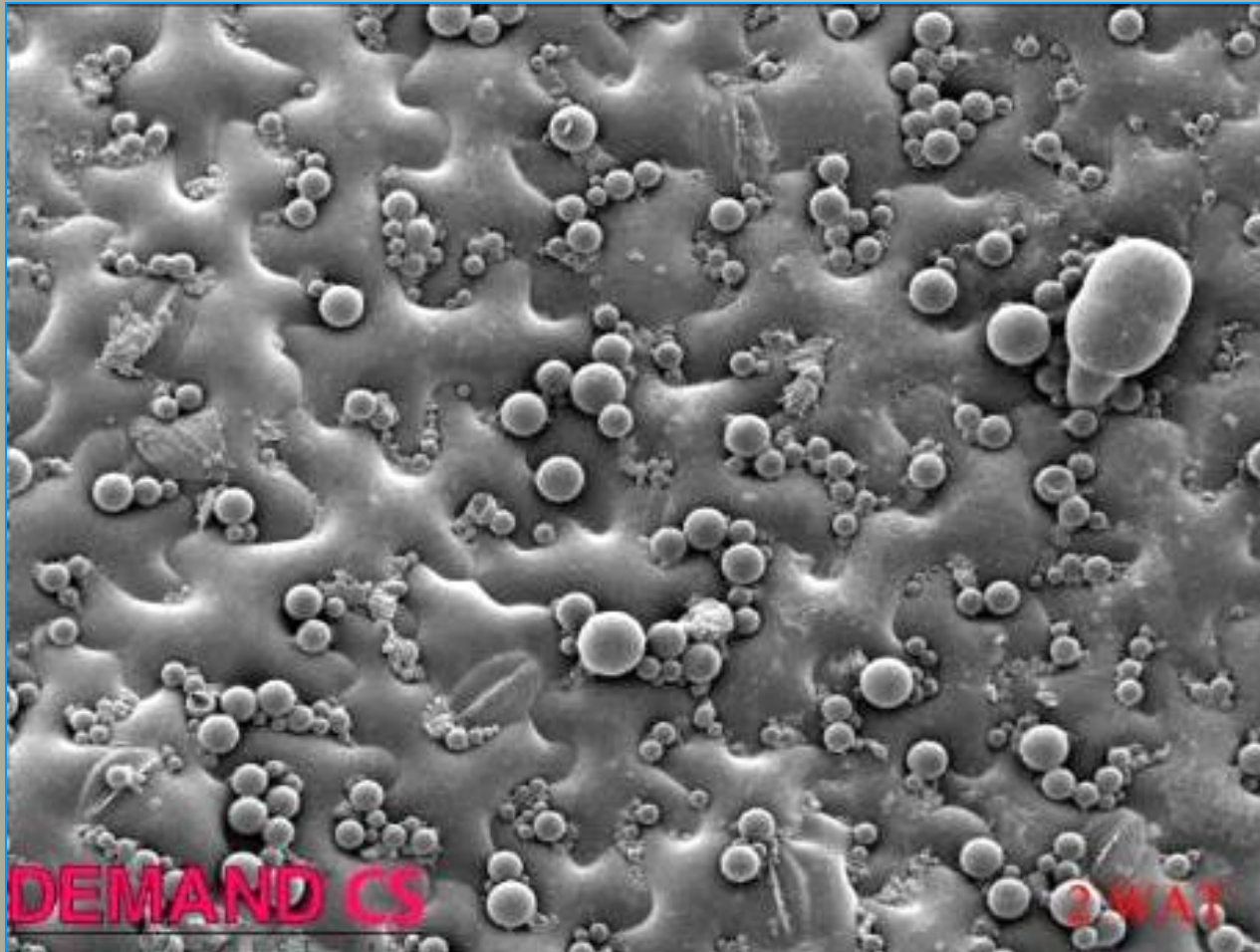




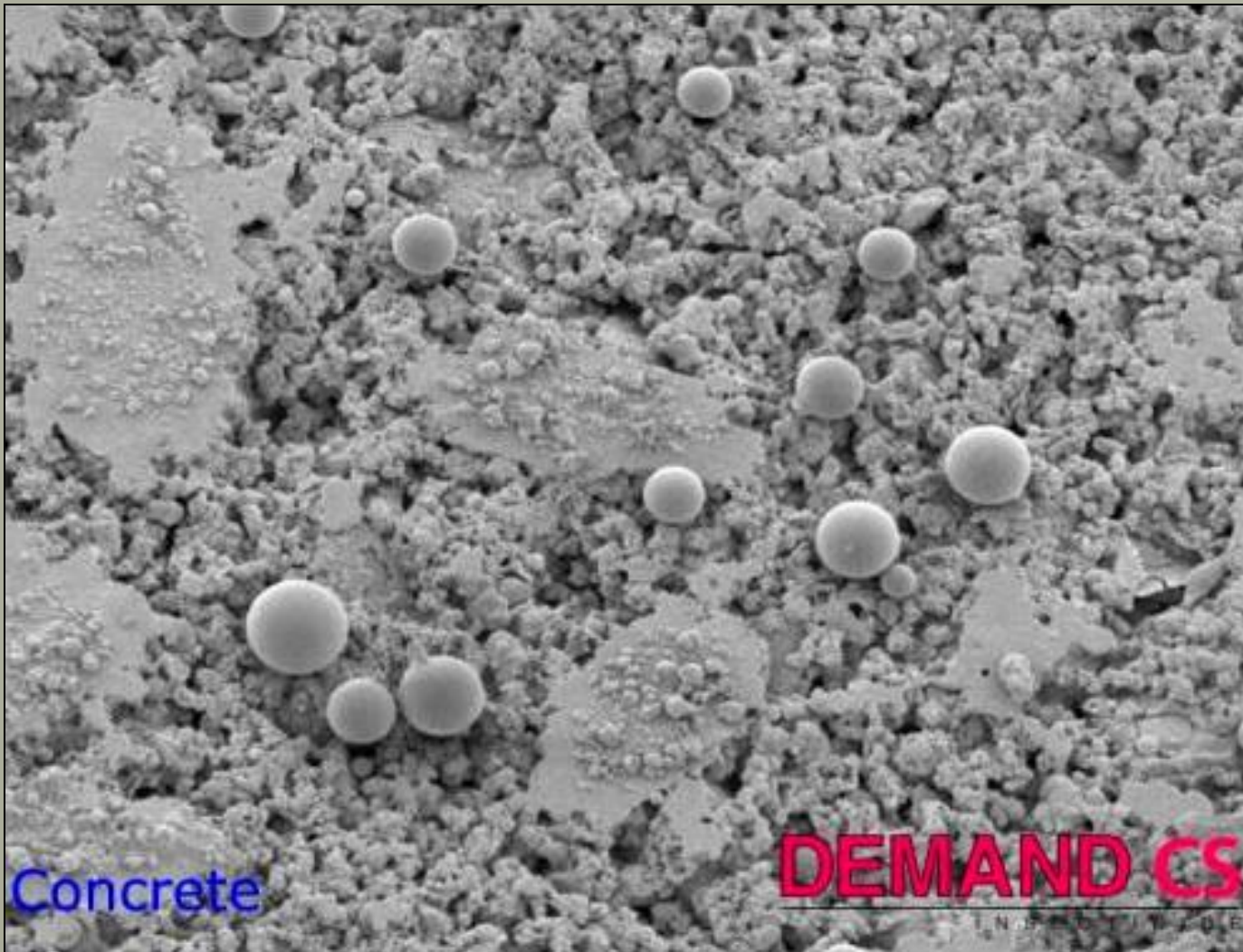
# Microcaps on Mosquitoes



# Microcapsules on Leaf 2 Weeks After Treatment



# 10 Weeks After Treatment



# Summary

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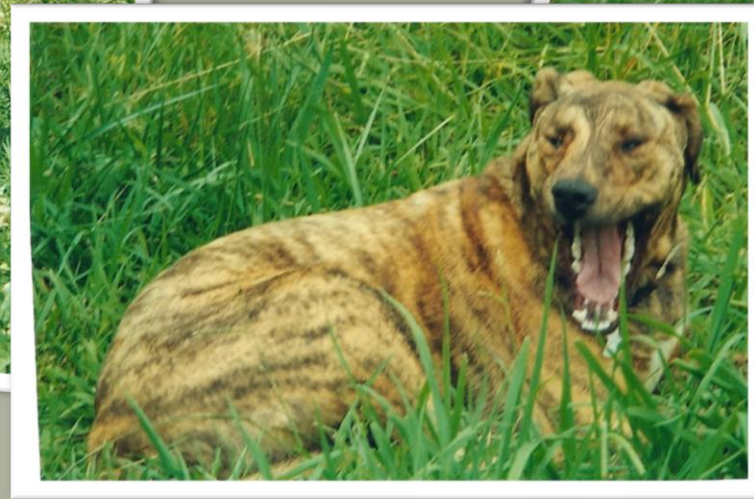
- Budgets are tight...ULV activities are routinely done on overtime...
- Barriers are done during the regular working day
- The concentrated products have a high residual and are working all the time; *plus* they are comparatively inexpensive
- ULV has no residual and has a very limited range, average use is around 2 gallons per hour



It's so simple, a caveman could do it.

Hummm...I should give barrier treatments a try!

# Foster Dog Needs Home!



Plott Hound Mix: Foster Alutious

1 Year Old