

"New warning-track material was applied and the track leveled. We removed the Evergreen growth blanket from the infield grass. As soon as the infield dried sufficiently, we spiked the clay to aid in the drying process and leveled the area as soon as possible by spiking a second time and mat-dragging. Home plate was hand-raked, as were the basepaths and walkways from the dugout to the home plate area. We edged the infield and warning track, applied starter fertilizer and watered it in, and mowed the field.

"The first full-squad workout was April 5. On opening day, April 7, at 1:30 p.m., the temperature was 38 degrees with a wind chill of eight. The players were reluctant, but the field was ready.

"Despite this chilling start and record rainfall throughout the season, we only had two rainouts — back to back on April 10 and 12 with an off day in between. Both were made up in double-headers."

The Binghamton Mets placed first in the division in 1994 and had the highest fielding percentage in the Eastern League (.972). Though Williams and

his crew are not claiming any credit, since 75 of their games were played at home, the field surely had something to do with that.

"The season ended on September 14. Overall, 78 games were played at Binghamton Municipal Stadium: 20 day games and 58 night games. Included in this total were the 1994 Double A All-Star Game, Eastern League Playoffs and Championship and a local high school championship game. We hosted a softball game featuring the 1969 Champion New York Mets and roped off the warning track for a pre-game autograph session.

"A symphony and fireworks night preceded the Monday All-Star Game. Once the symphony stage was in place, the rains poured. Prior to the next day's game, I had to rebuild the left side of the infield clay, hose off clay and syringe the turf to remove the tracks. It was exhausting, but we made it, and the players loved the field."

Williams says, "I am pleased with the outcome many times but never satisfied. The most important thing is to pro-

vide the best playing surface every single day so the players can be at the top of their individual game." And in Binghamton that goal is achieved.

Bob Tracinski is the manager of public relations for the John Deere Co. in Raleigh, NC, and public relations co-chair for the national Sports Turf Managers Association.

The Beam Clay Baseball Diamond of the Year Award is sponsored jointly by Beam Clay, the Sports Turf Managers Association and sportsTURF Magazine in recognition of excellence and professionalism in maintaining safe, high-quality diamonds. Winning diamonds are named in the professional, college and high school / municipal / park categories.

Judges for the 1994-1995 Beam Clay Baseball Diamond of the Year Awards are Bob Wilkinson, stadium superintendent, New York Yankees, Yankee Stadium; Brandon Koehnke, manager of field maintenance, Cleveland Indians; Pete Flynn, head groundskeeper, New York Mets, Shea Stadium; and Steve Wightman, stadium field manager, San Diego Padres, Jack Murphy Stadium. □

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CHEMICAL LOG

Controlling Costs With Adjuvants

By Helen M. Stone

Adjuvants may not be the most glamorous topic in sports turf management, but getting to know these useful additions can add efficiency to your operation and hold down costs. Webster's Dictionary defines an adjuvant as "a substance added to a prescription to aid the operation of the principal ingredient." In simple words, adjuvants can make your "turf prescriptions" work better.

Surfactants, spreaders, stickers and wetting agents can be thought of as adjuvants. They are added to emulsifiable concentrates, flowables, wettable powders, soluble powders and other chemicals during the mixing process. They can extend, enhance, concentrate, reduce drift or disperse the liquid formulation to make it more effective. However, used incorrectly, they can cause phytotoxicity or even damage turf roots.

Water is a unique compound because of a phenomenon called hydrogen bonding. Basically, hydrogen atoms in the water molecule have a strong attraction to hydrogen atoms in other water molecules. However, these charged hydrogen atoms also tend to bond to other surfaces with an opposite charge. Organic matter and the minerals in soil cause the molecules to "attach" themselves, making them available to absorptive turf roots.

Surfactants are one of the largest groups of adjuvants. Surfactants reduce the surface tension of the water drops, causing them to flatten instead of beading up. This results in greater coverage. Spreaders and wetting agents are surfactants.

Nonionic surfactants have no electrical charge and are generally compatible with most pesticides and herbicides. They can make a water droplet "flatten" to cover six times the area of a droplet of plain water.

In addition to the component that causes the release of surface tension (alkyl polyoxylkanes or similar compounds), a nonionic surfactant also should contain fatty acids. Fatty acids cause

the mixture to adhere to grass better. Alkyl polyoxylkanes will reactivate the first time the turf becomes wet from irrigation, rainfall or dew, causing the pesticide to wash off. Fatty acids keep the pesticide from washing away, so the compound will stay where it is put after it dries.

A new family of nonionic surfactants, the organosilicones, is the latest in adjuvant technology. Organosilicones were introduced about six years ago and caused a great deal of excitement because a water droplet could be dispersed to cover 15 to 16 times the area than without the surfactant.

Because the turf is thoroughly covered when spraying with organosilicones, pesticide action is enhanced. Where two sprays may have been necessary to achieve control, turf managers might be able to do the job with a single spray. In addition, since a drop of pesticide solution covers 16 times the area of a solution without an organosilicone surfactant, the total amount of spray solution to achieve complete coverage can be dramatically reduced. This can result in substantial savings when spraying acres of turf on athletic fields.

Organosilicones do not require fatty acids to adhere. The compound breaks down within 24 hours, so rewetting will not cause the pesticide to wash away. Some organosilicones even contain a ultraviolet light screen, so pesticide degradation due to sunlight is slowed.

Stickers cause the pesticide to adhere more firmly to the grass. They are primarily used if rain is expected after spraying. Spreader/sticker combinations are often sold together. In general the more a compound spreads, the less it will stick.

Drift-control agents keep spray droplets from breaking apart during application. The larger and heavier drops stay on target more consistently and are less likely to be blown away by light winds.

Buffering agents control the pH of the mixture. Many pesticides are designed to work at a pH of 7 (neutral). If your water is above or below that pH, the effectiveness of the formulation can be greatly

reduced. Buffering agents will eliminate this problem.

Selecting for Success

Your first reference point in selecting the appropriate adjuvant is to read the label of the chemical you are applying. More than 200 chemicals have label requirements for some type of adjuvant. Considering the benefits, unless a label specifically states that an adjuvant should not be used, adding a surfactant (spreader/sticker) makes economic sense.

With more than 4,000 named adjuvants and about 300 manufacturers, the wide array of available adjuvants can make selection a confusing process. Unfortunately, studies have shown that many are not effective or do not live up to their claims. In fact, some materials touted as adjuvants are 92-percent water!

Unlike pesticides, adjuvants do not require EPA registration. A wide range of formulations can be labeled as adjuvants and be within legal limits. For example, alcohol can be legally called an adjuvant. Also called isopropanol (IPA), alcohol evaporates very quickly and is relatively ineffective as a spreader. However, alcohol can comprise up to 60 percent of the active ingredient in some adjuvants.

The best defense against an ineffective product is to educate yourself about adjuvants. Ask questions about alcohol percentage, fatty acids and the actual formulations of the adjuvants you are considering for purchase. Read label rates. A less expensive adjuvant that must be used at a much higher rate than a comparable product is no bargain. Since adjuvants are generally much less expensive than pesticides to begin with, price shopping usually doesn't pay.

Finally, ask about support materials from the manufacturers. A reputable manufacturer will be happy to provide you with literature that explains exact formulations and should be able to answer any questions to your satisfaction.

The right adjuvant can make your spray program more effective and less costly. Taking the time to learn about these valuable tools can be a valuable investment in the future of your turfgrass. □

PRESIDENT'S MESSAGE

By Greg Petry



Looking Ahead

Now that STMA's Annual Conference and Exhibition is over and we enter the new year, it's time to redouble our planing efforts for another successful year. Planning is already under way for our next conference, slated for late January or early February 1996 in Anaheim, CA. Mike Schiller is the chair of the conference committee. Henry Indyk will organize the program, and Eugene Mayer will plan the exhibits. Steve Guise and Phil Robisch will serve as site coordinators.

I hope you, too, are looking ahead, planning for a successful year at work and at home. "Planning" itself is sometimes difficult — often next to impossible during the busy times. But planning is everything. In 1995 we planned for a transition year of STMA. In 1996

we are planning for a growth year.

Membership growth is expected. A new membership brochure has been printed. Several commercial members have offered to place STMA membership applications in their major promotional materials. This is both a tremendous idea and opportunity for us. We would like to implement this type of membership drive with as many commercial vendors as possible. Membership applications can be placed in promotional mailings, billing invoices, newsletters, etc. If you would like to participate in this, please contact STMA. Also, a target-market direct-mail membership drive is being planned by the membership committee.

Members are also encouraged to participate in the membership contest. The member who recruits the most new members will be awarded a trip to the STMA Conference and Exhibition in Anaheim.



STMA CHAPTER NEWS

Colorado Chapter: The Colorado Chapter will hold a Spring Seminar and Workshop March 30 at Olympic Park in Aurora. For more information on this seminar, the Colorado Chapter or future activities, contact Ross Kurcab with the Denver Broncos at (303) 649-9000 or Mark Leasure with the Colorado Springs Sky Sox at (719) 597-1449.

Southern California Chapter: The Southern California Chapter will hold a Turf and Landscape Seminar on April 27 from 8 a.m. to 3 p.m. at Sea World in San Diego. Multiple demonstrations are planned for the morning sessions covering such topics as big-roll sod, pruning, bedding plants, aeration and mowing comparisons. After the last afternoon session, attendees may take a behind-the-scenes tour of the facility. Following the tour, participants are invited to enjoy Sea World's attractions.

For more information on the seminar, contact Sea World personnel Mark

Peacock at (619) 226-3900, ext. 2209, or Jeff Hall at (619) 226-3900, ext. 2207.

For information on the Southern California Chapter and other upcoming activities, contact Chris Bunnell at (619) 432-2421.

Midwest Chapter: The Midwest Chapter is planning a Layout and Lining Fields Seminar for May 8 at Elk Grove Village, IL. More details will be announced soon. Midwest Chapter board meetings are held on the second Wednesday of every month. Chapter members are invited to attend.

For information on the seminar, the chapter, board meetings or other upcoming activities, call the Chapter Hotline at (708) 439-4727.

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Turf of the Month:

Hybrid Bermudagrass



Hybrid Bermuda turf for Super Bowl XXIX at Joe Robbie Stadium in Miami was shipped by truck from Southern California just a few weeks before the game. Photo courtesy: West Coast Turf.

Tifgreen 328 was the field surface at Jack Murphy Stadium in San Diego for the 1992 Major League Baseball All-Star Game. Photo courtesy: Steve Wightman.

By Mike Augsdorfer

Hybrid Bermuda (*Cynodon dactylon*) is a dense, deep-rooted grass with a fine to medium leaf texture that is among the most attractive and resilient turfs used for athletic fields. Highly tolerant to heat and drought, hybrid Bermuda is a popular choice for fields in the Southwestern desert, where summer temperatures can exceed 100 degrees Fahrenheit. While hybrid Bermudagrass may be watered daily on golf courses, frequent irrigation is not necessary for athletic fields. Most hybrid Bermuda surfaces simply require deep irrigation once or twice per week during the summer.

Most commercial-use hybrid Bermudagrass is essentially a cross between common Bermuda and a different species. These hybrids are sterile, so sod, sprigs or plugs must be used for propagation. Hybrid Bermuda withstands wear better than many other turfgrasses and recovers quickly from injury. During the growing season — usually from early spring through the middle of autumn — a hybrid Bermuda field should be cut at least once a week to a height of 1/2- to 3/4-inches.

While it is highly tolerant to hot and dry conditions, hybrid Bermudagrass is a high-maintenance turfgrass that requires careful management. Most varieties of hybrid Bermuda are vulnerable to cold temperatures and do not grow well in shaded areas. However, hybrid Bermuda turf can be used as a base and overseeded in winter with a cool-season



grass. With careful management, including a fall fertilization program and removal of thatch before overseeding, hybrid Bermuda will green up quickly in the spring.

Bermudagrass was originally introduced in the U.S. in the late 1800s. In the 1950s several new varieties were introduced, including Tifgreen and Tifway, and further experimentation resulted in the introduction of cold-tolerant varieties such as Midiron and Midway in the 1970s.

With proper maintenance, weeds and diseases are generally not a problem with hybrid Bermuda turf. Dollar spot, *Helminthosporium* leaf and crown rot are diseases that are most troublesome for hybrid Bermudagrass. Also, over-application of nitrogen fertilizers can contribute to the development of spring dead spot on new hybrid Bermuda turf. Spring and autumn applications are best if herbicides are necessary, but prevention, in the form of good maintenance, is the best defense against disease.

Insect damage is most common during warmer months.

Grubs, cutworms, billbugs and sod webworms are among the pests frequently found in hybrid Bermudagrass. These insects may gather near the soil surface or on the roots just below the surface where they feed.

Three Varieties

Tifgreen, Tifway and Santa Ana are three varieties of hybrid Bermudagrass that are most popular in the western U.S. Tifgreen and Tifway were developed by researchers in Tifton, GA, while Santa Ana was developed specifically for sports turf usage by researchers at the University of California, Riverside, around 1968.

Stan Spaulding was involved in the early development of the Santa Ana strain as a research associate for Dr. Victor V. Youngner at UCLA. "We were looking for winter color retention in Bermudagrass, since common Bermuda is dormant in winter," Spaulding explains. Dr. Youngner developed the new hybrid by crossing parent grasses from South Africa and Iran. "We introduced it in 1967, and the sod growers didn't want it," Spaulding relates. "They already had the Tifgreen and Tifway, and it's a big investment to plant a couple of hundred acres."

Undaunted by the initial rejection, Youngner and Spaulding continued their work until the demand for the Santa Ana grass increased. One of the advantages of Santa Ana, says Spaulding, is its shorter dormancy period — in fact, Spaulding prefers to say it is just resting, not dormant. "It has a very dark green color in the normal growing period, where the Tifton series are lighter green," he adds.

Jeff Cole, company spokesman for West Coast Turf in Palm Desert, CA, says Tifway is the most widely used hybrid Bermudagrass. "It's real popular on golf course fairways and stadiums as well," Cole notes. "You'll find it from Joe Robbie Stadium in Miami to Jack Murphy Stadium in San Diego." In the late 1980s Tifway II was developed and touted as an improved version of the original Tifway 419.

Cole reports that West Coast Turf has had very few problems with hybrid Bermuda turf. "The Bermudas are one of the most disease-resistant, pest-resistant grasses available," he explains.

"Seldom do we have any problems with disease or insects in our production field."

Tifgreen is the oldest of the Bermudagrass cultivars. "Tifgreen has been around since the late '50s and has been the standard bearer for many years," says John Rector of Pacific Sod in Camarillo, CA.

Rector likes Tifgreen as an athletic surface because it is the easiest to maintain. "Of the three, Tifgreen is the most manageable. It's not as aggressive or as

heavy a thatch producer," he relates.

Phil Larkis, operations manager at Anaheim Stadium, home of the California Angels, has worked with several different types of hybrid Bermudagrass on the field. "Last year we had Tif II," he relates. This year we went with Santa Ana for mostly cosmetic reasons — just personal preference of the general manager and the ballclub."

Larkis says the Tifway II offers some advantages over other hybrid Bermudas.

continued on page 18

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Turf of the Month

continued from page 17

"You have quicker growth and recuperation with Tif II," he admits. "We had it down about four or five days, and the root system had already grown in 3/4 of an inch."

The main concern with hybrid Bermuda on baseball fields, says Larkis, is thatching. "Some grasses will thatch more than others," he notes. "Baseball is concerned with that because if the ball is hit into a thatched area, it might affect the path of the ball."

Steve Wightman, turf manager at Jack Murphy Stadium in San Diego, has also used several different varieties of hybrid Bermuda. "Santa Ana was in the stadium when I got here in 1988," he relates. "I changed it in March 1992 to Tifgreen 328." Jack Murphy Stadium hosted the Major League Baseball All-Star game in July 1992, and Tifgreen 328 was the field surface for that game. "It's a little more of a prostrate grower and a little more accommodating to baseball," admits Wightman. Jack Murphy Stadium is currently sodded with Tifway 419.

"That was changed in March 1994," explains Wightman. "I knew it would be a good football grass, and it turned out to be as good as the 328 for baseball."

The Santa Ana, says Wightman, was the hardest to maintain. "When I first got here, one of the problems was the 'snaking' of the baseball. Wightman relates. He attributed the problem to the thatchy nature of the Santa Ana variety and to the fact that Santa Ana has a stiffer stem than the other varieties. Wightman resods the entire field every March, just before the start of the baseball season.

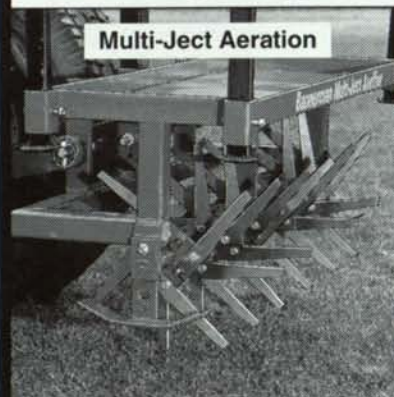
Steve Quinn of PC Sports in Adel, GA, finds that the trends in the Southeast are similar to those in the West. "For athletic fields it's usually Tifway 419 or occasionally Tifway II," he says. Quinn works in cooperation with Jaimie Allen at Pike Creek Turf Farms Inc. to supply high-quality turf to a number of teams in the Southeast, including the Jacksonville Jaguars, the Atlanta Braves and Florida State University. According to Quinn, turf managers report few problems with hybrid Bermudagrass in the Southeast except for occasional infestations of mole

crickets in Florida. "Mole crickets are big down here in sand-based areas," he explains. "They eat away at the rootzone. You end up having to bait them to the surface." Once the mole crickets reach the surface, chemical controls can be used to eradicate them.

Ed Mangan, field director for Atlanta Braves, uses Tifway 419 turf at Atlanta Fulton County Stadium. Getting the turf through the winter is his main concern. "I'd like my summers to be a little bit longer," he quips, "but we can't do much about the weather." Although the field had some winterkill a few years ago, Mangan says major turf problems are rare. "Unless we have a hard winter, we should be able to bring it through," he notes.

Despite a reputation as a high-maintenance turf, hybrid Bermuda is chosen again and again by turf managers for professional sports teams and major colleges. Hybrid Bermudagrass provides the uniform surface that is essential for top-level athletics, and it is durable enough to handle the intense pounding that is common to professional-level fields. □

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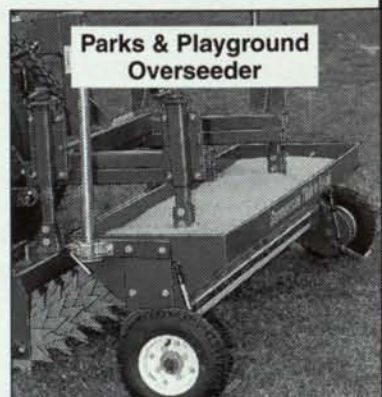


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EXPLORING EQUIPMENT

Utility Vehicles for Turfgrass Management



The Jacobsen SV-2322 (left) and the Toro Workman (right) can be equipped for a variety of sports turf applications.



By Daniel Ingham

Utility vehicles have, in the past few years, progressed well beyond their golf cart roots and beginnings. They serve as an all-purpose tool that many turf managers could not do without. As they become more sophisticated and more options are made available, they will be seen as a viable maintenance tool rather than just a way of transporting materials around a facility.

Utility vehicles can be outfitted as sprayers, topdressers, aerators, seeders, mowers, turf groomers, sweepers, dethatchers and more. This versatility makes them very attractive to turf managers, and in most cases they do not take up any more room than a large riding mower.

To further enhance the versatility of this class of vehicle, some manufacturers, such as Jacobsen and Toro, have added some twists that may interest turf managers. These companies are now equipping utility vehicles to operate hydraulic and pneumatic tools.

One of the main advantages of using hydraulic or pneumatic tools is the reduced maintenance. More than one tool may be operated by a single power source, reducing the number of engines that need to be serviced on a regular basis.

The hydraulic tool will also last as long or longer than most other power tools since there is no engine to wear out. Most maintenance involves replacing seals or sharpening blades.

The disadvantage to these tools is mobility. Because they generally require a power source that is too large to carry (at least in the case of pneumatic tools),

they are not always practical for turf managers, especially if maintenance is required at more than one site. Utility vehicles that can operate these systems offer an alternative that can make the use of hydraulic and pneumatic tools more practical for turf managers.

Hydraulic Systems

Jacobsen/Textron's entry into this arena is a systems approach to hydraulics. The SV-2322 from Jacobsen utilizes a dual-circuit hydraulic system with a live-hydraulic power takeoff (PTO) that enables it to power both attachments as well as hydraulic hand tools.

The SV-2322 allows hydraulic hand tools to be used through a quick disconnect on the side of the vehicle. The company makes tool accessories for the system, including a pistol-grip hand chainsaw, pole pruner and a line-clearing pruner. A 30-foot hose reel is also available. The vehicle is equipped with a storage rack for all necessary tools.

By using hydraulics, this system is integrated with the hydrostatic drive and PTO systems of the vehicle itself. The vehicle's engine is the power source and will run your tools with few of the problems and hassles of an independent hydraulic power unit. Normal vehicle maintenance takes the place of maintaining a separate power source as well.

Hydraulics are much quieter than pneumatic tools that require a com-

pressor, and using a utility-vehicle engine gains the noise advantage of a muffled four-stroke engine. However, a hydraulic system will begin to leak over time, and hydraulic fluid is not good for turf. Hoses must be kept clean of fluid. Hydraulic fluid dripping from a hose or a connection can kill grass and leave unsightly brown spots. Care must be taken to ensure that leaks do not develop and that those that do develop are quickly repaired.

Pneumatic Systems

Toro's Workman 3000 Series utility vehicles enable the use of either pneumatic or electric power tools. To use electric tools, the Workman comes equipped with a built-in 120-volt, 35-amp, 4200-watt generator that can power everything from circular saws to heavy-duty electrical equipment such as arc welders. The Workman can be fitted with an integrated compressor unit and a lift platform in place of a regular bed. If a dump bed is desired, the Workman has a three-point hitch assembly that enables an engine/compressor unit to be carried piggyback. Both compressor configurations allow the use of a full range of pneumatic tools. This combination of generator, compressor and lift make the Workman a versatile tool for turf managers.

The advantage that a pneumatic system has over a hydraulic one is the lack of hydraulic fluid. There is no danger of leaking fluid to damage turf if maintenance of the system is neglected. The disadvantage is noise. Unfortunately, compressors are noisier than hydraulic units. Today's compressors, however, are quieter than their predecessors and require less maintenance than a hydraulic system.

This new generation of utility vehicles can offer significant flexibility in turf maintenance applications. Turf managers who look into the options these systems provide may find something they were previously missing. □

Photos and technical information provided by Jacobsen/Textron and Toro.

SPRING TRAINING MANAGERS TALK:

FIELD RAKES



Baseball is big in Arizona. Not only during spring training, but during the rest of the year as well.

"It's like a 340-day homestand," says Clay Wood, grounds manager for the Oakland Athletics at Phoenix Municipal Stadium. "Between spring training, extended spring training, instructional league, rookie league, mini-camps, and local play our fields are in constant use."

The John Deere 1200 Bunker and Field Rake helps all these Arizona managers stay on top of this grueling 12-month schedule.

"It's versatile and has tremendous power," says Wood. "We use it for scarifying, blading, dragging, and pulling a heavy 2-board leveling attachment. It's the only machine we've had that has the power to handle it all."

"The 1200 does a great job and saves us time," adds Sal Leyvas of Tempe Diablo Stadium. "The guys love the blade, and also the



way the machine allows them to use more than one implement at a time. They do the warning one pass

tracks in now, where it used to take two."

"Our fields are in better shape because of the 1200," says Harold Gentry from the city of Mesa's Hohokam Stadium. "The steering, traction, and speed allow us to do more work in less time. Plus, my mechanic likes it because it never breaks down."

"It's become a safety issue with us," concludes Kris Kircher from the City of Chandler Sports Complex. "We have a better surface with the 1200 and that means a safer surface for the players."

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