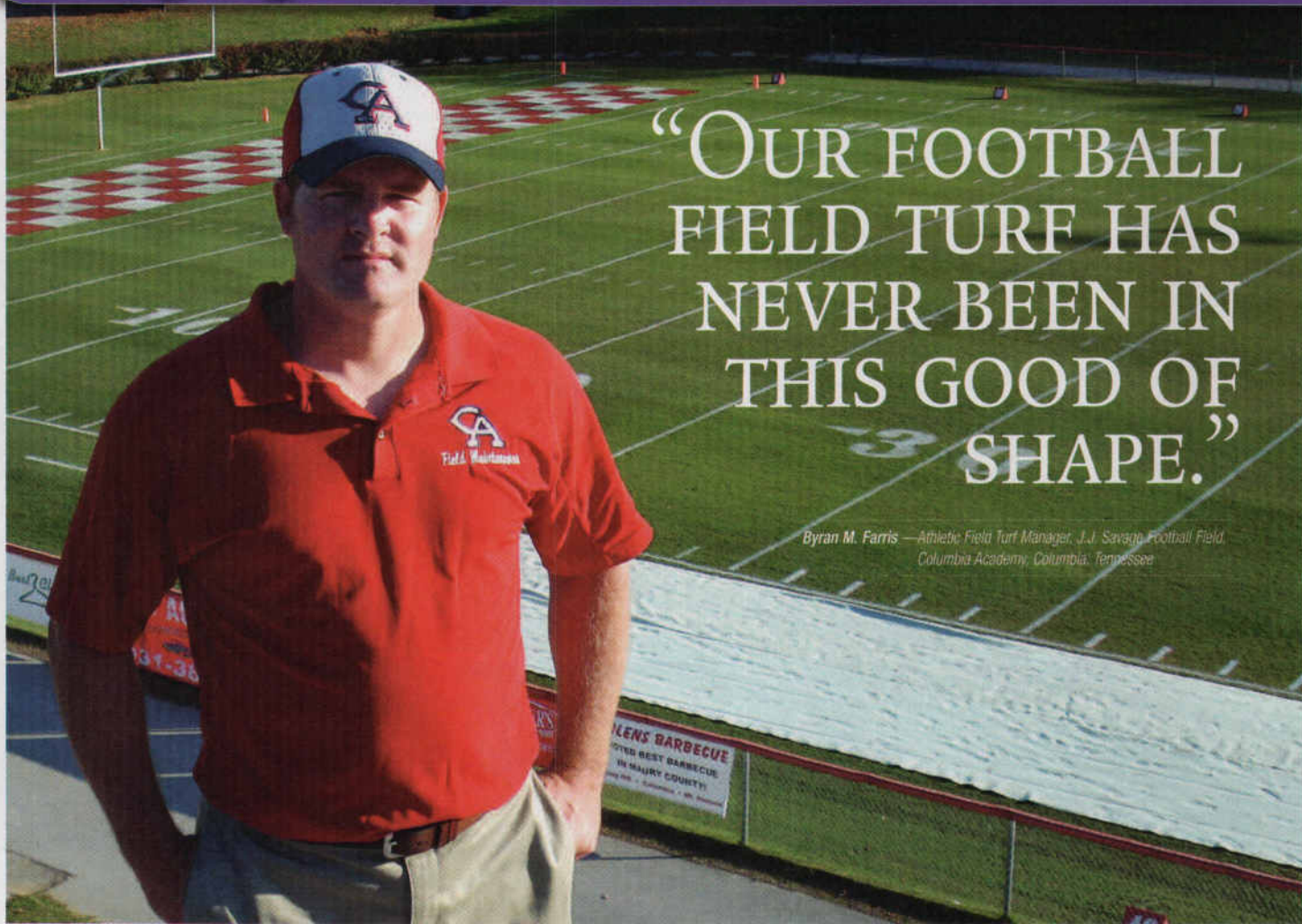


Turf Tip

Inter-Seed in Spring and Boost Wear Tolerance Fast



“OUR FOOTBALL FIELD TURF HAS NEVER BEEN IN THIS GOOD OF SHAPE.”

Byran M. Farris — Athletic Field Turf Manager, J.J. Savage Football Field, Columbia Academy, Columbia, Tennessee

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NTEP TRIALS FOR
10 CONSECUTIVE
YEARS*

After a season of elementary, junior high and varsity football, J.J. Savage Field showed a great deal of wear between the

hashes. Turf manager Byran Farris wrote us about his approach and the results:

“I wanted to make some changes to improve our turf durability. Therefore the following spring, we seeded Riviera bermudagrass into our dormant common bermuda turf by light verticutting and slice seeding. Our turf has never been in this good of shape. The players had excellent footing. Where divots and tears did occur, the turf seemed to repair itself within a few days. Interseeding Riviera increased our wear tolerance substantially.”

Across the U.S. and worldwide, turf managers are recommending Riviera for its quick grow-in and greenup, top-ranked turf quality, recovery rate, cold and drought tolerance, and more. To get your own success story going, talk with us now.

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*NTEP Trials for commercially available seeded bermudagrass.

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Rich Genoff, San Francisco 49ers

GENOFF HAS DREAM JOB ON WEST COAST

By Tim Londergan

Sprinting toward the end zone, San Francisco 49ers running back Frank Gore has run this play a hundred times before and it shows. Following his lead blocker, Gore dives across the goal line for six. The stadium erupts in cheers as he celebrates in his grass-stained uniform. San Francisco 49ers fans can't get enough of plays like these.

Among them is Rich Genoff, sports turf manager and head groundskeeper at the Marie P. DeBartolo Sports Centre, the 49ers training facility. A Bay Area native, Genoff knows the weeks of hard work that go into every touchdown because every practice snap occurs on his fields.

"Growing up, I would have never imagined having the opportunity not only to do something I love, but for the team I've followed since I was a kid," says Genoff, who

previously served as groundskeeper for near by Santa Clara University. "When I got the offer to care for the fields, I was on top of the world."

A 30-year veteran of the sports turf industry, Genoff joined the San Francisco 49ers organization in March 1988. Hired by John McVay, former director of football operations/vice president, and legendary head coach Bill Walsh, Genoff was the first person to maintain the new facility.

"When I came onboard, the facility was still under construction," says Genoff. "My first job was to go out and buy all the maintenance equipment that we were going to need for the fields and grounds."

Also home to the 49ers headquarters, the Centre is situated on 11 acres in Santa Clara, Calif., less than an hour south of Monster Park. "We have a total of three practice fields: two are Tifway 2 hybrid

bermuda and the third is Sportex synthetic Infill," says Genoff.

"By the end of the season, the practice fields are pretty worn out, and our goal is to have them perfect by the time the team arrives for camp." He continues, "It's that cycle nurturing the turf, watching them tear it up during practice, and then reviving it from that damage that really is one of my favorite things."

To reduce overworking the turf, Genoff works closely with the coaching staff to rotate practice fields on a weekly basis, using the Sportex field on Fridays to provide an additional day of rest for the Tifway 2 turf. In addition to field rotation, he incorporates a number of cultural practices including aeration, verticutting and rolling to ensure turf health.

Mowing at a height of 1 inch, Genoff and his crew perform deep tine aeration three

times a year using 10 inch tines. Additionally, they will verticut and dethatch the fields every few months. "Dethatching is crucial to avoid thatch build up throughout the year from heavy use."

As the fields are hybrid bermudagrass, they do not require a rigorous fertility program. However, Genoff will apply a granular 6-20-20 mixture at the beginning of the year and an IBDU 42-0-0 mixture and ammonium sulfate throughout the season as necessary.

He has also incorporated an insect program with a focus on grubs, which could leave the turf susceptible to weak root systems. "Typically, we treat for grubs at the end of June, first week of July," says Genoff. "We use either Merit or Sevin insecticide at the appropriate acre rate, depending on severity of infestation and when it's identified."

In addition to contending with wear and tear from heavy use and the occasional pest, weeds are one of the biggest challenges.

"They're a nuisance, always have been, always will be," says Genoff. "When the fields were first installed, we had cool-season grasses but there wasn't a product that would take the weeds out and leave the desired turf. I lost my field to weeds and there was nothing I could do to stop it," he recalls.

In 1993, Genoff replaced the cool-season grass with Tifway 2. "That changed everything. I didn't have to just acknowledge that the turf was infested with undesirable weeds like *Poa annua*, I could do something to make sure I was providing the team with the best quality turf."

With its shallow root system, prolific seed distribution and poor drought tolerance, *poa annua* wreaks havoc on athletic turf. "Luckily, we found a product that effectively takes cool-season grasses like that out of warm-season grasses, like bermudagrass without damaging the turf," says Genoff.

"I apply the postemergent (Revolver) herbicide as a broadcast, foliar spray, as

necessary at the rate of 17.4 oz. per acre. It usually takes me about two quarts to cover the entire area."

Genoff continues, "Revolver gets rid of *Poa annua*, and leaves the Tifway 2 to grow in and establish strong roots. The coaches are happy because the team is practicing on the best possible field conditions, and I feel good because they've come to expect the highest quality."

Last year Genoff's efforts were recognized by the Sports Turf Management Association, when the Marie P. DeBartolo Sports Centre's natural grass fields were named the 2006 STMA Professional Football Field of the Year. "It's a great honor to be recognized by the STMA and my peers with this award," he says. ■

Tim Londergan is an account executive with Tierney Communications in Philadelphia, PA.

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wrote **Johnson Bowie**, Associate AD,
Drexel University, Philadelphia, PA

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Covers for football and soccer fields are also readily available.

TARP MACHINE™ lets you roll the cover on and off in minutes.

TARPMATE™ roller comes in 3 lengths with safety end caps.





FUNGICIDE ELIMINATES LEAF SPOT BEFORE STADIUM OPENER

When the University of Central Florida (UCF) received approval to build its new \$55 million football stadium in Orlando in 2005, Robert Sample, UCF sports turf and grounds director, got the challenging assignment to create the field. Sample worked for nearly two years with his nine-man crew to lay the sprigs for the stadium's Tifway 419 bermudagrass and carefully cultivate the perfect playing field.

Just weeks before the cleats of the UCF Knights and Texas Longhorns tore into the field for the football opener, Sample suddenly had a more devastating and unwelcome opponent: leaf spot.

Leaf spot fungi may be active at a variety of temperatures, but is most commonly associated with frequent moisture on the leaf blades and high relative humidity. Florida's high humidity and the afternoon showers that occur nearly every day in the summertime precipitate the fungal growth.

"Leaf spot is inevitable in our area, but it came at the worst time," said Sample, who brings years of experience as a golf course

superintendent to his turf role at UCF.

Bright House Networks Stadium is among the 30 acres of turf Sample supervises at UCF—that also includes the Jay Bergman Field for baseball as well as track, soccer and softball complexes. His challenge is keeping all the grounds well groomed while juggling the coaches' needs and the teams' hectic, year-round schedules.

While the coaches fine-tuned their playbook, Sample and his crew scrutinized the turf and performed final tasks, such as painting the field lines. That's when they noticed the outbreak of leaf spot, which appeared as small to red purplish ovals on the turf. The foliar lesions caused discoloration on the turf, resulting in a "bronzing" effect.

Sample needed help to cure this epidemic quickly. He called on Bob Hess, a trusted distributor from the Orlando area.

"We've had an ongoing partnership with UCF during the creation of this new stadium," said Hess of Howard's Fertilizer.

On one of his routine visits, Hess saw the outbreak of leaf spot and he knew Sample was under pressure with the season opener just weeks away.

"My first reaction was to apply fungicide," Hess said.

Sample followed Hess' advice and applied Insignia immediately to his hybrid bermudagrass at a rate of 40 ounces per acre (0.9 ounces per 1,000 sq feet).

Sample was more than pleased with the product's results.

"The leaf spot outbreak was cleaned up by our Texas opener and the field was looking its best at game time," he said.

While the Insignia fungicide application defeated the outbreak, the Knights weren't so lucky. They lost to the Longhorns, 35-32.

Knights fans look forward to many football victories in the new Bright House Networks Stadium. Sample's victory is adding an effective product to his rotation to control leaf spot, while establishing a tradition of turf excellence for UCF athletics. ■



Robert Sample

This article was supplied by Padilla Speer Beardsley, Minneapolis, MN.



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Underhill™

Products that work...smart.™



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hose sprinklers page 4-5

hose applicators page 6-7

hose accessories page 8

drip irrigation page 9

water pumps page 10

sports turf sprinklers page 11-12

decoder irrigation control page 13

turf stress detection page 14



Underhill, an industry leader in innovative watering products for golf, sports field and other large turf areas, brings over 28 years of know-how in developing our inventory of "Products that work...smart.™"



Achieve more efficient spot watering with™ Turf Stress Detection Glasses



See Page 14

Magnum™

SOLID METAL VARIABLE SPRAY HOSE NOZZLE

Underhill™ Magnum™ offers true fire-hose quality that holds up to years of rough use. It contains no plastic internal parts to break, stick or wear out. Our unique ratchet mechanism easily adjusts from gentle fan to powerful jet stream and prevents over-tightening damage. Precision-machined, incredibly smooth operation and outstanding distribution patterns make it ideal for high-demand areas like golf courses and athletic fields. Magnum™ is also an excellent equipment wash-down nozzle.



Magnum™ nozzle pictured with 1" brass adapter (separately on Page 8)

features

- Built for 1" and 3/4" flow rates
- Ultra-durable, fire hose quality nozzle withstands any abuse, feels great in your hands
- Solid metal internal body - no plastic parts to break or wear out. Beautiful, consistent spray patterns for life
- Ratchet mechanism prevents over-tightening damage
- Versatile, multi-pattern sprays...effortless control with hydraulic assist on/off



specifications

MATERIALS: stainless steel, aluminum, TPR rubber

FLOW: 37 GPM at 80 psi

INLET: 3/4" hose thread (1" brass adapter available, see Page 8)

solid metal internal

Won't stick...won't break

ordering

Part # NG450 - MAGNUM Hose Nozzle

Part # A-BA107FM - 1" FHT x 3/4" MHT Brass Hose Adapter

Precision™

SOLID METAL FIXED SPRAY NOZZLES

It's hard to beat a variable spray nozzle for you have this set of hose nozzles precisely engineered for specific watering needs. Millions of soft, uniform droplets provide rapid yet surprisingly gentle water application. From watering fragile seed beds to drenching sports fields, Precision™ spray patterns are designed with ideal flow rates and droplet sizes to offer you the ultimate solution for every hand watering application. Nozzles so good, spray patterns so patented.



Rainbow™

LOW FLOW RATE: COOLING GREENS, LIGHT PREGAME WATERING OF SKINS, LANDSCAPING

Ideal for watering transplants and seed beds. Excels at lower pressure flows. **15 @ 80 psi.**

Rainmaker™

LOW TO MEDIUM FLOW : SYRINGE AND SPOT WATERING
Perfect for syringing and great for hand watering turf and landscape with 3/4" hose at lower pressures. **23 @ 80 psi.**

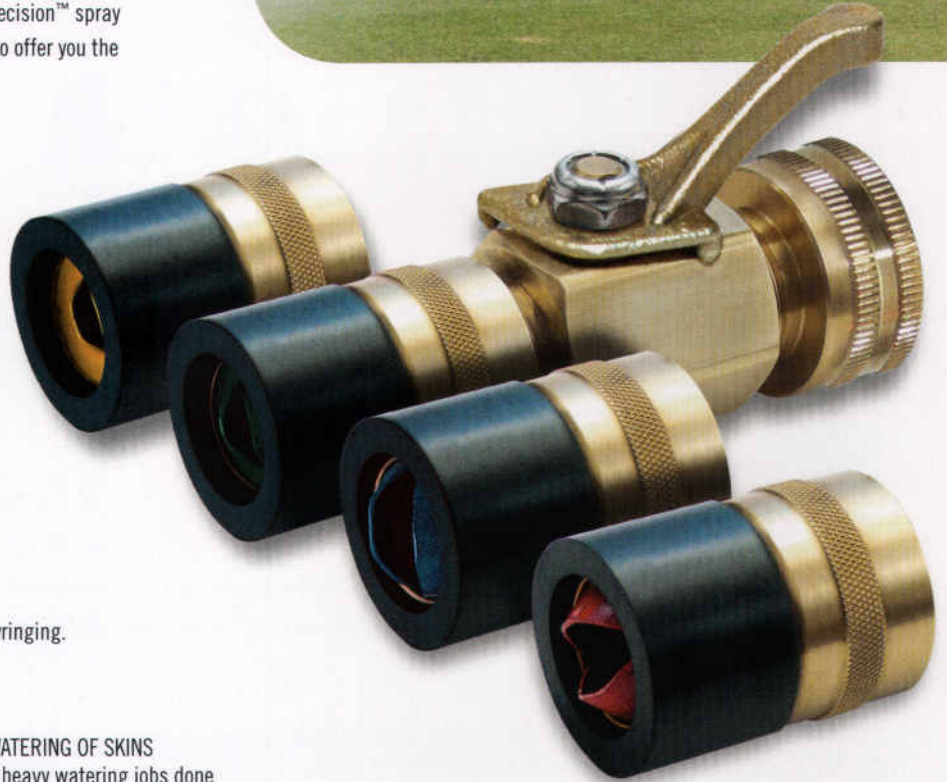
Cloudburst™

MEDIUM TO HIGH FLOW : THE DRY SPOT SPECIALIST
High volume drenching, application of wetting agents, and syringing. Ideal flow rate for 3/4" and 1" hoses. **48 @ 80 psi.**

Cyclone™

HIGH FLOW RATE: HIGH-FLOW WATERING, HEAVY PRE-GAME WATERING OF SKINS
This powerful fan-shaped spray covers a HUGE area and gets heavy watering jobs done quickly. Ideal flow rate for 1" hoses. **50+ @ 80 psi.**

GPM will vary with pressure at nozzle.



Rainmaker™ nozzle pictured with high-flow brass valve and 1" brass adapter (each sold separately on Page 8)



Precision™ nozzles' solid metal construction maintain excellent distribution patterns for life. (Nozzle pictured with high-flow composite and stainless steel valve, sold separately on Page 8)

- Part # - Precision™ **Rainbow™** Hose Nozzle
- Part # - Precision™ **Rainmaker™** Hose Nozzle
- Part # - Precision™ **Cloudburst™** Hose Nozzle
- Part # - Precision™ **Cyclone™** Hose Nozzle

- Part # - Brass, High-flow 3/4" Valve
- Part # - Composite and Stainless Steel High-Flow 3/4" Valve
- Part # - 1" x 3/4" Brass Hose Adapter



CoolPro™

PROFESSIONAL TURF COOLING NOZZLE

A hot summer day can be murder on your greens. Use too much water and you risk damage to the roots. CoolPro™ is the first nozzle specifically designed for the single purpose of fogging and lightly misting the turf canopy to cool without over watering. And its 25 foot pattern gets the job done quickly.



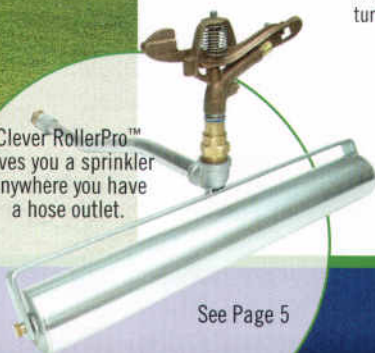
features

- Patented Precision™ nozzle fogs at 70 psi to deliver a 25 ft. pattern with only 4-6 GPM
- Ergonomic handle/valve provides easy grip and variable on/off control.
- Solid metal design uses zinc, aircraft aluminum and stainless steel for durability.
- 3/4" inlet



Perfect for tournament play, CoolPro™ puts down only enough water to cool the turf canopy. It prevents wilting while maintaining good ball speed on the greens. Not just for golf, either...CoolPro is a great tool for turf professionals who want to protect their grass on hot days without damaging roots.

Clever RollerPro™ gives you a sprinkler anywhere you have a hose outlet.



See Page 5

ordering

Part # HNC075 - CoolPro™ Hose Nozzle

Tracker™

PORTABLE IRRIGATION MACHINE

The Tracker™ offers a very economical solution for supplementing seasonal watering needs of 1/4 acre to 2 acre areas. It is also ideal for irrigating athletic fields, cemeteries, golf course roughs, or other large areas where an underground system is impractical. Built to last with precision German engineering and high quality materials, this portable powerhouse can irrigate an entire football field in just two passes.

Tracker™ requires minimal labor to operate. Powered by water, it pulls itself along a nylon cable, dragging up to 360 ft. of 1" reinforced heavy-duty hose (sold separately). Each pass irrigates about 2/3 acre per 8 hours of operations.

features

- Adjustable Speed Control: 20-70 ft./hr.
- 360 ft. nylon cable provides maximum irrigated length of 400 ft.
- Standard full or part circle sprinkler (8-15 GPM)
- 70-85 ft. pass width
- Automatic shut-off at end of pass
- Galvanized anchor stake
- Water turbine drive and gear box
- Includes 1" brass quick-connect adapter

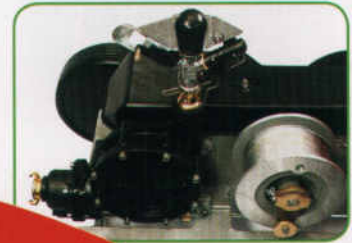


specifications

- WEIGHT: 66 lbs.
- SIZE: Length 33", Width 22", Height 22"
- MATERIALS: Aluminum, Brass, ABS



Precision German engineering, high quality components...built to last!



golf courses



campuses



cemeteries



corrals



Golf courses use Tracker™ to help irrigate roughs, driving ranges, or supplement watering in other areas where an irrigation system is not available. Tracker's maximum 400 ft. irrigation path makes it ideal for large campuses or corrals and its compact size allows it to operate in narrow spaces such as cemetery rows.

ordering

Part # T-400 - Tracker™ Portable Irrigation Machine



Solid brass one-piece quick coupler valves and valve keys can help you get your Tracker™ set up quickly.

See Page 8



RollerPro™

PORTABLE SPRINKLER BASE

The 22" wide stainless steel roller of RollerPro™ provides a stable field position for supplemental watering. Designed for years of hard use, it is ideal for watering dry spots and newly seeded areas.

features

- 22" wide stainless steel roller is weighted to prevent movement during use.
- Standard 1" FHT inlet x 1" female NPT outlet.
- 3/4" inlet and outlet adapters included.



RollerPro™ works with both 1" and 3/4" hoses and sprinklers using the included adapters. Sprinklers sold separately.

BRASS IMPACT SPRINKLERS

Underhill offers a wide selection of high quality impact sprinklers to top your RollerPro™ portable sprinkler base. Featuring solid brass bodies with stainless steel drive springs and chemical resistant bearing seals, they provide the best combination of durability and value available.



ordering

Part # A-RP221 - RollerPro™

	GPM	Radius (ft.)
Part # SI075F - 3/4" MPT Full Circle Sprinkler	13	57
Part # SI075P - 3/4" MPT Part/Full Circle Sprinkler	11	48
Part # SI100F - 1" MPT Full Circle Sprinkler	23	71
Part # SI100P - 1" MPT Part/Full Circle Sprinkler	23	71
Part # SI125F - 1-1/4" MPT Full Circle Sprinkler	51	96
Part # SI125P - 1-1/4" MPT Part/Full Circle Sprinkler	54	78

Performance data shown at 80 psi. GPM and radius will vary with pressure at sprinkler

For larger irrigation needs (much larger), Mirage™ sprinkler heads have a throw radius up to 164 ft.!



PelletPro™

APPLICATOR GUN FOR SOLID WETTING AGENT TABLETS

We outfitted our heavy-duty surfactant applicator with a high-flow composite/stainless steel valve and a Precision™ Cloudburst™ nozzle to produce the finest wetting agent gun available. The PelletPro™ accepts all wetting agent tablets and is designed to provide powerful, yet ultra-soft spray when watering or applying surfactants to tight, hydrophobic soils.

features

- 48 GPM capability gets the job done faster!
- Ultra Heavy-Duty - brass fittings, aircraft aluminum, stainless steel, and precision engineered glass-filled materials
- Patented Precision™ Cloudburst™ nozzle delivers large droplets in an outstanding fan pattern
- Pellet rotation (1 RPS) evenly dissolves/applies wetting agent tablet



With the included 1" FHT x 3/4" MHT brass adapter, PelletPro™ works with both 3/4" and 1" hoses.



2 products in 1!

Remove the PelletPro™ bowl and you have a superb syringe nozzle combo: the patented, 48 GPM Precision™ Cloudburst™ with our high-flow, oversized handle valve.



PelletPro's bowl, also sold individually, works perfectly as a replacement in-line filter bowl for most spray rigs. Heavy-duty, transparent plastic shows fluids. (No more cracked bowls during winter storage!)

ordering

- Part # A-PPWA50K - PelletPro™ Applicator Gun
- Part # A-PPB - In-line Filter Bowl and Gasket
- Part # A-PPBG - Bowl Gasket



LiquidPro™

APPLICATOR GUN FOR LIQUID WETTING AGENT

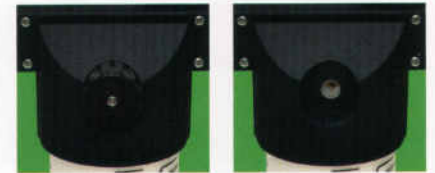
When customers requested a liquid version of the PelletPro™, the proven combination of our Precision™ Cloudburst™ nozzle and the high-flow composite/stainless steel valve had us halfway there. We added a chemical-resistant, UV-protected, lightweight siphon/mixing system in between to produce an applicator gun which can cover 1000 square feet in less than a minute. Now, with unmatched speed and uniformity, you can virtually “paint” your turf with liquid wetting agent, fertilizers, and micronutrients. And like the PelletPro, LiquidPro disassembles easily to create the Cloudburst™ High-Flow Valve syringe nozzle.



With the included 1" FHT x 3/4" MHT brass adapter, LiquidPro™ works with both 3/4" and 1" hoses.

features

- Patented Precision™ Cloudburst™ nozzle evenly distributes wetting agent ensuring uniform coverage. Made of aircraft aluminum and stainless steel.
- Lightweight, durable nylon construction weighs only 3 lbs., UV-protected and chemical resistant.
- High-density polybottle has full quart capacity with easy-to-read measurements in fluid ounces and milliliters.
- Needle Valve Metering Chamber- Engineered venturi siphon mixes proper amount of wetting agent into the water flow.
- Pistol grip design with textured handle provides sure grip surface and reduces operator fatigue.



2 products in 1!

The Precision™ Cloudburst™ nozzle and high-flow valve can be quickly assembled to create a powerful, 48 GPM syringe nozzle.



Save time by bringing plenty of wetting agent, fertilizers, and micronutrients to the field all at once with our 6-pack of polybottles.

- Adjustable metering dial offers 10 additive settings including “Water Only.”
- Metering dial can be removed to prevent tampering with a predetermined setting.

ordering

Part # A-LPWA50K - LiquidPro™ Applicator Gun
Part # A-LPWAB-6 - 6-Pack of 32 oz. Polybottles

Accessories

EVERYTHING YOU NEED...WHEN YOU NEED IT

At Underhill™, we specialize in unique “products that work...smart.” But that doesn’t mean we don’t also supply those in-between and accessory items that everyone needs. And with Underhill, you know you’re getting the highest quality and great value.



high-flow valves



SOLID BRASS

- 3/4" hose thread inlet/outlet
- up to 50 GPM

Part # CV075H

COMPOSITE / STAINLESS STEEL

- 3/4" hose thread inlet/outlet
- oversized handle
- up to 55 GPM

Part # A-BV77FM

hose adapters / quick-connectors



Part # A-BA107FM - 1" FHT x 3/4" MHT

Part # A-BA107MF - 1" MHT x 3/4" FHT

Part # A-BQ7M - 3/4" Quick-Connect, male end

Part # A-BQ7F - 3/4" Quick-Connect, female end

Part # HN-075W - replacement washer, 3/4" hose

swing joints



- heavy-duty
- 12" arm length

Part # SJ-100N12 - fits 1" inlet sprinklers, NPT thread

Part # SJ-125A12 - fits 1-1/4" inlet sprinklers, ACME thread

Part # SJ-150N12 - fits 1-1/2" inlet sprinklers, NPT thread

waterproof wire connectors



Part # DBY

Direct Bury Splice Kits are real time saver: the insulator tube is pre-filled with silicone grease and there's no clamping tools, no waste, no mess. Just quick and reliable underground splices...for irrigation and landscape lighting applications using 12-18 gauge wire. Each kit includes 25 tubes and 25 yellow caps.

universal replacement valve lid

- Fits all 6" to 7" round valve boxes
- High strength material
- UV resistant
- 10 year warranty

Part # VL-06



1-piece quick coupler valves & keys



- Valves: single slot, solid brass, yellow vinyl cover
- Keys: single lug, solid brass shaft

Part # QV-075R - valve: 3/4" FPT inlet

Part # QK-075 - key: 3/4" MPT x 1/2" FPT outlet

Part # QV-100R - valve: 1" FPT inlet

Part # QK-100 - key: 1" MPT x 3/4" FPT outlet

Part # QV-150R - valve: 1-1/2" FPT inlet

Part # QK-150 - key: 1-1/2" MPT x 1-1/4" FPT outlet

hose swivels



- solid brass

Part # HS-075 - 3/4" FPT 3/4" MHT outlet

Part # HS-100 - 1" FPT x 3/4" MHT outlet

Part # HS-101 - 1" FPT x 1" MHT outlet



Measure pressure at the sprinkler with HeadChecker™

See Page 12

DeepDrip™

TREE WATERING STAKES

DeepDrip™ stakes allow you to water and fertilize your trees at the roots, encouraging deeper roots and healthier trees. Water gets underground fast, so you can water for shorter periods and enjoy considerable water conservation. They also help to aerate the soil with oxygen, and you can add fertilizer into the shaft to direct nutrients to the root zone. These versatile stakes are designed to work with a hose or automatic landscape drip systems, and come in three sizes. The 14.5" unit is ideal for small trees and shrubs with shallow roots, like rose bushes and ornamental trees (or in commercial use for trees still in boxes). The 24.5" stake is well-suited for most other tree varieties except for palm trees and similarly deeper rooted trees, which will benefit from the longer 36" stakes.



The DeepDrip's reinforced tip and cap are made from ABS and the upper shaft is made from Schedule 40 PVC. Multiple holes in the bottom half of the spike, internally covered by a mesh filter, allow water to flow out but keep dirt from getting in and clogging the tube. The UV-protected cap acts as a reinforced cover when pounding the stake into the ground, keeps debris from entering the shaft and holds a 1/4" drip line/emitter securely in place. By inserting a screwdriver through the two holes at the top of the upper shaft, stakes can be easily pulled up to remove/reposition or rotated to deter root invasion.



DeepDrip™ watering stakes can be installed during or after tree planting. Once in, you have instant access to the root system for fertilizer delivery or to set up deep automatic drip watering.

ordering

- Part # A-DD14 - DeepDrip™ 14.5" watering stake
- Part # A-DD24 - DeepDrip™ 24.5" watering stake
- Part # A-DD36 - DeepDrip™ 36" watering stake

MicroEase™

MICRO-IRRIGATION KITS

Convert your current, inefficient irrigation system into a highly effective, low-maintenance, water-saving drip system. MicroEase™ kits can connect to a water faucet, existing sprinkler system or 1/2" riser. This provides efficient, low volume irrigation ideal for golf clubhouse surrounds as well as other shrub and planter areas.



ordering

- Part # ME-SS-PK - MicroEase™ Pro Kit with spray spikes (25)
- Part # ME-8SS-PK - MicroEase™ Pro Kit with 8-stream spikes (25)
- Part # ME-SS-SCK - MicroEase™ Conversion Kit with spray spikes (9)
- Part # ME-8SS-SCK - MicroEase™ Conversion Kit with 8-stream spikes (9)



PRO KIT (faucet connection)

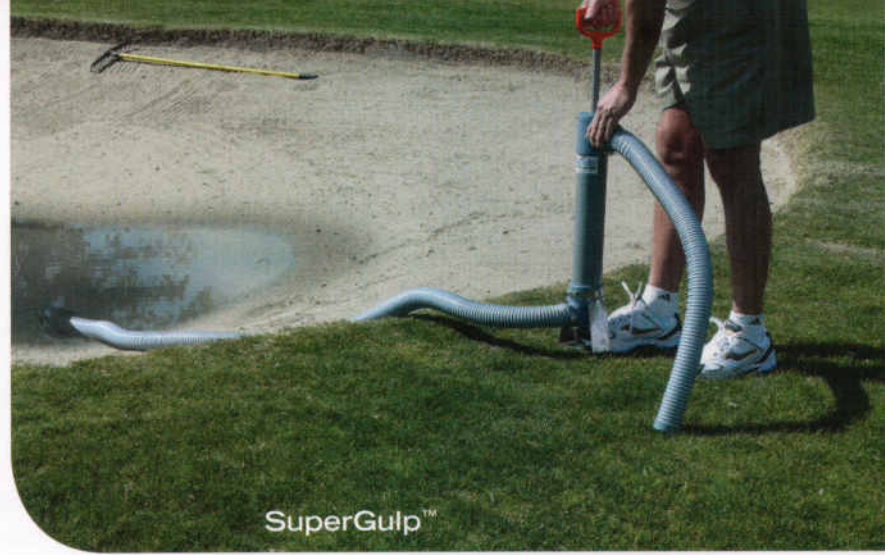


CONVERSION KIT (sprinkler/riser connection)

Gulp™ Series

WATER REMOVAL SUCTION PUMPS

Whether you need to remove water from sprinklers and valve boxes or displace gallons of standing water in the field, the Underhill Gulp™ series of water removal hand pumps has the right tool for the job. Constructed from heavy-duty, corrosion-proof materials, these pumps are self-priming and easy to clean. The Gulp Syringe™ and Gulp™ are ideal for carrying on maintenance carts for small, routine needs. For larger water removal jobs, BigGulp™ pumps a gallon of water in only four strokes and SuperGulp™ can move 16 gallons of water in one minute.



SuperGulp™



BigGulp™



Gulp™



Gulp™ Syringe



SUPER GULP

- 16 GPM pumping capability
- 4" dia. x 2 ft. pump chamber
- 3" dia. x 3 ft. outlet hose
- 3" dia. x 7 ft. outlet hose



BIG GULP

- 35 oz./stroke
- 3 ft. pump chamber
- 36" or 72" outlet hose



GULP

- 8 oz./stroke
- 1 ft. pump chamber
- 10" outlet pipe



GULP SYRINGE

- 8 oz./stroke
- 1 ft. pump chamber
- 11" outlet tube



Use the BigGulp™ Riser Attachment to help prevent mud and rocks from entering the pump chamber.

ordering

- Part # A-G12 - Gulp™
- Part # A-G12S - Gulp™ Syringe
- Part # A-G3636K - BigGulp™ with 36" outlet hose
- Part # A-G3672K - BigGulp™ with 72" outlet hose
- Part # A-G2484 - SuperGulp™ with 84" outlet hose
- Part # A-G01 - BigGulp™ Riser Attachment

Mirage™

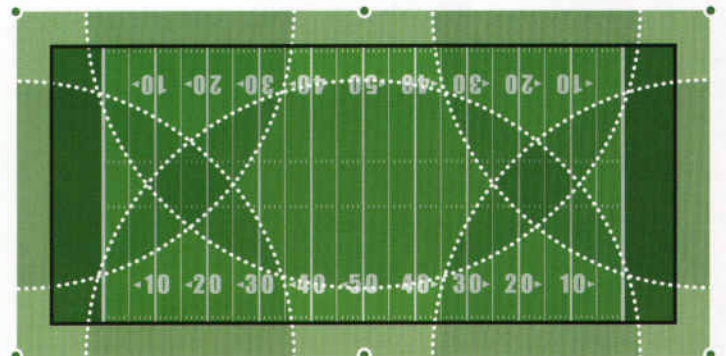
HUGE THROW, HIGH-PERFORMANCE SPORTS TURF SPRINKLERS

Underhill Mirage pop-up turf sprinklers, featuring precision engineering and huge throw radius, are often installed completely outside the area of the playing field. Employing precision German engineering in design and manufacture, Underhill offers the finest large turf sprinklers in the world.

M-160: With its powerful 164 ft. throw radius, the Mirage™ M-160 is a worldwide favorite for cooling and cleaning synthetic sports fields, dust control and irrigation. Featuring ultra-precise rotation speed adjustment, these piston-drive cannons get the job done quickly and efficiently.

M-125: A very impressive long-throw sprinkler in its own right with a 125 ft. radius, the M-125 is designed for installation in artificial turf fields, or in the out-of-play areas of natural turf fields.

M-115: Best noted for the extra large 4" (101 mm) deep sod cup cover which holds a 9" (220 mm) diameter section of natural grass, the M-115 provides excellent protection for athletes. Perfect in combination systems with the M-125 installed at the field perimeter and a minimum number of heads (two or three M-115) in the playing field itself.



Incredible but true: with its 164 ft. throw radius, the Mirage M-160 can shower a regulation size football field using only 6 heads!



model selection guide

	M-115	M-125	M-160
Max Radius	125 ft. (38 m)	125 ft. (38 m)	164 ft. (50 m)
Valve Type	In Head or Block	In Head or Block	Under Head - Extra
Lid Cover	Sod Cup - Natural Grass 4" (101mm) Depth 9.5" (242 mm) Diameter	7" (180 mm) Diameter	15.6" (395 mm) Diameter
Typical Applications	Artificial Turf: Play and Sideline Areas Natural Turf: Sidelines	Artificial Turf: Play and Sideline Areas Natural Turf: Sidelines	Positioned at Sidelines: Artificial Turf Cooling Natural Turf Irrigation
Field Usage Examples	All Sports	All Sports	Football, Soccer, Race Tracks
Nozzle #s (mm)	7, 8, 9, 10, 11, 12 13, 14, 15	7, 8, 9, 10, 11, 12 13, 14, 15, 16, 17.5	16, 18, 20, 22, 24, 26
Pop-Up Height	4" (99 mm)	4" (99 mm)	2 3/4" (70 mm)
Arc	30 - 360 degrees	30 - 360 degrees	30 - 360 degrees
Trajectory	22 degrees	22 degrees	23 degrees
Rotation Speed			Precision Adjustable 100-240 seconds
Inlet (Specify)	1 1/2" (NPT or BSP)	1 1/2" (NPT or BSP)	2 1/2" F side outlet (NPT or BSP)
Height	17.7" 450 mm	17.7" 450 mm	23.6" 600 mm



ordering

- Part # M160-FP - Mirage™ 160 full/part circle
- Part # M160-EP - Mirage™ 160 full/part circle, with 3" electric valve
- Part # M125-EF - Mirage™ 125 full circle, valve-in-head
- Part # M125-EP - Mirage™ 125 full/part circle, valve-in-head
- Part # M125-BF - Mirage™ 125 full circle, block
- Part # M125-BP - Mirage™ 125 full/part circle, block
- Part # M115-EF - Mirage™ 115 full circle, valve-in-head
- Part # M115-EP - Mirage™ 115 full/part circle, valve-in-head
- Part # M115-BF - Mirage™ 115 full circle, block
- Part # M115-BP - Mirage™ 115 full/part circle, block

HeadChecker™

NOZZLE DISCHARGE PRESSURE GAUGE

HeadChecker™ combines a solid brass Pitot tube and a liquid-filled 160 psi gauge to create a handy tool for measuring nozzle discharge pressure. Assuring correct pressures is essential to maintaining highly uniform irrigation systems. The 160 psi gauge can also be used separately to measure pipeline pressure.



ordering

- Part # A-HCGPK - HeadChecker™ 160 psi gauge and Pitot tube
- Part # A-PG160L - Pressure gauge only
- Part # A-HCP - Pitot tube only

2Wire™

AFFORDABLE, VERSATILE IRRIGATION CONTROL

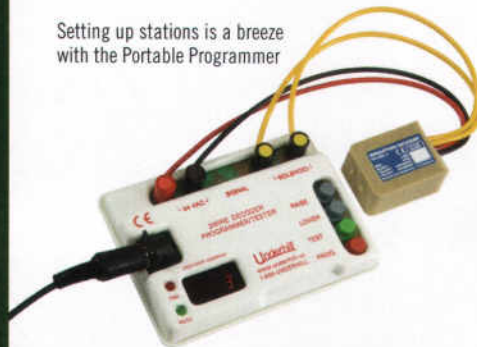
With over 150,000 field successes, Underhill™ 2WIRE™ irrigation control systems are a proven leader in converting controllers like the Hunter® ICC to the simplicity and low cost of two-wire technology. Installation is a breeze with our handy programmer, and after your system is in, you'll enjoy reduced maintenance costs and unbelievably easy system expansion (just splice into the control line and add a decoder). Add the Hunter® IRC remote control and you've created the ultimate (and most affordable) way to syringe anywhere on your field at the press of a button.



Offering powerful control in a small package, decoders quickly install anywhere along a 2WIRE™ path. No grounding is required other than proper grounding at the controller. One decoder per station controls one or two valves per station.

Setting up stations is a breeze with the Portable Programmer

An irrigation installation featuring the powerful Mirage™ sprinklers (see page 11-12) and 2Wire decoders becomes an on-demand syringing system with the Hunter® IRC remote control.



ordering

- Part # TW-TK-DEC-1 - Decoder with 4 waterproof connectors
- Part # TW-ICC-48 - ICC Decoder Module
- Part # DEC-PROG-115 - Portable Programmer for TK-DEC-1 Decoders, 115V
- Part # DEC-PROG-240 - Portable Programmer for TK-DEC-1 Decoders, 240V

Nastek™

EARLY STRESS DETECTION GLASSES

Disease, drought and weed invasion are plant and turf killers. But by the time you see them it can be too late. Nastek™ glasses, with stress detection technology developed by NASA, lets you “see into the future” to identify problems 2-10 days before they are visible to your naked eye. Keep your turf and vegetation healthy BEFORE serious problems arise.



HOW DOES IT WORK? Dying vegetation signals distress with changes in how it absorbs and reflects sunlight. The earliest signals occur at the outer limits of the human visual spectrum, and are rendered invisible compared to the predominant middle wavelengths. Nastek™ Early Stress Detection Glasses filter the overpowering light in the center so that the fringe spectra, which show early plant stress, become visible!

STRESS DETECTION GUIDE



fusarium patch

pythium blight

yellow patch (rhizoctonia)

brown patch

anthracnose

get a jump on broken or poor-performing sprinklers

highly efficient spot watering saves time and labor costs

poa grass invasion identified BEFORE it takes over

superior weed location and spraying saves time and money



Nastek™ Deluxe Edition includes shatterproof polycarbonate stress detection lens in “Aero II” frame, cleaning cloth and case, plus a FREE sun protection lens.



Nastek™ Standard Edition includes shatterproof polycarbonate stress detection lens in sport frame and lightweight case.



Nastek™ Clip-on glasses include shatterproof polycarbonate stress detection lenses and hard clamshell case.

ordering

- Part # NG650-01 - Nastek™ Deluxe Edition Kit
- Part # NG655-01 - Nastek™ Standard Edition
- Part # NG670-01 - Nastek™ Clip-on Lenses
- Part # NG680-TS - Nastek™ Digital Camera Lens

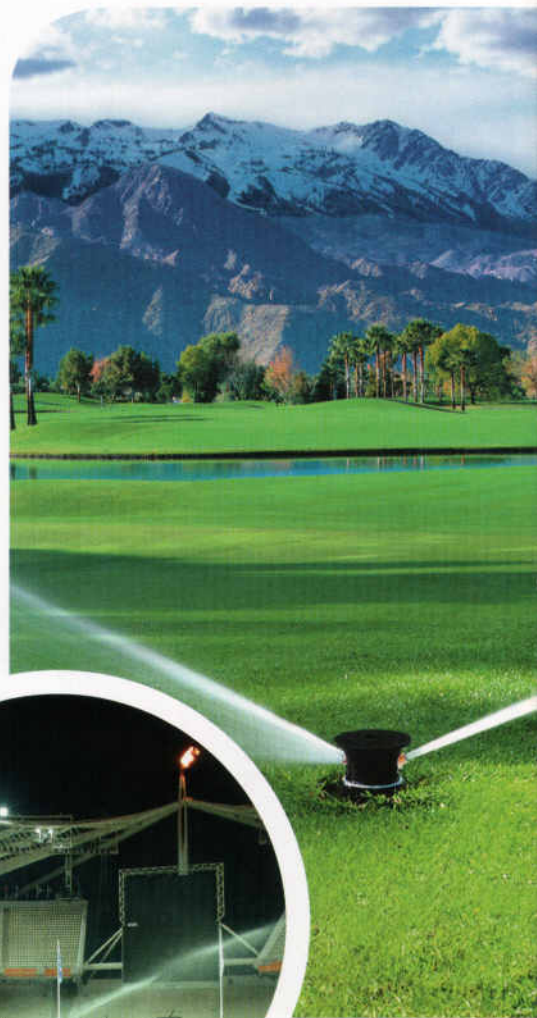


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MAKING PRE-GERMINATED DIVOT MIX FOR FIELD REPAIR

By Mike Andresen, CSFM, and Dr. Dave Minner

Most cool-season grasses can be pre-germinated to speed establishment and recovery on athletic fields. Perennial ryegrass, Kentucky bluegrass, and tall fescue have been pre-germinated and used in a divot mix to hasten seedling establishment. The following program is used by the Iowa State University turf management team to manage the sand-based fields at Jack Trice Stadium and Johnny Majors practice facility. The process is also followed for in-season maintenance on soil-based practice and game fields.

Begin the pre-germination process 4 or 5 days before the time you will actually seed to the field.

Put a 50-pound bag of seed into a large water tight container and fill the container with tap water. We keep four 50-gallon plastic trash cans on hand and mark them “for pre-germination only.” Woven plastic seed bags that seed typically comes in are perfect for pregermination—the water soaks through the bag and the seed remains contained during the draining cycle. Fill the container with water so that the seed is completely immersed. Add 4 ounces of Pana-Sea (or other quality biostimulant or diluted fertilizer solution) to each container with the seed and water.

A heated shop is preferred so that everything equilibrates to about room temperature or 70 degrees F. Do not use chilled

water or freezing conditions. Include a fungicide such as Subdue to the soaking mixture during the early football season if seedling damping off by *Pythium* is anticipated, or you can use Apron-treated seed.

Let the seed solution soak in water for 12 hours, then drain seed for 12 hours. It is recommended to have a 12-hour soak cycle followed by a 12-hour drain cycle, followed by another 12-hour soak cycle. For convenience we remove the bags each morning and allow them to drain during the 8-hour work day. Before the end of the work day we set up another soak cycle for the night. There have been times when we simply changed the water (drain the barrel and immediately refill

with soaking solution) daily and seedling success remained high.

We've further experimented by daily aerating the solution with the nozzle of a backpack blower rather than change the solution. Though we don't recommend this practice, we have not seen significant loss of seed establishment. Success is

er and allow a few minutes for drainage. A concrete or smooth blacktop surface works fine for mixing. Dump a 5-gallon bucket of sand on the surface and add some seed, calcined clay, and dye over the pile. Mix on a sheet of plastic or a tarp to avoid staining of the hard surface if desired. Continue adding sand, seed, calcined clay, and dye

10 pounds of Kentucky bluegrass seed, 40 gallons sand, 50 pounds calcined clay, and 32 ounces of a quality turf colorant dye.

Remove divot debris before seeding.

Load a 5-gallon bucket half full of divot mix and work the field from sideline to sideline 5 yards at a time. A bucket more than half full is difficult to handle comfortably. After mechanically sweeping the field there may still be debris in the divot that can be swept out by hand to ensure good placement and establishment of the divot mix. Simply work a handful of mix into the divot then firm and level with your foot.

Turf that is pushed-up or bubbled is worked back in place and flattened by foot. Divots that are completely dislodged seldom root sufficiently so they are removed and replaced by a 4- or 6-inch plug taken from a nursery or surrounding area of the field. Any remaining divot mix is spread in worn areas of the field where you can expect players will "cleat it in."

Not all the seed survives but those that do represent mature plants for next year's field. Seeds that are visible after placing the divot mix and seeds that are placed too deep will seldom establish, however those just below the surface will develop if watered. The seeding rates seem very high compared to the normal broadcast seeding rates for grass establishment on bare ground. With divot mix it is important to remember



Divot dye mix at the beginning.

vital and you should not take shortcuts. Experimenting with the process to fit your program and to potentially improve it is certainly encouraged.

Pre-germinated seed is alive. Even though you may not see root tips the seeds have begun to respire and are alive; there is no turning back now. If the pre-germinated seed dries in storage or in the field after planting it will die. You can refrigerate, not freeze, the living seed for about a week to slow down the growth if you want to plant it later.

Make divot mix by combining pre-germinated seed, sand, a drying agent such as calcined clay, and green dye. Many topdressing suppliers now will formulate a divot mix of sand, dye, and other amendments to make our jobs easier. If you go this route, simply add pre-germinated seed to the prepared divot mix.

On the day you want to seed, remove the seed bag from the pre-germination contain-

until you have a layered pile. Shovel the pile to one side and then back again to mix. The recipe is 15 pounds of perennial rye or



Dyed divot mix in final form.



We ♥ Grass Stains.

Green Knees = Healthy Turf.

Grass stains are an indicator of healthy turf. Healthy turf is essential for maintaining the safety and playability of your ball field. Green looks good. Players love it. Fans love it. We know you do, too. Slide on in to your local Ewing, where our friendly and knowledgeable staff will help you select the products you need to keep the grass greener on your side of the fence. **Visit us online at www.ewing1.com.**

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Irrigation ♢ Golf ♢ Industrial

that seed is mixed throughout a volume of sand and then the mixture is placed at various depths depending on the depth of the divot.

Seed visible on the surface 1/16-inch dries out and seldom establishes. Likewise, seed planted too deep, below a 1/2 inch, will not germinate. The seeds that actually make plants germinate from a 1/8-inch zone that lies at the depth of 1/16 inch to 3/16 inch below the surface for Kentucky bluegrass and in a 1/4-inch zone that lies at a depth of 1/16 inch to 3/8 inches below the surface for perennial ryegrass and tall fescue.

For each home game we mix about eight 5-gallon buckets of sand with 15 pounds of perennial ryegrass or 10 pounds of Kentucky bluegrass seed. After filling divots we feel that we are getting about 100 seedlings per square inch. At this rate the divots fill quickly without a negative effect from seedling overcrowding. Some seedlings get trampled and die but those that survive create biomass and a mature turf for the beginning of next year as opposed to bare spots with exposed and compacted soil.

We start the season in September using Kentucky bluegrass since it establishes well during September but due to germination time requirements may not adequately fill divots when seeded in October. During October we switch to perennial ryegrass because it establishes until the end of that month and even into early November. Pre-germinated Kentucky bluegrass divot mix seeded in early September will have nearly 90% of the divot covered with "green fuzz" in 7 days. Perennial ryegrass fills the divots about twice as fast as the Kentucky bluegrass. Pre-germination fills the divots twice as fast as seeding without pre-germination.

One advantage of the pre-germinated divot mix over non-germinated seed is that the pre-germinated seed does not require excessive water to get the seeds started. They are already growing and it only takes a little more frequent watering to make the seedlings develop.

We make no changes in our normal in-season irrigation schedules to accommodate for growing in the newly seeded divots. They seem to thrive fine without being micro-managed. ■

Mike Andresen, CSFM, is Athletic Turf Manager at Iowa State, and president of the STMA. Dave Minner is a turf professor in Ames and one of SportsTurf's "Q&A" columnists (see p. 50).



Taking the post-game divot filling walk.



Divot mix seedlings at 4 days.



One-week old divot fuzz.