Ryder Cup prep a battle of logistics for Spence

The Country Clubin Brookline's superintendent, Bill Spence, with one of his irreplaceable crew, Emma, who makes life difficult for any geese intending to visit the course's water holes or fairways.

By MARK LESLIE

ROCKPORT, Maine — When golf course superintendents prepare their properties for major events, they consider turf-type issues: greens, tees, fairways and bunkers. Bill Spence's day-planner is filled with meetings concerning building roads and parking lots, laying a 10,000-square-foot parking lot and a 40,000-square-foot slab for the caterer and bus terminal, putting down conduits to supply electricity to 57 corporate tents, and devising transportation for 30,000 or so spectators from the subway system of Boston to his property outside the city.

Spence is the superintendent at The Country Club in Brookline (Mass.), which on Sept. 24-26 will host the Ryder Cup, pitting America's greatest golfers against Europe's.

"As I sit at these meetings, so little about it is golf — it's puzzling sometimes," Spence told an audience at the Maine Turfgrass Conference and Show at the Samoset Resort here.

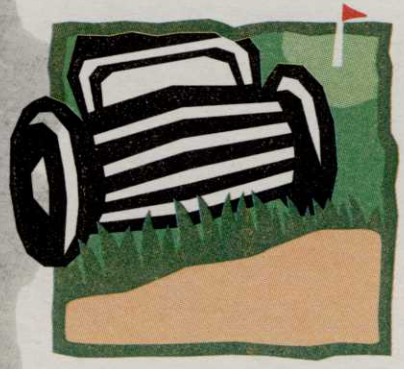
Bill Spence photo

Bill Spence's crews refurbished all the bunkers at The Country Club in Brookline, including this bunker to the right and front of the 16th green.

Spence said his grounds crew "has made my job almost comically easy,"

Continued on page 26

BRIEFS



IGCSA ANNOUNCES DIRECTORS

AMES, Iowa — The Iowa Golf Course Superintendents Association has elected Dennis Watters, of the Fort Dodge Country Club in Fort Dodge, as president. He will be assisted by new directors Ron Stephan, Joyce Hamilton, John Ausen and Tom Verrips. Superintendent of the Year and Assistant Superintendent of the Year awards presented to two Cedar Rapids superintendents: Jeff Schmidt, of Twin Pines Golf Course, and Corey Shipman, of Ellis Park Golf Course, respectively.

USGA PLANS ST. LOUIS CONFERENCE

ST. LOUIS, Mo. — The USGA will be holding a regional conference here March 16 at the Old Warson Country Club. During the morning session, Dr. James Murphy of Rutgers University will speak on "Water Injection Technology" and new uses for the Toro Hydroject. Dr. Erik Ervin of the University of Missouri will also be presenting "Are Your Greens Suffocating?" a seminar on monitoring 02 and CO2 in the root zone. The highlight of the afternoon session includes a presentation by Mark Passey, USGA Regional Manager, entitled "What's your golf IQ? Rules you need to know to manage the course." For more information on the conference, contact Mark Passey at 801-265-8620.

Faucher undergoes 'birthing' of another kind in Bellaire

David Faucher

By PETER BLAIS

BELLAIRE, Mich. — Child birth and growing in a golf course. While admitting he has little experience in one of those areas, Shanty Creek Cedar River Golf Club grow-in superintendent David Faucher believes there are parallels between the two experiences.

"Someone said it was like having a baby," said Faucher, who served as Shanty Creek's The Legends course head superintendent for six years and will open the Tom Weiskopf-designed Cedar River layout on June 12.

"It was painful as hell at times, but now I'm ready to have another one. I mostly remember the fun. I've been working on this for two years, and I'm still not doing any of the routine maintenance I was doing at The Legends. It will probably be another year before we're just mowing and going. The work was hard, but the days didn't seem long because you're on your toes making decisions all the time.

"It was fun working with the contractors and the architect. I worked harder than I ever had before. It taxed every resource I had."

Raised in Marine City north of Detroit, Faucher, 47, moved West after completing high school. He worked a variety of jobs, including stints on the grounds crews at courses in Spokane, Wash., and Twin Lakes, Idaho.

At age 35, married with two children, he decided to get back into the golf course business. He returned home and enrolled in Michigan State University's two-year turfgrass management program, accumulating a 3.96 grade point average while earning the school's Outstanding Student Award. While in school, he worked at three Michigan courses — St. Clair Shores, Walnut Hills in

Continued on page 20

WEED GENETICS

Getting at the root of weed control

By DOUGLAS PAGE

Science may finally be getting to the root of the weed problem. A group of geneticists at the Massachusetts Institute of Technology (MIT) has isolated a plant gene that plays a critical role in the ability of roots to grow properly. The finding suggests that genetics could help scientists save time and money in developing effective, safe herbicides in the future.

As reported in the July 15, 1998 issue of Gene and Development, the work at MIT's Whitehead Institute for Biomedical Research has succeeded in cloning and characterizing the gene (called Ethylene Insensitive Root 1, or EIR1) in a tiny weed called Arabidopsis thaliana. The roots of mutant A. thaliana weeds lacking this gene lose their ability to respond to gravity and are thus unable to grow downward into the soil — hence they perish.

"These findings provide important new insights into age-old mysteries about root growth," said Gerald R. Fink, director of the Whitehead Institute. "And they also may have tremendous implications for the agricultural and pharmaceutical industries. Currently, most herbicides are developed by trial and error. Compounds first are tested for their ability to kill weeds, and then later tested — often for years — to ensure their safety in animals. Often the most effective ones turn out, in hindsight, to be the compounds that act against genes present only in plants but not in animals."

The Whitehead findings suggest that scientists can design new classes of compounds targeted at plant-specific genes like EIR1, so that they would automatically be harmful to plants but have no adverse effects on worms and soil micro-organisms, bees, birds or game animals.

The war against weeds never ends for golf course superintendents, especially as demands increase for perfect turfgrass. Aggressive competitors for sunlight, moisture and nutrients, and prolific multipliers even under adverse conditions, weeds such as dandelion, buckthorn plantain, and broadleaf plantain present a challenge for even the most experienced turfgrass managers. Just one dandelion plant generates up to 15,000 seeds, each of which can survive six years in the soil — each one capable of creating 15,000 more seeds when it sprouts and matures.

Broadleaf weeds grow in all turfgrass areas. Many weeds in turfgrass are controlled by mowing, fertilizing and irrigating, but herbicides are the primary method of broadleaf weed control for superintendents. Turfgrass specialists advise that the best deterrent to weeds is a vigorously growing turf that is adapted to the site. However, perennial weeds, once established, usually require a herbicide treatment for effective control.

Continued from page 18

Super weed, a case of genetics

Continued from page 17

In the past 50 years, herbicides have revolutionized weed control in the developed world and are rapidly becoming popular in the Third World. A University of Nebraska study found the weed seed content on a typical acre of soil approached 200 million seeds and 19 species.

But there are drawbacks on relying on herbicides as the primary weapon. The toxicity issue aside, gradually over the past 30 years certain weeds have become resistant to herbicides, much the same as some bacteria have developed the ability to resist antibiotics.

The first case of herbicide resistance was reported in 1957, and involved spreading dayflower and wild carrot biotypes resistant to growth-regulator herbicides. As of 1998, 210 resistant biotypes have been reported in 44 countries to 15 classes of herbicides. Triazine herbicides have the largest number of resistant species (64), whereas the ALS herbicides are the second-leading family with 50 resistant species.

It is estimated more than three million hectares are infested with triazine-resistant weeds worldwide. Since the 1980s, about nine new resistant species have been reported annually. The United States leads the world in the number of resistant species with 60, followed by Australia with 26, and Canada and France with 24 resistant species apiece.

No figures exist for the incidence of herbicide-resistant weeds on golf courses, but there is little reason to believe that Bermudagrass and annual bluegrass creeping onto greens, fairways and tee boxes are in any way exempt from the phenomena.

Resistance often becomes a problem because of high selection pressure exerted on a weed population over several years. This may be a result of repeated use of the same herbicide, or several herbicides with the same mode of action and is often associated with crop monoculture as well as reduced cultivation practices. Therefore, the key to resistance management is to reduce selection pressure by using some combination of long-term complex weed-control strategies using tillage, grazing animals, burning, cover crops, fallow and crop rotations.

Since these methods are available to superintendents, the Whitehead research could lead in that direction.

The Whitehead findings have additional implications. The genetic makeup of Arabidopsis is similar to that of food crops like rice and corn, so understanding genetic pathways that regulate the growth of this weed not only will lead to new approaches for weed control, but could provide insight leading to the genetic improvement of agriculturally important crops.

In addition to its implications for the agricultural industry, the Whitehead study provides important information about plant physiology, and, in particular, a phenomenon called tropism: the growth response by plants to external stimuli, such as light, temperature, water and gravity.

For more than 200 years, scientists have tried to understand exactly how plants are able to direct roots to always grow downward in search of the earth, while sending their shoots upwards in search of the sun. So great is the plant's directive that if a root is reoriented to lie horizontal to the surface of the earth — in other words, turned 90 degrees with respect to gravity — it responds by altering its direction of growth, curving downward again until it finds its way into the earth.

Scientists have known that during root growth, the redistribution of a plant hormone called indole acetic acid (IAA) to the root tip is responsible for gravitropism, the organism's reflex in response to the stimulus of gravity. When the root tip is cut off, the plant no longer is able to grow downward. When roots are oriented horizontally, IAA accumulates along the lower side of the elongating zone. Cells on the top part of the root elongate, causing the downward

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Royal Canadian GA donates to research, Audubon, Future Links

TORONTO — The Royal Canadian Golf Association donated $230,000 at the annual general meeting to support three initiatives considered fundamental to the future of golf in Canada, RCGA Executive Director Stephen Ross announced.

The provincial golf associations received $125,000 to support the provincial Future Links Mobile Clinic Program; the Canadian Turfgrass Research Foundation received $75,000; and the Audubon Cooperative Sanctuary System of Canada received $30,000.

"There three programs play a vital role in supporting tomorrow's golfers, which is why the RCGA is supporting these groups today," said Ross. "Two of the association's primary mandates are to promote the game and protect the environment."

In 1998, Canadian PGA instructors traveling in Ford Windstar vans provided instruction to 9,675 juniors at 221 sites in seven provinces through the Future Links Mobile Clinic program. With the assistance of presenting sponsor Mackenzie Financial Corp. and the provincial associations, the mobile program is expected to eclipse those totals in 1999.

The Canadian Turfgrass Research Foundation donation will support turfgrass and environmental research conducted at various universities and research facilities across Canada.

The Audubon Cooperative Sanctuary System of Canada, which develops and administers programs to aid landowners in maximizing properties as wildlife sanctuaries, considers 13 golf courses in Canada as fully certified members. Another 216 courses are participating as cooperators, and the RCGA donation will assist in the ongoing environmental education of these courses.

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TORONTO — Worden Teasdale of King City, Ont., was inducted as the 94th president of the Royal Canadian Golf Association during the organization's annual general meeting.

He said the association moves forward with its recently established long-range plant that includes establishing 45-hole RCGA golf complexes in Toronto, Montreal and Calgary. Each complex will feature a world-class stadium course; an 18-hole public course; a nine-hole Future Links course; a large range teaching facility; and an RCGA satellite office—all geared toward promoting and growing golf at the local and national level.

Super weed

Continued from previous page

curving of the root.

Researchers have speculated that the transport of IAA is facilitated by a gene that acts as a pump to redistribute the hormone up and down root cells as needed. The EIR1 gene isolated by the research at the Whitehead lab may represent this pump. The researchers believe the case for EIR1 seems strong.

"When we studied the EIR1 gene, we found that it was very similar to bacterial genes that pump out toxins from bacterial cells," said principle researcher Christian Luschnig. And, when the scientists inserted the EIR1 gene into yeast cells, the yeast cells became resistant to fluorinated indolic compounds, suggesting that the EIR1 gene was helping yeast cells pump out the toxins.

This suggests that EIR1 functions as an efflux pump in roots, and because EIR1 is expressed only in the roots and not other parts of the plant, it suggests that the gene is responsible for the root's response to gravity.

The study was supported in part by a Schroedinger Fellowship from the Förderung der Wissenschaftlichen Forschung (the Austrian Science Foundation), by the PEW Charitable Trusts Latin American Fellows Program, and by a grant from the National Science Foundation.