



Field Efficacy Trials - Harpoon® Granular Aquatic Herbicide on Lake Guntersville in Alabama

Applied Biochemists, A Lonza Business
with Aquaservices, Inc.

Purpose:

To test the effectiveness of controlling infestations of *Hydrilla verticillata* and *Myriophyllum spicatum* using Harpoon Granular Aquatic Herbicide.

Location: Lake Guntersville, in Alabama

Applicator: Aquaservices, Inc.

Treatment Date: June 23, 2011

Evaluation: 14 and 28 days after treatment (DAT)



Treatment Sites	Nuisance Macrophyte Population Treatment
Site 1: Mullinax Boat House (stairs)	Hydrilla - <i>Hydrilla verticillata</i>
Site 2: Lucas Gap Boat House (dock)	Eurasian water milfoil - <i>Microcystis spicatum</i> (dominant species)
	Coontail - <i>Ceratophyllum demersum</i> (minor)



Harpoon Granular Aquatic Herbicide Application Rates Based on Plant Height and Density (lbs. to apply per surface acre)

Submersed (Target) Species (In water of medium to high hardness)	ppm copper	Plant Growth Height (from bottom)		
		1 ft.	2 ft.	3 ft.
<i>Hydrilla verticillata</i> (Hydrilla)	0.75 - 1.0	60 - 80	120 - 160	180 - 240
<i>Ceratophyllum demersum</i> (Coontail)	0.5 - 1.0	40 - 80	80 - 160	120 - 240
<i>Myriophyllum spicatum</i> (Eurasian water milfoil)*	0.75 - 1.0	60 - 80	120 - 160	180 - 240

Both treatment sites qualify for the **upper range rate for heavy infestations**, defined on the product label as: areas where submersed vegetation growth has reached the water surface and/or bottom growth cover more than 65% of the treatment area.

*Eurasian water milfoil should only be treated in water where Calcium carbonate hardness is less than 150 ppm.



Product applied using calibrated spreader and GPS measurements for surface area.

Site 1: Mullinax Boat House targeting *Hydrilla verticillata*

Treatment dose: 240 lbs. per acre (based on table)

High density plants:

3 ft. long

90% control visible in photographs



(GPS - 34° 25' 22.35" N 86° 15' 25.05" W)



Day of Treatment: 6-23-11



14DAT: 7-7-11



28DAT: 7-21-11
Hydrilla showing limited regrowth

Site 2: Lucas Gap Boat House targeting *Myriophyllum spicatum*

Treatment dose: 240 lbs. per acre (based on table)

High density plants:

3+ ft. long

90% control visible in photographs



(GPS - 34° 27' 30.45" N 86° 16' 34.27" W)



Day of Treatment: 6-23-11



14DAT: 7-7-11



28DAT: 7-21-11
Eurasian water milfoil showing suppression

Conclusions:

- Results with Harpoon® Granular Aquatic Herbicide show 90% control through 28DAT at both Mullinax Boat House-Site 1 and Lucas Gap Boat House-Site 2
- Nuisance relief provided for Lake Guntersville Riparians
- No potable and irrigation restriction post treatment key factor at Lucas Gap Boat House site.
- Rate table on label for high density- 3 foot plant height rate (240 lbs. per acre) compared to observed efficacy; confirmed control of Eurasian watermilfoil and Hydrilla.