



FALL 2017

CYGNET ENTERPRISES, INCORPORATED

The Cygnet News

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THE MOST SUSTAINING COMPANIES are built from the heart with hard work, discipline and passion for a specific industry by all levels of employees, management and ownership. These companies have strong foundations because of human spirit, dedication and focus on this specific industry. These companies are significantly involved in all aspects of that industry's market support activities at every level. This helps mold and influence what the industry looks like today, tomorrow and well into the future to ensure sustainability and continued growth. Only these companies are truly lasting and truly authentic.

This is Cygnet Enterprises Inc.

Incentivizing the Public to Support Invasive Species Management: EURASIAN MILFOIL REDUCES LAKEFRONT PROPERTY VALUES

By: Julian D. Olden , Mariana Tamayo

Abstract

Economic evaluations of invasive species are essential for providing comprehensive assessments of the benefits and costs of publicly-funded management activities, yet many previous investigations have focused narrowly on expenditures to control spread and infestation. We use hedonic modeling to evaluate the economic effects of Eurasian milfoil (*Myriophyllum spicatum*) invasions on lakefront property values of single-family homes in an urban-suburban landscape. Milfoil often forms dense canopies at the water surface, diminishing the value of ecosystem services (e.g., recreation, fishing) and necessitating expensive control and management efforts. We

compare 1,258 lakeshore property sale transactions (1995–2006) in 17 lakes with milfoil and 24 un-invaded lakes in King County, Washington (USA). **After accounting for structural (e.g., house size), locational (e.g., boat launch), and environmental characteristics (e.g., water clarity) of lakes, we found that milfoil has a significant negative effect on property sales price (\$94,385 USD lower price), corresponding to a 19% decline in mean property values.** The aggregate cost of milfoil invading one additional lake in the study area is, on average, \$377,542 USD per year. Our study illustrates that invasive aquatic plants can significantly impact property values (and associated losses in property).

(Continued on page 14)

Summer is over and it seems like it went by in a flash. By now fall is in full swing and most of us can take a second to catch our breath before we have to do it all over again. We hope everyone had a successful summer and we really appreciate all of our customers' loyalty and support. Cygnet is a leader in industry support and that is due to our customer loyalty. We try to give back to the industry as much as possible to secure the longevity of the industry for everyone.

The off season is a great time to catch up on long overdue projects. Your equipment and your employees are the most valuable assets to your company. Use this time when things are slow to do the needed maintenance and safety checks. One of the most important parts of being an applicator is safety. Please ensure that your equipment is operating properly and you have all the essential safety gear for your equipment. The last thing you want is to have one of your employees in danger that can be prevented by simple maintenance and safety checks in the off season.

The 38th annual Midwest Aquatic Plant Management Society conference will be held in

"At Cygnet, we strive to meet all customer expectations and to provide the best customer service possible"

Cleveland, Ohio, at the Westin Downtown Hotel on February 26th through March 1st. As usual there will be plenty of great presentations with the latest in industry news, products, applications and studies. We look forward to seeing everyone there. Attending the conference is a great way to support the industry and network with the experts in the field. Please visit mapms.org for more information.

The Michigan Aquatic Managers Association will be holding their annual symposium on February 7th at the Radisson Hotel Lansing. There will be presentations from all the major manufacturers and Michigan regulatory agencies. Please stay tuned for more information. We will be sending out invites and agendas once available. Please contact Garrett McClain at

1-800-359-7531 or at gmcclain@cygnetenterprises.com for more information.

We would like to thank everyone for continuing to choose Cygnet as their provider of aquatic plant management products. At Cygnet, we strive to meet all customer expectations and to provide the best customer service possible. We look forward to seeing everyone in the off season, but if something comes up before then please give us a call at 1-800-359-7531 and we will assist you.

Corporate Office

Richard Hinterman
Joe Bondra
Heather Bondra
John Goidosik
Garrett McClain
Elaine Koch
Dana Spress
Scott Jackson

1860 Bagwell St, Flint, MI 48503
Phone: 800-359-7531

rhinterman@cygnetenterprises.com
jbondra@cygnetenterprises.com
hbondra@cygnetenterprises.com
jgoidosik@cygnetenterprises.com
gmcclain@cygnetenterprises.com
ekoch@cygnetenterprises.com
dspress@cygnetenterprises.com

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The southeast experienced yet another blistering summer which has been a difficult challenge for lake managers and aquatic applicators. Algal blooms were a huge problem this summer, with explosions of plant growth throughout the south occurring into September. With September temperatures in the 80s, we expect treatments will linger into the fall longer than they have in the past. We have also seen the largest outbreaks of watermeal and duckweed that we have encountered in recent years.

In July, we truly enjoyed seeing all the attendees at this year's South Carolina Aquatic Plant Management Society's meeting, held in Myrtle Beach, South Carolina. In fact, if you're planning ahead for 2018, Cygnet NC will be attending the 3rd Annual Society of Lake Management Professionals (SLMP) on January 22nd-25th, 2018 in Baton Rouge, Louisiana. We encourage all lake managers, if you have not done so already, to join and be a part of this rewarding society. The Purpose of SLMP is "to foster an appreciation for and enhance the

management of ponds and lakes, managed by private companies, with particular concern for the aesthetic and recreational uses and stewardship of such waters. Using tools such as innovation, education, representation, accreditation, and standardization of best management practices. Advocate wise stewardship of privately owned water, promote and recruit fishing opportunities in private water environments, and protect our environment."

As you are already aware, two massive hurricanes devastated the southeast this year. Hurricane Harvey made landfall in Houston, Texas, and hurricane Irma made landfall in southern Florida, working its way up the western coast. Our thoughts and prayers go out to everyone who was impacted by these two storms. In fact, the Midsouth Aquatic Plant Management Society was scheduled to be held in Birmingham, Alabama, in September, but was postponed due to the impacts of hurricane Irma. The board of directors are working diligently on

rescheduling the conference.

In closing, we would like to recognize a dear friend and a loyal customer, Scott Morgan, whom we lost this year. He taught us a lot about life and how to live it! Scott was always full of joy and enthusiasm, and you could always count on Scott to put a smile on your face. Cygnet attended his celebration of life and it was apparent how loved he was, and how many hearts he touched. He will be greatly missed!

Thank you to our customers in the South for giving us the opportunity to supply the water resource management product needs for your company or agency!

Southern Region

Neal Coulter
JJ Ferris
Valery Voss
Johnny Polk

132 Parcel Drive
Statesville, NC 28625
Phone: 800-661-7909

ncoulter@cygnetenterprises.com
jferris@cygnetenterprises.com
vvoss@cygnetenterprises.com

Cygnet carries products from all the major manufacturers:

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CHEM ONE



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syngenta



Pennsylvania Update

By: Jo Ann Dunlap

The leaves are just beginning to change here in the Northeast, signaling the end of another application season. Our new Freightliner delivery truck served us well and Russell (Russ) Hodgson, our driver, seemed very pleased with his new ride! Russ wanted me to relay that he would appreciate everyone's efforts in keeping their delivery locations clean and maintained, i.e. removing low hanging branches and other obstacles that could potentially damage our truck. We thank you in advance for your attention to this!

For those of you that take commercial truck deliveries, I would like to remind you of few things to consider when placing your orders and taking deliveries. When you ask for delivery notification or a delivery appointment, your shipment will not be put out for delivery until a confirmed appointment has been

made. This will normally add one additional delivery day to your transit time, as the carrier needs time to contact you. In addition, someone must be present during delivery to examine your freight and sign for it. PLEASE REMEMBER TO DENOTE ANY MISSING OR DAMAGED PRODUCTS ON THE BILL OF LADING BEFORE YOU SIGN. Should you have any damage, please take a picture of it if possible and send it to us. Luckily, we have had very few damage claims with the carriers we are currently using, but your assistance with this will make it easier to fill damage claims and help us provide the best service to you.

The 19th annual Northeast Aquatic Plant Management Society conference will be held once again at Wentworth by the Sea, a Marriott Resort and Spa, which is in New Castle, New

Hampshire, on January 9 - 11, 2018. Wentworth by the Sea is beautiful, historic and one of my favorite venues that has hosted the NEAMPS conferences. I hope to see everyone there!

Lastly, I am currently planning our 2018 Applicators Symposium for the beginning of March 2018. Your input for this event is encouraged and welcomed, so please feel free to contact me with your suggestions on preferred date, location, and topics. Thank you all for your business in 2017 – take care!

Northeast Region

Jo Ann Dunlap
Donna Packer
Russ Hodgson

6218 State Route 87
Tunkhannock, PA 18657
Phone: 800-275-3325

jdunlap@cygnetenterprises.com
dpacker@cygnetenterprises.com

California Update

By: Andrea Sealock

Another year is coming to a close, and we would like to thank our west coast customers for choosing Cygnet Enterprises West, Inc. as your choice distributor in 2017. Your loyalty and dedication is greatly appreciated! As we approach the winter months, there is much to reflect upon and much to do to prepare for the new year.

One of the great things about the winter months is attending conferences and workshops that provide current industry

information and allow you to earn your CEU credits. Cygnet West will be attending the California Weed Science Society's (CWSS) annual meeting in Santa Barbara, California, on January 23-26, 2018. In addition, the Western Aquatic Plant Management Society (WAPMS) will be hosting its annual meeting in Reno, Nevada, on March 26-28, 2017. For more information on these events, please see 16 of this publication, or contact your local

Cygnet office. Both the CWSS and WAPMS provide great opportunities to mingle with your peers and gain valuable knowledge pertaining to aquatic plant and algae management. We hope to see you at these events!

Please remember to check your licenses and permits as many expire the end of the year. Once you have renewed them, please be sure to fax or email a copy to

(Continued on page 5)

California Update (continuation from page 4)

the Concord office. Having your current information on file allows us to process your orders with no delays. You can contact Liza Montano at the Concord office with any questions. We appreciate your attention to this!

thank you for your patronage! We understand that our success is largely due to your success. If there is anything we can improve upon, please let us know. We look forward to assisting you in 2018!

In closing, we would again like to

Western Region

Andrea Sealock
Liza Montano
Doug Kleweno

5040 Commercial Circle, Suite E
Concord, CA 94520
Phone: 800-530-0885

asealock@cygnetenterprises.com
lmontano@cygnetenterprises.com
dkleweno@cygnetenterprises.com

Indiana Update

By: John Olsen

Where did the summer go? The 2017 season is almost in the history books, and I feel like we just got started. Fall is already closing in on us, and I know a lot of applicators would be happy if the algae would drop like the evening temperatures. However, we have had very little rain in the Chicago area for about the last seven weeks. In fact, I do not remember the last time I saw pond levels this low during this time of year!

As always, it has been a pleasure working with everyone this year. As we start to head into the winter months we want to remind you that we will be hosting our Cygnet winter workshop again at the Purdue University Beck Center. It is still a little early, so I will let everyone know when the date is finalized. For those of you who have not

attended, this is a great opportunity to get the latest information and keep current

"I enjoy being involved in the development of people and companies at every level and I know we all care about the environment."

with your license credits. I am always looking for new topics and presentations that everyone would find beneficial. If you have any topic of importance that you would like to share, please give me a call. In addition to our winter workshop, we will be attending and exhibiting at the Indiana Lake Management Society, Illinois Lake Management Association, and Midwest Aquatic Plant Management Society annual meetings in 2018. I look forward to seeing everyone at the many shows over the winter. Please stop by our booth and say hello!

It is always a pleasure working with everyone in our industry. I enjoy being involved in the development of people and companies at every level and I know we all care about the

environment. If you did not know, Cygnet has a recycling program available to all our customers to assist you in recycling your empty pesticide containers. In addition, we supply the bags and will pick up your empty containers to have them disposed of properly. We appreciate you triple rinsing the containers first and trying to keep them clean. I know I have mentioned this in a few newsletters and apparently, it is working, because the amount of recycling continues to grow every year. Thanks for doing your part to help protect the environment.

Diane, Jim and I just want to say thank you for your business. We enjoy talking to everyone and getting a chance to catch up with applicators when they pick up product. We look forward to serving you in the future and promise to work hard to earn your business. Please feel free to call if you have any questions, particular needs, requests or concerns.

Sincerely,
John Olsen

Midwest Region

John Olsen
Diane Sobkowiak
James Brown

2904 Cascade Drive
Valparaiso, IN 46383
Phone: 888-359-7531

jolsen@cygnetenterprises.com
dsobkowiak@cygnetenterprises.com

Greetings from the Northwest and thanks to all of our lake and irrigation water managers throughout the area for another rewarding year. 2017 has been an interesting water year in the Northwest - setting winter snowfall records in Idaho and summer draught records in Washington and Montana. With abundant precipitation throughout winter and spring filling lakes and reservoirs quickly, water resource managers were tasked with controlling brimming water budgets. When coupled with surplus discharge from storage reservoirs, spring runoff created flood abatement problems for many of Cygnet's irrigation district customers. The high flows brought turbid, cool water down from elevation and seemed to delay macrophyte and algae growth, but warmer summer temperatures came quickly, and the aquatic vegetation responded.

The rapid transition from the relatively wet conditions of spring to the hot, dry conditions of summer seemed to be conducive to the development of aquatic plants and algae in the Northwest. Repeat offenders

such as pondweeds and filamentous algae continue to plague our systems, while *Chara*, narrow-leaf plantain, *Vallisneria*, and flowering rush are emerging as real threats in irrigation ditches. The Cygnet Enterprises NW team has been actively assisting our canal companies, lake managers, and applicators in the field to keep aquatic systems operating smoothly throughout the unusual growing season. We strive to provide products and services to meet our customers' needs and mutually adapt to the challenges of a shifting environment.

Moving into fall, we look forward to the changing of the season. As irrigation demand slows and we fight-off the last of the late-season algal blooms, we anticipate expanding our knowledge and outreach with the upcoming conference season. Cygnet proudly supports many of the societies and associations in the aquatics industry - look for the Cygnet Enterprises NW booth at your local water resources shows and visit with one of our aquatic specialists. Doug Kleweno will be at the Washington Weed Conference in November and Water Resources

show in December; Zach Kuzniar at the Oregon Water Resources Congress in November and Idaho Water Users in January; Scott White at Utah Water Users this spring.

A few of Cygnet NW's long-time irrigation district clients have decided to retire this year and we wish you all good luck in your future endeavors. We were fortunate in the NW to have such abundant water this year, and early predictions suggest another fruitful off-season with plenty of high elevation snowpack to fill our reservoirs in 2018. Cygnet Enterprises NW thanks our loyal customers for their patronage and we look forward to serving you again next year. Happy holidays!

Northwest Region

Andrea Sealock
Doug Kleweno
Zach Kuzniar
Scott White

300 North Steelhead Way
Boise, ID 83704
Phone: 800-530-0885

asealock@cygnetenterprises.com
dkleweno@cygnetenterprises.com
zkuzniar@cygnetenterprises.com
Scott White - (208) 339-1368

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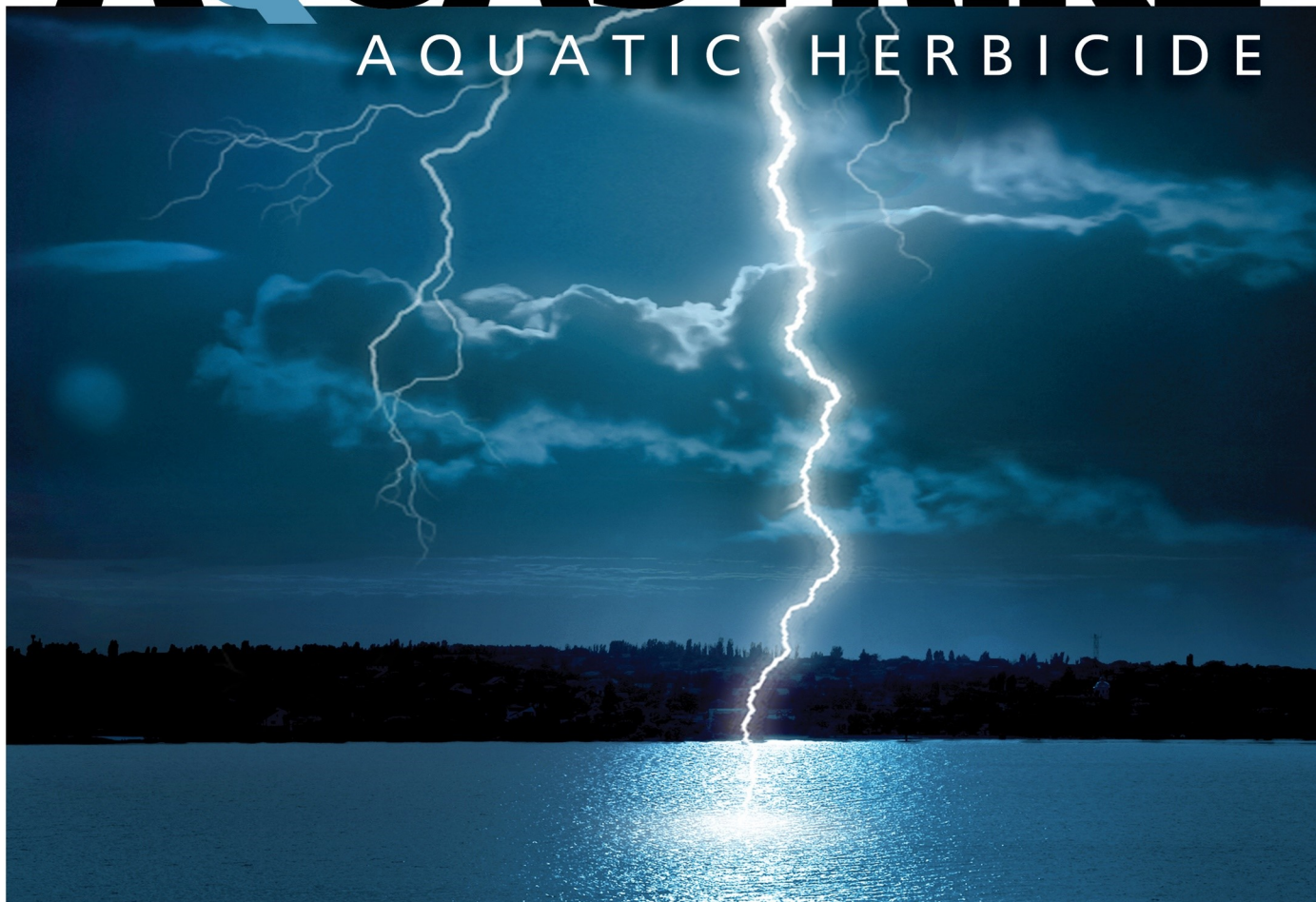
You can access labels and sds's for all of our products as well as links to other important industry and manufacturer websites.

We welcome any comments or suggestions!



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GREENCLEAN LIQUID 5.0 – HABs AND PPES

Tom Warmuth – BioSafe Systems

There are growing public concerns of Harmful Algal Blooms (HABs). Stories are more prevalent in the news, in our industry related social media, not only in the realm of Lake and Watershed Management but also at the Regional and National Aquatic Plant Management meetings.

BioSafe Systems has had its GreenClean Liquid Algaecide/Cyanobactericide on the market for a handful of years now, and the GreenClean Liquid chemistry is proving itself to be a unique and helpful tool in the battle against Cyanobacteria and the associated Harmful Algal Blooms. Many professionals are familiar with GreenClean Liquid as a non-copper, professional Activated Peroxygen Aquatic Algaecide/Cyanobactericide that is utilized in the Lake and Pond Management Industry, Koi Ponds and Water Gardens. However, there is another very important side to the GreenClean chemistry and where it is utilized.

GreenClean Liquid is certified for use in potable water lakes and reservoirs. It is **NSF/ANSI 60 Certified** for waterbodies where the water is intended for public drinking water. In the past several years, there have been a growing number of important and significant applications of GreenClean Liquid being utilized across the United States to effectively and specifically control Cyanobacteria that produce harmful toxins that may pose a threat to human health or that may produce taste and odor compounds, like Geosmin and MIB that can give unpleasant taste to finished drinking water.

There is a desire to find non-copper based algaecides that are intended to be used to treat undesirable cyanobacteria that cause HABs. GreenClean Liquid 5.0 is an answer to that search. Our Activated Peroxygen Chemistry in GreenClean Liquid 5.0 has shown to be effective at successfully targeting treating cyanobacteria.



Application by Clean Lakes Inc. of GreenClean Liquid 2.0 to 800+ acre reservoir targeting a cyanobacteria that are causing taste and odor problems.

FLUMIOXAZIN STEWARDSHIP

is Key to Managing Acquired Resistance Issues

EDITORIAL by Joe Bondra

Flumioxazin, the active ingredient in Clipper and Schooner herbicides, is a Protoporphyrinogen Oxidase (PPO) inhibitor. The PPO enzyme in plants is important in chlorophyll synthesis. Flumioxazin is a Group 14 herbicide. Most all Group 14 herbicides, Flumioxazin included, require proactive stewardship to manage and fight against plant resistance.

Long story made short is that the plants can "adapt quickly" to the herbicide which could result in development of plants that are resistant to Flumioxazin. Most of us would agree that the addition of Flumioxazin to the aquatic plant manager's tool box has been a game changer. The use of Flumioxazin has increased steadily over the last few years as aquatic plant managers have discovered how efficient and cost effective its use is in the aquatic environment. Put that together with the excellent toxicology package, aquatic ecosystem fate profile and the ease of use, there is no wonder that more and more of the product is being used. This is where the possible issue lies in my opinion. If we are not prudent in the use of Flumioxazin and proactively steward against the development of resistant plants, we could see the loss of a very valuable tool for aquatic plant managers. Recommended stewardship activities, to name a few, are to monitor treated plant populations for resistance development, rotate the use of flumioxazin with different herbicide groups, tank mix flumioxazin with other herbicides and or algaecides that have different modes of action as allowed by the label and local regulations, apply the herbicide at full label rates, base herbicide use on a comprehensive Integrated Pest Management (IPM) program and prevent the movement of resistant plant populations by cleaning equipment of plant fragments.

All of the Flumioxazin labels that I have reviewed have a section that specifically addresses resistance management. We, as lake managers, must be aware and acknowledge this very real possibility exists and mitigate against this possible acquired resistance issue. The language on the Flumioxazin label is clear and concise. On the Clipper label (Schooner as well), under the *Resistance Management* section, it reads, "Clipper Herbicide is a Group 14 herbicide. Any weed population may contain or develop plants that are resistant to Clipper Herbicide and other Group 14 herbicides. Weed species with acquired resistance to Group 14 herbicides may eventually dominate the weed population if Group 14 herbicides are used repeatedly in the same water body or in successive years as the primary control for targeted species. This may result in partial or total loss of control of those species by Clipper Herbicide or other Group 14 herbicides." As previously mentioned, Clipper is not being singled out as the Schooner label reads the same. It is the active ingredient, Flumioxazin, that we should consider managing for acquired resistance issues.

As mentioned previously, Flumioxazin is a truly amazing active ingredient and a very important tool for the aquatic plant manager. The ask here is that we, together, strongly consider proper stewardship of the product to manage for acquired resistance issues and put mitigating management practices in place as soon as possible. These mitigating practices are not difficult or time consuming and may be as simple as tank mixing with herbicides and/or algaecides with different modes of action as allowed by the label and local regulations. If we do not, there is a very good chance we could see resistance issues in the field in the very near future.



SELECTING THE CORRECT COPPER FORMULATION

Leif Willey, SePRO Technical Specialist – IN, KY, OH, MI

Copper based herbicides and algaecides are some of the oldest products we have available in the aquatic plant management industry. These products come in a wide range of formulations and recommended usage patterns. However, not all copper products are created equal, and there is no "one product fits all applications" among the formulations available. While some are excellent contact herbicides, they may have limited algaecidal effects and vice versa. The objective of this article is to explain some of the key differences among the different formulations, and provide information that will help when selecting which one to use in the field.

Let's start with non-chelated copper algaecides such as copper sulfate, SeClear Algaecide and Water Quality Enhancer and others. These products offer increased efficacy for plants and algae in the short term, but that efficacy quickly diminishes over time. As non-chelated copper products, the copper ions are subject to rapid complexation with minerals in the water (primarily calcium carbonate). These complexes render the copper as unavailable to uptake by plants. So while you may see fast responses of algae in the field, these symptoms will spread less rapidly the longer time as elapsed post application. For plants and algae requiring longer exposure times, these formulations may not be the best suited. However, if sensitive species, such as spirogyra, early season green algae and many planktonic blue-green algae are present, the lower cost and fast activity of these formulations make them a very strong choice. Of the non-chelated formulations, SeClear is the only product available that functions both as an algaecide and also contains proprietary ingredients that help reduce phosphorus and improve both water quality and clarity when used as part of a routine program. SeClear is also NSF certified for use in drinking water.

In addition to non-chelated copper formulations there are also a plethora of chelated copper formulations. Chelation is a process by which the copper ion in the algaecide/herbicide is chemically protected from the other minerals in the water, thus allowing the copper to be available for uptake or remain in contact with the target plant or algae for a longer time. This is advantageous in many scenarios we face in the field such as hard water, and presence or development of more copper tolerant species. There are also several different chelating agents that are used in these products that impart varying degrees of activity and spectrums of control. The next few paragraphs will explain some of the key differences of these chelated formulations.

The first of these formulations use triethanolamine (TEA) as the chelating agent. Products include many 8% liquid copper products such as Ktea. TEA chelated coppers are less affected by hard water than other chelators that will be discussed. These are also generally observed to be less toxic to more tolerant algae species such as pithophora and lyngbya, but work well against more sensitive spirogyra, early season green algae and planktonic blue-green algae. These products also require higher application rates due to the lower copper content and lower sensitivity of target species.

The second group use a mixed ethanolamine chelator that is often unique to each product. Products include Captain, Captain XTR and other 9% liquid copper algaecide products. The mixed ethanolamine chelator provides stability in solution, but is more affected by hardwater than TEA formulations. However, Captain and Captain XTR also have a broader spectrum of algae and weed species controlled and are also effective at much lower rates than TEA chelated algaecides. These products should be selected when facing tougher to control algae species (pithophora, lyngbya, oscillatoria, dense planktonic blue-green algae or greater biomass in hard water conditions). For dense filamentous growth, it is recommended to use these products with a surfactant or to select a formulation such as Captain XTR that has a built-in surfactant package allowing it to significantly outperform other algaecides.

(Continued on page 11)

The next group use an ethylenediamine (EDA) complex as the chelator. These products include Komeen and other 8 % copper herbicides. EDA is more affected by hardwater than TEA chelated products, but is also more available for uptake by vegetation and activity on macroalgae species like chara and nitella have also been noted. EDA chelated coppers like Komeen are commonly tank mixed with other herbicides like diquat, Hydrothol

191 and Sonar to increase spectrum of control or enhance uptake of the other herbicide. Look to use Komeen when needing a copper herbicide to rapidly respond to growth of submersed weeds such as; naiads, hydrilla, coontail and pondweeds, macroalgae like chara, as well as some floating weeds like duckweed. Granular formulations like Komeen Crystal are more effective when targeting benthic growth of these target plants.

The last product to note stands alone as

"Knowing the advantages to each chelator and formulation is important to selecting the proper product to match the job and achieve the desired results."

the only dual chelated copper herbicide. Nautique herbicide contains a unique combination of both EDA and TEA chelating agents and contains 9.1% copper. Nautique has a very broad spectrum of control for submersed weeds including more difficult species like eel grass as well as floating weeds. Nautique can also be mixed with other herbicides to enhance spectrum of control. The dual chelated properties of Nautique allow it to be used in more unique situations that may limit other copper herbicides such as murky water, flowing water and irrigation canals and partial lake/spot treatments where exposure time is limited and hard water.

In conclusion, while there are many copper algacides and herbicides to choose from, there are significant differences among the formulations. Knowing the advantages to each chelator and formulation is important to selecting the proper product to match the job and achieve the desired results.

Electronic Logging Device Mandate



Anyone driving a commercial motor vehicle (CMV) must comply with the Hours of Service (HOS) Rule and now are required to comply with the Electronic Logging Device (ELD) Mandate unless you fall into one of the exemptions. If required you must be in compliance by 12/18/17.

In general, a CMV is a vehicle that is used as part of a business and is involved in interstate commerce and fits any of these descriptions:

- Weighs 10,001 pounds or more
- Has a gross vehicle weight rating or gross combination weight rating of 10,001 pounds or more
- Is designed or used to transport 16 or more passengers (including the driver) not for compensation
- Is designed or used to transport 9 or more passengers (including the driver) for compensation
- **Is transporting hazardous materials in a quantity requiring placards**

The following are not required to use ELDs (but carriers may choose to use ELDs even if they are not required):

- Drivers who use paper logs no more than 8 days during any 30-day period
- Driveaway-towaway drivers (where the vehicle driven is the commodity) or the vehicle being transported is a motor home or a recreation vehicle trailer (at least one set of wheels of the vehicle being transported must be on the surface while being transported)
- Drivers of vehicles manufactured before model year 2000.

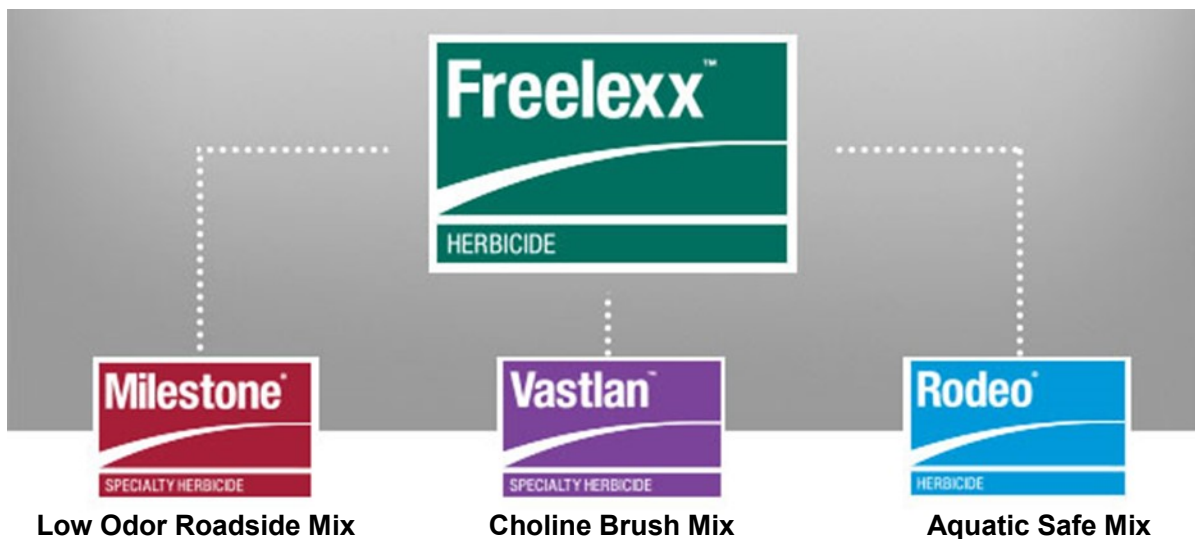
NEW PRODUCT



Freelexx™ is revolutionizing the 2, 4-D market by providing the performance and reliability you've come to depend upon with remarkably lower odor and volatility. Freelexx is built upon ground breaking 2,4-D choline technology and labeled for use on the same sites as DMA® 4 IVM herbicide. Available for packaging in 2 x 2.5 Gallon and Bulk*

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SECTION 24(C) SPECIAL LOCAL NEED LABEL

Syngenta is proud of its commitment to meeting the special needs of the turf, landscape, ornamental, professional pest management and aquatic applicators. One way we do this is using the provisions of the SLN label issued by states and EPA under a FIFRA 24 (c) provision.

Section 24(c) special local need labels are Federal and state regulations require that the section 24(c) label be in possession of the applicator when applying the product. The applicator must also comply with all the limitations set forth by the section 24(c) label. Special labels are available at the point of purchase or through Syngenta websites or other public websites such as CDMS and Agrian.

THE LABEL IS THE LAW!

©2017 Syngenta. Important: Always read and follow label instructions. Some products may be registered for sale or use in all states or counties and/or may have state-specific use requirements. Please check with your local extension service to ensure registration and proper use. The Syngenta logo is a trademark of a Syngenta Group Company. Syngenta Customer Center 1-866-SYNGENT(A)

Cygnnet Plus™ The Most Effective Aquatic Surfactant

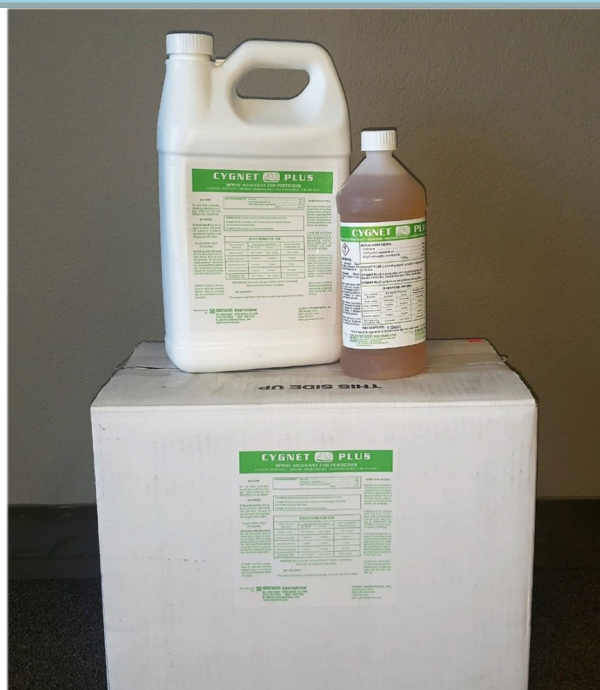
Cygnnet Plus™, an Alcohol Ethoxylate formulation contains NO NPE's which can bioaccumulate and persist in the environment. Cygnnet Plus™ is biodegradable, made of all-natural d'limonene and methylated vegetable oil.

Cygnnet Plus™ is the only surfactant that has undergone salmon toxicity testing to meet the requirements for registration in the states of California and Washington.

- Cygnnet Plus™ is registered for use in most states.
- Consult your local Cygnnet office for further information and pricing.

Cygnnet Plus™ is available in 1 quart, 1, 2.5, 30 and 275 gallon containers.

Always read and follow label instructions.



Cygnnet Enterprises, Inc. is now on Twitter!!

Follow us: @CygnnetAquatics

@CygnnetAquatics will regularly post information and photos pertaining to important industry events and announcements from across the nation.

Have a photo you want to share? Know of a job announcement or scholarship opportunity? Please send all Twitter-worthy information* to Garrett McClain at gmcclain@cygnnetenterprises.com.

*Subject to approval by @CygnnetAquatics administrator.



(Continued from page 1)
reduce local government revenue), justifying the need for management strategies that prevent and control invasions. We recommend coordinated efforts across Lake Management Districts to focus institutional support, funding, and outreach to prevent the introduction and spread of milfoil. This effort will limit opportunities for re-introduction from neighboring lakes and incentivize private landowners and natural resource agencies to commit time and funding to invasive species management.

The link to the full article can be found on our website CygnnetEnterprises.com under Quick Links, 19% Decline in Mean Property Value Where EWM is Present.

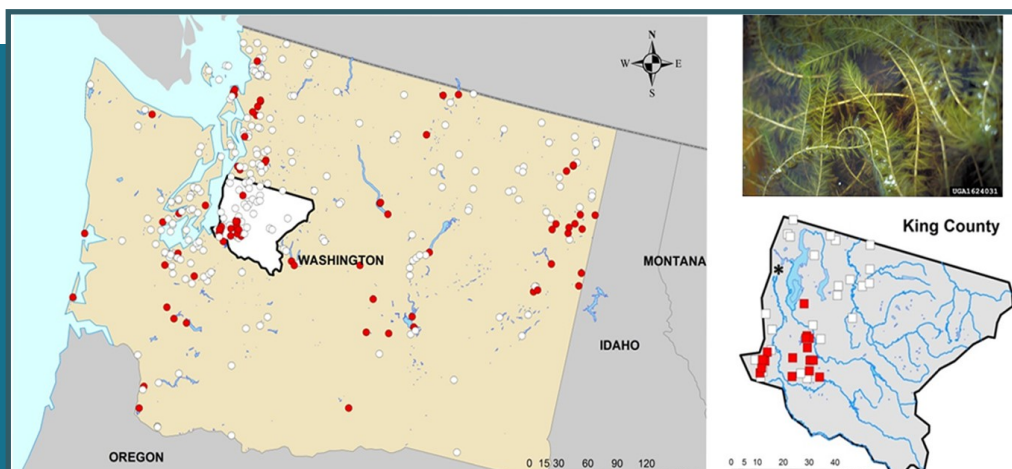


Figure 1. Location of milfoil presences (red filled circle) and absences (white empty circles) in lakes of Washington, USA, including King County (bottom right) containing 17 invaded lakes (filled squares) and 24 uninvaded lakes (empty squares). The city of Seattle, Washington (2010 population size of 608,660) is indicated as *.

In August of 2017, The Michigan Department of Environmental Quality (DEQ), contracted with Aqua-Weed Control Inc., a south east based aquatic management company in Michigan, to control and/or remove a newly discovered infestation of Water Lettuce (*Pistia stratiotes*) and Water Hyacinth (*Eichhornia crassipes*). Water Lettuce and Water Hyacinth are native to South America and form large floating mats of inter-connected vegetation on the water's surface.

These plants cause navigational problems and create a potential breeding ground for mosquitos. Many biologists consider Water Hyacinth to be the most problematic invasive plant in the world! This is the only reported infestation of Water Lettuce and Water Hyacinth in Michigan.



The initial infestation was identified by the DEQ in 2015 in the Frank and Poet Drain, Gibraltar canal near the intersections of the Detroit River and Lake Erie.

Aqua-Weed Control Inc. biologists and staff, along with DEQ staff, monitor the 140 acre system bi-monthly and take action as necessary to remove the invasive plants.

Water Lettuce and Water Hyacinth continue to be sold throughout North America in the ornamental water garden trade.

This article was provided by Dick Pinagel at Aqua-Weed Control.

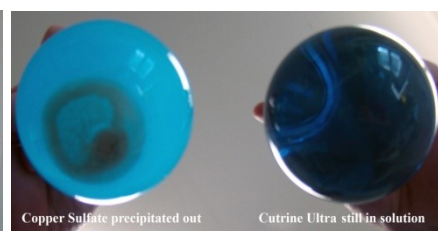


Copper Sulfate vs. *Cutrine® - Ultra*

By: Lonza

The cost of treating the most prevalent form of algae found in ponds and lakes can be looked at in several ways. It is important to take into account the species of algae treated as well as the makeup of the water itself. In very low alkalinity waters copper sulfate can be effective but have toxic effects on wildlife and non-target organisms. In moderate to high alkalinity waters, copper sulfate is not effective due to its reactive properties. In Alkaline Water Bodies, the copper in solution binds to carbonates and then forms a precipitate that falls to the bottom. The precipitate formed binds the copper so the target Algae will not utilize the Copper Carbonate; resulting in reduced control. The effects of Alkaline water leave fragments alive, remaining pieces then grow more rapidly feeding on nutrients. To be effective copper must remain in solution, be readily available to be taken in by the algae and in a form that the Algae can use. In moderate alkalinity water, available copper is reduced and ineffective mostly in the first several hours and almost completely in 24 hours.

Total Alkalinity (mg/L)	Copper Sulfate Applied (lb/acre-foot)
Below 20	Copper sulfate should not be used
20	0.6
50	1.3
100	2.0
150	2.8
200	5.5
Above 200	Effectiveness of copper sulfate is greatly reduced
Swimming pool supply companies usually carry an affordable kit that will test total alkalinity.	
Carp, grass carp, goldfish, koi, trout and salmon are reported to be more sensitive to copper than other fish. Therefore, it may not be advisable to use copper sulfate in ponds stocked with these fish.	



These pictures demonstrate how alkalinity of water can cause the copper from a copper sulfate solution to precipitate and therefore render the solution ineffective.

William A. Wurts, Senior State Specialist for Aquaculture, Kentucky State University

Cooperative Extension Program <http://www.ca.uky.edu/wkrec/Wurtspage.htm>

Chelated copper solution products such as *Cutrine®-Ultra* bind the copper in a form that stays in solution through a wide range of water alkalinities and make it readily available for the algae to take into the cell. Properly chelated copper products will maintain an effective copper concentration for as long as 96 hours in moderate alkalinity water. This in turn makes it more effective at much lower rates. Most algal species can be controlled at concentrations of 0.2ppm of copper from *Cutrine®-Ultra* versus 1.0ppm of copper from copper sulfate. Only in rare cases it necessary to provide 1.0ppm copper from *Cutrine®-Ultra* to establish effective kill or control. The *Cutrine®-Ultra* gives specific dosage rates for various species of algae and relative densities; whereas copper sulfate is usually a generalized recommendation. *Cutrine®-Ultra* contains a patented mixture of surfactants and penetrants that aid in control of difficult to manage species. (commonly Hydrodictyon and Pithophora)

UPCOMING EVENTS

Cygnnet Enterprises, Inc. will be attending to the following conferences, hope to see you there!

DATE	EVENT	LOCATION	CONTACT
November 28th - December 1st	Oregon Water Resouce Conferences 2017 Annual Conference	Hood River Inn Hover River, OR	owrc.org
December 6th - 8th	Washington State Water Resource Annual Conference	Davenport Hotel Spokane, WA	wsdra.org
January 9th - 11th	Northeast Aquatic Plant Management Society 18th Annual Meeting	New Castle Portsmouth, NH	neapms.org
January 22nd - 25th	3rd Annual Summit for The Society of Lake Management Professionals	Hilton Baton Rouge Capitol Center, Baton Rouge, LA	lakeprofessionals.org
January 23rd - 25th	Idaho Water Users Association Annual Convention	The Riverside Hotel Boise, ID	iwua.org
January 24th - 26th	California Weed Science Society	Fess Parker Resort Santa Barbara, CA	cwss.org
February - TBD	Northwest Irrigator Operators Association Conference	Boise, ID	
February 7th	Aquatic Applicator & Lake Managers Symposium	Radisson Hotel Lansing, MI	Garrett McClain (800) 359-7531
February 21st - 23rd	2018 Family Farm Alliance Annual Conference	Eldorado Resort & Casino Reno, NV	familyfarmalliance.org
February 26h - March 1st	Midwest Aquatic Plant Management Society 38th Annual Conference	The Westin Downtown Cleveland, OH	mapms.org
March 22nd - 23rd	Indiana Lakes Management Society Conference	Pokagon State Park Angola, IN	
March 22nd -23rd	32nd Annual Illinois Lakes Management Association Conference	Park Regency Hotel & Conference, Blooming, IL	ilma-lakes.org
March 26th - 28th	Western Aquatic Plant Management	Grand Sierra Resort Reno, NV	wapms.org

Go Paperless – Electronic Invoicing!

Cygnnet Enterprises, Inc., has the ability to email your invoices to you rather than having a paper copy mailed to you. If you find this to be more convenient, please contact your regional Cygnnet office to make the proper arrangements.

We appreciate your commitment to sustaining our natural resources by going paperless!



All of the offices of Cygnnet Enterprises, Inc. will be closed in 2017-2018 for the following National Holidays:

Memorial Day (May 29th)

Observance of Independence Day (July 4th)

Labor Day (September 4th)

Thanksgiving (November 23rd & 24th)

Christmas - New Years (Dec 25th - Jan 1st)



Cygnnet Enterprises, Inc.
1860 Bagwell Street
Flint, MI 48503

The articles and opinions in this publication are for general information and not intended to provide specific advice.