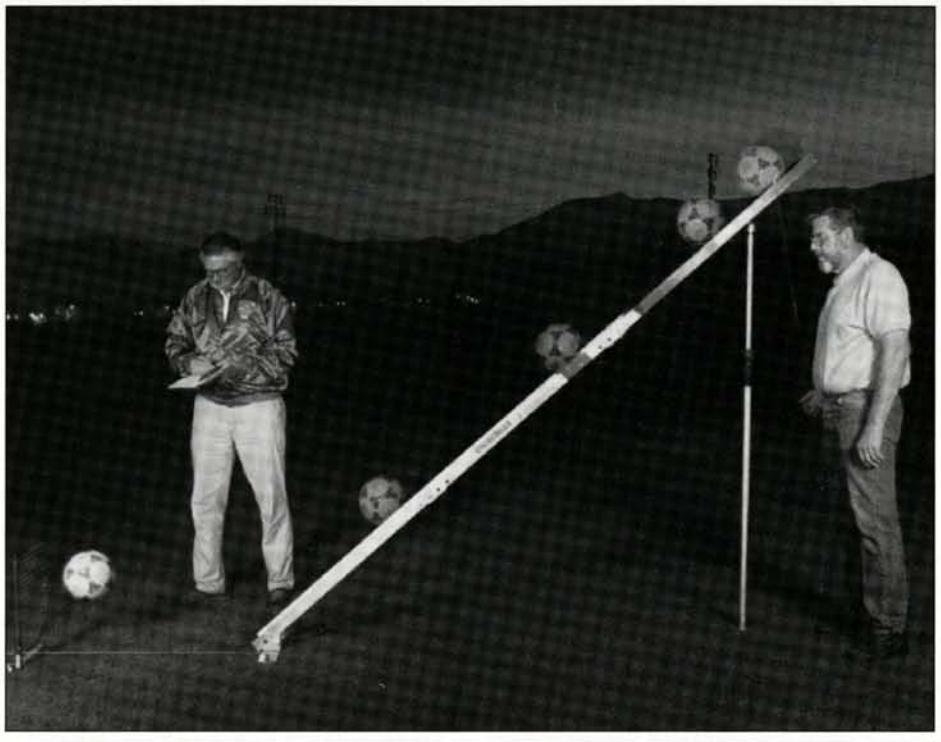
Field Playability:



Steve Cockerham (left) and John Kiesling demonstrate how the UCR Fieldgauge is used for testing. Photo courtesy: Mike Caprioti, UC-Riverside.

Measuring Performance

By Steve Cockerham

Bringing World Cup soccer to the U.S. was a challenge that many within the international soccer circuit didn't think could be pulled off. Early in the process, Dr. Jim Watson, coordinator of the World Cup Soccer's Architectural, Construction and Turf (ACT) team, asked me to help find some way to measure the performance of the field as it would reflect on the athletes' performance.

Because nine different venues, located in different regions of the U.S., were to be used, uniformity in field conditions was critical. The field performance was to be such that a world-class soccer player could be blindfolded and not be able to feel a difference between them. Because it would be the site of the finals, the Rose Bowl field was chosen as the standard, and all other fields would be measured and brought to that level.

Top players in every sport have the ability to gauge the impact of the playing surface on the game. Soccer players watch how the ball bounces, how it spins and how fast it rolls and gauge their actions to those conditions. These players (consciously or unconsciously) also gauge the combination of field resiliency, turf height and density to determine the speed of the field in comparison to their own athletic ability. These athletes can't tell you how they do this; they just do it. But they can tell you what their perceptions of field conditions are according to this instinctive perception. We wanted to quantify conditions in absolute, nonarguable, numbers. The University of California at Riverside (UCR) Fieldgauge was developed for this purpose.

John Kiesling, agricultural operations shop manager at UC-Riverside, and I have worked together in the development of turf "gadgets" many times over the past 12 years. For this project, I initially built a crude wooden model along the general lines of what I thought we needed. Kiesling put his skills to work on it.

After several models were built, tested and refined, we ended up with the UCR Fieldgauge. The finished product consists of a 10-foot-long aluminum ramp, the top of which is elevated to a height of 7 feet. A trigger at the top releases the ball consistently.

A second component is the ball hop indicator, a stand with a series of horizontal aluminum "arms" set into roller bearings positioned at two-centimeter intervals along the height of the stand. This stand was placed one meter from the end of the ramp.

For World Cup soccer field measurement we used two Adidas Questa official game balls. Each ball had internal air pressure of 8.5 psi each time. We soon found that, even with the same internal pressure, each ball had a slightly different roll. To further ensure accuracy, we used the same ball for each measurement repetition at a site. We placed the ball at the same point on the ramp with the valve of the ball at the same point each time.

Testing Procedure

As the ball rolled down and off the ramp, ball speed was measured by the

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Measuring Performance

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length of the roll in meters. As the ball moved off the end of the ramp and made contact with the field, it would bounce over the stand, just like jumping over a fence. The arms that were touched by the bouncing ball would swing out of the way. The uppermost arm that remained in position (the top arm that wasn't touched by the ball) became the measurement point for ball hop height.

During the testing and refining process of the UCR Fieldgauge, we compared what we could measure in ball performance with the perceptions of athletes on our local fields. As we could measure and quantify varying conditions, we'd ask these athletes to describe their "feel" of the field. We found that if we could measure it, they could describe it.

Next we quantified prime field conditions at the Rose Bowl with the UCR Fieldgauge. For example, the ball hop height at the Rose Bowl was 19 centimeters.

The next step was determining what degree of change and which cultural practices could be used to bring the fields at other venues to those standards. Research indicated that a 1/8-inch change in the height of cut was equal to approximately one meter in ball roll. Moisture level within the field growing medium had a direct effect on field resiliency and ball hop. Rolling a field can speed up ball roll dramatically. Verticutting can affect both ball speed and hop.

The week before the first game, Jim Watson, John Kiesling and I took the UCR Fieldgauge on a flying trip. We checked all nine venues in eight days. Kiesling had made further refinements in the unit for travel. All the components fit into one hard-sided golf bag and one attaché case. He also painted the UCR Fieldgauge red, white and blue because color-coding the components made it easier to put together. By the end of the trip Kiesling could put it together in five minutes.

Because all the World Cup games would be played within a seven-week period, we made some changes for the sake of uniformity that we probably would not have made in a normal, long-term maintenance regime. For example, we kept the mowing height of some of the bermudagrass fields higher than usual, which resulted in a bit of puffiness. We had some of the bluegrass and perennial ryegrass fields cut shorter than usual, which resulted in some loss of density.

Did the UCR Fieldgauge meet expectations? The overall impression — from the players, coaches, officials and World Soccer League — was that it did.

Will it play a role in future sports turf programs? Possibly. It may be used to set the standards during field renovation or new field construction. As soccer's popularity continues to grow, and leagues start to demand consistent, high-quality fields, it could be used to establish a national or international standard. It would then be used at the local level to check fields against that standard, especially for league play. ❑

Steve Cockerham is superintendent of agricultural operations for the University of California, Riverside. He's a past president of the national Sports Turf Managers Association and currently serves STMA as advisor to the board.

HAPPENINGS

Turfgrass and Landscape Doubleheader Planned

The Turfgrass Research Conference and Field Day and the Landscape Management Research Conference and Field Day offer two full days of updates for turf and landscape professionals, September 12-13, at the University of California, Riverside.

The turfgrass program includes briefings on the latest research followed by on-site examinations of test plots in progress. Presentations include kikuyugrass management studies, turfgrass irrigation strategies, mowing and fertilizer studies.

Registration is $25 for each day to cover materials, parking and lunch and must be received by September 8. CEUs are available. For more information, call Susana Denney, Department of Botany and Plant Sciences, UC Riverside, (909) 787-4430.

1995 Awards Program Announced

The STMA is accepting nominations for its annual awards program. The awards program is open to all interested parties. Nominations are accepted in four categories: baseball field, football field, soccer field and excellence in research. Each field award will be judged and given at municipal, college and professional levels. This year, the awards will be presented at the STMA Annual Awards Banquet, January 26, 1996, during the Seventh Annual Conference and Exhibition.

All nomination material must be submitted in accordance with the procedures for each award and be postmarked no later than November 30. For nomination forms, contact the STMA, (312) 644-6610; Jim Kelsey at Beam Clay, (800) 247-2326; or Robert Milano, University of California, Davis, (916) 752-1691.

Deadline for Turf School Close

Applications are being accepted for the fall session of the Rutgers Professional Golf Turf Management School. The deadline to apply for the October 2-December 8 term is August 4.

The course is presented in two 10-week sessions during two years and requires two seasons of supervised field experience where students apply skills developed in the classroom.

Students learn technical skills, such as turfgrass establishment, maintenance of greens and tees, plant pathology, entomology and weed identification, in addition to personnel management, computer and communication skills.

To receive a brochure and application, contact the Cook College Office of Continuing Professional Education, Rutgers University, P.O. Box 231, New Brunswick, NJ 08903-0231. Phone: (908) 932-9271.

PRODUCT SHOWCASE

Turf of the Month: CREEPING RED FESCUE

By Mike Augsdorfer

The grass referred to as creeping red fescue is actually one of three subspecies — creeping fescue (subspecies *trichophylla*), spreading fescue (subspecies *rubra*) and chewings fescue (subspecies *commutata*) — that are commonly lumped together by turf specialists as fine fescues (*Festuca rubra*). These three subspecies are fine-leafed cool-season grasses that are very shade-tolerant. Both creeping and spreading fescue spread by rhizomes, although the creeping subspecies tends to form a somewhat denser sod.

Creeping red fescue is intolerant of wet conditions, but as long as the soil is well-drained, creeping red fescue should thrive. It requires minimal fertilization: less than two pounds of nitrogen per 1,000 square feet per year. Mowing height should be between 1 1/2 and 2 1/2 inches.

According to Craig Edminster, research director for International Seeds, Inc., of Halsey, OR, fine fescues such as creeping red are rarely used on athletic turf as a monoculture. "You see them as minor components in lawn mixtures, but not so much in sports turf," he explains. Kentucky bluegrass and perennial ryegrass are among the types of grasses that can be blended with creeping red. Blends including creeping red fescue are sometimes used to establish athletic turf but are more common for home lawns or golf course roughs. "Fine fescues are not typically components in a traffic-ridden sports field," says Edminster, "however, where you have shading and shallow soil situations, fine fescue can be a minor component, mostly in the northern temperate regions."

International Seeds markets a number of different fine fescue varieties, including Marker Slender Creeping Red Fescue and Cindy, a strong creeping red fescue. "Fine fescues have great utility, but they wouldn't be my first choice for a sports field," notes Edminster.

Only a handful of sports field developers use creeping red fescue to establish new athletic fields. Mike Hebrard, president of Athletic Field Design in Portland, OR, is among them. "Red fescue is what we call our insurance," says Hebrard. Since creeping red fescue requires minimal maintenance, it will survive if other grasses in the mixture are not maintained. "For new fields I like to go 15- to 20-percent creeping red fescue," he admits.

Most turfgrass experts, however, contend that creeping red fescue should not be used on athletic fields for a variety of reasons. Art Wick, director of research and development for LESCO, Inc., of Rocky River, OH, does not see much use for creeping red fescue in sports-turf applications. "I'm sure that in some less-well-managed areas, it finds its way into a mixture," he admits. "I don't know of any agronomist who would recommend it for sports turf." Wick says creeping red fescue is oriented to low-maintenance situations and does not recover well from mechanical damage.

Poor Wear Tolerance

Ted Mercer, general manager of Evergreen Sports Turf in Troy, OH, says poor wear tolerance is a major problem with creeping red fescue. "We really don't recommend creeping red because it doesn't hold up to stress well," says Mercer. He notes that creeping red fescue simply does not hold up well to the high temperatures in southern Ohio during June, July and August. "We almost consider it a weed here," he adds.

Skip Lynch, technical agronomist for Seed Research of Oregon in Corvalis, OR, agrees. "It's not a particularly hardy grass for traffic," he explains. "The problem with using creeping red fescue in sports turf occurs when you start putting wear on it. It just doesn't recover well enough."

Dr. Peter J. Landschoot, turfgrass extension specialist at Penn State University, has performed variety evaluations on creeping red fescue and says it tends to be a bit slippery, especially for flat-soled shoes. "It just doesn't persist under normal use," he explains. "We don't feel it has the wear tolerance to handle the traffic it would get on sports fields." Instead, Landschoot recommends a bluegrass/ryegrass mixture for most cool-season sports-turf applications.

Dave Nelson, administrator for the Oregon Fine Fescue Commission, also cites poor wear tolerance as the main reason why creeping red fescue is not used on athletic fields. "Small amounts of fine fescue are good for sports fields to tie together the turf and provide additional characteristics, such as drought resistance," he relates.

Eric Nelson, director of turfgrass research for Medalist America of Albany, OR, says he has heard of creeping red fescue being used between the hash mark and sideline on football fields. "I think that in a mixture with blue and rye it has some potential," he relates.

Almost Like a Weed

Jim Puhalla of Sportscape International in Boardman, OH, stays away from creeping red fescue entirely. "It creates too dense of a turf," he says. Puhalla says creeping red fescue becomes unmanageable once a thatch layer develops. "I can't say anything good about creeping red fescue," he concludes. "It's almost like a weed."

June Boston, president of Boston Company Athletic Fields in South Berwick, ME, says that while some turf managers like to have a little fescue in their seed mix, she also prefers to avoid creeping red. "I don't recommend it," she admits. "It's too clumpy."

Roy Zehren, president of Natural Athletic Turf, Inc., in Mequon, WI, says he has used creeping red fescue for 40

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Creeping Red Fescue

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years in regular lawn mixes because it is a good low-maintenance turf. "We definitely keep all fescues out of athletic turf fields," he notes. Zehren says he can grow Kentucky bluegrass so vigorously that he simply doesn't use any of the fescues in sports-turf applications. "I use it once in a while in golf roughs," he admits.

Creeping red (left) and chewings fescue (right) both show signs of stress under drought conditions, but the creeping red fescue retains more green color. Photo courtesy: International Seeds, Inc.

Creeping red fescue is not used for most sports-turf applications but can be useful in low-traffic, low-maintenance conditions. Photo courtesy: Larry Kassell/Oregon Fine Fescue Commission.

Turf specialists and facility managers both seem to agree that creeping red fescue is not an ideal athletic turf, primarily because it does not tolerate heavy traffic. However, creeping red fescue can be a useful tool for sports-turf managers if it is used carefully in selected applications. The best use for creeping red fescue would be in shaded areas under low-traffic and low-maintenance conditions — perhaps under permanent bleacher seats or in a partially enclosed bullpen area that tends to be shaded most of the time. While creeping red fescue is a desirable turfgrass for low-maintenance situations such as home lawns, it is more of a liability than an asset in sports-turf applications. ❑

ROOKIES

Turf Vacuum

The Bac-Vac™ is a feature-packed collection system for use on Hustler Models 2500 and 2700. The nine-bushel catcher is dumped from the operator's seat and features a fiberglass box for corrosion resistance and a sight window to alert the operator when the hopper is full. The high-speed blower mounts on the 52-inch or 60-inch side-discharge deck and produces nearly 10,000 CFM of air flow for high-capacity vacuuming. The hopper and blower are designed for easy, one-person operation.

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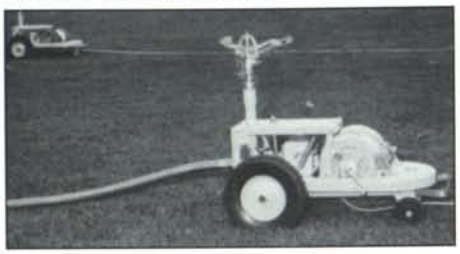
The Rain Train



The Rain Train is designed for groundskeeping departments that are not equipped with an underground sprinkler system. Setup involves plugging a 1-inch hose into the back of the unit, drawing out the guide cord to the end of the desired run and turning on the water. Water pressure powers the Rain Train down the field up to 200 feet. Adjustable travel speed enables varying amounts of application in a single pass. Automatic shut-off triggers the end of a pass.

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Rookies

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Revised Catalog

The *Tire and Rubber Repair Materials and Accessories* catalog was updated and revised by Rema Tip Top/North America Inc. The publication features a complete line of tire-repair products, tools and equipment. The 76-page master catalog features training materials, enhanced product application and selection charts and an expanded master index. The layout format has major-product categories color-coded, with applicable accessory products listed with the main product, so everything needed to make a repair is listed on the same page. This is the first revision of the company's catalog in three years.

REMA TIP TOP/ NORTH AMERICA INC.

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Irrigation Auditing Kit

The Toolkit Co. offers a complete turf irrigation tool kit to be used as part an irrigation audit. With the increasing importance of water-use efficiency, irrigation auditing is the tool for assessment of a sprinkler irrigation system.

The kit includes 30 catch cans, 30 catch-can stands, Rain Bird pressure gauge (0-160 psi), 100-foot fiberglass measuring tape, Oakfield break-apart soil probe, Contico toolbox and 30 marking flags. Each kit also includes one pop-up pressure adapter with a schrader valve. Introductory price is $370, freight included, plus 7.25 percent California sales tax. Items in the kit can also be purchased separately. Custom-printed marking flags are also available (1,000 minimum order).

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