Out-of-the-Box Thinking and New Tools for
Aquatic Plant Management

Shaun M. Hyde and Mike Netherland
SePRO Corporation, Carmel, IN

The weed control methods aquatic plant managers utilize are categorized into mechanical, physical, biological and chemical approaches. When assessing chemical control options, managers are limited to six US EPA registered aquatic herbicides; fluridone, diquat, endotholl, 2-4.d, copper complexes, and glyphosate. In 2003, triclopyr will be the seventh chemistry registered by US EPA for aquatic use and the first since 1986. With a limited bag of tools to select from, the most successful aquatic plant management programs have included some "out-of-the-box" thinking and the incorporation of new technologies in order to reach management goals. These out-of-the-box approaches and tools include; 1) developing new applications techniques using existing herbicides 2) development of improved herbicide formulations to fit challenging treatment sites, 3) incorporating new aquatic plant management technologies.

1) Implementing a new application approach with current herbicide formulations can provide successful control in otherwise challenging situations. The technique of sequential treatments of contact herbicides, Nautique and acrolein, have improved the ability to maintain control of hornded pondeweed in Idaho irrigation canals. Sonar AS ™ treatments conducted in static irriation canals, during post irriation periods of October/November, have resulted in a significant decrease in sago pondweed biomass the following season in California irrigation canals. The use of impermeable isolation barriers in Lake Shoecraft, Washington has proven successful in the eradication of Eurasian watermilfoil using the aquatic herbicide Sonar AS in a unique partial lake application technique.

2) SePRO Corporation has developed two new Sonar formulations to improve the efficacy of difficult to control plants and in challenging water systems. Experiments conducted by SePRO and research cooperators demonstrated the impacts of differing Sonar formulation and lake sediments have on the actual release profile and residence time of Sonar. Sonar Precision Release ™ pellets have improved treatment programs in areas with organic substrate, with potential for dilution in partial lake applications and in flowing water sites. Sonar Quick Release™ pellets are designed provide an accelerated release of Sonar compared to other pellets formulations. The Sonar Q pellets immediately expand as they enter the water and continue to release an accelerated level Sonar as they remain on top of soft organic sediments. The improvements to the Sonar formulations have provided aquatic plant managers with more efficient treatment options and improved the ability to systemically control weeds with Sonar.

3) *How do we document and monitor herbicide residues during and after treatments?* FasTEST ™ immunoassay provides rapid laboratory analysis of water samples to determine Sonar and Renovate residues during and following a treatment program. *How can we selectively control an exotic species while minimizing the impacts to desired vegetation?* The use of two new plant assays can improve the ability too successful manage and monitor aquatic plant control programs. PlanTEST ™ is a pre-treatment aquatic plant bioassay that determines the susceptibility of plants in a given area to be treated with Sonar. EffecTEST™ is an aquatic plant biochemical sampling test which allows one to monitor the level of Sonar injury of the treated plants and make adjustments during a treatment program.

The use of Geographical Information System (GIS) and Global Positioning Systems (GPS) mapping technologies have enhanced the success of aquatic plant management programs. The use of hydroacustics mapping systems will improve the ability to accurately measure water volumes, accurately apply aquatic herbicides, monitoring pre-treatment and post-treatment plant biomass and provide a means of documenting changes in plant populations overtime.

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