

about leaving room for a large temporary green on every hole within their design of a new course. This green could be fairly adjacent to the main green so as the length of the hole is not altered. It could incorporate a subtle slope to shed water. In fact maybe all of us should think not in terms of temporary greens but of a two green system such as they used to have in Japan, before the widespread use of creeping bentgrass. Here they had two greens, one for the winter and one for summer use. I am not suggesting a purpose built USGA spec affair but just a simple low maintenance green that is pre-

pared sometime in October and kept topped with a tees triple during the summer. I know this may sound like a lot of extra work but think of the benefits. Less play on the main greens means less aeration work and when aeration work is carried out we can all stay off them and allow them to breathe for a good three or four months. The main greens go into the playing season in excellent condition while the secondary greens can enjoy eight or nine months of rest before the next winter. In fact it could be the answer to all our problems! Well, there again . . . 🌱

AMETEK

**TURF
BOXES**

Manufactured in
Sheboygan, Wisconsin
Specify AMETEK —
A Wisconsin Product!

Sales Position:

Join the growing team at Spring Valley. We have a sales position available that will cover the golf course, lawn care and landscape markets. For a self-starting, dynamic, team player that enjoys working with people, this is a great opportunity with a growing company. Call Bill Vogel at 414-677-2273 to set up an appointment.

CANNON TURF SUPPLY, INC.

1227 Naperville Drive
Romeoville, IL 60446

**Where Success Is Based on a
Commitment to People...**

STOCKING A COMPLETE LINE OF PESTICIDES, FERTILIZERS,
GRASS SEED AND ACCESSORIES FOR THE TURF PROFESSIONAL

TOLL FREE 800-457-7322
VOICE MAIL PAGER 888-815-2437
CUBBY O'BRIEN

CUT BOTH WAYS



You'll trim more than grass with Kohler's fuel-efficient Command™ PRO SERIES engines.

Gas-saving KOHLER Command engines feature overhead valves for cleaner, more complete fuel combustion. That means a savings of hundreds of dollars annually in fuel costs. No carbon build-up. Fewer emissions. Plus fewer refueling stops in a busy, 8-hour mowing day. All without sacrificing torque, power and reliability.

Time to get cuttin' with Kohler. For more information about the complete line of energy-saving Command PRO SERIES engines, write Kohler Co., Engine Division, Dept. GR, Kohler, Wisconsin 53044, or call 1-800-544-2444.





QUESTIONS FROM THE FLOOR

By Dr. Wayne R. Kussow

Department of Soil Science, University of Wisconsin-Madison

Q: Dr. Kussow: I did some dabbling with a PGR this summer, trying to learn some of the practical aspects of them. The most obvious question I have is this: How does use of PGR affect one's normal fertility program? Does less tissue production translate into lower nutrient requirements? CALUMET COUNTY

A: Let me answer for a putting green since this seems to be where the greatest amount of interest is in the use of PGR's. To answer the question, we need to know how much clipping production has been reduced and the nutrient content of the clippings. Research shows that one can expect a clipping reduction of 0 to as much as 60%. The actual amount varies with the time of year and the amount of N being applied. Let's make as our first assumption that over the whole season, the clippings are reduced 30%. The second assumption is that without PGR the total clipping dry weight for a season is 80 lb/M. Thus, in the 24 pounds of clippings not produced, we would have had 0.96 lb N, 0.12 lb P (0.27 lb P₂O₅), and 0.48 lb K (0.56 lb K₂O). This, then, is theoretically the amount by which you could reduce your annual fertilizer application. At best, it's a ballpark figure.

Q: Prof. Kussow: It seems that in recent years it has nearly become impossible to use granular fertilizer on my greens during the summer months. We have outings on Mondays, player complaints about fertilizer on greens and how it affects ball roll, a mess for rollers on mowers (and player shoes), the need to mow dry without baskets (never popular), particle pickup, and unknown nutrient removal when baskets are used, etc. *ad nauseam*. So we've been spraying fertilizer. The use of urea (and other immediately available products) led to a flush of growth and a lack of color in a week, so we moved to spray grades of slower release materials. Results seem good, although it is tough to time applications to coincide exactly with fungicide applications. Any comments or advice? MANITOWOC COUNTY

A: You've given several reasons why I think us of liquid fertilizer on putting greens is on the rise. Another reason is height of mowing. What granular product won't be extensively picked up at 0.109 inch or less? Second is the new, high-density bentgrass cultivars coming onto the market. Fertilizer really sits up on them. You've taken the right approach to your problem, and I cannot come up with a perfect solution, given that fungicide application intervals vary with the product and disease pressure. I do suggest that you try two different liquid fertilizers, one that is based on methylene urea and the other on triazone. The latter is slower release and probably won't do as well in cool weather. All I can suggest is that you try the two at different rates to see which gives the level and duration of response that best fits with your fungicide application schedule.

Q: We built a new green awhile back, nearly 10 years ago. It was built exactly to USGA Green Section specs, including the coarse sand layer. But something weird has happened over time. Despite passing all the material tests before construction, the perc rate of this green has declined every year, to the point where it is not significantly different from our native soil greens. What's going on here, Doc? LA CROSSE COUNTY

A: Putting green percolation rates naturally decline over time. We've seen our experimental greens go from about 12 inches/hour after construction to around 2 inches/hour in 5 years. This doesn't concern me, at least as far as our climate is concerned. It typically takes about 4 inches of rain before you achieve what we call the percolation rate and I haven't encountered 4 inches of rain per hour in my lifetime. If the perc rate of your USGA green has declined to that of your native soil greens, then I'd venture to say that you have some high-quality native soil greens. Besides the natural decline in perc rates, there are some management related causes that need to be explored. The first has to do with aeration, be it with hol-

(Continued on page 35)

Tournament™ Golf Course Accessories



EQUIP YOUR COURSE WITH LESCO.

Featuring Quality
Cups, Poles, Custom
Flags, Bunker Rakes,
Ball Washers & More.

Contact your LESCO
Professional Golf
Representative or call
(800) 321-5325.

Grow With Us™

LESCO™

LESCO, Tournament and Grow With Us
are trademarks of LESCO, Inc.

EMPLOYEE OF THE MONTH?

ANY DAY, ANY SEASON...

The Ty-Crop® MH-400 gives a full day's work in only a few hours.

NOW OVER 600 HAPPY CUSTOMERS!

From **ONLY**
\$395/month
\$20/day



Load small topdressers and work vehicles in only 7 to 10 seconds, **no wasted travel, no labor.**



Attach any tow type chipper and do all your winter clean up in a fraction of the time and cost.



Topdress large areas from 15 to 40 feet wide in minutes using sand, lime, gypsum or compost, without disrupting play.



Fill bunkers and traps, build retaining walls... Perfect for construction and renovation tasks. **Reach over 15 feet from the back of the unit.**



Backfill ditchlines, build cart paths, or place wood chips and compost around trees, plants and in flower beds. **The cross conveyor can move in any direction.**

**DRAMATICALLY INCREASE
THE PRODUCTIVITY OF
YOUR STAFF — FOR LESS
THAN \$20 PER DAY...**

WITH THE SUPER VERSATILITY OF THE **MH-400**
MATERIAL DELIVERY UNIT AND QUICK ATTACH
OPTIONS — **NO TOOLS REQUIRED.**



Exceeding our customers
expectations for performance and
reliability since 1978.

TY-CROP®
TURF EQUIPMENT INC.

Tel (604) 794-7078 • Fax (604) 794-3446

1-800-845-7249

Call today for more info or a free demo

Web: www.tycrop.com

(Continued from page 33)

low or solid tines. Research has made it clear that repetitive aerations to the same depth create a compacted layer just beneath the depth of penetration. This can reduce percolation rates, but probably not to the extent you've described. Regardless, it is a good idea to take some cores from your green and look for this compacted layer. You should find the soil wetter above the layer than below. While taking the cores, look for other types of layering as well. If you've been the only superintendent and have been consistent in your management practices regarding cultivation intervals and quality of the topdressing sand, there shouldn't be a noticeable layering. Missing one or two annual aeration-topdressings can lead to buildup of enough thatch to create a layer that will impede water movement. Next, you have to ask yourself whether or not you've changed topdressing sand over time. Going to a fine sand is great for working it into the turf, but can create havoc with perc rates. At this moment, I'm looking at a situation where the superintendent chose to topdress with a sand containing nearly 35% very fine sand. After just 2 years, there is evidence that the very fine sand and silt-clay have moved as much as 6 inches into the green and are clogging up the large pores. Finally, there is the issue of algae. If you have algae, it's because you've allowed sunlight to get to the soil surface and it is being kept moist. As I showed the attendees at the field day this past August, mowing at 0.109 inch is an invitation to algae while a height of 0.156 inch is not. Algae form a gelatinous mass in the top inch or so of the green that is very slow to transmit water. Surface compaction from traffic compounds the problem. As you can see, there are a number of reasons why the perc rate of your USGA green is so low. Systematically look for each one until you find the most likely cause. Having found it, you're halfway to finding an answer to the problem.

Q: River birch trees on our course are mature and beautiful, but some are suffering from severe iron chlorosis. We have tried foliar applications, but players frown on it and the results aren't very good. Any ideas? **DANE COUNTY**

A: As always, the solution lies in the cause or causes of the problem. First is the fact that in order for plant roots to absorb iron, the iron must be in its chemically reduced ferrous form. Plants vary in their capacity to reduce iron from the oxidized ferric form to the ferrous form at their rootsurfaces. River birch and other trees, such as pin oak, have low iron reduction capacity. They rely heavily on a sufficient amount of the iron in soil being in the reduced form. This is only the case when soil pH is low and/or the soil is poorly drained. From this brief discussion, you can see that solutions to the problem are two-fold. One is not to plant river birch in high pH, well-drained soils. The other is to foster reduction of soil and/or applied iron to the ferrous form. One drastic way that has been shown to work is to drill several holes in soil around the drip line and pour battery acid in them. I have a less dramatic approach that I think will work. With a cup cutter, bore some holes around the drip line, pour in a cup or so of an iron product that contains metal sulfides, and replace the turf plug. The mode of action would be microbiological oxidation of the sulfides, essentially producing sulfuric acid in the process. This will favor iron reduction to the ferrous form and hope-

fully keep the soil acid enough that sufficient ferrous iron is available to the tree for several years.

Q: I have some new tees we rebuilt to replace several that were simply too small. We used straight sand, thinking it made the most sense. But their performance has been lousy and they actually pale in comparison to the old, native soil tees. Am I doing something wrong? **GREEN COUNTY**

A: In answering, I'm assuming that you used the typical method of construction: dig out the native soil and dump in sand. If so, you've created sand-filled bathtubs. You not only have a growth medium that won't hold water and nutrients, but something that fills up with water whenever you get an inch or more of rain. It's a lousy setup for establishing and maintaining turf. If you feel compelled to construct sand tees, I recommend construction similar to that of a California-type green. Cut trenches for tile drain lines, embed them in pea gravel, and cover with 12 inches or so of sand or an 80/20 mix. If straight sand, you have to on-site mix fertilizer and organic materials that will at least temporarily give you some moisture and nutrient retention capacity. My preference is native soil tees that are properly maintained. They need to be maintained much like a fairway and aerified and overseeded regularly. Overseeding and aerification are done together. Pull the cores, let them dry, drop seed down, shatter the cores, and keep the surface moist until the grass germinates. I've tried this at the Noer Facility and it works great for thickening up thin turf.

Q: What was your score at the Noer Facility tourney at Windy Acres? **GREEN COUNTY**

A: My score was the same as that of Jeff Gregos. We at the Noer Facility are indebted to Jim Krieger for hosting this stellar event. He went far beyond our expectations in making the day a most enjoyable one. ♣

The Wisconsin GCSA and GCSAA Present Three Great Seminars!

Problems and Solutions; Using Annuals and Perennials in the Golfscape

Tuesday, December 1, 1998; Instructors: Dean Bemis and Larry Houser
Code: 99RS091-02; Member Fee: \$90; Nonmember Fee: \$145
Time: 8:00 a.m.-5:00 p.m.; CEUs: 0.7

Causes, Detection and Management of Localized Dry Spots

Wednesday, December 2, 1998; Instructor: Keith Karnok, Ph.D.
Code: 99RS114-01; Member Fee: \$60; Nonmember Fee: \$90
Time: 8:00 a.m.-12:00 p.m.; CEUs: 0.35

Managing Turfgrass Root Systems

Wednesday, December 2, 1998; Instructor: Keith Karnok, Ph.D.
Code: 99RS111-01; Member Fee: \$60; Nonmember Fee: \$90
Time: 1:00 p.m.-5:00 p.m.; CEUs: 0.35

Brookfield, Wisconsin

The Sheraton Milwaukee Brookfield

(Lunch is not provided with the above seminars)



For more information
or to register, contact
(800) 472-7878



The Silent Observer

By Pat Norton
Nettle Creek CC

Is there enough humor in your life? Do you consider yourself to have a good sense of humor? Do you see the humor, satire, or irony that is abundantly evident in everyday life?

Mixed in with all of the work and frustration of managing a golf course lies a great deal of humor and general hilarity. There are situations all day long... especially on a public golf course...in which the golfer unknowingly finds himself to be the butt of the joke.

And the most humorous thing of all is that the entire while that golfers are out there flailing away...they are being

silently observed and judged by people who truly understand the game...

Absolutely nobody on the golf course knows that the greatest interpreter of body language, the greatest satirist, and the person with the most ironic sense of humor...is all wrapped up into one person...your silent partner on the course...your golf course superintendent!

Think about how many times over the years that you've observed humorous situations, expressions, and silent acts of mime as golfers battle it out on the golf course, waging war against the golf course...their golfing

partners...and most humorously... against themselves.

One of the ironies here is that...as the golfers wage these battles in their war to become better golfers...there is an interested observer. Any superintendent or assistant superintendent who doesn't check out the golfers...all day long...is missing all of the fun!

The irony is that golfers have no idea that we're watching them all day long...we blend into the course, you see...and to them we're pretty much part of the golfscape. We also get to see them in different situations during their round and our travels over the



Construction Services to the Golf Industry

Your source for Golf Course Construction, Reconstruction & Improvement.

*You have the Projects, Ideas & Needs. We have the Experience & Equipment to do the job **Right the First time.***

*Many Trucks
Equipped with
High Floatation
Tires to
Minimize
Damage to your
Golf Course*



**Water Control Structures •
Pond Cleaning •
New Ponds •
Pond Lining •
Cart Paths •**

CALL US TODAY!!

- New Construction
- Remodelling
- Irrigation
- Drainage
- Feature Shaping
- Trap Sand Replacement



*Specialized
Equipment
suited to
Cleaning your
existing Golf
Course
Water
Features.*

Lee Bruce (608) 836-7041 Dave Weber

Established 1953

course...so by the time they're finishing their round...we've formulated a pretty good idea as to their golfing ability and attitude towards the game.

The other irony is that almost all of the time the contact between golfer and superintendent is visual and mental...but not verbal. We get to observe golfers at play...reacting to what we see by forming a mental opinion of the hilarity or the impressiveness of any given pre-shot...actual golf swing... or post-shot routine.

Are we then allowed to burst out laughing or otherwise react verbally? Of course not! So the mental reaction...in which the humorously sharp superintendent starts to talk to himself...and laugh silently as he moves on...is the method of self communication.

The body language of golfers is the stuff of legendary tales...but for us it's body language/english all day long...from long and short range.

For me...long range body language observation is the best...watching some guy digging in on the tee like it's a rope pull...forearms clenched to the maximum...legs spread way too wide...flailing that driver like a war-club...chunking out that megadivot...and stomping off all upset with himself.

Think about it...we're always waiting for golfers for one reason or another, aren't we? So the natural thing to do is to observe the golfer hit the ball before we move through the mini-zone of their foursome and get out of their way! Sometimes we wait for only one guy to flail away...and then sometimes it's fun to watch the entire group...the assorted different swings...different golf attire...and different attitudes towards the game.

Check out these real situations that come to my mind and identify with golfers at your own course...

The automatic mulligan...in which the golfer swings ignorantly at the ball...then in a continuous motion has his hand in his pocket for his mulligan ball...and then hesitates and stops...because he's not sure if his partners are going to grant him an extra shot...they don't say a thing so he withdraws his hand nonchalantly! I really want to walk up on the tee and say something to the effect of 'Hey guys, give this poor dog a mulligan...he really, really needs one'. Instead, I just chuckle to myself and cruise away.

The everpresent cigar...a la Larry

Lioretti...we have one new member who constantly has one of these foot long cigars sticking out of his face. Admittedly, I'm not much of a cigar or cigarette fan, but some guys do look better than others smoking a stogie. Suffice it to say that this somewhat small, slimly built man seems overwhelmed by the size of the tobacco stick that he just always has to have when golfing. I feel sorry for his poor girlfriend or wife...not only is she a

golf widow...but has to deal with all of that breath when the guy finally does get home from the course!

The long hitter syndrome...in which just everybody out there is afraid to hit the ball because...ooooooooohhhh those golf course worker guys are in my way again...don't they know how good I am???

I really, really think that I'd better wait and make him feel like he'd better get out of my way...he's in my

(Continued on page 39)

AMAZONE Groundskeeper

ELIMINATE PLUGGING as you collect leaves, pine needles, limbs, twigs, wet grass and other debris. The AMAZONE Groundskeeper



is ideal for golf courses, parks, commercial landscaping and athletic fields as it mows, cleans and rolls in one pass. This new machine works exceptionally well in wet conditions.

AERATE and SCARIFY with optional blades to eliminate moss and thatch.

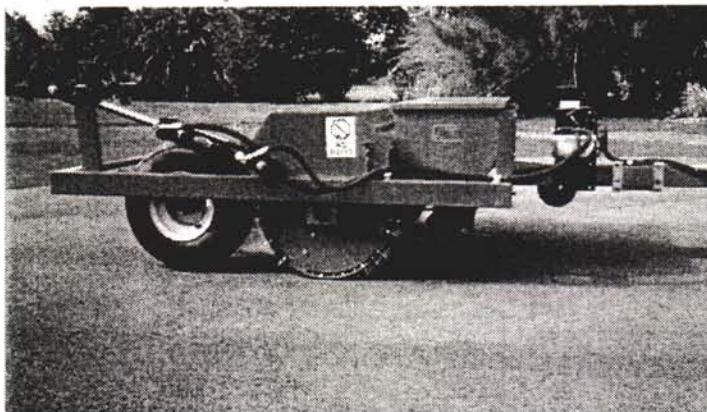
No tools required to change blades!

JOHNSON & ASSOCIATES

P.O. Box 196 Wautoma, WI 54982

PH: (920) 293-8247 PH/FAX: (920) 293-5131

Greens Spiker/Seeder



SAVES TIME & MONEY!

Tapered spikes push seeds tightly into the top rim of the quarter-inch hole. The surface blades of grass then immediately reclose to

approximately eighth-inch holes, incorporating seed at optimum depth for improved germination and better seed bed establishment. Percolates and loosens soil to allow moisture and nutrients into the turf, and is less disruptive to the putting surface.

AERATE and OVERSEEDS in one pass. *Do 18 greens in under 3 hours!*



We Drive The World To Work And Play.

You may know Club Car as the most prestigious name on the golf course. But our Carryall Utility Vehicles are powerful enough to take on the toughest jobs at any work site, any day of the week. So no matter how hard you work or play, count on Club Car for world-class performance and the power to drive you there.



Club Car, Inc.
Wisconsin Branch

4485 South Racine Avenue • New Berlin, Wisc. 53146
Telephone: 414/896-9570 • Fax: 414/896-9578

(Continued from page 37)

range, you know...while on the receiving end the superintendent worker guy is saying to himself...just hit the ball, Grandma Graf...you can't possibly hit me out here...I'm 400 yards away from you...I'm out here every day dodging golf balls...and generally I've got a pretty good idea of how to follow a golf ball in flight...hit the ball...please...sometime in the next hour if you maybe could?

The GQ violator...or better yet...just where do some of these people shop for their golf clothes...Farm and Fleet? Just the other day we had a fellow...certainly 50 years plus...with modishly long greasy white hair...milling about before an outing. This guy was wearing cut off jean shorts with at least an inch of fringe...extremely uneven hem...with it all so short as to almost expose his package!! A definite Woodstock refugee...I recall chuckling to myself as I entered the golf shop. I then plunked down my VISA card on the counter and told the boys inside to buy that guy a complimentary pair

of golf shorts...courtesy of the silent observer!

The nervous putter...otherwise known as the golfer who never, ever makes a putt...even his gimmes can't find the hole. This type is especially interesting for superintendents...because we tend to be out there on the greens on a daily basis. So we're forced to stop doing whatever it is that we do...and observe the golfers as they putt.

The first twosome this morning were a definite contrast to each other...one guy addressed his putts calmly...took nice, even practice strokes...and knocked in at least two nice putts that I was able to see. The second guy was Mr. Nervous Energy...always missing the green...chipping poorly...so was always 'away' as compared to his patient partner. So he's in a hurry to chip...and in a hurry to putt...couldn't get his feet to relax and stay still...had a hammer for a putting stroke...and three putted practically every green that I was able to see.

Naturally, he's pretty pissed off

because of his poor golf game...but the entire time he kept up with the nervous energy...while his patient partner got to the point of not knowing what to say!!! And hey fellas...isn't golf just a great game???

What this guy really needs is for his golfing buddies to surround the hole and just bat his approaching ball around to each other until somebody holes it out...a true definition of a golfing partner!

The truly obese golfer...just never seems to want to walk the golf course. He probably forgot long ago the sensation of walking out there on the golf course...or better yet...has never, ever walked a round of golf in his life! And these are not guys in their fifties or sixties...they are certainly young enough to hoof it around the links. These guys are always fiddling with their clothes...trying to stay tucked in...and keep their shorts from sagging down to their knees...I really want to slide on up to them and give them a few tips on how to look good on the course...but of course I just silently chuckle and move on.

(Continued on page 41)

Site Maintenance

Our site maintenance division can offer various services to meet all your site maintenance needs:

- ☐ Athletic Field Maintenance Programs
- ☐ Athletic Field Recommendations
- ☐ Golf Course Turf Evaluation
- ☐ Turf Evaluation
- ☐ Site Planning
- ☐ Site Evaluation

(715) 341-2663

**FOR ADDITIONAL INFORMATION CONTACT:
RICH RIGGS, SITE MAINTENANCE CONSULTANT**

RR
rettler corporation

Stevens Point, Wisconsin
info@rettler.com

Q. Why FLOWTRONEX PSI?

A.

REASON #1.

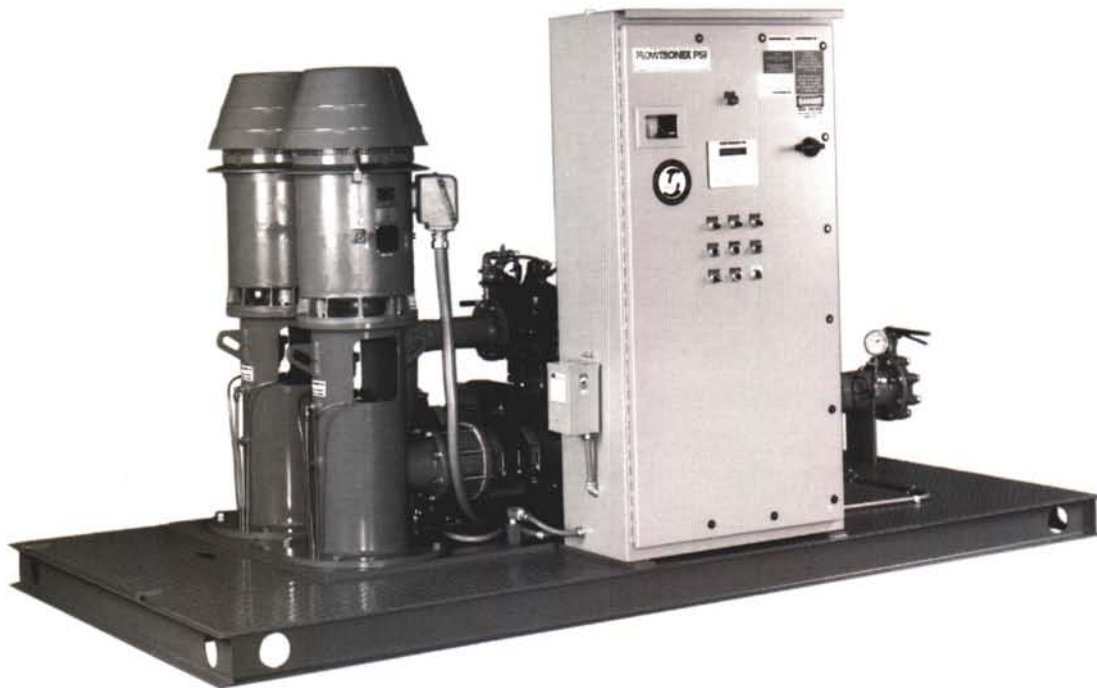
SUPERIOR PRODUCTION. The Silent Storm Variable Frequency Drive pump station combines efficiency and simplicity to save you up to 50% on your power bills and countless hours in maintenance to your pump station and entire irrigation system.

REASON #2.

INDUSTRY LEADERSHIP. FLOWTRONEX PSI is the world's largest pump station manufacturer, with more installations than all of our competitors combined.

REASON #3.

WORLDWIDE SERVICE. Using the revolutionary FlowNet service network, FLOWTRONEX PSI is able to provide 24-hour support and fast on-site service when you need it.



- Variable Frequency Drive or Conventional
- Vertical Turbine or Horizontal Centrifugal
- Prefabricated or Retrofit

FLOWTRONEX PSI
Pumping Systems

Mike Green
Ph: 414-427-1399
6979 Woodland Ct.
Muskego, WI 53150