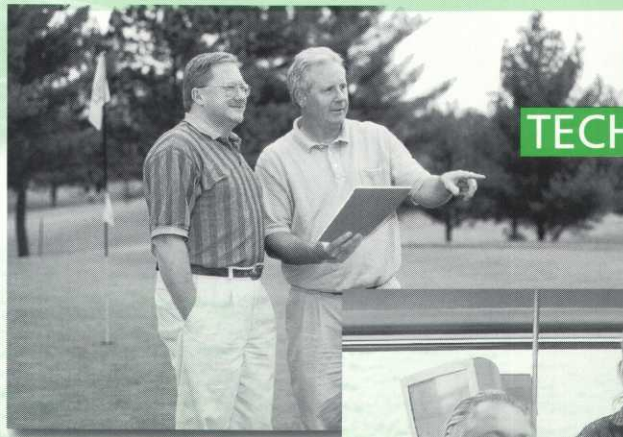


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Will April Showers Bring May Flowers And Green Turf?

Water, Water Everywhere – But Not A Drop To Drink?

By Kathleen Conard

Aquatrols, Cherry Hill, NJ

Our most precious natural resource is nearing record low levels. The National Oceanic and Atmospheric Administration (NOAA) is currently reporting moderate to extreme drought conditions in more than 30 states throughout the United States. The water crisis is due to chronic and continuing rainfall deficits coupled with a lack of snow accumulation, which has resulted in abnormally low stream flows, reduced ground water levels, and water supply shortages. Forecasters caution that the dry pattern and drought impacts will likely linger.

What if Mother Nature isn't kind and doesn't bring our April showers? Will superintendents be forced to watch their turf shrivel in the sun? What are your options in the face of a summer of increasingly stringent water restrictions?

How Will Superintendents Be Affected?

As a turf professional, you face particularly difficult choices in relation to water conservation issues. It makes sense both financially and ecologically to use less water and do your part to protect one of our most vital resources. However, water is critical to your business - from the establishment and maintenance of healthy roots for uniform, vigorous turf and plants to the distribution and effectiveness of soil-targeted chemicals and fertilizers. Patrons of your facility may also be less mindful and appreciative of your conservation efforts. They have come to expect an aesthetically pleasing experience with lush, vibrant turf; they find browning grass, even though still playable, less than appealing. Vibrantly colored flowers, trees and shrubs are expected around the clubhouse and throughout the course. If the golfers/members are dissatisfied, so is your employer - loss of revenues can equate to the loss of your job. So what choices do you have?

Save Water and Your Job!

There are several strategies you as a turf professional can employ to satisfy your conscience and your patrons. One of these strategies is a soil surfactant (wetting agent). Surfactants have been available for almost 50 years and have become an increasingly important tool for sound turf management programs. The most promising information is the use of certain surfactants to reduce overall water usage. Water has a natural tendency to run off sloped surfaces, sit at the surface of the soil where it evaporates, or channel unevenly through the soil profile so that it may be inaccessible to the roots. Some surfactants are formulated to penetrate uniformly into the rootzone area and provide water

where it is most needed, without causing the area to become over-saturated and soggy. This allows your turf to make the best and most complete use of applied water, particularly during dry spells; consequently you can apply less water with greater benefit. Surfactants also allow turf managers flexibility to dry soils for fast, firm greens while still ensuring confidence in quickly rewetting these soils to moisture levels required for quality turf performance even during drought stress periods.

Water-Wise Superintendents

Paul Davids, CGCS, at Colbert Hills at Kansas State University (Manhattan, Kansas) started injecting a surfactant on his entire course in July 2001. "The benefits beyond reduced water usage were impressive. The uniformity of turf color was very surprising. My course is very undulating and the high spots greened up and stayed green. The lower spots weren't wet like they had been. I was able to eliminate afternoon spot watering on roughs, fairways, and tees."

A fifteen-year veteran, Phil Neaton of Black Hall Country Club, in Old Lyme, CT has used Aquatrols surfactants because they are proven and safe, "Injecting surfactants has allowed me to cut my fairway watering in half. I also had three, very wet greens that made it difficult to move the cup around (because of the strong suction hold). Surfactants help me maintain uniformly, moist turf that is not too wet."

South Florida was under Phase 2 water restrictions for several months during 2001, allowing courses to water fairways only twice a week within a designated 8-hour water window. Despite these restrictions, The Club at Emerald Hills in Hollywood, Florida, was in amazing shape. Robert Harper, superintendent of The Club at Emerald Hills, admits that his saving grace was the use of wetting agents, which he injected through his fertigation system. "Even with reduced watering, the wetting agents, in combination with my fertilizer program, increased the health of my fairway turf and improved turf color and uniformity. When the restrictions were lifted, our fairways were the best they'd ever been."

Golf course superintendents and growers have relied for years on surfactants as an inexpensive insurance policy to insure plant and turf survival. Using surfactants can help you save water, protect your bottom line and keep your customers happy in the face of potentially devastating drought conditions. Your water management practices -- isn't it time to take a closer look?

(Editor's Note: This article was submitted by Kathleen Conard, Aquatrols, Cherry Hill, NJ.)

LEGISLATIVE UPDATE

By E. PAUL ECKHOLM, CGCS

Phosphorous and You

On Friday, April 19th, the Governor signed into law S.F. 1555, a law regulating the use of fertilizers containing the plant nutrient phosphorous. At this point many of you are saying big deal and are preparing to read a different article. I would suggest that you read on.

The details of the law makes for some very dry reading but as always the devil is in the details. So, here is the skinny. If you live in the 7 county metro area you will no longer be allowed to apply any fertilizer containing phosphorous as of January 1, 2004. If you live outside that area your local unit of government may adopt the zero limit or if they don't you will be limited to fertilizer containing 3 percent phosphorous and only at rates recommended by the University of Minnesota.

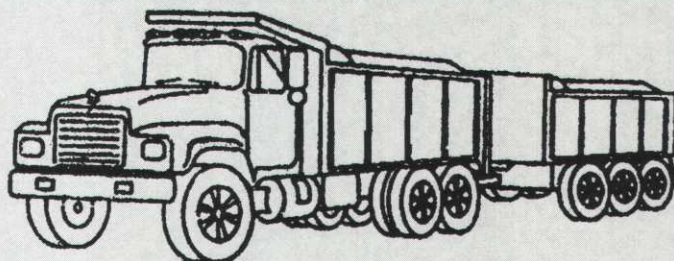
If you wish to apply a fertilizer containing phosphorous you may do so if you have a tissue, soil, or other test from a lab certified by the Commissioner which shows you need it, or if you are first establishing turf via seed or sod, or, and here is the good part, if it is used on a golf course under the direction of a person licensed, certified or approved by an organization with an ongoing

training program approved by the Commissioner.

As well no fertilizer may be released to any impervious surface. Any release must be contained and applied to a legal site.

What this means to all of us is that as of January 1, 2004 if we want to apply phosphorous containing fertilizer we must be trained and licensed. The real beauty is that we will be allowed to develop our own program and administer it ourselves. Don't get your hopes up that we will just issue licenses to everyone, the commissioner must approve of the program and we must keep records of the training for departmental review.

The Board will be evaluating this issue and determining a course of action. We will probably begin development of the program immediately so that we are ready come January 1, 2004. This has been the culmination of three years work by numerous people to be sure that we would be able to continue to apply necessary nutrients to our courses. I would like to take this chance to publicly thank the Minnesota Golf Association for their financial assistance in paying for the lobbyist who did much of the leg work on this issue.



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Greens Will Be Whipped Into Shape In No Time

Looking for a whipping pole that offers the typical Par Aide quality and function and is easy to transport around the course?

Enter Par Aide's new EZ-Whip Whipping Pole. Because of the EZ-Whip's unique design, there's no disassembly or re-assembly



required. The fiberglass tip retracts into the handle for easy transportation around the course. And, of course, it was built for superior functionality and long wear, just like Par Aide's Original Whipping Pole (a two-piece design which has proven its durability over the years, and is still available as well).

The EZ-Whip Whipping Pole joins the family of premium golf course accessories that Par Aide has been manufacturing for over 45 years. Par Aide products are distributed by authorized dealers to golf courses across the country and around the world. Product information is also available on the company's Web site, www.paraide.com.

Par Aide Cleans Up With Three New Products

Keeping a golf course in top shape at all times requires the help of the players. Three new products from Par Aide, the Divot Pro,

Divot Pro Jr., and Trash Pro 10, make it easier than ever for players to pitch in and do their part.

The new recycled plastic Divot Pro and Divot Pro Jr., pictured at right, puts divot mix within reach of players, encouraging them to fill divots. A hinged lid keeps divot mix dry and easily accessible, and the eight-ounce scoop makes it easy for players to use. The inside liner is easily removable for cleaning, filling or changing. And maintenance is a thing of the past. It's rust proof and fade resistant. Available in two sizes, 25" and 13" tall. Both hold six gallons of divot mix.



Another new Par Aide product designed to keep the course up to par is the recycled plastic Trash Pro 10.

Constructed of recycled plastic wood slats, it features a hinged lid keeps trash out of sight, yet still easily accessible. The Trash Pro 10 stands 33" tall and includes a ten-gallon trash liner.

Product information is also available on the company's Web site, www.paraide.com.

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Rip It, Rip It Out!

Control of Buckthorn on Golf Courses

By JACK MACKENZIE, CGCS

North Oaks Golf Club

Rhamnus cathartica, Rhamnus frangula, Frangula alnus Common Buckthorn, European Buckthorn, Ornamental Buckthorn, Glossy Buckthorn or Columnar Buckthorn. No matter what the name is, if you have this highly invasive plant, action must be taken to eliminate current population and reduce its spread. Either through chemical application or the physical removal of each plant, this pest must go.

Imported from Europe in the mid 1800's because of its ability to shear nicely into a hedge, Buckthorn is now regarded as a noxious weed that, if given the opportunity, will take over both wetlands and woodlands. Shrubs, which quickly grow into trees, Buckthorn produce flowers in late May to June that are tiny, inconspicuous and light green in color. Female plants produce large quantities of black fruits. Unfortunately, if you have buckthorn on your property, the spread of this plant is very difficult to control. The berries produced are very attractive to birds as a food source. Once in their system the fruits create a laxative effect and pass quickly, spreading the plant rapidly. Rather than control the birds, it is much easier to control the trees!

Chemical Controls

In a woods environment, well out of play, and thus while dead standing or as a stump that will not likely effect traffic, it is easy to use chemical control methods. There are three effective eradication methods that do not require the removal of the plant. Foliar, basal bark and cut stump chemical treatments can do significant damage to the Buckthorn population.

One of the easiest methods of Buckthorn control is to apply a high concentration (over 40 percent) of glyphosate formulation to the foliage of actively growing plants.

Either Roundup or Accord can be used and it is most effective upon small plants and seedlings due to the necessity of complete coverage. Be very careful with any of the glyphosate products as they are non-selective and will kill non-target plants as well as the intended shrub.

Another chemical control program is the application of herbicide to the trunks of undesirable plants. Although not completely necessary, faster kill can be achieved by girdling the bottom two feet of the tree prior to treatment. Triclopyr is then applied heavily upon the roughed up cambium where it is translocated into the plant for effective mortality.

And finally, Buckthorn can be stump cut and treated with herbicide. Using either a lopping shear or saw, the plant is cut to a few inches above the ground. The stump is

then treated with an herbicide, using a paint-brush, a wick applicator or a low volume spray nozzle with wand. Be sure and treat the whole exposed trunk as latent buds which are often just under the bark may resprout with vigor if left

One of the easiest methods of Buckthorn control is to apply a high concentration (over 40 percent) of glyphosate formulation to the foliage of actively growing plants.

untreated. Again, chemical treatments can include Glyphosate and also Tryclopyr products. It is recommended NOT to use Picloram and 2,4D mixtures (Tordon) due to its high toxicity (low LD 50), ability to leach readily in the soil and persistence in the environment.

Several factors should be considered when treating with chemicals. Buckthorn typically grows out of spring treatments. It is best to apply chemicals late in the season when the plants are storing energy by transporting sugars to the roots. Also, Buckthorn retains its glossy green leaves well after all other plants have dropped theirs in the fall thus they are easy to identify. And it has been observed that cut stumps treated when temperatures are greater than 20 degrees suffer excellent mortality.

While chemical treatments can be effective, dead or dying plants in a golf course setting may be undesirable. Also, tag stumps can present a very dangerous hazard to golfers who stray from the fine turf areas in search of wayward balls. Another effective means of Buckthorn control is to physically remove the whole plant.

Grunting and Ripping

Perhaps the most time consuming yet environmentally friendly method of Buckthorn control is the physical or mechanical removal of this very shallow rooted plant.

(Continued on Page 17)



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Rip It, Rip It Out—

(Continued from Page 15)

Whether by hand, a mechanical wrench or tractor with chain and rippin' clips, physical removal of the shrub with roots intact is a very effective method of Buckthorn control.

Small plants, below a half-inch in diameter, can be hand pulled from the ground with a bit of effort. A sharp spade, or pitchfork can also be used to sever or loosen roots around larger plants before pulling. Several wrenches are available on the market for pulling plants as well.

The tools typically utilize a steel clamp for grasping the trunk and a long steel handle. Acting as a lever, the handle is pulled back, the clamp grasps the trunk, wrenching the plant from the ground. As the tools can remove plants up to 2 1/2 inches in diameter, strong bodies are important, in fact, a necessity! Two models available are the Root Talon (www.lampedesign.com) and the Weed Wrench (www.canonbal.org/weed.html).

For bigger trees, up to four inches in diameter, Rippin' Clips can be used. These "C" shaped devices were invented at North Oaks Golf Club for the use on stubborn Buckthorn stumps.

Bob Wappula, mechanic at NOGC, cut "C" shaped clips in a variety of sizes, up to 10 inches square, out of 1/2 inch

sheet steel. The open end of each clip is a different size from three to six inches in order to allow a trunk to be slipped inside. At the top of the "C" is a bolthole for attachment to a chain, and on the bottom of the "C" inside the clip, teeth are ground into the steel for better grip.

At the removal site, the buckthorn plant is cut down to roughly three feet above the ground. The clip is slipped around the base of the trunk and the chain hooked up to a tractor bucket or hydraulic lift. Before engaging the tractor, sever the tree roots with a spade shovel. Upward pressure is then applied, the "C" cinches about the trunk and the tree is removed.

While very labor intensive, mechanical removal does produce a very clean finished product, safe and stump free. If time and labor is a factor, keep in mind that Buckthorn is a dioecious plant. That is, there are both male plants and female plants. Only the female Buckthorn will produce berries. Thus if your property is big, it may be best to start by removing only the berry producing plants and then go back when more resources are available.

Regardless of the method used for Buckthorn eradication, it is important to begin a program. Start small and grow. Get your membership involved through communication. Improve your existing prairie and woodland properties by removing and limiting Buckthorn. Just rip it, rip it out.

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Mark Robel Chenegua Country Club..... 6246 N. Hwy. 83, Hartland, WI 53029 W: 262-367-1333	A - GCSAA
Brad Schulz Pebble Creek Golf Course..... 1911 Laforest Avenue, Bismarck, ND 58501 W: 701-222-8972	A - GCSAA
Mark Turnquist Meadowland Golf Course..... 4575 Blue Sky Ct. SE, Salem OR 97301 W: 503-585-1828	A - GCSAA
Kevin Kautz Zumbro Falls Golf Club..... RR1, Box 23, Zumbro Falls, MN 55991 W: 507-753-2275	B - GCSAA (pending)
Ryan Lee Inglas Spoooner Golf Club..... 101 East Maple, Apt. 101, Spooner, WI 54801 W: 715-635-6438	C - GCSAA (pending)
Paul Kubista Woodhill Country Club..... 2380 Island Drive, Apt. 106, Spring Park, MN 55384 W: 952-473-5811	C - GCSAA
Nick Rangstad Wild Ridge Golf Club / Mill Run Golf Course..... P.O. Box 311, Osseo, MN 54758 H: 715-597-2572	C
Daniel Slepika Bunker Hills Golf Course..... 9280 University Ave NW, Apt. 340, Coon Rapids, MN 55448 W: 763-755-4150	D
Andrew Carlson TPC of the Twin Cities (U of Minn.)..... 1366 Raymond Ave., Apt. B, St. Paul, MN 55108 W: 612-785-0696	Student - GCSAA
Samuel J. Bauer Wild Ridge/Mill Run Golf Course..... N5460 Whitetail Lane, Durand, WI 54736 W: 715-834-5942	Student
Bruce Harrod Aspen Equipment Co..... 13914 Copper Court, Rosemount, MN 55068 W: 952-888-2525	Affiliate
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Wayde West Hoyt Lakes Golf Course.....	C to A - GCSAA
Bryan Breaw Cloquet Country Club.....	C to B - GCSAA
Jeffrey Johnson The Minikahda Club.....	C to B - GCSAA
Rob St. Sauver Legends Golf Club.....	C to B - GCSAA

*Submitted by Daniel Swenson
Membership Chairman*