

# PUSH FOR SUCCESSFUL TURF.



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*Aquatic plantings buffer the shoreline on the 4th hole. Photo by Daniel Zelazek.*



*Hole #16. A short but feisty par 3 on a windy day. Photo by Daniel Zelazek.*

has a mole cricket program, but at last report they were moving west. When I was there, the worst areas were around the greens interfaces and then it was still a case of spot treating only.'

### **Florida vs. Texas**

I asked Roy about comparing Florida turf management with his Texas experience.

"I am very comfortable working with heavy soils, so Grasslands was not a big transition for me," he said. "I don't know how I would have handled a sandy course. It would have been a very different experience from what I'm used to.

"The bermuda turf management is pretty much the same, especially in Houston which is almost at the same latitude.

"The biggest headache I had was trying to manage the bentgrass in the Ft. Worth area. The weather can be so severe and changeable. Bentgrass in Houston wasn't as bad because the weather was milder.

"We were talking about mole crickets

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**IMC Vigoro**

FROM FERTILE MINDS.

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*One of the indigenous live oaks on the relatively undisturbed 5th hole. Photo by Daniel Zelazek.*

earlier. I think the reason they haven't taken over like in Florida is because of the weather. In the winter, the cold fronts can last seven to ten days not one or two like here. I guess they don't find it as hospitable there!"

### **Other challenges**

Asked about any other major management challenges, Wilshire allowed that keeping sedge under control in the heavier, wetter soils was probably the biggest weed problem.

"It is a continuous program," he said. "We get good results with Image and Manage, but you can't ever totally keep it out. We will apply Barricade in the spring wall-to-wall, and in the fall we spray unseeded areas. We add some Gallery for broadleaf control in selected areas like the bunker faces.

"We do have some torpedo grass

patches in the old landfill portion of the back nine that are always tough to get rid of, but they aren't a real big problem."

And what other problems did the old landfill area present to the Grasslands staff?

Wilshire smiled and said, "Well we sometimes find some interesting things when we stick a shovel or a trencher in the ground.

I have only seen old newspapers from the 1960s. Other than being yellow like a paper left out in the sun for a few days, they are very legible. Seems odd reading about a 1965 Mustang for \$1,200. The subsoil conditions must be very anaerobic for the paper to not decay more.

The wildest story I ever heard happened before I got here. A drain crew ended up removing a swing set, refrigerator and an oven from the floor of a bunker."

### **Associations and professionalism**

As we finished up our ride, I asked Roy about his views on the profession and association membership.

"In Texas, I served as president of the South Texas GCSA and on the board for six years. I have just moved up to president of the Ridge Chapter of the FGCSA here."

There has been a lot of editorial commentary lately about job security and association politics. I asked Roy how he reconciled his service.

"There is no question that you must respect your employer. You represent the company you work for wherever you are and no matter what you're engaged in.. You can never take that for granted.

"But I also feel there is always room for a superintendent to get involved in his professional associations. I have al-



*The Grasslands Golf Course Maintenance Staff. Photo by Joel Jackson.*

## Grasslands Country Club

**Location:** Lakeland, Florida.

**Ownership:** Drummond Company.

**Playing policy:** Private.

**Management Team:** Club Manager, Gordon McIntosh; Head Golf Professional, Steve Knott; Green Chairman, Brant Martin; Director of Golf Operations, Drummond Co.

**Designed by:** Bob Cupp & Jerry Pate. Construction by: Wadsworth Construction Co.

**18 holes:** Championship Course = Par 72 at 7,040 yards.

**Course/Slope/rating:** Gold = 73.9/129; Blue = 71.5/124; White = 69.4/118; Red = 71.7/121.

**Major Renovations and Projects:** Ongoing drainage improvements. Tee renovation. Bunker renovation. Have installed Turf Drainage of America's Siphon System. The first all-subsurface internal sump system in a large bunker.

**Acreage under maintenance:** 119.7 acres.

**Waterways:** 25 acres.

**Greens:** 2.5 acres. Average size = 5,500 square feet. Turf type = Tifdwarf. HOC: .130 -.135. (At overseeding HOC = .150.) Overseeding: *Poa trivialis* @ 10 pounds and 2 pounds of bentgrass per 1,000 square feet.

**Tees:** 2.2 acres. Turf type = Tifway 419. HOC: .375. Overseeding = 15 pounds per 1,000 square feet of perennial ryegrass.

**Fairways:** 55 acres. Turf type = Tifway 419. HOC: .450 - .600. Overseeding = 450 pound of perennial ryegrass per acre.

**Roughs:** 60 acres. Turf type = Tifway 419 and Common Bermudagrass. HOC = 1.25" - 2.0". No overseeding.

**Irrigation:** Source = Surface water.

**Staff:** Total of 18 including superintendent. Assistant superintendent, Sean Seymour.

**Special or unusual conditions:** The course is built on a reclaimed phosphate mine and a portion is also on a capped landfill. Lots of clay and silt. The Drummond Co. was awarded The Distinguished Service award for Environmental Planning.

**Interesting and unusual features:** Changing contours from decomposition and shifting of the phosphatic clays. Sometimes we unearth unusual items when digging in the landfill portion of the course.

**Mowing equipment:** Greens putting surfaces and collars - Toro 1000's. Tees - Greensking IV's. Fairways - Ransome 300's. Roughs - Toro Reelsmaster and Articulator. Approaches - Toro 3100's.

**Cultural practices:** Aerification — Greens 3 times per year. Tees and Fairways 2 times per year. Verticut — Greens as needed. Fairways in the Spring. Fertility - Greens 8-10 pounds per year. Fairways 6 pounds per year. Roughs 4 pound per year. One to two pound of the total is applied through fertigation.

**Wildlife inventory and special management programs:** Alligators, bobcats, wild hogs, bald eagles, cormorant, egrets (Great White and Snowy), herons, ibis, sandhill crane, wood stork. This site is a natural habitat. We don't have any special programs. We just follow best management practices.

ways been honest and up front with my employers about how important and rewarding it is to me to be able to participate.

“You can’t get heavily involved if you don’t have their support and understanding.”

When asked why bother to get involved, Wilshire said, “There is that opportunity to help others. The sharing of ideas and experiences with your peers. I don’t expect to change the world, but maybe giving some honest input on an issue that matters will help make a difference in our business.”

We also talked about the pressures

and trends of the business. Wilshire said, “Sometimes the demands on the turfgrass are extreme and unrealistic, but I don’t know many superintendents who aren’t willing to at least try to attempt to provide what is wanted.

I think the golfers need to learn more about the limits of the grass. Television golf is great for the business but it can foster unrealistic expectations when clubs don’t have equal resources to produce the desired results.

I have gone through a time when I couldn’t abide a brown spot on the course, but I have learned to be more flexible and take what mother nature gives me to

work with. She doesn’t always play fair.

“You have to be confident in your ability. You can’t do the job from a position of fear. You have stand your ground on some issues and yet be flexible if you expect longevity in your job.

You have to understand what your boss is looking for and deliver it to the best of your ability. You must be able to accept alternatives.”

Roy Wilshire and the Grasslands are a good fit. A naturalist superintendent in charge of a course that has been reclaimed for a more natural existence. A more acceptable alternative than just a hole in the ground.



*The 18th hole and Grasslands Clubhouse. Photo by Daniel Zelazek.*



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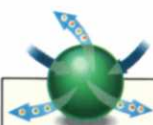
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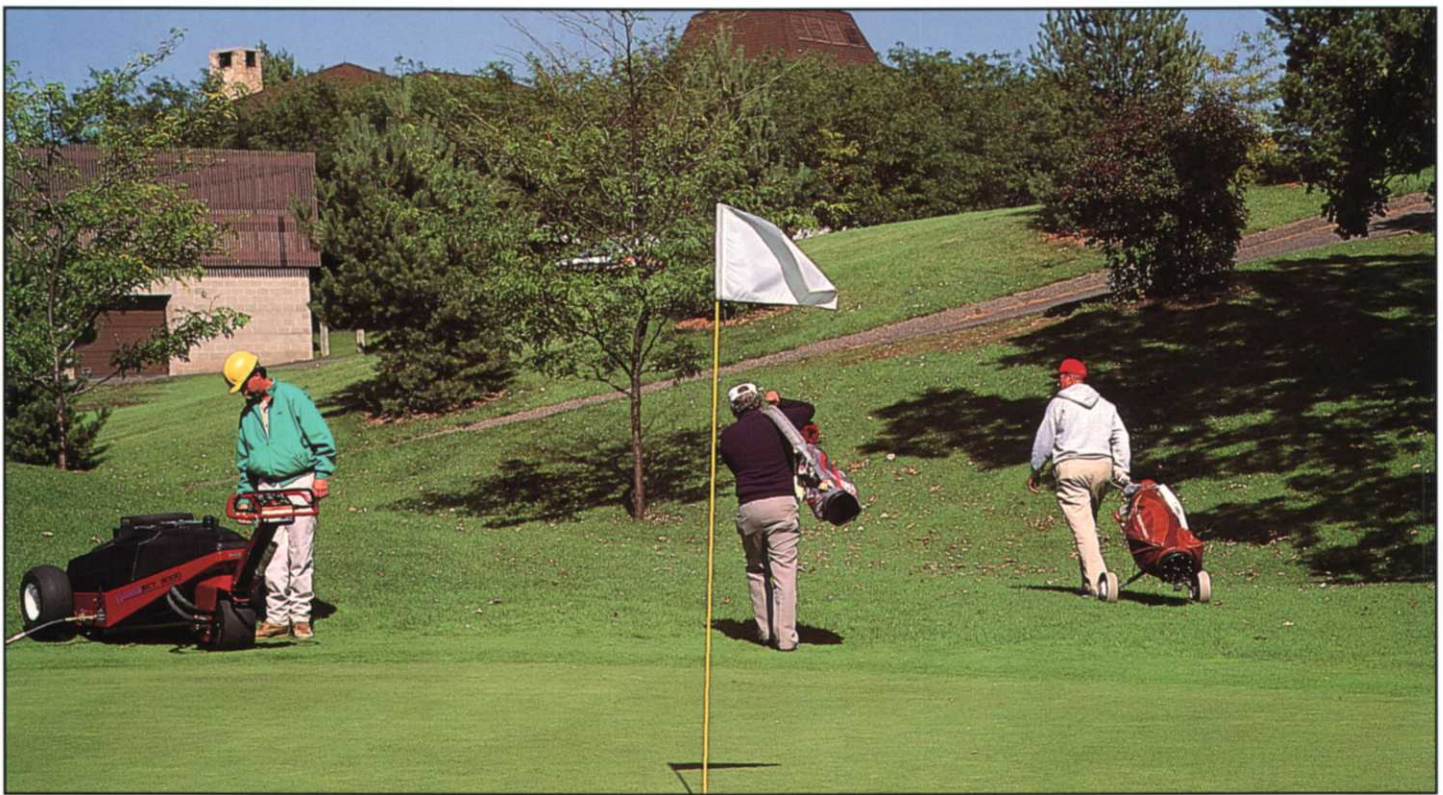
present...



# HydroJect<sup>®</sup> 3000

A proven cultivation tool that helps you sustain healthy turf throughout the entire growing season without causing surface disturbance.





# HydroJect<sup>®</sup> 3000, More Than Just An Aerator.

Since its introduction, the Toro<sup>®</sup> HydroJect 3000 water injection aerator has proved to be an essential tool in helping golf superintendents and other turf managers establish and maintain healthy turf throughout the growing season.

The advantages of the HydroJect 3000 extend beyond those of traditional core aeration. High velocity water injection more deeply penetrates (an average of 4" to 8", or beyond 20" with additional shots) and laterally fractures soil layers. This deeper and adjacent

penetration advances root growth and improves water uptake which in turn gives you a more stress tolerant turf and a more uniform appearance.



## No Surface Disturbance.

With HydroJect there's virtually no disturbance of the turf's surface. Because there's less risk of injury to the plant and root, there's no need to wait for prime soil or weather conditions. Aerate your greens and other turf areas when they need it most; under a hot stressful summer sun or just before tournament play. HydroJect allows you to precisely manage your turf.

## Regular Use Can Bring Dramatic Results.

Superintendents continue to establish their own water injection aeration programs. Typical use varies from every week to occasional spot applications. However, the most dramatic benefits have occurred with greens that were treated on a regular two or three week cycle. In some instances, plans to rebuild greens have been dismissed due to the agronomic improvements that followed regular HydroJect use.

Although not intended to replace coring, use of the HydroJect 3000 will likely reduce your need to core aerate. The practice of core aerating every spring and fall may now be altered to once in the spring followed by regular water injection aeration throughout the remaining year.

## Preserve Your Course Image and Save.

Since HydroJect leaves no messy cores, your golfers can play without delay and you preserve the aesthetic, playable image of your course. There's no need to pay a crew for cleanup or topdressing either. Just one operator handles the job. You may even avoid greens reconstruction with regular HydroJect use.

## Very Versatile.

Serving all golf course areas, the HydroJect 3000 is useful on greens, tees, fairways, roughs, cart paths, or localized dry spots. It's more than just an aerator. It can smooth surfaces, apply wetting agents and enhance your turf and soil management practices.



## Faster Putting Speeds.

Riding on two rollers, HydroJect® 3000 smooths greens as well. You'll achieve a more uniform putting surface and increase your putting speeds 15 to 20 percent. Or, maintain existing putting speeds while mowing at a higher height of cut. The HydroJect easily adjusts to roll at 4 mph.



## Better Sod and Seed Establishment.

The practice of water injection after laying sod accelerates the mixing of soil layers and promotes deeper root growth. Similarly, the HydroJect

can advance seed germination by loosening the soil and creating channels for rapid root establishment.



## Promotes Root Growth.

Research conducted at Michigan State University and use by current owners demonstrates improved root growth. In some areas root initiation and development occurred at times when root decline would be the norm. Typical use results in stronger grass plants with increased resistance to stress. Growth occurs throughout the soil profile, not just in the initial hole. This is due to the fractured zone of influence that only the HydroJect can create.





## New Wetting Agent.

Wetting agents have been successful in maintaining healthy turf. Toro now offers a wetting agent to be used through the HydroJect 3000. Help improve the efficiency of your water use or improve the efficacy of other products you apply.



## Water Requirements.

Clean water is essential to the performance of the HydroJect 3000 water injection aerator. The machine is equipped with an on board 5 micron filter to protect the internal components. Some water can prematurely clog this filter due to excessive sediment, algae or plankton. To prolong the life of the

5 micron filter, Toro offers a 25 micron pre-filter and housing that may be installed at the quick coupler. All situations are different, however, and may require alternative pre-filtering methods. Examine your situation to determine which method is best for you.

## Athletic Field Advantages.

The HydroJect® 3000 will improve appearance, performance and perhaps the safety of your athletic field. Use it to establish and maintain a healthy stand of turf in high traffic areas like the mid-field, sidelines or goal mouths. Besides providing you with an aesthetically better playing surface, compaction relief benefits may reduce the potential for player injury. HydroJect 3000 use can also improve your water infiltration rates



to avoid puddling and reduce the time it takes for a field to recover after rain.

## Landscape Opportunities.

Residential, corporate, school or campus grounds. The HydroJect 3000 is ideal for these areas as for others in need of compaction relief or increased water efficiency. Especially useful in those high traffic areas or to promote sod or seed establishment. And best of all, no one is bothered by messy, unsightly cores or the aggravation of clean up.

## Spacing.

The HydroJect 3000 offers you 4 different space settings to meet your individual needs and applications.

The 3" setting is standard for most aeration needs. The zone of influence of a single shot of water has an approximate 3" diameter depending on soil types. With a 3" diameter, 100% coverage can be achieved. For areas that require intense treatment, simply set the

spacing selection to 1.5". This will give you more holes with over 100% coverage. If you must accomplish

Spacing (inches)	Productivity (Sq. ft./hr.)
1.5	6,500
3.0	13,000
4.5	19,500
6.0	26,000

the treatment faster, yet still want some of the water injection benefits, select 4.5" or 6".



## Simple to Operate.

New operators can be trained quickly. Four easy steps engage the unit for aeration: 1) throttle machine up, 2) lower the machine on to its rollers, 3) press the engagement button and, 4) depress the traction bail in the direction of travel you want to go.



## Durable Performance, Reliable Build.

Because the HydroJect 3000 never penetrates the ground itself, there are no tines to break or wear when detrimental conditions are encountered. All internal, high pressure water components are made of corrosion resistant materials to prevent deterioration.

# HydroJect® 3000 Specifications\*

POWER TRAIN SYSTEM						
<b>ENGINE</b>	Onan P224, 4 cycle, opposed twin, air cooled, 24 hp (18 kW) @ governed maximum 3600 rpm. 60 cu. in. (983 cc) displacement. Electric start. Solid state ignition. Heavy-duty valve package. Extended service air cleaner. 3 quart (2.8 liter) oil reservoir.					
<b>FUEL SYSTEM</b>	10.5 gallon (39.7 liters) fuel capacity for over four hours of operation. Includes fuel shut off valve. Uses unleaded gasoline.					
<b>TIRES/WHEELS</b>	Three interchangeable, smooth tread tires; 18 x 9.50-8, 2-ply, pneumatic, tubeless tires with drop center demountable rims.					
<b>TRACTION DRIVE</b>	Hydrostatic variable volume pump and low speed, high torque, 24 cu. in./rev. wheel motor. 5 quart (4.7 liter) reservoir and suction line with 25 micron filter. Traction to propel unit is through single drive/steer tire at tiller. Traction pump driven by continuously engaged belt.					
<b>TRACTION CONTROL</b>	Traction control lever moves back and forth to control variable speed and traction direction.					
<b>TRANSPORT LIFT</b>	12 volt linear screw actuator, 6" (15 cm) stroke; raises and lowers lift arm/transport tires and activates hole spacing.					
<b>GROUND SPEED &amp; SPACING</b>	Aerating speed: 0-2 mph (0-3.2 km/h) (both directions). Transport speed (capable only when up on all three tires): 0-4 mph (0-6.4 km/h) (both directions).		<b>Spacing in the Direction of Travel (inches (cm))</b>		<b>Productivity (sq.ft./hr (sq.m/hr))</b>	
			1.5" (3.8)		6,500 (604)	
			3.0" (7.6)		13,000 (1,208)	
			4.5" (11.4)		19,500 (1,812)	
			6.0" (15.2)		26,000 (2,415)	
<b>BRAKE</b>	Drum and shoe type parking brake.					
<b>ELECTRICAL SYSTEM</b>	12 volt, Group 28 battery with 525 cold cranking amps. 20 amp charging system with circuit breaker protection. Solid state potted electrical controller and sealed weather pack connections.					
<b>FRAME</b>	Formed and welded steel construction.					
<b>CONTROLS/GAUGES</b>	Engine panel: throttle, choke, key switch, hour meter, supply water pressure gauge, circuit breaker, roller wash control and spacing control lever. Steering handle: bidirectional traction lever, aeration start and stop buttons, transport/aerate lift toggle switch, and parking brake with buzzer.					
<b>AERATE WIDTH</b>	33" (83.3 cm); with 11 nozzles spaced every 3" (7.6 cm)					
<b>OVERALL DIMENSIONS &amp; WEIGHT (approx.)</b>	<b>Height</b>	<b>Length</b>	<b>Width</b>	<b>Wheelbase</b>	<b>Weight</b>	
	42.8" (109 cm)	96.3" (245 cm)	63" (160 cm)	53" (135 cm)	1,150 lbs. (522 kg)	
WATER INJECTION SYSTEM						
<b>WATER SUPPLY</b>	Required water supply: 8 gpm @ 20–80 psi (30.3 liters per minute @ 1.3–5.5 bars). A water pressure sensor disengages the water system if the water supply at machine drops below 20 psi (1.3 bars). Supply water filter with replaceable 5 micron element; P/N 86-8620. Quick connect water hose coupling for attaching to water hose supply.					
<b>PUMP</b>	Toro exclusive (patent pending) stainless steel head, 3 piston type with forged crank shaft, stainless push rods. Nominal performance is 4 gpm @ 5000 psi (15 liters per minute @ 344.8 bars). Pump is driven by two belts electromagnetically engaged.					
<b>ACCUMULATOR</b>	Water energy storage device; nitrogen gas charged to a maximum of 2500 psi (172.4 bars).					
<b>CAM CASE</b>	Cam actuates valve to release water to the manifold at 5.3 cycles per second (320 injection per minute). Case also serves as a 4 quart (3.8 liters) oil reservoir. Cam gear electromagnetically engaged and driven through flexible coupling from engine.					
<b>VALVE</b>	Valve housing provides high pressure water passage area. Pressure balanced valve spool with hardened stainless seat. Bleed valve in base allows bleed off of high pressure and drain down for cold weather storage. Bolted flanges and O-rings mate all components to valve body.					
<b>ROLLERS</b>	Pivoting aluminum rollers reduce compactive ground pressure and uniformly smooth the surface. Adjustable flow spray wash system maintains clean rollers. Variable roller washing requires up to 4 gpm (15 liters per minute) additional water flow.					
<b>PRESSURE RELIEF VALVE</b>	Poppet type preset to 5000 psi (344.8 bars). Corrosion resistant stainless and brass materials.					
<b>MANIFOLD/NOZZLES</b>	Stainless steel nozzle bodies with check valves and hardened stainless steel discharge orifices. Check valves may be reversed in body to block unused nozzles. Optional sizes/diameters with staggered pattern available.					
<b>NOZZLE SIZE &amp; DEPTH CHART</b>		<b>Nozzle Size</b>				
		<b>Drill Size</b>	<b>Decimal Size</b>	<b>Metric Size</b>	<b>Approximate Depth**</b>	<b>Maximum # of Nozzles in Use</b>
	Standard–	#53	.0595	1.511	4–6" (10–15 cm)	11
		#46	.0810	2.057	5–7" (13–18 cm)	6 (must block 5 nozzles)
	#56	.0465	1.181	3–4" (10–15 cm)	6 (use w/five #46 nozzles)	
	**Depths beyond 20" (51 cm) can be obtained using additional shots. See Operator's Manual complete details.					
<b>OPTIONS</b>	Wetting Agent; (2) 2.5 gallon (9.5 liter) jugs, P/N 86-8530. 25 Micron Pre-filter and Filter Body, P/N 80-9590 and 80-8600.					
<b>WARRANTY</b>	One year limited warranty; 120 days for contract or rental use. Refer to the HydroJect 3000 Operator's Manual for further details.					

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