EPA E-Mail Network Opened

An electronic bulletin board opened recently to quicken and broaden the flow of information about a complex EPA regulation that covers more than four million farm and other green-industry workers in the US. Anyone who is concerned with the Worker Protection Standard for Agricultural Pesticides (WPS) and who has access to the Internet, Bitnet or a compatible electronic mail system is welcome to join the network of participants. The bulletin board, “WPS-Forum,” is maintained as a free public service at the College of Natural Resources of the University of California, Berkeley.

Kathy Taylor, U.S. EPA branch chief for pesticides and toxics in Region 9 noted, “This is a great idea. EPA is very interested in pursuing electronic communication. The agency is reviewing certain parts of the WPS, and we plan to publish the proposed rule changes on Internet. This forum will be one avenue to publish and obtain comments on these changes.”

To subscribe to WPS-Forum, send the following E-mail message to ListProc@are.berkeley.edu: “SUBSCRIBE WPS-FORUM,” followed by your first and last name. The system will return a message confirming your subscription and provide more information about the bulletin board features. For more information, call (510) 642-7103 or (510) 642-5583.

Homelite Sale Completed

Textron Inc. and Deere & Co., recently announced the completion of the sale of Textron’s Homelite division to Deere & Co.

Homelite, based in Charlotte, NC, is a producer of outdoor power equipment, including string trimmers, chain saws, leaf blowers, brushcutters and related equipment. Deere & Co. and its subsidiaries manufacture, distribute and finance agricultural, construction and grounds care equipment.

Patriots Play Long Island

When the New England Patriots began the 1994 season, they played on Long Island — that is, the new sod at Foxboro Stadium came all the way from New York.

“We looked all over the place in Maine and at our usual supplier in Massachusetts, but we decided on the sod from Long Island because it has a very sandy base,” said Brian O’Donovan, the Patriots’ vice president of events management. “It’s a beautiful grass.”

Like most stadiums, Foxboro faces resodding at least once a year, usually right before the football season. But the unusually busy summer schedule included World Cup soccer matches and two Rolling Stones concerts.

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Haines Guards Soccer Legacy at Portland

By Matt Trulio

As a junior at the University of Portland, a small, nonprofit teaching university in Portland, OR, Jim Haines faced the same, time-honored problem confronted by juniors since the dawn of higher education: He had to declare a major. Haines, by nature laid-back, hadn't given in much thought.

I've settled on teaching and decided English would be a good avenue for that," recalls Haines, 46, now the head groundskeeper at the university. "I earned my B.A. in English in 1971, but I didn't become a teacher. It wasn't for me — I thought I probably didn't have the patience, which is funny because I now teach landscape maintenance to the work-study students who work for me."

To say Haines, originally from Hawaii, loves his job would do a serious injustice to his passion for the work. He lives it—he breathes it. Haines is in charge of maintaining the 64 acres of campus grounds, 46 of which are turf. That includes a full-size baseball field, a large practice field that can be striped into two soccer fields, an intramural field and the first-rate soccer field in Merlo Stadium. "Working here is like working in one big, beautiful garden," he says enthusiastically.

Turning Points

Situated on a bluff overlooking the Willamette River and built on what once was a dairy farm and orchard, the school's property is the envy of local real estate developers. In 1901, the Holy Cross fathers, the same order of Catholic priests that runs Notre Dame, were given control of the campus, then known as Portland University. Today, it is a teaching university with an enrollment of approximately 2,800 students of mixed denominations and ethnic backgrounds. Like so many Hawaiian high school graduates with a touch of "island fever," Haines ended up on the mainland for college. The small, intimate university, with its idyllic setting, suited him perfectly. After graduation, Haines headed for Europe. He traveled extensively for a couple of years, soaked up as much culture as he could and eventually found himself back in the Portland area in the restaurant business. "This wasn't exactly my cup of tea," he says with a laugh.

When an opportunity to work for a landscaper in Portland's well-heeled West Hills area arose, Haines jumped at it. To augment his hands-on education, he also earned an associate degree in landscape technology from Rock Creek Community College.

"Experience is probably the best teacher," he emphasizes. "For anyone who wants to get into this business, I recommend working for someone else first to see if you like it, then go to school. I've had kids work for me who did it the other way, and they discovered they just didn't like the work. Sure, we plant, prune and mow, but we also pick up litter and empty garbage cans."

Haines later worked in plant sales for Teufel Nursery, one of the largest nursery operations in the Pacific Northwest. He had to learn fast, he recalls, because he was selling plant materials to contractors who wanted their materials immediately. It was there that he learned his plants during his two-year tenure and, more importantly, where he met Lowell Cordas, then the head of plant sales. Cordas became his mentor.

"Lowell taught me everything I know about plants," says Haines. "He left the

continued on page 24
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Haines
continued from page 22
nursery for a job as head groundskeeper for the University of Portland and followed him — I just bugged him until he gave me a job. He left five years ago to work for the Saratoga Horticultural Foundation in Gilroy, California, as director of nursery operations, and I was promoted to his position.”

“The school asked me, and I jumped at it,” he continues. “It’s an enviable position.”

Growth Moves

For a school its size, the university’s soccer legacy is nothing short of remarkable. The athletes there play in tough NCAA Division I competition. This past season, the women’s soccer team finished third in the nation, and both the men and women have been winners or co-winners in the West Coast Conference for the past six years. The men have made the regionals six times, the women three times and both have been ranked in the nation’s top 20 — and often the top 10 — NCAA Division I schools for the past six years. Take nothing away from the athletes — their achievements stand for themselves, but perhaps not so coincidentally Merlo Stadium and its soccer field were also constructed five years ago.

Named for Harry A. Merlo, CEO of Louisiana Pacific, who along with Earl A. Chiles (for whom the school’s basketball arena, the Chiles Center, is named) is responsible for funding the school’s athletics, the sand-based soccer field was built on what was once an open pasture with clay soil. Physical Plant Director Paul Luty, a former construction superintendent with an idea for detail and quality, gathered a number of big names in the Northwest sports-turf brain trust to work on the project, while Haines served as the day-to-day “point man.”

“When the school decided it was going to make soccer a premier sport here, the best were brought in,” says Haines. The best included sports-field architect Don A. Hogan, who designed the Seattle Seahawks’ practice fields in Mercer, WA. Dr. Tom Cook of Oregon State University helped Haines to create his maintenance program.

When Luty handled the contractors, Haines oversaw the daily construction and progress. “I had to make sure the specs were followed to the letter,” he recalls. “And

SPOON FEEDING MERLO FIELD

Sand rootzones drain so well they have a hard time holding nutrients during frequent heavy rainfall. To solve this problem, Dr. Roy Goss, retired Washington State University turf expert, designed multi-nutrient fertilizer formulations§. Haines supplements the products with additional potassium. His fertilizer program and schedule follows:

**Every Four Weeks, April to November**

1.0 pound N per 1,000 square feet per application

- Nitrogen (N) - 19% (2.7% ammonium sulfate, 1.8% urea, 2.4% methylene ureas and Ureaform, 9.0% sulfur-coated urea, 3.1% water insoluble organic)
- Phosphorus (P) - 3% (monomagnesium phosphate, rock phosphate)
- Potassium (K) - 16% (muriate of potash, sulfate of potash, potassium nitrate)
- Calcium (Ca) - 0.8%
- Sulfur (S) - 9%
- Iron (Fe) - 2% (iron sulfate)

**As Needed, November to April**

1.0 pound N per 1,000 square feet as needed

- Nitrogen (N) - 12% (4% ammonium sulphate, 0.5% urea, 7.5% sulfur-coated urea)
- Potassium (K) - 28% (muriate and sulfate of potash)
- Calcium (Ca) - 0.5% (calcium borate)
- Sulfur (S) - 11.5%
- Boron (B) - 0.06% (sodium borate)
- Copper (Cu) - 0.06% (copper oxide and sulfate)
- Iron (Fe) - 1.1% (iron sulfate)
- Manganese (Mn) - 0.15% (manganese oxide and sulfate)
- Zinc (Zn) - 0.14% (zinc oxide and sulfate) small footnote type at bottom

* Fertilizers above are produced by Lily Miller in Portland.
I had to swear to Don Hogan that I would make sure no corners would be cut."

Construction began with 12 inches of excavation. The native soil was removed from the site, and then rain trenches were dug every 15 feet on center. The crew used perforated ADS drain lines without fabrics that could potentially "silt up," followed by a pea-gravel fill in the trenches, according to Haines. Rather than using plastic sheeting to "seal" the field, they compacted the soil to 90 percent and then installed the irrigation system, which is operated via a Toro hydraulic controller and features Hunter 1-40s with their unique sod cups to cover the heads.

Six inches of coarse sand, with a particle size measuring between 16 and 60 on the Tyler Screen, followed. The coarse medium was then topped with a finer washed and screened sand. They bought all of the sand from nearby Island Sand Sales, which still supplies Haines with the sand used in topdressing operations.

The perennial ryegrass Champion Blend from Seed Research of Oregon was hydraulically seeded onto the field, an establishment method that Haines saw as a necessary evil. “I don’t recommend it because we introduced several tons of straw mulch to the field,” he admits. “But we were on a tight schedule — we played on the field eight weeks after seeding — and sand-grown turf wasn’t available.

“We went with perennial rye because of its nonthatching, quick-growing characteristics and, of course, its durability under heavy traffic,” he continues. “Plus the blend had plenty of endophytes and is really disease-resistant. Of course, you’re constantly fighting Poa annua, but that’s always a battle here.”

Maintaining Excellence

About the only thing predictable about Portland’s weather is its volatility. Expect it to be unusual, and you’ll never be disappointed, or so the saying goes. No doubt, heavy rain is the norm in winter, but that’s where any semi-reliable weather forecasting ends. The month of June, for example, can be downright wet and miserable one year, and blistering hot the next. December temperatures can be near or below freezing or in the 60s, as they were for several days in 1994.

Given the likelihood of substantial rain in Portland, a sand-based field was a natural choice for Merlo Stadium. The expected percolation rate was 5 inches per hour; however, Haines believes it’s much faster than that and for this reason he uses a special 19-3-16 fertilizer called Royal Green developed by Dr. Roy Goss of Washington State University for Lily Miller. The product was specifically designed to address the nutrient-leaching problems inherent with sand-based fields. The crew fertilizes every four weeks from spring through the summer and into the late fall, with a final application sometime in November.

The fickle Portland weather also necessitated the installation of the irrigation system, which was overseen by Haines’ “right-hand man,” irrigation foreman Carvel Cook. “You never want to let a sand-based field go completely dry,”
A temporary turfgrass can be practical in many sports turf situations.

By Bruce Shank

The clear favorite among turfgrasses of the National Football League's Turf Squad is ryegrass overseeded on a base of dormant hybrid Bermudagrass. Dr. Jim Watson and George Toma liked it so much this month that they shipped truckloads of overseeded Bermuda sod 2,500 miles from West Coast Turf in California to Joe Robbie Stadium in Miami two weeks before the Super Bowl. Toma also persuaded the powers at Arrowhead Stadium in Kansas City to install a base of hybrid Bermudagrass when the stadium's artificial turf was replaced with natural grass for the first time last summer. The Chiefs played their home games on ryegrass overseeded into Bermudagrass. That's a strong vote of confidence for a turfgrass that had very limited use 30 years ago. During the first few Super Bowls, Watson and Toma chose to paint the Bermuda with green paint instead of overseeding it with ryegrass. But, it wasn't long before they overseeded the Orange Bowl, the Los Angeles Coliseum and the Rose Bowl. The veteran pair of experts has demonstrated the useful contributions of improved perennial ryegrasses to professional sports entertainment. Much of what the NFL does for the playoffs, championships and Super Bowl is copied by football groundskeepers across the country.

Tapping Ryegrass' Potential

Perennial ryegrass started out as a nursery grass for Kentucky bluegrass seed mixes because it germinated rapidly and surrendered to the more elite bluegrass as the turf matured. Now, as Stephen Cockerham at the University of California, Riverside, will tell you, there are a few perennial ryegrasses available today that can take more heat stress and traffic than bluegrasses. In fact, they are so tough they can give Bermudagrass trouble in the spring as it is trying to come out of dormancy. And, they still germinate in less than a week and become established faster than bluegrasses and fescues. They are the fastest of the turfgrasses established by seed.

Finding perennial ryegrasses that know when to fight and know when to fold is the trick. Toma and Watson scurried around the country before the Super Bowl checking sod farms for the right combination of Bermudagrass and ryegrass. Part of the difficulty they faced was the number of perennial ryegrasses on the market today. The other difficulty was finding sod producers experienced in growing overseeded Bermuda.

Unlike Kentucky bluegrasses, which are apomictic, perennial ryegrasses can be hybridized fairly quickly. In the breeding business, that generally means in fewer than 10 years. However, early perennial ryegrasses also experienced problems in the production fields.

When breeders, such as Drs. Bill Meyer at Pure Seed Testing and Gerry Pepin at Pickseed West in Oregon, solved rust and other disease problems experienced by growers during seed production, the number of growers and production acres rose rapidly. Growers, who are independent farmers for the most part, need to be persuaded that turfgrasses can generate the sufficient yield at a sensible cost per acre.

Once light-green, stringy-when-cut, wide-bladed ryegrasses were transformed into bluegrass look-alikes with the exception of the fact that they don't spread, demand started to increase. Quite a range of ryegrasses is now available with medium- to dark-green color, fine- to medium-blade widths, better cutting quality and improved heat and traffic resistance.

Meanwhile, breeders in the East and Midwest, such as Drs. Reed Funk at Rutgers University, Eugene Mayer with Scotts and Howard Kaerwer with Northrup King, refined the uses of perennial ryegrass. They applied the new characteristics of the turfgrass with the need for fast establishment. Golf course superintendents adopted them to overseed Bermudagrass greens. The number of pounds of perennial ryegrass sold started to represent a significant opportunity for seed marketing companies.

Research conducted at Mississippi State University during the past 15 years continued on page 30
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has shown that golf course greens might require rates in the area of 30 pounds per 1,000 square feet. Even though there is variance in the size and weight of seed between ryegrass cultivars, this amounts to more than 40 seeds per square inch. Compare this to 5 to 10 pounds per 1,000 square feet for tall fescue, 3 to 5 pounds for Kentucky bluegrass or one-half pound for creeping bentgrass.

Add the fact that ryegrass is reseeded into fields over and over again, and you can begin to appreciate the difference between establishing a field for the first time and overseeding it with perennial ryegrass. Overseeding consumes a lot of seed.

Furthermore, when ryegrass seed is pregerminated, it is often mixed with a carrier, such as sand or calcined clay, before it is spread on the field. A heavy layer of seed and carrier is needed to fall. They have also learned to follow before it is spread on the field. A heavy layer of seed and carrier is needed to fall. They have also learned to follow the first concern as the amount of seed. This is one reason for core aerification as part of the overseeding process.

Groundkeepers have learned when and how to establish a stand of ryegrass as Bermudagrass begins to go dormant in the fall. They have also learned to follow that up with extra seed to be worked into the turf by players' cleats during events. It's much like a divot mix now common on golf carts on overseeded golf courses. Replenishing the seed is important to uniform coverage.

If you have ever tried to get rid of Bermudagrass in a plant bed or mulched area, you know how resilient it is. Since we are talking about taller Bermudagrass, cut at 3/4-inch instead of 3/16-inch like golf greens, the impact on the health of the Bermuda is probably less of a concern for sports turf managers than golf course superintendents. The mat established by Bermudagrass, whether active or dormant, is significant and provides both cushion and superior footing.

If the season for your field ends in December or January, you can use glyphosate to eliminate the ryegrass before the Bermudagrass transition begins.

Northern Applications
Nature has drawn the line for Bermudagrass across the middle of the nation. It's called the transition zone by agronomists. Kansas City is one of the northernmost cities in the transition zone. North of the transition zone, Bermudagrass has a good chance of winterkill. In the summer, it starts to excel when daytime temperatures are in the mid-80s. Perennial ryegrass remains active in the upper 40s. Many cool-season grasses have considerable drought stress and disease problems in the middle of summer.

A mixture of Kentucky bluegrass and perennial ryegrass can be a good surface north of the transition zone. Unfortunately, breeders have yet to find a perennial ryegrass that spreads vigorously to form a mat. However, with frequent reaplication of seed, perennial ryegrass can come very close to a durable northern turf surface. Keep an eye out for Pythium and keep potassium and iron levels up.

A temporary turfgrass can be practical in many sports turf situations. No groundcover is perfect for all regions of the country. Ryegrass is one of the most flexible and, definitely, the fastest to germinate in case of emergencies. Sports turf managers should learn about cultivars that are adapted to their region and put them to use.

Do not, however, be tempted to substitute perennial ryegrass with annual rye-grass. The difference is sizable. At the very least, you will have to mow annual ryegrass twice as often as perennial. That time would be spent better aerifying, overseeding and fertilizing.