



Aquatain AMF
**LIQUID
MOSQUITO FILM**

COMPARISON WITH Bti

June 2011

Introduction

Aquatain AMF is a silicone based liquid which spreads across the surface of a water body, forming a very thin film. Trials in several countries have shown that the film is very effective in disrupting the mosquito lifecycle.

Another product, bacillus thuringiensis israelensis (Bti) is sometimes used to control mosquito larvae.

This paper compares Aquatain AMF with Bti against several measures, and it can be seen that it is superior to Bti in almost all respects.

IMPACT ON MOSQUITO LIFECYCLE: Aquatain AMF vs Bti

Stage	Impact	
	Aquatain AMF	Bti
 <p>eggs</p>	<p style="text-align: center;">✓</p> <p>No eggs laid on the surface</p>	<p style="text-align: center;">✗</p> <p>No effect</p>
 <p>larva</p>	<p style="text-align: center;">✓</p> <p><u>Late instar larvae</u> Rapid mortality</p> <p><u>Early instar larvae</u> May take a few days to be effective</p>	<p style="text-align: center;">✓</p> <p><u>Late instar larvae</u> No impact</p> <p><u>Early instar larvae</u> Rapid impact</p>
 <p>pupa</p>	<p style="text-align: center;">✓</p> <p>Rapid mortality of pupae</p>	<p style="text-align: center;">✗</p> <p>No effect</p>
 <p>adult</p>	<p style="text-align: center;">✓</p> <p>Adult females drown while attempting to lay eggs</p>	<p style="text-align: center;">✗</p> <p>No effect</p>

OTHER COMPARISONS: Aquatain AMF vs Bti

Item	Aquatain AMF	Bti	Aquatain AMF Superior?
Active Ingredients	Silicone	Bacillus thuringiensis israelensis biological larvicide	
Application Method	Can be poured directly onto water surface Can also be sprayed via back pack, vehicle mounted sprayer, or boat or aerial application	Spray only, using specialised spray equipment	✓
Equipment Cost	No equipment required	Spray tank and associated equipment required. Cost varies. Very expensive if aerial application is necessary	✓
Product Cost	Similar to Bti	Similar to AMF	—
Uniformity of Application	Will spread across the water surface to form a uniform film	Must be applied evenly in each water body to ensure uniform coverage	✓
Method Of Action	Very thin film disrupts the mosquito lifecycle.	Young larvae ingest the Bti	
High Organic Matter	No effect: the film will spread around vegetation and other obstacles. No need to increase dosage rate if water has high organic content	Dosage rates must be increased substantially in water with high organic content, as the Bti has to compete with the organic matter as food for the larvae	✓
High Population of Larvae	No increase required in dosage rate	Higher dosage rate recommended if larvae population is high	✓
Resistance	Not possible for mosquitoes to develop a resistance to the product, as they must use the water surface for their breeding cycle.	If used repeatedly, larvae can develop a resistance.	✓

OTHER COMPARISONS: Aquatain AMF vs Bti (Continued)

Item	Aquatain AMF	Bti	Aquatain AMF Superior?
Environmental Impact	Minimal	Minimal	—
Duration	4 weeks	“Reapply as needed” (generally every 7-14 days)	✓
Storage	Shelf life of at least 2 years – even in high temperature conditions	Must be stored in a cool dry place at all times, or the Bti will deteriorate	✓
Hazardous Classification	Not hazardous	Not hazardous	✓
Aquaculture	Safe for use	Not safe for use	✓
Toxicity	Non-toxic. NSF certification in the United States – safe to apply to drinking water	Non-toxic	✓
Non-Target Species	Temporary effect on some non-target species such as water boatmen, but complete recovery after film degrades	No impact on non-target species	—
Distribution To Villages?	Can be distributed through village network and applied by villagers, as it is non-toxic and does not require spray equipment	In general, not suitable for application by the general public because application rates have to be calculated for each water body	✓